CITY OF SANTA CRUZ

Water Department

Water Commission Agenda
Regular Meeting
7:00 p.m. – April 4, 2016
Council Chambers
809 Center Street, Santa Cruz

Agenda
Updated April 4, 2016

Call to Order

Roll Call

Presentation *Organized groups may make presentations to the Water Commission. Presentations that require more than three minutes should be scheduled in advance with Water Department staff.*

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 1-100)

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 info) (Pages 1-2)
2. Approve the March 7, 2016 Water Commission Minutes ☆ (accept info) (Pages 3-10)

The language in Consent Agenda Item 3 was updated as follows**:**

3. Municipal Code 16.04 Update ☆ (~~accept recommendation~~ approve recommendation to accept the work of the subcommittee, recommend that City Council introduce for publication an ordinance amending SCMC chapter 16, and discharge the subcommittee) (Pages 11-74)

The language in Consent Agenda Item 4 was updated as follows:

4. Recommendations on Water Conservation Master Plan ☆ (~~accept recommendation~~ approve recommended Water Conservation Master Plan proposal and recommend the City Council approve program described in the Technical Memorandum and direct staff to proceed with production of the final report) (Pages 75-100)

Items Removed from the Consent Agenda

General Business (Pages 101-152)

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

5. Presentation by UCSC Professor Andy Fisher on Managed Aquifer Recharge☆(Pages 101-102)

Recommendation: Receive and discuss information provided by Dr. Andrew Fisher related to Managed Aquifer Recharge.

6. 2016 Water Supply Outlook - Include Recommendations☆(Pages 103-112)

Recommendation: For information and discussion by the Water Commission

7. Recommendations FY 2017 Operating Budget and FY 2017 – 2020 Capital Improvement Program☆(Pages 113-146)

Recommendation: Receive information regarding the recommended FY2017 Operating Budget and FY 2017 – 2019 CIP and recommend approval of the FY2017 Operating Budget and FY 2017 – 2019 CIP to the City Council.

8. Westside Loch Lomond Recreation ☆(Pages 147-148)

Recommendation: Discontinue pursuing evaluation of the potential for increased recreation on the Westside of the City's land holdings at Loch Lomond.

9. Water Commission Role in Administration and Management of the Department's Council Authorized Annual Budget and CIP ☆(Pages 149-152)

Recommendation: Discuss and adopt the proposed parameters describing the Water Commission role in matters related to the Water Department's financial planning, administration, and management.

Subcommittee/Advisory Body Oral Reports

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

- Update on Urban Water Management Plan (see status table on pages 153-159)

Adjournment The next meeting of the Water Commission is tentatively scheduled for May 2, 2016 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 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 arrangement can be made. The Cal-Relay system number: 1-800-735-2922.

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WATER COMMISSION
INFORMATION REPORT

DATE: 03/31/16

AGENDA OF: April 4, 2016

TO: Water Commission

FROM: Rosemary Menard
Water Director

SUBJECT: City Council Items Affecting Water

City Council of March 8, 2016:

Director of Water R. Menard presented Jeffrey Jones, Water Treatment Operator IV, with a Service Pin honoring his 30 years with the City of Santa Cruz.

Final Joint Powers Agreement for Santa Cruz Mid-County Groundwater Management Issues (WT)
Motion carried to approve a Joint Powers Agreement with the Soquel Creek and Central Water Districts and the County of Santa Cruz for the creation of the Santa Cruz Mid-County Groundwater Management Agency, and to authorize the City Manager to sign the Agreement in a form acceptable to the City Attorney on behalf of the City of Santa Cruz.

City Council of March 22, 2016:

North Coast System Rehabilitation Project-Phase 3 – Change Order 1 and Notice of Completion (WT)
Motion carried to authorize the Water Director to: 1) execute Change Order 1 with McGuire and Hester Inc. (Oakland, CA); and, 2) accept the work of McGuire and Hester Inc. as complete per the plans and specifications and authorize the filing of a Notice of Completion for construction services related to the Lombardi Gulch Emergency Pipeline Replacement Project.

North Coast System Rehabilitation Project-Phase 3 –Notice of Completion (WT)
Motion carried to accept the work of HDD Company Inc. (Cameron Park, CA) as complete per the plans and specifications and authorize the filing of a Notice of Completion for construction services related to the Lombardi Gulch Emergency Pipeline Replacement Project.

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Water Department

Water Commission
7:00 p.m. –March 7, 2016
Council Chambers
809 Center Street, Santa Cruz

Minutes of a Water Commission Meeting

Call to Order: Chair W. Wadlow called the meeting to order at 7:04 p.m. in the City Council Chambers.

Roll Call
Present: D. Baskin, D. Engfer, D. Schwarm, D. Stearns, W. Wadlow, and L. Wilshusen
Absent: A. Schiffrin (with notification)
Staff: R. Menard, Water Director; H. Luckenbach, Deputy Director/Engineering Manager; T. Goddard, Administrative Services Manager; A. Poncato, Administrative Assistant III

Others: There were approximately 13 members of the public.

Presentation: Three presentations were made by B. Malone, J. Paul and S. McGilvary. All written materials will be included in the official file.

Statement of Disqualification: There were no statements of disqualifications.

Oral Communications: There were no oral communications.

Announcements: The Chair presented Mr. Baskin with a gift acknowledging his service as Water Commission Chair for the past two years.

Consent Agenda
1. City Council Actions Affecting Water
2. Approve the February 1, 2016, Water Commission Minutes
3. Financial Status of the Utility (mid-year update & BA)

Commissioner Baskin moved the consent agenda. Commissioner Wilshusen seconded.
VOICE VOTE: MOTION CARRIED
AYES: All.
NOES: None
ABSENT: A. Schiffrin

Items Removed from the Consent Agenda

Item 3: Financial Status of the Utility (mid-year update & BA)

Ms. Menard indicated that the Department's Fiscal Officer was unavailable to present this item this evening due to illness and recommended this time be pulled. She also recommended that prior to discussing this item in the future, the Commission and staff discuss the policy purpose associated with this kind of item so that everyone can have the same expectations about the Water Commission's role in overseeing the Water Department's ongoing finances.

Commissioner Wilshusen moved that this item be continued to the April 4, 2016, Water Commission meeting. Commissioner Baskin seconded.
VOICE VOTE: MOTION CARRIED
AYES: All.
NOES: None
ABSENT: A. Schiffrin

General Business

1. **<u>WSAC Work Plan Update</u>**
   Ms. Menard, Ms. Luckenbach, and Mr. Goddard presented materials updating the Water Commission on the Department's work implementing the Water Supply Augmentation Strategy (WSAS) and responded to Commission questions. Topics covered included:
   - The scope of work for Phase 1 of the Aquifer Storage and Recovery Study (ASR);
   - The scope of work for the Recycled Water Study;
   - An overview of the CIP projects that relate to the WSAS;
   - An updated technical memo on recommended Water Conservation Master Plan; and
   - An overview of work completed and planned for working with regional partners on in lieu water transfers and exchanges.

<u>Commission Questions</u>:
In terms of identifying sites for potential new ASR wells, are we limited to geographical areas that we share with either Scotts Valley or Soquel Creek Water Districts, or can we move outside our area to find additional water sources?

- Yes, we can look elsewhere although land use/jurisdictional issues may come into play.

Are we only using existing wells for the pilot testing? Do we have agreements with both Scotts Valley and/or Soquel Creek Water Districts on siting potential ASR pilot testing wells?

- We are only using existing wells for pilot testing, and we're working with regional partners to look at potential sites that may work in their areas.
- There is no need to have a formal [agreement or] contract at this time. It will be determined what steps to take once we find wells in our ideal locations with the right conditions. If any party involved has to make a financial or policy commitment, it has to be brought to their respective governing board for action.

Is there a concern that the timeline from the WSAC final report and an actual timeline for ASR development could have major changes related to potential challenges of siting test wells?

- Because we need to find sites that fit the hydrogeological characteristics that are required, we've made a decision to start the siting work early in the study process. But yes, siting test wells may be difficult but it's too early to tell.

Are you using the information we already have for this siting study?

- Yes, we are using data available in the GIS overlay on land use and development. We did something very similar when we sited Beltz 12. We plan to refresh that data and add to the area(s) we are looking at.

The Recycled Water Study includes a provision for having Stratus Consulting do a simplified "Triple Bottom Line" analysis. Which Stratus employee will be assigned to this project?

- Bob Raucher will be assigned to this project.
- Staff noted for those not familiar with this technique that a Triple Bottom Line analysis compares the social, environmental and economic costs of alternatives. The analysis does not drive decision making, rather it informs decision making.

How is the funding for the recycled water study split with our Public Works Department?

- We are receiving $75,000 from a State, $37,500 from Public Works, and we are covering the rest of the fees.

Soquel Creek Water District and Scotts Valley Water District have already started research on recycled water programs?

- Yes, and the City's Public Works Department is exploring options for a small scale plant to produce tertiary treated wastewater at the wastewater plant site that might be used for various non-potable uses.
- In working with regional partners on various water supply augmentation initiatives, City staff have been clear that the City cannot become involved in any regional partnerships focused on recycled water unless and until it has been demonstrated that winter flow harvesting strategies won't succeed in completely meeting the City's needs for drought storage.

Will the Water Department seek project management assistance for these various studies? If so, how would that work with the timing?

- Ms. Luckenbach has assigned staff to be project managers on these upcoming projects. We will request to add two new positions to next year's budget and we are currently accepting applications for two specialized positions in engineering that concentrate on river water quality and collecting the data for these projects.
- In addition, the plan is to create technical working groups (TWG) for both the ASR and the recycled water study. These groups will provide scientific and technical oversight of the work to help assure that nothing important is missed in the analyses. The process of developing these working groups is just getting going, and recommendations on TWG roles, membership and work plans will be brought to the Commission for review and discussion later in the spring.

What is the purpose of the GHWTP Tank Evaluation & Replacement project listed on the Water Department Proposed Capital Improvement Program, Fiscal Years 2017-2021 slide?

- The Water Department finalized a water improvement study roughly 10 years ago. After the study was complete, the Department prioritized projects based on water quality and demand at the time. The most vital project identified was replacing the filters at the Graham Hill Water Treatment Plant (GHWTP); which is currently in progress and should be completed this summer. The second most important project was to replace or repair the concrete tanks, which included bringing the tanks up to seismic code. All five of our tanks are originals dating back to the 1960's. A recently completed evaluation of all the tanks indicated that three of the five tanks needed to be replaced, and while we're planning this work we're also looking at the opportunities to improve our ability to deal with the additional solids that might be produced from treating higher turbidity water.

Why is Advanced Metering Infrastructure (AMI) not being implemented sooner?

- It has to compete for funding against a lot of other projects, such as concrete tanks. Since the technology is continuing to evolve, and we have other pressing back-bone infrastructure rehabilitation projects that need our priority attention, this investment was delayed.

What is happening with the short term agreement to sell water to Soquel Creek this winter if we had water to sell?

- Soquel's water quality consultant recommended that they complete a flushing of their system prior to taking our water. They are waiting to receive delivery of special equipment they need to complete the work, and when they do receive it, it will take them 2 months to complete it. Unfortunately, this means that a transfer cannot take place this year.

If we share water with the other Water Districts, will they have to complete a system flush prior to receiving our water?

- We don't know the answer to this question at the moment. Each system is different and, particularly with the situation that has occurred in Flint, Michigan, it makes sense to evaluate the issues prior to proceeding. .

Please explain how some of the terms and conditions in the City's agreement with Soquel Creek Water District for the sale of water could be creating an unnecessary constraint on when or how much water could be sold to the District?

- The agreement lists several terms and conditions that must be in place prior to the City selling water to Soquel Creek. One in particular is a requirement that Loch Lomond be full or that there be a 90% chance that it will be full by April 1st. A concern has been raised that this constraint is too limiting because the City could be pumping up to Loch Lomond (meaning the Loch wouldn't be full) and there would still be water in the system available that would simply go out to sea if it weren't sold to Soquel.

  Staff recognizes this issue (and noted that the agreement says that Loch Lomond doesn't have to be full, but have a reasonable chance of filling) and provided a perspective that this first agreement was intended to be a "not too scary for anyone" baby step. The

category of "anyone" in the above sentence includes Santa Cruz rate-payers who would bear the down-side risk of selling water that they might need later in the season to another district; the fishery agencies, who always have a concern that somehow fish will take a hit whenever you move from the status quo; and water rights regulators who worry whenever you want to do anything.

Hence, the terms and conditions were purposefully written in a fairly conservative, not too "out there" way to allow us to be able to move forward and test this idea sooner rather than later.

Where will the water we might transfer to Soquel Creek in the future come from and how much are we planning on charging them for this water?

- The water will come from the City's treatment plant and, in this first phase, will be limited to an amount no more than the average day/month yield of flow from the City's Pre-1914 water rights on Liddell Springs and Majors Creek. From Graham Hill Water Treatment Plant the water will go to the City's distribution system and sent to the intertie between the two systems at the District's O'Neill Ranch Well.

  Only water from the City's Pre-1914 water rights (those related to the North Coast sources) can be used for a potential water transfer to Soquel at this time because the place of use included in the City's various San Lorenzo River rights does not at present include the area served by the Soquel Creek Water District.

  Ms. Menard reminded Commission members that the City's Water Rights Conformance Project, which has been on hold due to the lack of resolution of the City's fishery issues, would provide for:
  1. direct diversion from Newell Creek,
  2. direct diversion from the San Lorenzo River at Felton,
  3. A time extension for the City's Felton permits that would give the City the opportunity to develop the infrastructure to fully utilize these water rights and
  4. in addition, because of the Place of Use constraint, Ms. Menard indicated that she would be pursuing to expand the Water Rights Conformance Project scope to address this constraint, and enable planning for more conjunctive use of surface and groundwater resources in our area.

  The price for water transferred will be $1,000 per million gallons (about $325 per acre foot)

At the conclusion of the WSAS work plan update, Commissioners discussed whether and how to integrate input received from community members such as that received during the presentation section earlier in the meeting. In thinking about what to do with this input, the Commission talked about the fact that some of the comments received, for example those related to how to structure water rates, have been or are being worked on by the City's rate consultant. They recognized that while Mr. Malone's presentation was quite detailed and used a specific approach to calculating rates, the underlying policy comment was that he favors rate structures that minimize fixed costs and maximize volume rates because he views that approach as more fair.

Similarly, the comments of Mr. McGilvray and Mr. Paul covered topics that have been and continue to be worked on by Department staff as they implement the WSAS and the Department's CIP.

In their discussion, Commissioners recognized the importance of the Commission's role in providing a public forum for receiving information from the public as well as a venue for discussing the Department's work and receiving input from the public about this work. The challenge for the Commission and the Department is to create opportunities for dialogue between the public and community interests while still diligently pursuing the Council's direction, especially related to the recommendations of the Water Supply Advisory Committee.
Based on this discussion, the Commission concluded that the most appropriate next steps would be to have Department staff receive this kind of input and take it into account as it works through its approved work plan. As products anticipated to be developed in the work plan are prepared, it will make sense to more specifically address the kinds of suggestions received in presentations such as those as well as any others received over time.

Commissioner Requests for Follow Up:

- Provide information similar to the ASR and Recycled Water information presented this evening on ISR/in-lieu projects, tasks, timelines, etc.
- Periodic review of our conservation programs to reflect changes in technology and codes so maybe we will not need to incentivize some of our projects. A basic update cycle for water conservation measures and 5 years appears to be a good time frame.
- Since the incubator project in the Conservation Master Plan is a separate project, can it have its own budget line item and can we add the incubator project to the cost-effectiveness list?

2. Updated Water Commission Work Plan

Ms. Menard provided and described the changes to an updated Water Commission Work Plan and responded to Commission questions.

Commission Questions/Comments

- Suggestions to hold the WSAS quarterly meeting in June, conduct no meetings in July, and host a Water Commission public forum (enrichment session) at the end of August to address regional groundwater sustainability effort in Santa Cruz County. In advance of the session, the proposal is that the City would host a meet and greet reception for elected officials to provide them an opportunity to get to know each other.
- Notify Ms. Menard of any items that should be added, removed or moved to a different date.
- Add for April: Continuation of Financial Status of the Utility and recommendations ASR Technical Working Groups.

Subcommittee/Advisory Body Oral Reports

Directors Oral Report No action shall be taken on this item.

- Loch Lomond is at 92% capacity thanks to the 5-6 ft. increase over the weekend.

- Initial water supply outlook will be presented in April.
- The Council study session on the financial planning issues was completed and was a success.

Adjournment Meeting adjourned at 10:19 p.m. The next regular meeting of the Water Commission is scheduled for April 4, 2016, at 7:00 p.m. in the Council Chambers.

Respectfully submitted,

Amy Poncato

Digitally signed by Amy Poncato
DN: cn=Amy Poncato, o=Water Department, ou=Administration, email=aponcato@cityofsantacruz.com, c=US
Date: 2016.04.04 13:15:55 -07'00'

Staff

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WATER COMMISSION
INFORMATION REPORT

DATE: 3/24/16

AGENDA OF: April 4, 2016

TO: Water Commission

FROM: Malissa Kaping, Management Analyst

SUBJECT: Revision to Santa Cruz Municipal Code (SCMC), Chapter 16

RECOMMENDATION: Receive oral report from Municipal Code Subcommittee, accept the work of the subcommittee, recommend that City Council introduce for publication an ordinance amending SCMC chapter 16, and discharge the subcommittee.

BACKGROUND: On October 5, 2015, the Water Commission reviewed an ordinance to revise SCMC Chapter 16 and took action to form a subcommittee of three, D Baskin, W Wadlow, and D Schwarm. The subcommittee met twice and provided significant feedback regarding improved language. The work of the subcommittee included a review from the City Attorney.

FISCAL IMPACT: None.

PROPOSED MOTION: Motion to accept the work of the subcommittee, recommend that City Council introduce for publication an ordinance amending SCMC chapter 16, and discharge the subcommittee.

ATTACHMENTS:
Ordinance for Revision to SCMC Chapter 16
Comparison table between existing and proposed language
Proposed Table of Content for Chapter 16

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF SANTA CRUZ
AMENDING CHAPTER 16.04 PERTAINING TO WATER SERVICES,
AMENDING SECTION 16.13.010 PERTAINING TO UNIFIED UTILITIES BILLING SYSTEM,
AND ADDING CHAPTERS 16.00 FOR GENERAL WATER SERVICE DEFINITIONS, 16.09
PERTAINING TO WATER SERVICE IMPROVEMENTS, 16.11 PERTAINING TO WATER SERVICE
ACCOUNTS, 16.14 PERTAINING TO SYSTEM DEVELOPMENT CHARGES, AND 16.15
PERTAINING TO WATER USE

BE IT ORDAINED by the City Council of the City of Santa Cruz as follows:

SECTION 1: Chapter 16.00 of the Santa Cruz Municipal Code is hereby enacted to read as follows:

"CHAPTER 16.00 GENERAL WATER SERVICES DEFINITIONS

16.00.010	**Definitions of Terms**
16.00.020	**Account Holder**
16.00.030	**Applicant**
16.00.040	**City**
16.00.050	**Customer**
16.00.060	**Department or Water Department**
16.00.070	**Director or Water Director**
16.00.080	**Dwelling Unit**
16.00.090	**Fire Flow**
16.00.100	**Person**
16.00.110	**Property**
16.00.120	**Service Connection**
16.00.130	**Water**
16.00.140	**Water Main or Main**
16.00.150	**Water Service or Service**

16.00.010 DEFINITIONS OF TERMS

Unless the context requires otherwise, the following definitions shall be used in the interpretation of all chapters within Title 16 pertaining to water services with the exception of chapters 16.08, 16.12, 16.18, 16.19, and 16.20 pertaining to sewer, storm water, and municipal solar.

16.00.020 ACCOUNT HOLDER

“Account holder” means the person, business, or organization as designated and verified on the billing records of the City Water Department that is financially responsible for water used through a water service.

16.00.030 APPLICANT

“Applicant” means individual, business or organization applying for water service.

16.00.040 CITY

“City” refers to the city of Santa Cruz.

16.00.050 CUSTOMER

“Customer” shall refer to any account holder of the city of Santa Cruz water department as well as to any consumer of city water who may not be a city of Santa Cruz water department account customer.

16.00.060 DEPARTMENT OR WATER DEPARTMENT

“Department” or “Water department” refers to the city of Santa Cruz water department or its duly authorized representatives.

16.00.070 DIRECTOR OR WATER DIRECTOR

“Director” or “Water Director” refers to the director of the city of Santa Cruz water department, or his or her designated representative.

16.00.080 DWELLING UNIT

“Dwelling unit” is a building or portion of a building including one or more rooms which is/are designed or used as a residence by one family or housekeeping unit, with facilities for living, sleeping, and eating and food preparation.

16.00.090 FIRE FLOW

“Fire flow” shall mean the volume of water available from a hydrant for fighting a fire. It is calculated as that flow rate, in gallons per minute, available from the hydrant at a minimum residual pressure of twenty pounds per square inch measured at an open flowing hydrant with all other hydrants on the same main closed.

16.00.100 PERSON

“Person” shall mean any individual, firm, partnership, association, corporation, or political entity.

16.00.110 PROPERTY

“Property” means one parcel of real property and the buildings on it.

16.00.120 SERVICE CONNECTION

“Service connection” means the pipe, tubing, fittings, valves, meters and meter boxes which convey water from the water main to a served property.

16.00.130 WATER

“Water” shall mean any water obtained from the water department of the City of Santa Cruz.

16.00.140 WATER MAIN OR MAIN

“Water main” or “main” means water lines in streets and rights of way used for transmission or distribution of water.

16.00.150 WATER SERVICE OR SERVICE

“Water service” or “service” refers to the furnishing of water to a property.”

SECTION 2: Chapter 16.04 of the Santa Cruz Municipal Code is hereby repealed and replaced with a new Chapter 16.04 WATER SERVICES, to read as follows:

“CHAPTER 16.04 WATER SERVICES

16.04.010 CHAPTER DEFINITIONS

Unless the context requires otherwise, the following definitions shall be used in the interpretation of this chapter.

(a) "Irrigation service" means the provision of water for agricultural, horticultural or landscape irrigation use only.

(b) "Property owner" means the legal owner of the real estate to which a service connection is made.

(c) "Service Area" means any property within the corporate limits of the City and such areas outside the City limits which have been designated by the City Council and any other property approved for water service from the City's water system.

16.04.020 SERVICE PROVIDED

The City will furnish water service in accordance with these regulations to any property within the City's service area.

The Director shall be responsible for assuring that all water service shall comply with the standards set forth in this chapter wherever water service is provided by the City.

The Director of the City Water Department is authorized to issue such policies and procedures as necessary and appropriate to provide water services throughout the water service area in a safe, efficient and effective manner.

16.04.030 TYPES OF SERVICE

(a) Regular Water Service is provided to a property through installed piping from a City water main through water meter(s) to the property's water facilities. Such service shall be established and charged for through an active customer account.

(b) Bulk Water Service is provided on an occasional or intermittent basis through bulk water stations. Such service shall be authorized and charged for through permits issued by the Water Department.

(c) Hydrant Meter Service may only be available on a short term basis for non-potable purposes only from a public fire hydrant through a portable meter issued by the Water Department. Such service shall be authorized and charged for by the Water Department.

(d) Public Fire Protection Service is water service provided through fire hydrants to organized fire protection agencies under agreements entered into between such agency and the City. Fire hydrants are for use by organized fire protection agencies and by the Water Department.

(e) Private Fire Protection Service is a separate water service provided to property for the specific purpose of fire protection, as permitted by the Water Department and the fire protection agency within whose jurisdiction the property falls.

16.04.040 SYSTEM SUPPLY AND PRESSURE

(a) Supply. The Water Department will exercise reasonable diligence and care to deliver a continuous and sufficient supply of water to the customer at sufficient pressure, and to avoid shortages or interruptions in delivery.

(b) Service Interruptions. The City reserves the right to interrupt service while making improvements and repairs required in the operation of the water system. Whenever it is necessary to schedule an interruption to its service, the Department will endeavor to notify all account holders to be affected by the interruption, stating the approximate time and anticipated duration of the interruption. The City shall not be liable for damage which may result from an interruption in service.

(c) Pressure. It is the applicant's responsibility to obtain information from the Department concerning the water pressures that may be expected in their area and to provide and maintain any plumbing and protective devices necessary to use the available water at whatever operating pressure is available in the system. Applicants and customers shall accept such conditions of pressure and service as are provided by the City's distribution system at the location of the proposed service connection, and hold the City harmless for damage arising out of low, high or fluctuating pressure conditions.

16.04.050 SERVICE CONNECTION REQUIREMENTS

(a) Building Permit. In order to be eligible to receive a Water Service Installation Permit, an Applicant must possess an approved building permit for the parcel on which the service is requested. The application must include evidence of the building permit. If a new service connection is requested for irrigation services, irrigation and landscape plans are required and shall meet water conservation requirements.

(b) Particular Property. Applications for new service connections must be for a particular and identified property. Service is not assignable to other property, nor transferable between properties.

(c) Principal Frontage. A principal part of the property to be served must front on an available water main. In determining whether the portion of an applicant's property lying directly along the main constitutes principal frontage, the director's decision shall be considered final.

(d) Elevation. New service connections will not be considered for properties where meter(s) will be located at an elevation of less than one hundred (100) feet below the overflow level of the reservoir supplying water to the main from which the connection will be made.

(e) Minimum Standards. Water connection permits may be granted only if the Water Department determines that the property can be connected to a water main of adequate size to provide sufficient pressure and flow to meet the applicant's needs without directly or indirectly causing service to any existing account holder to fall below the following minimum service standards:

(1) Water pressure must not fall below thirty-five pounds per square inch (35 p.s.i.) during peak hour demand for the City's system.

(2) Minimum flow at anticipated peak hour demand must be sufficient for safe, dependable supply of all existing domestic, commercial and industrial users.

(3) Fire flow requirements as determined by the fire protection district in which the property is located must be met.

(f) Multiple Units. Service to multiple residential dwelling units or mixed-use commercial units will generally be provided through separately metered connections. Use of a master meter is prohibited when each unit can be plumbed independently and sold separately. However, when the size and/or shape of the property create practical difficulties for (or severely limit) such a development, the Director may approve the use of a master meter to serve all units, in accordance with Department policies and procedures.

(g) One Parcel. Not more than one parcel of real property shall be served by a single service connection. The Director may allow for the continuation of a cross-parcel service in certain limited circumstances in accordance with Department policies and procedures.

(h) Private Fire Protection.

a. There shall be no connections between a fire protection system and any other water distribution system on the property. There shall be no water used through the fire protection service except to extinguish fires or for testing and maintaining the fire service and appurtenances. Domestic service to the property may be discontinued for violation of the regulations set forth in this section.

b. The City shall not be responsible for the design or adequacy of any private fire protection system.

(i) Authority. The Director retains final authority to determine the size, number, configuration, and location of all service connections.

16.04.060 SERVICE CONNECTION INSTALLATION

The installation of service connections shall be at the applicant's expense and shall conform to standard specifications, requirements, and the payment of applicable fees published by the City. The Director

shall establish criteria for the issuance of permits and acceptance of work by the City upon completion. The Department may charge fees for issuance of a permit as established by resolution of the City Council.

(a) Size and Number. Service connections will generally be installed in the size and number requested by the Applicant where such requests are determined by the Department to be reasonable for effective and efficient service of the parcel in question and the surrounding service area.

(b) Location. Service connections will be installed along principal frontage as near as possible to the location requested by the Applicant where such location is readily accessible by rights-of-way capable of accommodating City vehicles and equipment as determined by the Department.

(c) Installers. Service connections may be installed only by duly authorized employees or agents of the Water Department or by a contractor from the Water Department's pre-approved installer list, to whom a Water Service Installation Permit has been issued by the Water Department.

(d) Warranty. Service connections installed pursuant to the water service installation permit shall, upon acceptance of the work, be subject to a contractor-guaranteed warranty. The terms, including the duration of the warranty, shall be established by the Department-issued Service Installation Permit.

(e) Control Valve. The account holder shall provide and maintain control valve(s) on the property side of the service connection for their use, and as required by the Water Department. Customers shall not operate the City owned control valve. Only Department personnel or other authorized representative may operate the City owned control valve.

(f) Customer Owned Plumbing. Privately owned water service facilities shall be equipped with pressure regulating, absorbing, and relief devices as required by California Plumbing Code.

16.04.070 SERVICE CONNECTION OWNERSHIP AND MAINTENANCE

(a) City Owned Water Service Facilities. All service connection facilities (except fire services) located between the meter and the water main , including the meter, meter box, and other pipes and fixtures, whether located on public or private property, are the property of the City. The City is responsible for maintaining, repairing, and replacing such facilities. The property owner shall use reasonable care in the protection of these City-owned water facilities and shall be held responsible for damage to the City's property when such damage is caused by the property owner, account holder, contractor, or customer or from causes originating on the owner's property.

(b) Privately Owned Facilities. All service connection facilities located on the property side of the water meter, including the connection from the meter to said facilities, are owned by the property owner and are the responsibility of the property owner to repair, replace and maintain. Property side water service facilities must be maintained by the property owner in good condition to safely withstand fluctuations in pressure and construction and maintenance activities related to the water service including, but not limited to, meter repair and replacement and service connection renewal.

(c) Fire Service Facility Ownership. All fire service connection facilities located in the public right of way are the property of the City. The City is responsible for maintaining, repairing, and replacing such facilities. The fire service meter and associated electronics and wiring are also the property of the City, regardless of location.

(d) City Access. Representatives of the Water Department shall have access to any City-owned meters, service connections, and other water facilities located on private property for purposes reasonably associated with the furnishing of water service. Such access shall be without notice or interference from the owner or occupant of the property.

Representatives of the Water Department shall have access at reasonable hours (except in emergencies) to property side water facilities such as shut-off valves and exterior hose bibs for purposes reasonably associated with the furnishing of water service. Such access shall be with notice except in the case of emergency.

16.04.080 SERVICE CONNECTION CHANGES

Requests from customers to move or resize meters, service laterals, or service connections must be approved by the Department in accordance with Department policies and procedures.

The Department may require that a customer's existing service connection(s) be relocated and/or resized in accordance with Department policies and procedures to ensure safe, adequate service, and accurate metering corresponding to documented or planned water use.

Fees and charges for relocation and resizing of water services, water meters or service connections shall be as adopted by resolution of City Council.

16.04.090 FIRE HYDRANTS

(a) New Fire Hydrants. Where required by the fire protection agency within whose jurisdiction the property falls, new fire hydrants shall be installed at the applicant's expense and shall conform to standard specifications, requirements, and the payment of applicable fees and charges adopted by resolution of City Council.

(b) Relocation of Existing Fire Hydrants. Requests to relocate an existing fire hydrant must be approved by the appropriate fire protection district, the appropriate public works Department and the Water Department in accordance with Department policies and procedures and may be subject to applicable charges as adopted by resolution of City Council. The relocation of an existing fire hydrant shall be at the expense of the requestor."

SECTION 3: Chapter 16.09 of the Santa Cruz Municipal Code is hereby enacted to read as follows:

"CHAPTER 16.09 WATER SYSTEM IMPROVEMENTS

16.09.010 CHAPTER DEFINITIONS

Unless the context requires otherwise, the following definitions shall be used in the interpretation of this chapter.

(a) "Main replacement" shall mean replacement of an existing water main that has been incorporated into the water distribution system.

(b) "Water System Extension" or "System Extension" means any extension of the physical facilities of the water system, including distribution or transmission mains, booster pumping stations, and distribution storage tanks.

(c) "Zone capacity fee" means the surcharge to be collected at the time of any new service connection, in addition to the standard connection fee, to pay a proportionate share of the cost of a water system extension within a water system extension zone established by the city council.

16.09.020 MAIN REPLACEMENTS AND SYSTEM EXTENSIONS

When an application for service cannot be met from existing water facilities, a main replacement or system extension will be required before service can be provided. In such situations, the following general conditions and standards apply:

(a) In determining whether the applicant's property can be served from existing water facilities, the director's decision shall be considered final.

(b) Water service will not be provided by the extension of a water main where the meter(s) for the property concerned will be located at an elevation of less than one hundred (100) feet below the overflow level of the reservoir supplying such main.

(c) The City will determine sizes, materials, types and locations of all necessary and proposed water facilities.

(d) The City may choose, at its discretion, to require the Applicant to install such facilities under the terms and conditions of an agreement between the Applicant and the City or, alternatively, to construct the facilities in accordance with the City's established process for public works construction, at Applicant's expense.

(e) Water mains will be installed in 20-foot minimum width rights-of-way capable of accommodating City vehicles and equipment.

(f) No water facilities shall be installed until all rights-of way for the installation, operation and maintenance of the facilities are provided to/obtained by the City in a form satisfactory to the Director.

(g) When the installation is completed by the applicant, title to the installation shall be transferred to the City upon acceptance of such installation by the City.

16.09.030 MAIN REPLACEMENTS TO ACCOMMODATE NEW DEVELOPMENT

The City may pay the cost of replacing existing water mains found inadequate to satisfy the minimum standards for service shown in section 16.04.050, subject to Department policies and procedures and annual funding approved by the City Council.

If the City is unable to fund a main replacement, the Applicant may undertake the replacement at his or her own cost, under terms established in a main replacement agreement between the Applicant and the City. The City may reimburse applicants for main replacement construction costs when funds are available, in accordance with Department policies and procedures.

16.09.040 SYSTEM EXTENSION AGREEMENTS

(a) Paid by Applicant. When an application for service requires an extension of an existing water main or construction of other new water facilities, the Applicant shall pay the cost of such installations under terms established in a water system extension agreement between the Applicant and the City in accordance with the terms and conditions of this chapter and Department policies and procedures.

(b) Cost Recovery. The City may provide cost recovery to the water system extension agreement holder at the discretion of the Director, in accordance with Department policies and procedures based on the following provisions:

(1) The Water Department shall establish an extension fee to be charged to all new service connections made to the new water facilities installed under the system extension agreement. Such fee shall be based on the pro rata benefit to be derived by potential users of the new water facilities as estimated by the Department at its sole discretion.

(2) For water system extensions, the City shall charge the established extension fee on all new service connections made to the water system extensions for a period of ten (10) years from the date of the extension agreement, or until the cost of the water system extensions is fully reimbursed, whichever comes first; and shall reimburse all such extension fees collected to the extension agreement holder.

(3) For facility extensions including a tank, pump station, or pressure reducing station, the City shall charge the established extension fee on all new service connections made to the new water facilities for a period of fifteen (15) years from the date of the extension agreement, or until the cost of the facility extension is fully reimbursed, whichever comes first; and shall reimburse all such extension fees collected to the extension agreement holder.

(4) Reimbursement fees shall be calculated based on the cost of water facilities required to meet the minimum service standards defined in section 16.04.040. Should an Applicant desire the installation of larger or more costly water facilities to meet specialized service or fire flow requirements, the cost of those extra facilities shall be borne by the applicant. Should the City desire to install water facilities in excess of those minimum standards, the cost of the extra facilities shall be borne by the Department.

(5) If the installation of some or all of the extended facility is included in the Department's capital improvement plan during the specified period of reimbursement, the City will refund the cost of that section of the facility to the agreement holder at such time as it is budgeted.

16.09.050 SYSTEM EXTENSION ZONES

The City Council may determine that the capacity of the water system should be extended so as to provide the availability of future water service to areas which are either undeveloped or only partially developed. If the Council determines that the construction of the water system extension will have little or no benefit to the existing water system, the Council may establish the limits of a zone within which the capacity provided by the water system extension will permit new or larger service connections.

If such a water system extension zone is established, the Council may, by resolution, impose a zone capacity fee to all service connections within such zone, for the purpose of defraying the cost of the water system extension. The resolution shall define the costs involved, the manner of calculating the zone capacity fee, and method of collecting the zone capacity fee.

Separate funds shall be established for each zone established pursuant to this section. Money in such funds shall be expended solely for water system extensions within the zone from which the fees are collected.

The City may advance money, or may incur indebtedness, for the acquisition and construction of the water system extension within the zone. A reasonable interest cost, or the cost of servicing such indebtedness, may be included as a part of the cost of the water system extension for purposes of determining the zone capacity fee."

SECTION 4: Chapter 16.11 of the Santa Cruz Municipal Code is hereby enacted to read as follows:

"CHAPTER 16.11 WATER SERVICE ACCOUNTS

16.11.010 APPLICATION FOR SERVICE ACCOUNT

(a) Application. Each Applicant desiring to initiate service whether anew or after service has been discontinued by the Department or the customer, or to change an existing water service must make application to the City Water Department on forms provided by the Department, provide required information, pay required fees, and meet the conditions set forth in these municipal codes and in the City standard specifications, Water Department standard specifications or other applicable policies and procedures approved by the City Council or the Director. The application form shall indicate the applicant's willingness and intention to comply with all applicable regulations and policies and to make payment for water services rendered. Applicants for a commercial account inside the City of Santa Cruz must present proof they have obtained a City business license.

(b) Payment for Previous Service. An application for service will not be accepted unless payment in full has been made for all utility services previously rendered to the Applicant by the City, and all taxes, fees or assessments previously rendered to or levied on the Applicant by the City.

(c) Deposits. Before receiving services, applicants with a prior history of late or non-payment to the Water Department shall be required to establish credit by depositing with the Water Department an amount of money equal to the estimated cost of providing utility services, including, but not limited to, an average periodic bill and the expense of providing materials and equipment to initiate service.

(d) Incorrect or withdrawn application. The Applicant is responsible for the expenditures made by the Department as a result of the submission of the application, even if the Applicant incorrectly describes the location where water service is desired or withdraws the application prior to the initiation of water service.

(e) Change of Account Holder Without Application. A person taking possession of property and using water from an active connection without having made application for utility service shall be liable for the services delivered from the date of the last recorded meter reading. If an application for utility service is not made upon notification by the Department, and if bills for service from the date of the last recorded meter reading are not paid promptly upon receipt of notice, the service may be denied or discontinued without further notice.

16.11.020 ACCOUNT CLASSIFICATION

Each water account shall be classified as follows based on the customer's ownership or occupation of the following types of property served by the water department:

(a) Single-Family Residential. Individually metered residential dwelling units, regardless of housing type.

(b) Multiple-Family Residential. Any residential account with more than one residential dwelling unit served by one water meter, regardless of housing type.

(c) Business. Commercial establishments including restaurants, hotel/motel, retail, medical, schools, offices, churches and mixed-use buildings. This category also includes county and state government accounts.

(d) Industry/UCSC. This category is comprised of one primary customer, the University of California, Santa Cruz, and a small number of manufacturing businesses.

(e) Municipal. This category is comprised of city-owned and operated facilities such as city offices, parks, police and fire stations, water and wastewater treatment plants, street medians, and parking lots.

(f) Irrigation. Dedicated water services for landscape irrigation associated with large multiple residential complexes and homeowners associations, or with commercial, industrial, and institutional sites, including schools, churches, and parks.

(g) Golf Irrigation. Accounts serving golf courses in the water service area.

(h) Coast Irrigation. Agricultural accounts receiving untreated water on the north coast.

(i) Miscellaneous. Other uses such as temporary construction accounts, hydrant meters, and bulk water sales.

16.11.030 ACCOUNT NOTICES

(a) Notice to Account Holders. Notices from the Water Department to an Account holder will be given in writing, and delivered in person, electronically, or mailed to the account holder's address. Where conditions warrant and in emergencies, the Water Department may use other means of notification.

(b) Change of Information. It is the responsibility of the Account holder to notify the Department of any change of customer name, address or other contact information.

(c) Notice to Customers. When a notice to an Account holder involves an interruption to service or water quality issue, it is the responsibility of the Account holder to inform customers that may be affected.

(d) Notices from Customers. Notice from the customer to the Water Department may be given by the customer orally or in writing:

(1) at the Water Department's office;
(2) to an employee of the Water Department; or
(3) to an agent duly authorized to receive notices or complaints.

16.11.040 ACCOUNT BILLING

(a) Frequency. The regular billing period will be monthly or bimonthly as established by the Director.

(b) Opening and Closing. Opening and closing bills for less than the normal billing period shall be prorated for all rates, fees and charges.

(c) Date Due. The rates, fees, and charges provided for by this chapter shall be due and payable upon presentation of the bill in accordance with Chapter 16.13. Bills shall be considered delinquent, and penalties shall apply pursuant to Section 16.13.040, after the date for payment set forth in a billing statement.

(d) Equivalent Capacity. Accounts shall be billed in accordance with the equivalent capacity assigned to the account regardless of the number or size of physical meters associated with the account.

(e) Application of Deposit. A deposit shall be applied to the account after the account has been without any late charges for one 12-month period; or returned to the customer upon closure of the account after the closing balance has been paid.

(f) Failure to Receive a Bill. Failure to receive a bill does not relieve a customer of liability for payment.

(g) Account Type. Account type, as defined by 16.11.020, shall be assigned by the Department.

(h) Billing Changes. Changes to the account that effect service charges shall be made at the start of the next billing period. Billing changes to current or previous service periods will be made at the sole discretion of the Director.

16.11.050 METER READING AND TESTING

(a) Reading. Meters will be read as nearly as possible on the same day of each month. When the time between meter reads is less than 27 days or more than 33 days, bills will be prorated according to Department procedures.

(b) Testing. All meters will be tested prior to installation and no meter will be installed which does not meet Department standards. The Water Department shall maintain a procedure for the testing of meter accuracy at the request of the account holder. Fees and charges for meter testing shall be as established by resolution of City Council.

(c) Meter Not Registering. If a meter is found to be under-registering or not registering water use due to a malfunction or other disablement, the charges for service shall be based on the estimated consumption. Such estimates shall be made from previous consumption records for a comparable time period. Should the subsequent reading indicate that the estimate is materially in error, an adjustment shall be made in the subsequent bill.

(d) Meter Cannot be Read. If a meter in working condition cannot be read, the charges for service shall be based on the estimated consumption. Such estimates shall be made from previous consumption records for a comparable time period.

16.11.060 SUSPENSION/DISCONTINUANCE OF SERVICE

(a) Suspension. In addition to service connection determinations described elsewhere in this chapter, water service may be suspended by the Department to any property where any of the following conditions apply:

(1) Apparatus or appliances are in use which may endanger water facilities or public health.

(2) There exists a cross-connection.

(3) The Department determines that conditions at the property could jeopardize the safety and reliability of the water service system.

(4) Plumbing on the property is found defective or leaking.

(5) It is necessary to protect the City against fraud practiced by a customer.

(6) A service bill has not been paid.

a. Prior to such water service shutoff, the customer shall be mailed a final notice informing him or her that the shutoff will be enforced if payment is not made within the time specified in the notice. The final notice shall be given, and the noticed date of shutoff shall be calculated, in accordance with the applicable provisions of Division 5, Chapter 1, Section 10010.1 of the California Public Utilities Code.

(7) Violation of private fire protection regulations set forth in 16.04.050 (h).

(8) Applicable statutes, regulations and/or policies have been violated.

(b) Discontinuance. Account holders desiring to discontinue service should so notify the Water Department at least two business days prior to the desired date of discontinued service. Unless the account is closed or transferred to another responsible party in accordance with Department policies and procedures, the account holder of record shall be liable for charges due or that become due whether or not any water is used. It shall be the account holder's responsibility to obtain confirmation of the disconnection order from the Department.

16.11.070 SERVICE RESTORATION

Where service has been suspended for violation of applicable statutes, regulations, and/or policies or for non-payment of bills, the Water Department will impose a charge for restoration of service and/or to install or remove a meter in accordance with the fee schedule established by resolution of the City Council."

SECTION 5: Section 16.13.010 of the Santa Cruz Municipal Code is hereby repealed and replaced with a new Section 16.13.010 UNIFIED BILLING FOR REFUSE, SEWAGE AND WATER, to read as follows:

"16.13.010 UNIFIED BILLING FOR REFUSE, SEWAGE AND WATER

The city of Santa Cruz shall charge customers for garbage, refuse and trash collection service pursuant to Chapter 6.12 of this code, for water service pursuant to Chapter 16.11 of this code, and for sewage

service pursuant to Chapter 16.12 of this code by use of a unified billing statement, and charges for these services shall be collected as one item."

SECTION 6: Chapter 16.14 of the Santa Cruz Municipal Code is hereby enacted to read as follows:

"CHAPTER 16.14 SYSTEM DEVELOPMENT CHARGES

16.14.010 CHAPTER DEFINITIONS

Unless the context requires otherwise, the following definitions shall be used in the interpretation of this chapter.

(a) "Increased demand" shall mean any change of use on an existing service which requires a service capacity upsize, adds new residential unit(s), changes the number or type of fixtures, or otherwise increases actual or potential demand on the water system, as determined by the Water Department.

16.14.020 SYSTEM INCOME ALLOCATION

The revenues collected from the City water system shall be used solely and exclusively for the operation, maintenance, construction, improvement, extension, enlargement and upkeep of that water system; provided, however, that such revenues shall be first applied to the payment and liquidation of the principal and interest of any bonded indebtedness incurred for the water system, as provided in the resolution for the issuance of such revenue bonds.

16.14.030 SERVICE RATES AND FEES

The rates and fees charged by the City for water services shall be established by resolution of the City Council. The Applicant or Account holder is responsible for payment of such rates and fees.

16.14.040 SYSTEM DEVELOPMENT CHARGES

(a) Purpose. To mitigate the water supply impacts caused by new development in the city of Santa Cruz water service area, certain public water system improvements must be or have been constructed in order to accommodate system expansion. A System Development Charge shall be assessed to pay the proportional share of the costs of new and existing water facilities necessary to meet the demand resulting from new or enlarged water services.

(b) Charges. A System Development Charge is payable upon the issuance of any permit, or similar grant of authority, for any of the following activities: installation of a new service connection, the addition of a new or additional residential dwelling unit onto an existing service, the upsizing of an existing service connection, or any other increased demand on the water system.

The System Development Charge shall be reviewed to determine whether the charge amounts are reasonably related to the impacts created by new or additional demand and whether the listing of system expansion improvements to be financed by system development charge revenues is accurate. Such review shall occur no less than every five years and shall result in a report containing the following:

(1) The specific amount of the charge, including its development methodology;
(2) A list of the specific improvements to be financed by the charge, including the estimated cost of such improvements; and
(3) A description of the correlation between the charge and new development and the benefits from the improvements enabled by the charge.

The System Development Charge shall be as adopted by resolution of the City Council and shall be adjusted annually to keep pace with inflation.

(c) Use of Charge Revenues. System Development Charge revenues shall be placed in a separate and special account and such revenues, along with any interest earnings on that account, shall be used exclusively for the following purposes:

(1) To pay for the city's future construction of system expansion and improvements to be financed by System Development Charge revenues;
(2) To reimburse developers who have installed system development financed water facilities which are larger than needed for the certain development and are subject to the terms of a reimbursement agreement; or
(3) To pay for water conservation programs approved by the city council which have the net effect of increasing the amount of water supply available for allocation to new or additional demand."

SECTION 7: Chapter 16.15 of the Santa Cruz Municipal Code is hereby enacted to read as follows:

"CHAPTER 16.15 WATER USE

16.15.010 CHAPTER DEFINITIONS

Unless the context requires otherwise, the following definitions shall be used in the interpretation of this chapter.

(a) "Backflow protection device" or "device" means an apparatus specifically designed to prevent the occurrence of the flow of water or other substances from the customer's plumbing into the public water system, and which is specifically approved by the Foundation for Cross-Connection

Control and Hydraulic Research at the University of Southern California, or the State of California's Department of Public Health, for that purpose.

(b) "Contamination" means the impairment of the quality of the water in the City's water system through the introduction of any substance into the public water system, including water previously delivered to a customer through the City water system.

(c) "Cross connection" means any unprotected actual or potential connection or structural arrangement between a customer's water system and any other source or system through which it is possible to introduce into any part of the system any used water, or substance other than the intended water with which the system is supplied. Bypass arrangements, jumper connections, removable pipe sections, swivel or change-over devices and other temporary or permanent devices through which this may occur are considered to be cross-connections.

(d) "Unusually large quantity of water" means an amount that is substantially in excess of and in addition to a customer's customary water usage and that occurs on an infrequent basis. Uses that are occasional but customary, such as the filling a swimming pool or a hot tub at a residential account, would not be considered an unusually large quantity of water; however, use of a hydrant meter for a commercial, industrial, or construction project would be considered an unusually large quantity of water.

16.15.020 AUTHORITY TO REGULATE

The City Council is authorized to regulate, by resolution, the use of water within the corporate limits of the City as it deems necessary to conserve the water supply of the City of Santa Cruz and provide, during a water shortage, for limitations on use of the water supply of the City for all purposes. The City Council is empowered to prohibit the use of water for any purposes not directly connected with the preservation of the public health, welfare and safety of the inhabitants of the City of Santa Cruz.

The Director is authorized and directed to provide for limitation and curtailment of usage of water in the service area of the Santa Cruz Water Department outside the corporate limits of the City of Santa Cruz in accordance with a resolution adopted by the City Council.

Resolutions adopted by the City Council establishing water use regulations shall be effective immediately after their publication in a newspaper of general circulation distributed in the City of Santa Cruz.

16.15.030 GENERAL WATER USE

(a) Use on Other Properties. The account holder shall not use or allow the use of any significant quantity of water from his/her connection on any property not specifically included in his or her application for service.

(b) Resale of Water. No water received from the City may be resold without special approval from the Water Department.

(c) Unusually Large Quantities of Water. Account holders shall make arrangements with the Water Department prior to using an unusually large quantity of water. Water Department approval may

be given if delivery of the water through the City's water facilities can be accomplished safely and without inconvenience to other account holders.

(d) Use of Water Outside the Service Area. No water received from the City may be used outside the system's service area without prior approval from the City.

16.15.040 IMPAIRMENT OF WATER SERVICE TO OTHER CUSTOMERS

Where a customer's consumption is intermittent or subject to extreme fluctuations thereby impairing service to other customers, the Water Department may require the customer to provide, at the customer's expense, suitable equipment to reasonably limit fluctuations in use or pressures caused by the customer's use.

16.15.050 CROSS CONNECTION CONTROL AND BACKFLOW PROTECTION

(a) Incorporation of California Title 17. The regulations of the Department of Public Health, Title 17 of the California Code of Regulations, Section 7583 through 7605, as amended from time to time, are hereby adopted, incorporated by reference and made a part hereof, insofar as the same are applicable to the protection of the City water system.

(b) Where Protection is required. In accordance with Department policies and procedures, an approved backflow protection device shall be installed and maintained at every service connection where the Department determines there is an actual or potential risk to the public water supply of contamination, pollution, or deterioration in water quality. The level of protection required and the type of device required shall be determined by the Department in relation to the degree of the actual or potential hazard. The Director's decisions on such determinations shall be considered final.

(c) Ownership and Responsibility. Any backflow protection devices installed pursuant to the requirements of this section are the sole property and responsibility of the account holder. It shall be the responsibility of the account holder to furnish, inspect, install, and test the device, and to maintain the device in proper working condition at all times. The City shall not be liable for any injury to people or damage to property which may result directly or indirectly from the installation, malfunction, testing or repair of any backflow device.

(d) Enforcement. Water service may be discontinued immediately and without notice to the customer if the Department determines that the City water supply is being contaminated or is in immediate danger of contamination. The Director's decisions on such determinations shall be considered final.

(e) Policies and Procedures. The Department shall maintain written policies and procedures, approved by the director, which specify:

(1) circumstances and conditions under which the installation of a backflow prevention device shall be required;

(2) guidelines for the determination of the degree of hazard and level of protection required;

(3) requirements for inspection, testing and maintenance of backflow devices; and

(4) notices and other enforcement actions that will be taken by the City regarding these requirements."

SECTION 8: Severability. The provisions of these chapters are hereby declared to be severable and if any sentence, clause, section or part hereof is held to be unconstitutional, it is the intent of the City Council that such portion of such chapter be severable from the remainder, and that the remainder be given full force and effect.

SECTION 9: This ordinance shall be in full force and take effect thirty (30) days following its final adoption.

PASSED FOR PUBLICATION this day of , 2016, by the following vote:

AYES: Councilmembers:

NOES: Councilmembers:

ABSENT: Councilmembers:

DISQUALIFIED: Councilmembers:

APPROVED: _____
Mayor

ATTEST: _____
City Clerk

PASSED FOR FINAL ADOPTION this day of , 2016, by the following vote:

AYES: Councilmembers:

NOES: Councilmembers:

ABSENT: Councilmembers:

DISQUALIFIED: Councilmembers:

APPROVED:_____
Mayor

ATTEST:_____
City Clerk

This is to certify that the above
and foregoing document is the
original of Ordinance No.
and that it has been published or
posted in accordance with the
Charter of the City of Santa Cruz

_____
City Clerk

EXISTING		PROPOSED		COMMENTS
Chapter 16.04 WATER SERVICES AND CHARGES		**Chapter 16.00 GENERAL WATER SERVICES DEFINITIONS**		New Chapter for definitions proposed
16.04.010	Definitions Unless the context requires otherwise, the definitions given in this section shall be used to interpret this chapter.	16.00.010	DEFINITIONS OF TERMS Unless the context requires otherwise, the following definitions shall be used in the interpretation of all chapters within Title 16 pertaining to water services with the exception of chapters 16.08, 16.12, 16.18, 16.19, and 16.20 pertaining to sewer, storm water, and municipal solar.	Chapter definitions with chapter specific definitions were left unchanged (16.01.050, 16.02.030, 16.03.030, 16.04.010, 16.09.010, 16.06.020, 16.11.010, 16.14.010, 16.15.010, 16.16.020)
		16.00.020	ACCOUNT HOLDER “Account holder” means the person, business, or organization as designated and verified on the billing records of the City Water Department that is financially responsible for water used though a water service.	New definition
16.04.010(a)	“Applicant” shall mean an individual or agency applying for water service.	16.00.030	APPLICANT “Applicant” means individual, business or organization applying for water service.	No change
16.04.010(b)	“Acreage charge” shall mean the charge to be determined by dividing the total costs of the system extension by the acreage which can be served from the system extension.	Delete	Delete	Term no longer used
16.04.010(c)	“City” shall mean city of Santa Cruz.	16.00.040	CITY “City” refers to the city of Santa Cruz.	No change
16.04.010(d)	“Cross-connection” shall mean any physical connection between the piping system from the city service and that of any other water supply that is not, or cannot be approved as safe and potable for human consumption, whereby water from the unapproved source may be forced or drawn into the city distribution mains.	16.15.010 (c)	CROSS CONNECTION “Cross connection” means any unprotected actual or potential connection or structural arrangement between a customer’s water system and any other source or system through which it is possible to introduce into any part of the system any used water, or substance other than the intended water with which the system is supplied. Bypass arrangements, jumper connections, removable pipe sections, swivel or change-over devices and other temporary or permanent devices through which this may occur are considered to be cross-connections.	Term only used in chapter 16.15
16.04.010(e)	“Customer” shall mean any person receiving water service from the city water department.	16.00.050	CUSTOMER “Customer” shall refer to any account holder of the city of Santa Cruz water department as well as to any consumer of city water who may not be a city of Santa Cruz water department account customer.	Revised by the Water Commission Subcommittee
16.04.010(f)	“Date of presentation” shall mean the date upon which a bill or notice is mailed or delivered personally to the customer.	Delete	Delete	Term no longer used
		16.00.060	DEPARTMENT OR WATER DEPARTMENT	Replacing 16.04.010(x) “Water

EXISTING		PROPOSED		COMMENTS
			"Department" or "Water department" refers to the city of Santa Cruz water department or its duly authorized representatives.	Department"
16.04.010(g)	"Director" shall be the director of the water department of the city of Santa Cruz.	16.00.070	DIRECTOR OR WATER DIRECTOR "Director" or "Water Director" refers to the director of the city of Santa Cruz water department, or his or her designated representative.	
16.04.010(h)	"Distribution main" shall mean water lines in streets and rights-of-way used for general distribution of water from which service is available to the customer.	Delete	Delete	Replaced with 16.00.140, "Water Main" or "Main"
		16.00.080	DWELLING UNIT "Dwelling unit" is a building or portion of a building including one or more rooms which is/are designed or used as a residence by one family or housekeeping unit, with facilities for living, sleeping, and eating and food preparation.	New definition. Revised by the Water Commission Subcommittee.
16.04.010(i)	"Fireflow" shall mean the volume of water available from a hydrant for fighting a fire. It is calculated as that flow rate, in gallons per minute, available from the hydrant at a minimum residual pressure of twenty pounds per square inch measured at an open flowing hydrant with all other hydrants on the same main closed.	16.00.090	FIREFLOW "Fire flow" shall mean the volume of water available from a hydrant for fighting a fire. It is calculated as that flow rate, in gallons per minute, available from the hydrant at a minimum residual pressure of twenty pounds per square inch measured at an open flowing hydrant with all other hydrants on the same main closed.	No change
16.04.010(j)	"Flat rate" shall mean a fixed periodic charge for an unmetered service.	Delete	Delete	Term no longer used
16.04.010(k)	"Flat rate service" shall mean provision of water in unmeasured quantities.	Delete	Delete	Term no longer used
16.04.010(l)	"Front-foot charge" shall mean the charge for bringing a main directly adjacent to premises in order to permit the installation of one or more services. This charge shall depend on the regular main extension per-foot cost and the footage of the premises fronting on and entitled to service from the main extension.	Delete	Delete	Term no longer used
16.04.010(m)	"Irrigation service" shall mean provision of water for agricultural, floricultural or horticultural use only.	16.04.010 (a)	IRRIGATION SERVICE "Irrigation service" means the provision of water for agricultural, horticultural or landscape irrigation use only.	Term only used in chapter 16.04
16.04.010(n)	"Main extension" shall mean extension of water distribution pipelines, exclusive of service connections, beyond the location of existing facilities.	16.09.010 (b)	WATER SYSTEM EXTENSION OR SYSTEM EXTENSION "Water System Extension" or "System Extension" means any extension of the physical facilities of the water system, including distribution or transmission mains, booster pumping stations, and distribution storage tanks.	Term only used in chapter 16.09
16.04.010(o)	"Main replacement" shall mean replacement of an existing water	16.09.010	MAIN REPLACEMENT	Term only used in chapter 16.09

EXISTING		PROPOSED		COMMENTS
	main that has been incorporated into the water distribution system.	(a)	"Main replacement" shall mean replacement of an existing water main that has been incorporated into the water distribution system.	
16.04.010(p)	"Meter rate service" shall mean provision of water in measured quantities.	Delete	Delete	Term no longer used
16.04.010(q)	"Person" shall mean any individual, firm, partnership, association, corporation, or political entity.	16.00.100	PERSON "Person" shall mean any individual, firm, partnership, association, corporation, or political entity.	No change
16.04.010(r)	"Premises" shall mean one parcel of real property, including improvements thereon, which is determined by the director to be a single unit for purposes of receiving, using and paying for water service. In making his determination, the director shall take into consideration such factors as whether further subdivision of the premises could cause difficulty in segregating water services, whether it is divided by a public or private thoroughfare, distribution pipeline, or other right-of-way, easement or condition so as to interfere with meter connections, or installing, maintaining and operating backflow prevention devices or cause difficulty in segregating water services. The director's determination shall be final.	Delete	Delete	Replaced by 16.00.190, "Property"
16.04.010(s)	Reserved.	16.00.110	PROPERTY "Property" means one parcel of real property and the buildings on it.	New definition. Revised by the Water Commission Subcommittee.
		16.00.120	SERVICE CONNECTION "Service connection" means the pipe, tubing, fittings, valves, meters and meter boxes which convey water from the water main to a served property.	New definition
16.04.010(t)	"Single-family residence" shall mean a structure used for a dwelling unit for one family or domestic unit consisting of not more than two stories nor more than three thousand six hundred square feet in total floor area.	16.01.055 (a) 1.	Single Family Residential: Individually metered residential dwelling units (regardless of housing type). This classification shall apply whether or not the residential dwelling unit is being put to a use other than, or in addition to, residential use, and whether or not the residential use is permanent or transient in nature including use as a vacation rental unit. A residential dwelling unit is considered an occupant's permanent residence when, on average, the occupant resides in the unit for at least twenty-one days within each monthly water service period.	Already included in chapter 16.01 (same section as multi-family and business definitions)
16.04.010(u)	"Total floor area" shall mean the sum of the area of all stories exclusive of area separations as defined in Uniform Building Code Section 505.	Delete	Delete	Term no longer used

EXISTING		PROPOSED		COMMENTS
16.04.010(v)	"Transmission main" shall mean water lines in streets and rights-of-way used for transmission of water from booster pumping stations and storage reservoirs, and delivering the water to distribution mains.	16.00.140	WATER MAIN OR MAIN "Water main" or "main" means water lines in streets and rights of way used for transmission or distribution of water.	Replacing and combining distribution main and transmission main
16.04.010(w)	"Water" shall mean any water obtained from the water department of the city of Santa Cruz.	16.00.130	WATER "Water" shall mean any water obtained from the water department of the city of Santa Cruz.	No change
		16.00.150	WATER SERVICE OR SERVICE "Water service" or "service" refers to the furnishing of water to a property.	New definition. Revised by the Water Commission Subcommittee.
16.04.010(x)	"Water department" shall mean the water department of the city and its duly authorized representatives.	Delete	Delete	Replaced with 16.00.060, "Department" or "Water Department"
16.04.010(y)	"Water system extension" shall mean any extension of the physical facilities of the water system, including distribution mains, transmission mains, booster pumping stations, and distribution storage tanks.	16.09.010 (b)	WATER SYSTEM EXTENSION OR SYSTEM EXTENSION "Water System Extension" or "System Extension" means any extension of the physical facilities of the water system, including distribution or transmission mains, booster pumping stations, and distribution storage tanks.	Term only used in Chapter 16.09
16.04.010(z)	"Zone capacity fee" means the surcharge to be collected at the time of any new service connection, in addition to the standard connection fee, to pay a proportionate share of the cost of a water system extension within a water system extension zone established by the city council.	16.09.010 (c)	ZONE CAPACITY FEE "Zone capacity fee" means the surcharge to be collected at the time of any new service connection, in addition to the standard connection fee, to pay a proportionate share of the cost of a water system extension within a water system extension zone established by the city council.	Term only used in Chapter 16.09

EXISTING		PROPOSED		COMMENTS
Chapter 16.04 WATER SERVICES AND CHARGES		**Chapter 16.04 WATER SERVICES**		New title proposed
16.04.020	SERVICE AREA The city will furnish water service in accordance with the regulations hereafter contained and other applicable provisions of this code to any property within the city and to such areas outside the city limits as the city council may designate.	16.04.010 (c)	"Service Area" means any property within the corporate limits of the City and such areas outside the City limits which have been designated by the City Council and any other property approved for water service from the City's water system.	New chapter definition proposed by the Water Commission Subcommittee.
		16.04.020	SERVICE PROVIDED The City will furnish water service in accordance with these regulations to any property within the City's service area. The Director shall be responsible for assuring that all water service shall comply with the standards set forth in this chapter wherever water service is provided by the City.	Revised by the Water Commission Subcommittee.

EXISTING		PROPOSED		COMMENTS
			The Director of the City Water Department is authorized to issue such policies and procedures as necessary and appropriate to provide water services throughout the water service area in a safe, efficient and effective manner.	
16.04.030	DESCRIPTION OF SERVICE Service furnished by the city of Santa Cruz is described as follows: (1) Supply. The water department will exercise reasonable diligence and care to deliver a continuous and sufficient supply of water to the customer at a proper pressure, and to avoid any shortage or interruption in delivery.	16.04.040	SYSTEM SUPPLY AND PRESSURE (a) Supply The Water Department will exercise reasonable diligence and care to deliver a continuous and sufficient supply of water to the customer at sufficient pressure, and to avoid shortages or interruptions in delivery. (b) Service Interruptions The City reserves the right to interrupt service while making improvements and repairs required in the operation of the water system. Whenever it is necessary to schedule an interruption to its service, the Department will endeavor to notify all account holders to be affected by the interruption, stating the approximate time and anticipated duration of the interruption. The City shall not be liable for damage which may result from an interruption in service. (c) Pressure It is the applicant's responsibility to obtain information from the Department concerning the water pressures that may be expected in their area and to provide and maintain any plumbing and protective devices necessary to use the available water at whatever operating pressure is available in the system. Applicants and customers shall accept such conditions of pressure and service as are provided by the City's distribution system at the location of the proposed service connection, and hold the City harmless for damage arising out of low, high or fluctuating pressure conditions.	
	(2) Types of Service. The types of service available from the water department are: (A) Flat rate; (B) Metered rate; (C) Temporary.	16.04.030	TYPES OF SERVICE (a) Regular Water Service is provided to a property through installed piping from a City water main through water meter(s) to the property's water facilities. Such service shall be established and charged for through an active customer account. (b) Bulk Water Service is provided on an occasional or	

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			intermittent basis through bulk water stations. Such service shall be authorized and charged for through permits issued by the Water Department. (c) Hydrant Meter Service may only be available on a short term basis for non-potable purposes only from a public fire hydrant through a portable meter issued by the Water Department. Such service shall be authorized and charged for by the Water Department. (d) Public Fire Protection Service is water service provided through fire hydrants to organized fire protection agencies under agreements entered into between such agency and the City. Fire hydrants are for use by organized fire protection agencies and by the Water Department. (e) Private Fire Protection Service is a separate water service provided to property for the specific purpose of fire protection, as permitted by the Water Department and the fire protection agency within whose jurisdiction the property falls.	
	(3) Unusually Large Quantities of Water. Arrangements shall be made with the water department prior to using an unusually large quantity of water. Water department approval may be given provided delivery of the unusually large amount of water through the city's facilities can be accomplished safely and without inconvenience to other customers.	16.15.010 (d)	"Unusually large quantity of water" means an amount that is substantially in excess of and in addition to a customer's customary water usage and that occurs on an infrequent basis. Uses that are occasional but customary, such as the filling a swimming pool or a hot tub at a residential account, would not be considered an unusually large quantity of water; however, use of a hydrant meter for a commercial, industrial, or construction project would be considered an unusually large quantity of water.	New definition proposed by the Water Commission Subcommittee.
		16.15.030 (c)	Move to new chapter, 16.15 WATER USE: Unusually Large Quantities of Water. Account holders shall make arrangements with the Water Department prior to using an unusually large quantity of water. Water Department approval may be given if delivery of the water through the City's water facilities can be accomplished safely and without inconvenience to other account holders.	
	(4) Availability of Service. Water service will generally be made available by extending or replacing a main if a principal part of the premises to be served does not lie along an available water main	16.09.020	Move to new chapter, 16.09 WATER SERVICE IMPROVEMENTS: MAIN REPLACEMENTS AND SYSTEM EXTENSIONS When an application for service cannot be met from existing	Revised by the Water Commission Subcommittee.

EXISTING		PROPOSED		COMMENTS
	of adequate capacity and under proper pressure. However, water service will not be provided by the extension of a water main where the meter or meters for the premises concerned will be located at an elevation of less than one hundred feet below the overflow level of the reservoir supplying such main.		water facilities, a main replacement or system extension will be required before service can be provided. In such situations, the following general conditions and standards apply: (a) In determining whether the applicant's property can be served from existing water facilities, the director's decision shall be considered final. (b) Water service will not be provided by the extension of a water main where the meter(s) for the property concerned will be located at an elevation of less than one hundred (100) feet below the overflow level of the reservoir supplying such main. (c) The City will determine sizes, materials, types and locations of all necessary and proposed water facilities. (d) The City may choose, at its discretion, to require the Applicant to install such facilities under the terms and conditions of an agreement between the Applicant and the City or, alternatively, to construct the facilities in accordance with the City's established process for public works construction, at Applicant's expense. (e) Water mains will be installed in 20-foot minimum width rights-of-way capable of accommodating City vehicles and equipment. (f) No water facilities shall be installed until all rights-of way for the installation, operation and maintenance of the facilities are provided to/obtained by the City in a form satisfactory to the Director. (g) When the installation is completed by the applicant, title to the installation shall be transferred to the City upon acceptance of such installation by the City.	
16.04.040	APPLICATION FOR SERVICE Application for service to premises for which a service connection has already been installed may be made as hereinafter set forth. Such application will signify the consumer's willingness and intention to comply with these regulations and to make payment	Delete	Delete	Already included in new section 16.09.020 for Main Replacements and System Extensions

EXISTING		PROPOSED		COMMENTS
	for water service rendered. If application is made for service to property where no service connection has been installed, but a distribution main of adequate capacity is adjacent to the property, the applicant, in addition to making application for service shall comply with the regulations governing the installation of service. If a principal part of the premises to be served does not front on an available main of adequate capacity, replacement of this main to the applicant's premises will be required before an application for service may be accepted. In determining whether the portion of an applicant's premises lying directly along the main constitutes principal frontage, the water department director's decision shall be final.			
16.04.040	(a) Application. Each applicant for water service shall be required to sign an application form provided by the water department or make application by letter showing the date of application, location of premises to be served, mailing address, date applicant desires service, and such other information as may be required. (b) Payment for Previous Service. An application for service will not be accepted unless payment in full has been made for water service previously rendered to the applicant by the city. (c) Deposits. Each applicant known to be a credit risk, before receiving service, shall be required to establish credit by depositing with the water department an amount of money equal to the estimated average periodic bill for water, garbage and sewer services. Examples of credit risks which would require deposit are three or more late utility payments in the past twelve months or previous default on utility accounts.	16.11.010	Move to new chapter, 16.11 WATER SERVICE ACCOUNTS: APPLICATION FOR SERVICE ACCOUNT (a) Application. Each Applicant desiring to initiate service whether anew or after service has been discontinued by the Department or the customer, or to change an existing water service must make application to the City Water Department on forms provided by the Department, provide required information, pay required fees, and meet the conditions set forth in these municipal codes and in the City standard specifications, Water Department standard specifications or other applicable policies and procedures approved by the City Council or the Director. The application form shall indicate the applicant's willingness and intention to comply with all applicable regulations and policies and to make payment for water services rendered. Applicants for a commercial account inside the City of Santa Cruz must present proof they have obtained a City business license. (b) Payment for Previous Service. An application for service will not be accepted unless payment in full has been made for all utility services previously rendered to the Applicant by the City, and all taxes, fees or assessments previously rendered to or levied on the	Referenced Department Policy: 1) Credit Risk 2) Application for Service Revised by the Water Commission Subcommittee.

EXISTING		PROPOSED		COMMENTS
			Applicant by the City. (c) Deposits. Before receiving services, applicants with a prior history of late or non-payment to the Water Department shall be required to establish credit by depositing with the Water Department an amount of money equal to the estimated cost of providing utility services, including, but not limited to, an average periodic bill and the expense of providing materials and equipment to initiate service. (d) Incorrect or withdrawn application. The Applicant is responsible for the expenditures made by the Department as a result of the submission of the application, even if the Applicant incorrectly describes the location where water service is desired or withdraws the application prior to the initiation of water service. (e) Change of Account Holder Without Application. A person taking possession of property and using water from an active connection without having made application for utility service shall be liable for the services delivered from the date of the last recorded meter reading. If application for utility service is not made upon notification by the Department, and if bills for service from the date of the last recorded meter reading are not paid promptly upon receipt of notice, the service may be denied or discontinued without further notice.	
16.04.041	SYSTEM DEVELOPMENT CHARGE (a) Purpose. To mitigate the water supply impacts caused by new development in the city of Santa Cruz water service area, certain public water system improvements must be or have been constructed in order to accommodate system expansion. A System Development Charge shall be assessed to pay the proportional share of the costs of new and existing water facilities necessary to meet the demand resulting from new or enlarged water services. (b) Charges. A System Development Charge is payable upon the	16.14.040	Move to new chapter 16.14 SYSTEM DEVELOPMENT CHARGES	No changes to code language. Recent updates approved by Council 6/9/15.

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	issuance of any permit, or similar grant of authority, for any of the following activities: installation of a new service connection, the addition of a new or additional residential dwelling unit onto an existing service, the upsizing of an existing service connection, or any other increased demand on the water system. The System Development Charge shall be reviewed to determine whether the charge amounts are reasonably related to the impacts created by new or additional demand and whether the listing of system expansion improvements to be financed by system development charge revenues is accurate. Such review shall occur no less than every five years and shall result in a report containing the following: (1) The specific amount of the charge, including its development methodology; (2) A list of the specific improvements to be financed by the charge, including the estimated cost of such improvements; and (3) A description of the correlation between the charge and new development and the benefits from the improvements enabled by the charge. The System Development Charge shall be as adopted by resolution of the City Council and shall be adjusted annually to keep pace with inflation. (c) Use of Charge Revenues. System Development Charge revenues shall be placed in a separate and special account and such revenues, along with any interest earnings on that account, shall be used exclusively for the following purposes: (1) To pay for the city's future construction of system expansion and improvements to be financed by System Development Charge revenues; (2) To reimburse developers who have installed system development financed water facilities which are larger than needed for the certain development and are subject to the terms of a reimbursement agreement; or (3) To pay for water conservation programs approved by the city council which have the net effect of increasing the amount of water supply available for allocation to			

EXISTING		PROPOSED		COMMENTS
	new or additional demand.			
16.04.050	INSTALLATION OF SERVICES – ELIGIBILITY REQUIREMENTS Water service will be installed in the water department's service area on the following basis: (1) Water service will generally be installed in the service size and at the location desired by the applicant where such requests are adjudged by the water department director to be reasonable and the service installation will be made under the direction of the water department regulations as he may provide for effective service of the parcel in question and the surrounding service area. (2) Water service connections from water department mains to customer's premises may be installed only by duly authorized employees or agents of the water department or by persons to whom a water service installation permit has been issued. The water department director may issue water service installation permits when the issuance of such permits would be consistent with the public interest. The water department director shall establish criteria for the issuance of such permits relating to the qualifications of applicants, the performance of work, inspections, and approval and acceptance of work by the city upon completion. The director may charge such fee for issuance of a permit as may be established by resolution of the city council. Service connections installed pursuant to the water service installation permit shall, upon completion of the work, become the property of the city, to the same extent as though installed by city employees or agents.	16.04.060	SERVICE CONNECTION INSTALLATION The installation of service connections shall be at the applicant's expense and shall conform to standard specifications, requirements, and the payment of applicable fees published by the City. The Director shall establish criteria for the issuance of permits and acceptance of work by the City upon completion. The Department may charge fees for issuance of a permit as established by resolution of the City Council. (a) Size and Number. Service connections will generally be installed in the size and number requested by the Applicant where such requests are determined by the Department to be reasonable for effective and efficient service of the parcel in question and the surrounding service area. (b) Location. Service connections will be installed along principal frontage as near as possible to the location requested by the Applicant where such location is readily accessible by rights-of-way capable of accommodating City vehicles and equipment as determined by the Department. (c) Installers. Service connections may be installed only by duly authorized employees or agents of the Water Department or by a contractor from the Water Department's pre-approved installer list, to whom a Water Service Installation Permit has been issued by the Water Department. (d) Warranty. Service connections installed pursuant to the water service installation permit shall, upon acceptance of the work, be subject to a contractor-guaranteed warranty. The terms, including the duration of the warranty shall be established by the Department-issued Service Installation Permit. (e) Control Valve. The account holder shall provide and maintain control valve(s) on the property side of the	Revised by the Water Commission Subcommittee.

EXISTING		PROPOSED		COMMENTS
			service connection for their use, and as required by the Water Department. Customers shall not operate the City owned control valve. Only Department personnel or other authorized representative may operate the City owned control valve. (f) Customer Owned Plumbing. Privately owned water service facilities shall be equipped with pressure regulating, absorbing, and relief devices as required by California Plumbing Code.	
16.04.051	MINIMUM STANDARDS FOR SERVICE Water connection permits may be granted only if the water department director finds that the premises can be connected to a water main of adequate size to provide sufficient pressure and flow to meet the applicant's needs without adversely affecting service to any existing customers in accordance with the following conditions: (1) Fireflow requirements are met as follows: (a) Standard Within the City. The premises complies with the standards set in the Insurance Service Office "Guide for Determination of Required Fire Flow," 1974 Guidelines and Instructions; or (b) Standard Outside the City. The premises meets fireflow requirements adopted by resolution of the fire protection district in which the premises is located; and (2) Minimum flow at anticipated peak demand will be sufficient for safe, dependable supply of all existing domestic, commercial and industrial users; and (3) Water pressure will not fall below thirty-five pounds per square inch gauge (35 p.s.i.g.) during the hour of maximum water use for the city's system.	16.04.050	SERVICE CONNECTION REQUIREMENTS (a) Building Permit. In order to be eligible to receive a Water Service Installation Permit, an Applicant must possess an approved building permit for the parcel on which the service is requested. The application must include evidence of the building permit. If a new service connection is requested for irrigation services, irrigation and landscape plans are required and shall meet water conservation requirements. (b) Particular Property. Applications for new service connections must be for a particular and identified property. Service is not assignable to other property, nor transferable between properties. (c) Principal Frontage. A principal part of the property to be served must front on an available water main. In determining whether the portion of an applicant's property lying directly along the main constitutes principal frontage, the director's decision shall be considered final. (d) Elevation. New service connections will not be considered for properties where meter(s) will be located at an elevation of less than one hundred (100) feet below the overflow level of the reservoir supplying water to the main from which the connection will be made. (e) Minimum Standards. Water connection permits may be granted only if the Water Department determines that the property can be connected to a water main of adequate size to provide sufficient pressure and flow to meet the	Referenced Department Policies: 1) Master Water Meter Use 2) Cross-parcel Connections Revised by the Water Commission Subcommittee.

EXISTING		PROPOSED		COMMENTS
			applicant's needs without directly or indirectly causing service to any existing account holder to fall below the following minimum service standards: (1) Water pressure must not fall below thirty-five pounds per square inch (35 p.s.i.) during peak hour demand for the City's system. (2) Minimum flow at anticipated peak hour demand must be sufficient for safe, dependable supply of all existing domestic, commercial and industrial users. (3) Fireflow requirements as determined by the fire protection district in which the property is located must be met. (f) Multiple Units. Service to multiple residential dwelling units or mixed-use commercial units will generally be provided through separately metered connections. Use of a master meter is prohibited when each unit can be plumbed independently and sold separately. However, when the size and/or shape of the property create practical difficulties for (or severely limit) such a development, the Director may approve use of a master meter to serve all units, in accordance with Department policies and procedures. (g) One Parcel. Not more than one parcel of real property shall be served from a single service connection. The Director may allow for the continuation of a cross-parcel service in certain limited circumstances in accordance with Department policies and procedures. (h) Private Fire Protection. a. There shall be no connections between a fire protection system and any other water distribution system on the property. There shall be no water used through the fire protection service except to extinguish fires or for testing and maintaining the fire service and appurtenances. Domestic service to the property may be discontinued for violation of the regulations set forth in this section. b. The City shall not be responsible for the design or adequacy of any private fire protection system.	

EXISTING		PROPOSED		COMMENTS
			(i) Authority. The Director retains final authority to determine the size, number, configuration, and location of all service connections.	
16.04.051A	MAIN REPLACEMENT The city will pay the cost of replacing water mains found inadequate to satisfy the minimum standards for service, subject to the limitations in this section. Applications for service requiring a main replacement will be acted upon in the order received during each fiscal year, until main replacement funds appropriated for that year have been fully expended. Applications will be considered after all development approvals have been obtained. Applications which cannot be funded during a fiscal year will be carried forward to the next fiscal year on a seniority based waiting list. The city will not reimburse for any new service connections, fire hydrants or other fire protection facilities such as storage tanks, booster pump stations and the like. Where the city is unable to complete a main replacement within a period convenient to the service applicant, the applicant may undertake the replacement, subject to administrative regulations promulgated by the director. The city is not obliged to reimburse customers for the cost of privately financed main replacements unless (a) the replacement becomes eligible for city installation during the same fiscal year that it was privately installed; and (b) adequate funds remain to reimburse the cost. The director may, however, reimburse private main replacement expenses in a subsequent year if adequate funds are available for that purpose and all applications for main replacement or reimbursement filed previous to the application under consideration have been satisfied.	16.09.030	MAIN REPLACEMENTS TO ACCOMMODATE NEW DEVELOPMENT The City may pay the cost of replacing existing water mains found inadequate to satisfy the minimum standards for service shown in section 16.04.040, subject to Department policies and procedures and annual funding approved by the City Council. If the City is unable to fund a main replacement, the Applicant may undertake the replacement at his or her own cost, under terms established in a main replacement agreement between the Applicant and the City. The City may reimburse applicants for main replacement construction costs when funds are available, in accordance with Department policies and procedures.	Referenced Department Policy: 1) Water Main Sizing 2) System Extension Agreements
16.04.052	CONDITIONS IMPOSED ON APPLICANT Where any of the standards for service connection as set forth in Section 16.04.051 are not met, the water director may approve a new or larger-capacity service connection only upon finding that conditions imposed upon the applicant will, if carried out, cause those standards to be met. Examples of these conditions may include installation of distribution or transmission mains, booster pumps, storage tanks or other facilities made necessary by the applicant's proposed use.	Delete	Delete	Already included in new section 16.09.020 for Main Replacements and System Extensions

EXISTING		PROPOSED		COMMENTS
16.04.060	NUMBER OF SERVICES PER PREMISES The applicant may apply for as many services as may be reasonably required for his premises. If the pipeline systems from each service are interconnected, then the applicant will be required to install, at each meter connection, backflow protection devices approved by the water department.	16.04.060 (a) and	(a) Size and Number. Service connections will generally be installed in the size and number requested by the Applicant where such requests are determined by the Department to be reasonable for effective and efficient service of the parcel in question and the surrounding service area.	Referenced Department Policies: 1) E-1990.3 Backflow Protection
		16.15.050 (b)	(b) Where Protection is required. In accordance with Department policies and procedures, an approved backflow protection device shall be installed and maintained at every service connection where the Department determines there is an actual or potential risk to the public water supply of contamination, pollution, or deterioration in water quality. The level of protection required and the type of device required shall be determined by the Department in relation to the degree of the actual or potential hazard. The Director's decisions on such determinations shall be considered final.	
16.04.061	SIZE AND LOCATION OF SERVICE CONNECTIONS. The water department may determine the size and number of the service connections and their locations in relation to the boundaries of the premises to be served and the point of connection to the customer's facilities. The customer's installation of pipe to the service connection location should not be laid until the service connection is installed; provided however, that in the event the customer's pipe is laid prior to the time the service connection is installed and the customer's pipe location does not correspond to that of the service connection, the customer shall provide for connecting to the service connection at his own expense.	Delete	Delete	Already included in section 16.04.060
16.04.065	CONDITIONS FOR USE OF MASTER WATER METERS Whenever the water department director has determined that a master water meter or meters may be installed on any premises, but there is no single unit of ownership of the property to be served which will be responsible for payment of the bill, he may permit the installation of a master water meter or meters only on the following terms and conditions. No such master water meter shall be installed until the applicant has agreed to accept responsibility for payment of all water bills and has posted a cash	16.04.050 (f)	(f) Multiple Units. Service to multiple residential dwelling units or mixed-use commercial units located on the same or adjoining parcels will generally be provided through separately metered connections. Use of a master meter is prohibited when each unit can be plumbed independently and sold separately. However, when the size and/or shape of the property create practical difficulties for (or severely limit) such a development, the Director may approve use of	Referenced Department Policy: 1) Master Water Meter Use Revised by the Water Commission Subcommittee.

EXISTING		PROPOSED		COMMENTS
	or corporate surety bond, whichever shall be specified by the water department director, with the city in an amount equal to double the estimated periodic municipal utility service charge as determined by the water department director to assure the city against any water bill delinquency, and has further agreed that in the event of nonpayment as provided in Section 16.04.320 of this chapter for a period of time sufficient to warrant discontinuance of service, that the city may discontinue such service without liability to applicant or any other person. The execution and filing of an application for a master water meter or meters, accompanied by cash or a corporate surety bond, as required by this section, shall be sufficient to constitute the agreement required by this section, and by executing said application applicant binds himself, his principals, his successors and assigns, to abide by the terms and conditions of such agreement, and all of the rules and regulations of the water department.		a master meter to serve all units, in accordance with Department policies and procedures.	
16.04.070	RESALE OF WATER No water received from the city may be resold without special approval from the city. This section shall be inapplicable to any public utility company certified by the California Public Utilities Commission.	16.15.030	GENERAL WATER USE (a) Use on Other Properties. The account holder shall not use or allow the use of any significant quantity of water from his/her connection on any property not specifically included in his or her application for service. (b) Resale of Water. No water received from the City may be resold without special approval from the Water Department. (c) Unusually Large Quantities of Water. Account holders shall make arrangements with the Water Department prior to using an unusually large quantity of water. Water Department approval may be given if delivery of the water through the City's water facilities can be accomplished safely and without inconvenience to other account holders. (d) Use of Water Outside the Service Area. No water received from the City may be used outside the system's service area without prior approval from the City	
16.04.075	SUPPLY TO SEPARATE PREMISES (a) Subject to the exception set forth in subsection (b) not more than one premises shall be served from each connection. The	Delete	Delete	Already addressed in section 16.04.050, Service Connection Requirements, and section 16.15.030, General Water Use.

EXISTING		PROPOSED		COMMENTS
	customer shall not permit the use of any of the water received by him or her from the city on any premises other than those specified in his or her application for service. (b) A customer which is a federal or state agency devoting its premises to coastal-dependent uses as defined in the city's General Plan glossary may share its service with other federal or state agencies on adjoining premises which also devote their premises to coastal dependent uses when the city council, in the exercise of its discretion, determines that the service in question has the capacity to serve the principal and adjoining premises, that to require a separate service would be impractical, that to require a separate service would serve to create excess service capacity, and that the customer will execute an agreement holding the city harmless against any and all claims that might be asserted by the agency occupying the adjoining premises for interruption of service occasioned by the customer's failure to properly maintain its service or abide by the provisions of the customer's service agreement.			
16.04.080	METER INSTALLATIONS Meters will be installed at the curb, property line or in sidewalk basements, and shall be owned by the city.	Delete	Delete	Included in section 16.04.060 (b) and 16.04.070 (a)
16.04.090	CHANGE IN LOCATION OF METERS Meters moved for the convenience of the customer will be relocated at the customer's expense. Meters moved to protect the city's property will be moved at its expense. If the lateral distance which the customer desires to have the meter moved exceeds eight feet, he will be required to pay for a new service at the desired location.	16.04.080	SERVICE CONNECTION CHANGES Requests from customers to move or resize meters, service laterals, or service connections must be approved by the Department in accordance with Department policies and procedures. The Department may require that a customer's existing service connection(s) be relocated and/or resized in accordance with Department policies and procedures to ensure safe, adequate service, and accurate metering corresponding to documented or planned water use. Fees and charges for relocation and resizing of water services, water meters or service connections shall be as adopted by resolution of City Council.	Referenced Department Policy: 1) Water Service Design Criteria
16.04.100	CHANGE IN SIZE OF METER A requested change to a smaller-size meter must be approved by the water department and will be made without charge to the applicant. A requested increase in the size of the meter must be approved by the water department. The charge will be based on the actual cost of installing the new meter, less the salvage value of the materials recovered and shall be subject to additional system development charges. Customers with flow rates exceeding the AWWA maximum peak flow or having an average rate exceeding the safe maximum operating capacity or AWWA continuous flow rate for the meter			

EXISTING		PROPOSED		COMMENTS
	shall be required to upsize the water service and shall be responsible for the payment of all applicable charges including, but not limited to, installation of new pipes, meter, review, and inspection fees, and additional system development charges.			
16.04.110	OWNERSHIP The meters, lines and other fixtures associated with water service and installed by the city, whether located on public or private property, are the property of the city, and the city reserves the right to repair, replace and maintain such fixtures, as well as to remove them upon discontinuance of service or abandonment. Water service lines and fixtures located on the property side of the water meter, hereinafter known as customer water service facilities, are owned by the property owner, and are the responsibility of the property owner to repair, replace and maintain.	16.04.070	SERVICE CONNECTION OWNERSHIP AND MAINTENANCE (a) City Owned Water Service Facilities. All service connection facilities (except fire services) located between the meter and the water main , including the meter, meter box, and other pipes and fixtures, whether located on public or private property, are the property of the City. The City is responsible for maintaining, repairing, and replacing such facilities. The property owner shall use reasonable care in the protection of these City-owned water facilities and shall be held responsible for damage to the City's property when such damage is caused by the property owner, account holder, contractor, or customer or from causes originating on the owner's property. (b) Privately Owned Facilities. All service connection facilities located on the property side of the water meter, including the connection from the meter to said facilities, are owned by the property owner and are the responsibility of the property owner to repair, replace and maintain. Property side water service facilities must be maintained by the property owner in good condition to safely withstand fluctuations in pressure and construction and maintenance activities related to the water service including, but not limited to, meter repair and replacement and service connection renewal. (c) Fire Service Facility Ownership. All fire service connection facilities located in the public right of way are the property of the City. The City is responsible for maintaining, repairing, and replacing such facilities. The fire service meter and associated electronics and wiring is also the property of the City, regardless of location.	
16.04.120	MAINTENANCE (a) The city is responsible for repairing and maintaining, at its own expense, the water service meter, box and all pipe and other fixtures between the meter and the water main. The property owner is responsible for repairing and maintaining all customer water service facilities, including all pipes and other fixtures beyond the meter. (b) Customer water service facilities must be maintained by the property owner in good condition to safely withstand construction and maintenance activities related to the water service without damage. The above-described construction and maintenance activities include, but are not limited to, meter repair and replacement and water service renewal. The customer water service facilities must be able to withstand sudden changes in pressure in accordance with the Uniform Plumbing Code. (c) The property owner shall indemnify and defend the City of Santa Cruz from any liability or loss resulting in any manner from the customer water service facilities or their care or maintenance.			

EXISTING		PROPOSED		COMMENTS
			(d) City Access. Representatives of the Water Department shall have access to any City-owned meters, service connections, and other water facilities located on private property for purposes reasonably associated with the furnishing of water service. Such access shall be without notice or interference from the owner or occupant of the property. Representatives of the Water Department shall have access at reasonable hours (except in emergencies) to property side water facilities such as shut-off valves and exterior hose bibs for purposes reasonably associated with the furnishing of water service. Such access shall be with notice except in the case of emergency.	
16.04.130	TEMPORARY SERVICE Temporary service will be furnished in conformity with the general regulations applicable and as additionally specified in this regulation.	Delete	Delete	Addressed in section 16.04.030, Types of Service, subsection (b), Bulk Water Service
16.04.140	INSTALLATION CHARGES AND DEPOSITS The applicant shall deposit, in advance, the estimated cost of installing and removing the facilities required to furnish said service, exclusive of the cost of salvageable material. Upon discontinuance of service the actual cost shall be determined and an adjustment made as an additional charge, refund or credit.	Delete	Delete	Already addressed in section 16.04.080
16.04.150	SERVICE THROUGH FIRE HYDRANTS The city may grant permission to use water through specified fire hydrants by issuing a permit. Application for a permit should be made at least twenty-four hours before service is required. No person or persons shall operate or draw water from a fire hydrant without a permit.	Delete	Delete	Already addressed in section 16.04.030
16.04.160	CHARGE FOR WATER SERVED The rates for regular service shall be applicable for water used on a metered basis. Where it is not practical to install a meter the water consumption shall be estimated on a basis agreeable to both the customer and water department. The applicant shall pay the estimated cost of water in advance or shall be otherwise required to establish credit. The minimum charge for water shall be $2.00.	Delete	Delete	No longer applicable
16.04.170	RESPONSIBILITY FOR METERS AND INSTALLATION	Delete	Delete	Addressed in section 16.04.070, Service

EXISTING		PROPOSED		COMMENTS
	All facilities for temporary service to the customer connection shall be made by the water department and shall be operated in accordance with its instructions. The customer shall use all possible care to prevent damage to the meter or to any other loaned facilities of the water department which are involved in furnishing temporary service from the time they are installed until they are removed, or until forty-eight hours' notice in writing has been given to the water department that the contractor or other person is through with the meter or meters and the installation. If the meter or other facilities are damaged, the cost of making repairs shall be paid by the customer.			Connection Ownership and Maintenance
16.04.180	ANNUAL PERMITS The director of the water department is authorized to issue annual permits to users of temporary service through bulk water stations, on such terms and conditions, and with such limitations, as he deems appropriate. A flat fee shall be assessed upon the issuance of such permit, based on an estimate agreeable to both the customer and water department director.	Delete	Delete	Addressed in section 16.04.030, Types of Service, subsection (b), Bulk Water Service
16.04.190	PRIVATE FIRE PROTECTION SERVICE Private fire protection service will be furnished in conformity with applicable general regulations, and as additionally specified in this section. (1) Installation and Charges. The installation of private fire services shall conform to standard specifications, details and requirements published by the city. When private fire services are to be installed by city forces, the applicant shall pay, in advance, a fixed fee as established by resolution of the city council. When installed by a contractor, the applicant shall, in advance, obtain a permit from the city and pay an inspection fee as established by resolution of city council. (2) Restrictions on Use of Service. There shall be no connections between a fire protection system and any other water distribution system on the premises. There shall be no water used through the fire protection service except to extinguish accidental fires or for testing the fire service and appurtenances. Service to the premises, including the domestic service, may be discontinued for violation of the regulations set forth in this section.	16.04.050 (h)	(h) Private Fire Protection. a. There shall be no connections between a fire protection system and any other water distribution system on the property. There shall be no water used through the fire protection service except to extinguish fires or for testing and maintaining the fire service and appurtenances. Domestic service to the property may be discontinued for violation of the regulations set forth in this section. b. The City shall not be responsible for the design or adequacy of any private fire protection system.	Identified as type of service in section 16.04.030

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	(3) Pressure and Supply. The city shall not be responsible for the design or adequacy of any private fire protection system, nor for any loss or damage due to of lack of water pressure. The city shall only be required to furnish such quantities and pressures as are available in its general distribution system. Any private fire service is subject to shutdowns and variations in pressure as are incidental to the operation of the public water system.			
16.04.200	PUBLIC FIRE PROTECTION SERVICE Fire hydrants and other facilities will be installed for use by organized fire protection agencies under agreement entered into by such agency and the city. (1) Installation Charges. The organized fire protection agency requesting the installation of fire hydrants shall pay the entire cost of installation of such fire hydrants in accordance with charges as may be established from time to time by the city council; (2) Monthly Charges. The monthly standby rates for fire hydrants and other facilities shall be as established by resolution of the city council.	16.04.090	FIRE HYDRANTS (a) New Fire Hydrants. Where required by the fire protection agency within whose jurisdiction the property falls, new fire hydrants shall be installed at the applicant's expense and shall conform to standard specifications, requirements, and the payment of applicable fees and charges adopted by resolution of City Council. (b) Relocation of Existing Fire Hydrants. Requests to relocate an existing fire hydrant must be approved by the appropriate fire protection district, the appropriate public works Department and the Water Department in accordance with Department policies and procedures and may be subject to applicable charges as adopted by resolution of City Council. The relocation of an existing fire hydrant shall be at the expense of the requestor.	Identified as type of service in section 16.04.030 Referenced Department Policy: 1) Fire Hydrants
16.04.210	GENERAL REQUIREMENTS –EXTENSION OF WATER SYSTEM Whenever a principal part of a premises to be served does not have service from an adequate distribution storage reservoir or booster pumping station, a water main extension, construction of an adequate distribution storage reservoir and booster pumping station, or such of them as may be necessary to serve the premises, will be required at the applicant's expense. Extension of water mains and construction of distribution storage reservoirs and booster pumping stations may be arranged by applicants upon entering into a "Water System Extension Agreement" prepared in accordance with the terms and conditions of this chapter.	Delete	Delete	Already included in new section 16.09.020 for Main Replacements and System Extensions
16.04.211	DESIGN OF FACILITIES The city will determine sizes, materials, types and locations of all pipes, pumping plants, storage reservoirs, and all other facilities necessary and required for proposed extensions to the city's existing system.	Delete	Delete	Already included in new section 16.09.020 for Main Replacements and System Extensions, subsection c

EXISTING		PROPOSED		COMMENTS
16.04.212	INSTALLATION OF FACILITIES (a) All system extensions and other facilities shall be installed by the city or under its supervision, in accordance with its specifications, and to its satisfaction. The city, at its discretion, may undertake the installation of facilities in accordance with the provisions of the City Charter, or it may require the applicant to install the system extensions and facilities under terms and conditions of an agreement between the applicant and the city. (b) No pipelines, or other facilities, shall be installed until all rights-of-way for pipelines, pumping plant sites, and storage reservoir sites required for the installation, operation, and maintenance of the facilities are furnished by the city in a form satisfactory to the director of the water department.	Delete	Delete	Already included in new section 16.09.020 for Main Replacements and System Extensions
16.04.213	ACREAGE COST RECOVERY/ REIMBURSEMENT Where major new water facilities such as transmission mains, storage tanks and pump stations are requested by an applicant to serve new development in undeveloped areas, the cost of such facilities shall be borne by the applicant-developer under terms established in a water extension agreement. Reimbursement to applicants for facilities installed in accordance with a water extension agreement shall be determined in accordance with the following provisions: (a) An acreage charge is to be determined by dividing the total cost of the new facilities by the acreage which can be served from those facilities. (b) The applicant or applicants who have financed the new water system facilities considered in this section are entitled to the acreage charge collected by the water department for permitting the connection of each regular service, or a private fire service, to such system facilities. The amount that is collected will be refunded within ninety days following the collection. No acreage charge refund will be made after ten years from the date of the execution of the contract except those refunds which have accrued during such ten-year period.	16.09.040	SYSTEM EXTENSION AGREEMENTS (a) Paid by Applicant. When an application for service requires extension of an existing water main or construction of other new water facilities, the Applicant shall pay the cost of such installations under terms established in a water system extension agreement between the Applicant and the City in accordance with the terms and conditions of this chapter and Department policies and procedures. (b) Cost Recovery. The City may provide cost recovery to the water system extension agreement holder at the discretion of the Director, in accordance with Department policies and procedures based on the following provisions: (1) The Water Department shall establish an extension fee to be charged to all new service connections made to the new water facilities installed under the system extension agreement. Such fee shall be based on the pro rata benefit to be derived by potential users of the new water facilities as estimated by the Department at its sole discretion. (2) For water system extensions, the City shall charge the established extension fee on all new service connections made to the water system extensions	Referenced Department Policy: 1) System Extension Agreements

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	(c) In the case of extension of the water system by means of a booster pumping station or a new reservoir system, the acreage charge allocated to each applicant's development within the service area will be refunded by the city to the applicant over a period of fifteen years in equal annual payments. If the acreage developed annually within any particular development is less than one-fifteenth of the total acreage in the development, the refund shall be reduced accordingly. Development shall be deemed to have taken place when an active regular service connection is made to serve a particular parcel of property within the development. No refunds are to be made after the expiration of fifteen years. (d) In the case of the extension of the system by means of a transmission main only, the city will sustain that portion of the cost of the system extension which exceeds the cost of the minimum size mains or other facilities required to serve the applicant, as determined by the city. The contribution by the city will be made to the applicant only as service connections are made to the extension and charges therefor have been collected by city.		for a period of ten (10) years from the date of the extension agreement, or until the cost of the water system extensions is fully reimbursed, whichever comes first; and shall reimburse all such extension fees collected to the extension agreement holder. (3) For facility extensions including a tank, pump station, or pressure reducing station, the City shall charge the established extension fee on all new service connections made to the new water facilities for a period of fifteen (15) years from the date of the extension agreement, or until the cost of the facility extension is fully reimbursed, whichever comes first; and shall reimburse all such extension fees collected to the extension agreement holder. (4) Reimbursement fees shall be calculated based on the cost of water facilities required to meet the minimum service standards defined in section 16.04.040. Should an Applicant desire the installation of larger or more costly water facilities to meet specialized service or fire flow requirements, the cost of those extra facilities shall be borne by the applicant. Should the City desire to install water facilities in excess of those minimum standards, the cost of the extra facilities shall be borne by the Department. (5) If installation of some or all of the extended facility is included in the Department's capital improvement plan during the specified period of reimbursement, the City will refund the cost of that section of the facility to the agreement holder at such time as it is budgeted.	
16.04.213A	WATER SYSTEM EXTENSIONS ZONE – COST RECOVERY/ REIMBURSEMENT (a) From time to time the city council may determine that the capacity of the water system should be extended so as to provide the availability of future water service to areas which are either undeveloped or only partially developed. If the council	16.09.050	SYSTEM EXTENSION ZONES The City Council may determine that the capacity of the water system should be extended so as to provide the availability of future water service to areas which are either undeveloped or only partially developed. If the Council determines that the construction of the water system extension will have little or no	

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	determines that the construction of the water system extension will either not benefit, or benefit only to a limited degree, the existing water system, the council may establish the limits of a zone within which the capacity provided by the water system extension will permit new service connections, or additional capacity to existing customers. (b) If such a water system extension zone is established, the council may, by resolution, impose a zone capacity fee within such zone, for the purpose of defraying the actual cost of acquiring and constructing the water system extension necessary to provide the capacity to permit additional service connections within said zone. The amount of said zone capacity fee shall be based upon the number of additional connections which will be permitted within the zone, and shall be calculated by dividing the total cost of the water system extension by the number of estimated future permitted connections. If the size of a connection exceeds the standard size of a five-eighths-inch connection, the zone capacity fee shall be increased proportionately to the increased size of the connection. (c) The city may participate in the cost of a water service extension as follows: costs for a water system extension which will both serve new developments and correct deficiencies to existing customers may be shared by the city, in those cases where the director determines that there is a present need for additional capacity to serve existing customers, and the project can be adequately funded with available water department funds. The limit to which the city may participate in the cost of the water system extension shall be in proportion to the additional capacity required to serve existing customers as compared to the total capacity of the water system extension. (d) The cost of the water system extension, for purposes of calculating the zone capacity fee, shall be deemed to include all property acquisition costs, engineering, construction, and debt service cost if appropriate. Costs associated with correcting any existing capacity deficiencies within the water system shall be excluded for purposes of determining the zone capacity fee. (e) The zone capacity fee imposed on any property at the time of		benefit to the existing water system, the Council may establish the limits of a zone within which the capacity provided by the water system extension will permit new or larger service connections. If such a water system extension zone is established, the Council may, by resolution, impose a zone capacity fee to all service connections within such zone, for the purpose of defraying the cost of the water system extension. The resolution shall define the costs involved, the manner of calculating the zone capacity fee, and method of collecting the zone capacity fee. Separate funds shall be established for each zone established pursuant to this section. Moneys in such funds shall be expended solely for water system extensions within the zone from which the fees are collected. The City may advance money, or may incur indebtedness, for the acquisition and construction of the water system extension within the zone. A reasonable interest cost, or the cost of servicing such indebtedness, may be included as a part of the cost of the water system extension for purposes of determining the zone capacity fee.	

EXISTING		PROPOSED		COMMENTS
	connection to the water system, shall not exceed the pro rata share of the amount of the total cost of the water system extension within such zone which would be assessable on such property if such costs were apportioned uniformly upon a per-acre basis. (f) Separate funds shall be established for each zone established pursuant to this section. Moneys in such funds shall be expended solely for the acquisition and construction, or reimbursement for the acquisition and construction, of water system extensions within the zone from which the fees comprising the fund are collected. (g) The city may advance money, or may incur indebtedness, for the acquisition and construction of the water system extension within the zone, and a reasonable interest cost, or the cost of servicing such indebtedness, may be included as a part of the cost of the water system extension for purposes of determining the zone capacity fee.			
16.04.214	DISTRIBUTION MAIN EXTENSIONS OR REPLACEMENTS When a distribution main extension or replacement is required, the following general conditions apply: (a) Six-inch pipe shall be the minimum size considered for general use. Four-inch pipe may only be used on cul-de-sac streets three hundred feet or less in length. The director may not permit connection to a main smaller than six inches except as provided in this section. (b) If a main larger than six inches is required, the city will sustain that portion of the costs of an extension which exceeds the cost of the main required to serve the applicant, as determined by the city in accordance with a reimbursement schedule established from time to time by resolution of the city council.	Delete	Delete	Already addressed in Section 16.09.020
16.04.215	APPLICANT-INSTALLED FACILITIES The following conditions apply in the case of applicant-installed facilities made under a main extension agreement. (a) The material installed and the work performed must comply with the plans and specifications furnished or approved by the city and shall be subject to city inspection at all times.	Delete	Delete	Addressed in 16.09.030 Main Replacements to Accommodate New Development and 16.09.040 System Extension Agreements

EXISTING		PROPOSED		COMMENTS
	(b) The applicant must furnish adequate security to assure completion of the project. Such security may be in the form of a bond, letter of credit, escrow deposit or other surety acceptable to the city. Upon completion of the installation, in accordance with the agreement, title to the installation shall be transferred to the city by the applicant upon acceptance of such installation by the city. (c) When materials, engineering and inspection services are furnished by the city, applicant will be required to pay in advance the charges for material, overhead, engineering and inspection services furnished by the city, in accordance with such rates as may be established from time to time by the water department director. (d) When engineering is performed by the applicant and materials are furnished by the applicant, applicant will be required to pay the cost of inspection services furnished by the city. (e) Applicant shall furnish to city within ninety days after completion of all improvements, a detailed cost breakdown of all facilities installed by applicant, in such form and detail as may be required by the water department director.			
16.04.216	FRONT-FOOT COST RECOVERY/ REIMBURSEMENT Where a water main extension is required under Section 16.04.052 to satisfy the standards set in Section 16.04.051, the cost of installation of such new mains shall be borne by the applicant under terms established in a water extension agreement. The water extension agreement shall provide for cost recovery and reimbursement based on a front-foot assessment levied against owners of undeveloped land fronting on the main at the time they connect to it. Whether a main extension is financed by an applicant or by the city, the front-foot charge will be determined by dividing the cost of the extension by the front footage of the premises which lie along and may be served directly from the extension. The front-foot charge shall not be applied more than once to any premises. The cost of the extension for purposes of determining the front-foot charge shall be the charge that would be made to the applicant for extending a main not exceeding six inches in diameter. Premises already served at the date of installation will be	Delete	Delete	Addressed in 16.09.040 System Extension Agreements

EXISTING		PROPOSED		COMMENTS
	excluded in determining the front-foot charge and will be exempt from such payment. The water department will collect the front-foot charge, where applicable, before granting a service or private fire service to the premises which lie along and may be served directly by a main extension. The front-foot charge for a main extension shall be in effect for a period of ten years from the date of execution of the contract if the extension is financed by an applicant, or the date of the official completion of the extension if financed by the city.			
16.04.217	FRONT-FOOT CHARGE REFUNDS The applicant who has financed a main extension under Section 16.04.216 shall be reimbursed the front-foot charges collected by the water department from persons permitted to make a regular service or a private fire service connection to such extension. The amounts collected will be refunded within ninety days following the date of collection. No front-foot charge refunds will be made after ten years from the date of execution of the contract for an applicant-financed extension, except those refunds which have accrued during such ten-year period. The total amount of all refunds made by the water department to the applicant who financed a main extension may not exceed the cost of the main extension less the applicant's share.	Delete	Delete	Addressed in 16.09.040 System Extension Agreements
16.04.220	NOTICES (a) Notice to Customers. Notices from the water department to a customer will normally be given in writing, and either delivered or mailed to him at his last known address. Where conditions warrant and in emergencies, the water department may resort to notification either by telephone or messenger. (b) Notices from Customers. Notice from the customer to the water department may be given by him or his authorized representative orally or in writing: (1) At the water department's office; (2) To an employee of' the water department; or (3) To an agent duly authorized to receive notices or complaints.	16.11.030	ACCOUNT NOTICES (a) Notice to Account Holders. Notices from the Water Department to an Account holder will be given in writing, and either delivered in person, electronically, or mailed to the account holder's address. Where conditions warrant and in emergencies, the Water Department may use other means of notification. (b) Change of Information. It is the responsibility of the Account holder to notify the Department of any change of customer name, address or other contact information. (c) Notice to Customers. When a notice to an Account holder involves an interruption to service or water quality issue, it is the responsibility of the Account holder to inform customers that may be affected.	

EXISTING		PROPOSED		COMMENTS
			(d) Notices from Customers. Notice from the customer to the Water Department may be given by the customer orally or in writing: (1) at the Water Department's office; (2) to an employee of the Water Department; or (3) to an agent duly authorized to receive notices or complaints.	
16.04.230	METER READINGS Meters will be read as nearly as possible on the same day of each month. Billing periods containing less than twenty-seven days or more than thirty-three days, for bills rendered monthly or less than fifty-four days and more than sixty-six days for bills rendered bimonthly, will be pro rated.	16.11.050 (a)	(a) Reading. Meters will be read as nearly as possible on the same day of each month. When the time between meter reads is less than 27 days or more than 33 days, bills will be prorated according to Department procedures.	Referenced Department Policy: 1) Meter Reading and Billing
16.04.240	BILLING PERIOD The regular billing period will be monthly or bimonthly at the option of the water department unless otherwise directed by the city manager.	16.11.040	ACCOUNT BILLING (a) Frequency. The regular billing period will be monthly or bimonthly as established by the Director. (b) Opening and Closing. Opening and closing bills for less than the normal billing period shall be prorated for all rates, fees and charges. (c) Date Due. The rates, fees and charges provided for by this chapter shall be due and payable upon presentation of the bill in accordance with Chapter 16.13. Bills shall be considered delinquent, and penalties shall apply pursuant to Section 16.13.040 shall be considered delinquent after the date for payment set forth in the billing statement. (d) Equivalent Capacity. Accounts shall be billed in accordance with the equivalent capacity assigned to the account regardless of the number or size of physical meters associated with the account. (e) Application of Deposit. A deposit shall be applied to the account after the account has been without any late charges for one 12-month period; or returned to the customer upon closure of the account after the closing balance has been paid. (f) Failure to Receive a Bill. Failure to receive a bill does not	
16.04.250	OPENING AND CLOSING BILLS Opening and closing bills for less than the normal billing period shall be prorated both as to minimum charges and quantity blocks. Closing bills may be estimated by the water department for the final period as an expediency to permit the customer to pay the closing bill at the time service is discontinued.			
16.04.260	BILLINGS The fees and charges provided for by this chapter shall be rendered at the end of each billing period in accordance with the provisions of Chapter 16.13 of this code. Flat rates are payable in advance.			

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			relieve a customer of liability for payment. (g) Account Type. Account type, as defined by 16.11.020, shall be assigned by the Department . (h) Billing Changes. Changes to the account that effect service charges shall be made at the start of the next billing period. Billing changes to current or previous service periods will be made at the sole discretion of the Director.	
16.04.270	BILLING OF SEPARATE WATER METERS Separate bills will be rendered for each meter installation, except where the water department has, under the conditions herein set forth, approved combined billing for multiple meters upon a single premises. The water department shall determine whether a premises upon which multiple meters have been installed is a single premises, and in so doing shall exclude any noncontiguous properties. In the event a combined billing is approved by the water department, the minimum charge to be made to the customer shall consist of the sum of the minimum charges for the various sized meters combined, as in the current rate schedule. The amount of water to be included within the minimum charge shall be five hundred cubic feet per month.	Delete	Delete	Addressed in 16.04.050 Service Connection Requirements
16.04.280	BATTERIES OF METERS For all metered services, a battery of meters installed on one service shall be billed in accordance with a schedule fixed by the director of the water department, which schedule shall establish equivalent capacity between a single meter and a battery of meters.	Delete	Delete	Addressed in 16.11.040, Account Billing
16.04.290	METER ERROR TESTS All meters will be tested prior to installation and no meter will be installed which registers more than two percent fast. If the customer desires to have the meter serving his premises tested, he shall first deposit with the water department the charge established by resolution of the city council. He shall be present when the meter is tested in the meter shop of the water department. Should the meter register more than two percent fast, the deposit will be refunded, but should the meter register less than two percent fast, the deposit will be retained by the water department.	16.11.050	METER READING AND TESTING (a) Reading. Meters will be read as nearly as possible on the same day of each month. When the time between meter reads is less than 27 days or more than 33 days, bills will be prorated according to Department procedures. (b) Testing. All meters will be tested prior to installation and no meter will be installed which does not meet Department standards. The Water Department shall maintain a procedure for the testing of meter accuracy at the request of the account holder. Fees and charges for meter testing shall be as established by resolution of City Council.	Referenced Department Policy: 1) Meter Reading and Billing

EXISTING		PROPOSED		COMMENTS
16.04.300	ADJUSTMENT OF BILLS FOR METER ERRORS If a meter tested at the request of a customer is found to be more than two percent fast, the excess charges for the time service was rendered such customer, or for a period of six months, whichever is less, shall be refunded to the customer.		(c) Meter Not Registering. If a meter is found to be under-registering or not registering water use due to a malfunction or other disablement, the charges for service shall be based on the estimated consumption. Such estimates shall be made from previous consumption records for a comparable time period. Should the subsequent reading indicate that the estimate is materially in error, an adjustment shall be made in the subsequent bill. (d) Meter Cannot be Read. If a meter in working condition cannot be read, the charges for service shall be based on the estimated consumption. Such estimates shall be made from previous consumption records for a comparable time period.	
16.04.310	NONREGISTERING METERS If a meter is found to be not registering, the charges for service shall be based on the estimated consumption. Such estimates shall be made from previous consumption for a comparable period or by some other equitable method.			
16.04.320	PENALTIES FOR DELINQUENCY AND NONPAYMENT In the event that any account becomes delinquent, or any billing is not paid, penalties may be assessed in accordance with the provisions of Chapter 16.13 of this code.	Delete	Delete	Already addressed in SCMC Chapter 16.13, UNIFIED UTILITIES BILLING SYSTEM
16.04.330	DISCONTINUANCE OF SERVICE BECAUSE OF UNSAFE APPARATUS Water service may be refused or discontinued to any premises where apparatus or appliances are in use which will endanger the service to other customers.	Delete	Delete	Addressed below in new section 16.11.060, Suspension/Discontinuance of Service
16.04.331	IMPAIRMENT OF WATER SERVICE TO OTHER CUSTOMERS Where the use of water is unusually intermittent or subject to violent fluctuations of a character that impairs service to other customers, the water department may require the customer to provide, at his own expense, suitable equipment to reasonably limit fluctuations in use and pressures caused by the customer's equipment or operations.	16.15.040	IMPAIRMENT OF WATER SERVICE TO OTHER CUSTOMERS Where a Customer's consumption is intermittent or subject to extreme fluctuations thereby impairing service to other Customers, the Water Department may require the Customer to provide, at the Customer's expense, suitable equipment to reasonably limit fluctuations in use or pressures caused by the Customer's use.	
16.04.340	DISCONTINUANCE BECAUSE OF CROSS-CONNECTIONS Water service may be refused or discontinued to any premises where there exists a cross-connection in violation of state or federal laws.	16.11.060	SUSPENSION/DISCONTINUANCE OF SERVICE (a) Suspension. In addition to service connection determinations described elsewhere in this chapter, water service may be suspended by the Department to any property where any of the following conditions apply: (1) Apparatus or appliances are in use which may endanger water facilities or public health. (2) There exists a cross-connection.	Referenced Department Policy: 1) Account Discontinuance Revised by the Water Commission Subcommittee.
16.04.350	DISCONTINUANCE FOR FRAUD OR ABUSE Service may be discontinued if necessary to protect the city against fraud practiced by the customer.			
16.04.360	DISCONTINUANCE UPON VACATING PREMISES (a) Customers desiring to discontinue service should so notify the			

EXISTING		PROPOSED		COMMENTS
	water department two days prior to vacating the premises. Unless discontinuance of service is ordered, the customer shall be liable for charges whether or not any water is used. (b) Notwithstanding the twenty-four consecutive month abandonment policy, those services which are demonstrated to have been discontinued as a direct result of the October 17, 1989, Loma Prieta Earthquake, between the period of October 17, 1989, and March 31, 1990, shall be deemed abandoned if water has not been used or bimonthly readiness-to-serve charges paid for sixty consecutive months from the date of abandonment of service.		(3) The Department determines that conditions at the property could jeopardize the safety and reliability of the water service system. (4) Plumbing on the property is found defective or leaking. (5) It is necessary to protect the City against fraud practiced by a customer. (6) A service bill has not been paid. a. Prior to such water service shutoff, the customer shall be mailed a final notice informing him or her that the shutoff will be enforced if payment is not made within the time specified in the notice. The final notice shall be given, and the noticed date of shutoff shall be calculated, in accordance with the applicable provisions of Division 5, Chapter 1, Section 10010.1 of the California Public Utilities Code. (7) Violation of private fire protection regulations set forth in 16.04.050 (h). (8) Applicable statutes, regulations and/or policies have been violated. (b) Discontinuance. Account holders desiring to discontinue service should so notify the Water Department at least two business days prior to the desired date of discontinued service. Unless the account is closed or transferred to another responsible party in accordance with Department policies and procedures, the account holder of record shall be liable for charges due or that become due whether or not any water is used. It shall be the account holder's responsibility to obtain confirmation of the disconnection order from the Department.	
16.04.370	RESTORATION CHARGE Where service has been discontinued for violation of the Municipal Code, or for non-payment of bills, the water	16.11.070	SERVICE RESTORATION Where service has been discontinued for violation of applicable statutes, regulations, and/or policies or for non-payment of bills,	Revised by the Water Commission Subcommittee.

EXISTING		PROPOSED		COMMENTS
	department will make a charge for restoration of service and/or to set or remove a meter due to unauthorized use in accordance with a schedule to be established by resolution of the city council.		the Water Department will impose a charge for restoration of service and/or to install or remove a meter in accordance with the fee schedule established by resolution of the City Council.	
16.04.380	FIRE HYDRANTS (1) Use. Fire hydrants are for use by organized fire protection agencies and by the water department. Other parties desiring to use fire hydrants for any purpose must first obtain written permission from the water department prior to use and shall operate the hydrant in accordance with instructions issued by the water department. (2) Moving. Fire hydrants will be moved at the request of property owners where such requests are reasonable. All costs shall be borne by the party requesting such relocation.	16.04.090	FIRE HYDRANTS (a) New Fire Hydrants. Where required by the fire protection agency within whose jurisdiction the property falls, new fire hydrants shall be installed at the applicant's expense and shall conform to standard specifications, requirements, and the payment of applicable fees and charges adopted by resolution of City Council. (b) Relocation of Existing Fire Hydrants. Requests to relocate an existing fire hydrant must be approved by the appropriate fire protection district, the appropriate public works Department and the Water Department in accordance with Department policies and procedures and may be subject to applicable charges as adopted by resolution of City Council. The relocation of an existing fire hydrant shall be at the expense of the requestor.	Referenced Department Policy: 1) Fire Hydrants
16.04.390	RESPONSIBILITY FOR EQUIPMENT All facilities installed on private property by the water department for the purpose of rendering water service shall remain the property of the city and may be maintained, repaired or replaced by the water department without consent or interference of the owner or occupant of the property. The property owner shall use reasonable care in the protection of the facilities. No payment shall be made for placing or maintaining said facilities on private property.	Delete	Delete	Already addressed in section 16.04.070, Service Connection Ownership and Maintenance
16.04.400	DAMAGE TO WATER SYSTEM FACILITIES The customer and/or property owner shall be jointly liable for any damage to the city-owned water service facilities when such damage is from causes originating on the owner's premises.	Delete	Delete	Conflicts with section 16.04.070, Service Connection Ownership and Maintenance
16.04.410	CONTROL VALVE The property owner shall provide a valve on his or her side of the service installation to control the flow of water to the piping on his or her premises. The property owner or customer shall not use the city service curb stop to turn water on and off for his or her convenience. However, should the property owner or customer damage the service curb stop, he or she shall be responsible for payment of damages charged by the water department in	Delete	Delete	Already addressed in 16.04.060 (e) and 16.04.070

EXISTING		PROPOSED		COMMENTS
	accordance with the service fee structure.			
16.04.420	CROSS-CONNECTION CONTROL AND BACKFLOW PROTECTION.* * Editor's Note: Prior to its repeal by Section 1 of Ord. 95-27, Section 16.04.420 (Cross-Connection Control and Backflow Prevention) was set out in Prior Code Section 7417, as amended by Ord. 72-10 § 1 and Ord. 80-30 § 2. (a) Definitions. As used in this section, certain terms are defined as follows: (1) "Backflow" means the flow of water or other substances from the customer's plumbing into the public water system. (2) "Approved backflow protection device" or "device" means a device specifically designed to prevent the occurrence of backflow, and which is specifically approved by the State of California, Department of Health Services, for that purpose. (3) "Contamination" means the impairment of the quality of the water in the city's water system through the introduction of any foreign substance into the public water system, including water previously delivered to a customer through the city water system. (4) "Customer" means any person, business, or other entity receiving water service from the city of Santa Cruz as designated on the current billing records of the city of Santa Cruz water department. (5) "Director" means the director of the city of Santa Cruz water department, or his/her authorized representative. (6) "Department" means the city of Santa Cruz water department. (b) Where Protection Required. An approved backflow protection device shall be installed and maintained at every service connection to a premises when it is determined by the director that there exists on the premises, or the plumbing system connected thereto, a risk to the public water supply of contamination or deterioration in water quality. The risk to the public water supply may be real or potential, and the department shall maintain a written policy, approved by the director, that specifies the circumstances, conditions, or instances where the installation of a backflow prevention device shall be required.	16.15.050	CROSS CONNECTION CONTROL AND BACKFLOW PROTECTION (a) Incorporation of California Title 17. The regulations of the Department of Public Health, Title 17 of the California Code of Regulations, Section 7583 through 7605, as amended from time to time, are hereby adopted, incorporated by reference and made a part hereof, insofar as the same are applicable to the protection of the City water system. (b) Where Protection is required. In accordance with Department policies and procedures, an approved backflow protection device shall be installed and maintained at every service connection where the Department determines there is an actual or potential risk to the public water supply of contamination, pollution, or deterioration in water quality. The level of protection required and the type of device required shall be determined by the Department in relation to the degree of the actual or potential hazard. The Director's decisions on such determinations shall be considered final. (c) Ownership and Responsibility. Any backflow protection devices installed pursuant to the requirements of this section are the sole property and responsibility of the account holder. It shall be the responsibility of the account holder to furnish, inspect, install, and test the device, and to maintain the device in proper working condition at all times. The City shall not be liable for any injury to people or damage to property which may result directly or indirectly from the installation, malfunction, testing or repair of any backflow device. (d) Enforcement. Water service may be discontinued immediately and without notice to the Customer if the Department determines that the City water supply is being contaminated or is in immediate danger of contamination. The Director's decisions on such determinations shall be considered final. (e) Policies and Procedures. The Department shall maintain written policies and procedures, approved by the director,	Referenced Department Policies: 1) E-1990.3 Backflow Protection

EXISTING		PROPOSED		COMMENTS
	(c) Level of Protection Required. The level of protection required, and the type of device required, shall be determined by the director in relation to the degree of the actual or potential hazard present on the premises or the plumbing system connected thereto. The department shall maintain a written policy, approved by the director, that provides specific guidelines for the determination of the degree of hazard and level of protection required. (d) Responsibility. It shall be the responsibility of the customer on whose premises a backflow protection device is required under this section to furnish and install the device and maintain the device in good working condition. Any backflow protection devices installed pursuant to the requirements of this section are the sole property and responsibility of the customer. (e) Testing of Devices. (1) The customer is responsible for having any devices installed under this section periodically inspected and tested by a person approved by the director to perform such inspections and tests. Devices shall be tested at least once per year, or at the minimum time interval specified by Title 17 of the California Code of Regulations (latest revision), whichever is more frequent. The customer will be notified by the department when inspections and tests are required, and records of such inspections and tests shall be reported to the director when completed. The cost of any inspections required under this section shall be the sole responsibility of the customer. (2) If the customer fails to have any of the inspections or tests made as required herein, or fails to make the records of such inspections or tests available, the director shall have the right to have the device inspected or tested and shall bill the customer for the direct cost thereof plus 15% administrative overhead. The cost of any inspection or test made by the director may be included in an ensuing water bill for the premises in question. (f) Specific Installation Requirements. The department shall maintain written standard specifications and/or details, approved by the director, that define specific requirements for the location		which specify: (1) circumstances and conditions under which the installation of a backflow prevention device shall be required; (2) guidelines for the determination of the degree of hazard and level of protection required; (3) requirements for inspection, testing and maintenance of backflow devices; and (4) notices and other enforcement actions that will be taken by the City regarding these requirements.	

EXISTING		PROPOSED		COMMENTS
	and installation of devices. (g) Enforcement. (1) No water service connection shall be installed on the premises of any customer unless the city water system is protected as required by this section. (2) Water service to the premises of any customer may be discontinued by the director if any backflow protection device required by this section has not been installed, inspected, tested, and maintained; or, if it is defective or has been removed or bypassed. Prior to discontinuance of service, the department will provide the customer with written notice describing the conditions or defects that must be corrected, and the date on or after which the service will be discontinued, should the conditions or defects not be corrected. (3) Water service may be discontinued immediately and without notice to the customer if the director determines that the city water supply is being contaminated or is in immediate danger of contamination from conditions that exist on the customer's premises or the plumbing connected thereto. A reasonable attempt to notify the customer of the discontinuance of the water service will be made by the department, but failure to provide such notice will not prevent the discontinuance of the service. (4) Water service discontinued under subsections (2) and (3), above, shall not be resumed until any backflow protection device required by this section is properly installed or repaired to the satisfaction of the director, or until conditions on the premises causing the contamination, or danger of contamination, have been abated or corrected to the satisfaction of the director. (h) Notification. Notwithstanding the provisions of subsection (g)(3), above, the department shall provide the following notice regarding the enforcement of this section. (1) Testing of Devices. When testing of a device is due, the department shall send written notice to the customer. The customer shall have thirty days from the date of the notice to complete the testing. If a completed test report is not received by the department from the			

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	customer within that thirty-day period, a second notice will be sent. If a completed test report is not received by the department within thirty days of the second notice, water service to the premises will be discontinued upon provision of a forty-eight-hour written final notice. (2) Installation (Retrofit) of Devices on Existing Services. (A) When it is determined by the department that the installation of a backflow prevention device is required on an existing service, the department shall provide written notice of the requirement to the customer. The customer shall then have forty-five days from the date of the notice to complete the installation. If the installation is not completed within the forty-five-day period, the department will send the customer a second notice. If the installation is not completed within fourteen days of the date of the second notice, water service to the premises will be discontinued upon provision of a forty-eight-hour written final notice. (B) Following the installation of the device, the city will provide the customer with written notice to have the new device initially tested. The customer shall have thirty days from the date of the notice to complete the initial testing. If a completed test report is not received by the department within this thirty-day period, service to the premises will be discontinued upon provision of a forty-eight-hour written final notice. (3) Installation of Devices on New Services. (A) When it is determined that a backflow prevention device is required to be installed on a new service, the device must be installed in conformance with the department's standard specifications and/or details prior to acceptance of the new service by the department. Notification of the need for the device will be provided during the normal plan and/or service application review process. (B) Following the acceptance of the new service, the city will provide the customer with written notice to have the new device initially tested. The customer shall have thirty days from the date of the notice to complete the initial testing. If a completed test report is not received by the department within this thirty-day period, service to the premises will be discontinued upon			

EXISTING		PROPOSED		COMMENTS
	provision of a forty-eight-hour written final notice. (4) Removal or Bypassing a Device. Upon discovery, the department will provide the customer written notice of the requirement to restore the device and have it tested within forty-five days. If the device is not restored and tested within the forty-five day period, the department will send the customer a second notice. If the device is not restored and tested within fourteen days of the date of the second notice, water service to the premises will be discontinued upon provision of a forty-eight-hour written final notice.			
16.04.430	INTERRUPTIONS IN SERVICE The city shall not be liable for damage which may result from an interruption in service from a cause beyond the control of the water department. Temporary shutdowns may be made by the water department to make improvements and repairs. Whenever possible and as time permits all customers affected will be notified prior to making such shutdowns.	16.04.040 (a) & (b)	(a) Supply. The Water Department will exercise reasonable diligence and care to deliver a continuous and sufficient supply of water to the Customer at sufficient pressure, and to avoid shortages or interruptions in delivery. (b) Service Interruptions. The City reserves the right to interrupt service while making improvements and repairs required in the operation of the water system. Whenever it is necessary to schedule an interruption to its service, the Department will endeavor to notify all account holders to be affected by the interruption, stating the approximate time and anticipated duration of the interruption. The City shall not be liable for damage which may result from an interruption in service.	
16.04.440	INGRESS AND EGRESS Representatives from the water department shall have the right of ingress and egress to the customer's premises at reasonable hours for any purpose reasonably associated with the furnishing of water service.	16.04.070 (d)	(d) City Access. Representatives of the Water Department shall have access to any City-owned meters, service connections, and other water facilities located on private property for purposes reasonably associated with the furnishing of water service. Such access shall be without notice or interference from the owner or occupant of the property. Representatives of the Water Department shall have access at reasonable hours (except in emergencies) to property side water facilities such as shut-off valves and exterior hose bibs for purposes reasonably associated with the furnishing of water service. Such access shall be with notice except in the case of emergency.	

EXISTING		PROPOSED		COMMENTS
16.04.450	RATES The rates to be charged and collected from consumers of water supplied by the city to any person are those established by a resolution of the city council.	16.14.030	SERVICE RATES AND FEES The rates and fees charged by the City for water services shall be established by resolution of the City Council. The Applicant or Account holder is responsible for payment of such rates and fees.	
16.04.460	ALLOCATION OF INCOME FROM WATER SYSTEM The rents, income and receipts from the water system of the city shall be used solely and exclusively for the purposes provided for in this chapter; provided, however, that notwithstanding any other provision of this chapter, while any revenue bonds payable from the revenues of the water system of the city are outstanding, such rents, income and receipts from the water system shall be first used and applied for the payment of principal, interest, reserve fund, and sinking fund requirements of such revenue bonds and for maintenance and operation of the water system, in the manner provided in the resolution provided for the issuance of such revenue bonds. (1) For the operation, maintenance, construction, improvement, extension, enlargement and upkeep thereof, and for the payment and liquidation of the principal and interest of any bonded indebtedness, now existing, or which may hereafter be created, for the operation, maintenance, construction, improvement, extension, enlargement or upkeep of the water system. (2) For the equipment, operation and maintenance of the fire department, including the establishment of an auxiliary fire station on the east side of the city, not to exceed the sum of fifteen thousand dollars in any one year. (3) For the completion of the construction of a new city hall building not to exceed in the aggregate the sum of $75,000.00. Provided, that the charges, expenses and matters provided for in the preceding sections shall have priority over those provided herein, and no water system funds shall be taken for this purpose except from the surplus over $25,000.00, which sum is established as a waterworks fund. Provided further, that any funds taken for city hall construction	16.14.020	SYSTEM INCOME ALLOCATION The revenues collected from the City water system shall be used solely and exclusively for the operation, maintenance, construction, improvement, extension, enlargement and upkeep of that water system; provided, however, that such revenues shall be first applied to the payment and liquidation of the principal and interest of any bonded indebtedness incurred for the water system, as provided in the resolution for the issuance of such revenue bonds.	

EXISTING		PROPOSED		COMMENTS
	purposes under this chapter shall and must be returned and transferred from other funds of the city to water system funds at the rate of not less than $8,000.00 annually until fully returned Provided further, that of the income, collections and receipts from municipal license fees and taxes, the sum of $8,000.00 thereof annually shall and must be used solely and exclusively for water system purposes until the aggregate amount taken from the water system funds under authority of this section has been fully returned The sums so set apart for water system purposes under this paragraph shall constitute a special fund and none of the income, receipts and collections from said municipal fees and taxes shall be used for any other purpose until and unless the sum of $8,000.00 has been used for water system purposes as aforesaid. (4) For the erection, building and construction of new fire department buildings upon both the east and west sides of the city and acquiring sites therefor. Provided, that of the rents, income and receipts from the water system the proceeds derived from the sale of lands authorized by Ordinance No. 1540 only shall be used for these purposes.			
16.04.470	UNDERTAKING MAIN REPLACEMENT OR EXTENSION IMPROVEMENTS The water department director is hereby authorized to undertake the construction and installation of water main replacements or extensions through the use of personnel and equipment of the city of Santa Cruz pursuant to the rules and regulations provided by Section 16.04.210 (1) through (6), in conformity with the detailed plans, specifications and estimates of costs thereof where, in the opinion of the water department director, the undertaking of the work of improvement can most economically be prosecuted by the city of Santa Cruz within the limits set by Santa Cruz City Charter Section 1415.	Delete	Delete	Such authority already given to Water Director, including but not limited to, 16.04.020, 16.04.050 (i), 16.09.020 (a), 16.15.020
16.04.480	USAGE OF WATER FOR AGRICULTURAL, DOMESTIC AND OTHER PURPOSES The city council is hereby authorized, by resolution, to regulate the use of water within the corporate limits of the city as it deems necessary to conserve the water supply of the city of Santa Cruz and provide, during a water shortage, for limitations on use of the	16.15.020	AUTHORITY TO REGULATE The City Council is authorized to regulate, by resolution, the use of water within the corporate limits of the City as it deems necessary to conserve the water supply of the City of Santa Cruz and provide, during a water shortage, for limitations on use of the water supply of the City for all purposes. The City Council is	

EXISTING		PROPOSED		COMMENTS
	water supply of the city for all purposes. The city council is empowered to prohibit the use of water for any purposes not directly connected with the preservation of the public health, welfare and safety of the inhabitants of the city of Santa Cruz. The water department director is authorized and directed to provide for limitation and curtailment of usage of water in the service area of the Santa Cruz water department outside the corporate limits of the city of Santa Cruz pursuant to any resolution enacted and adopted by the city council pursuant to this section. Resolutions adopted by the city council establishing water use regulations shall be effective immediately after their publication in a newspaper of general circulation published in the city of Santa Cruz.		empowered to prohibit the use of water for any purposes not directly connected with the preservation of the public health, welfare and safety of the inhabitants of the City of Santa Cruz. The Director is authorized and directed to provide for limitation and curtailment of usage of water in the service area of the Santa Cruz Water Department outside the corporate limits of the City of Santa Cruz in accordance with resolution adopted by the City Council. Resolutions adopted by the City Council establishing water use regulations shall be effective immediately after their publication in a newspaper of general circulation distributed in the City of Santa Cruz.	

TOC for Title 16 WATER, SEWERS AND OTHER PUBLIC SERVICES

Existing	Change
	Chapter 16.00 DEFINITIONS
Chapter 16.01 WATER SHORTAGE REGULATIONS AND RESTRICTIONS	
Chapter 16.02 WATER CONSERVATION	
Chapter 16.03 PLUMBING FIXTURE RETROFIT REGULATIONS	
Chapter 16.04 WATER SERVICES AND CHARGES	Chapter 16.04 WATER SERVICES
Chapter 16.05 LOCH LOMOND RECREATION AREA, WATERSHED LANDS AND RIPARIAN CONSERVATION AREAS	
Chapter 16.06 REGULATION OF WATER WELLS	
Chapter 16.08 SEWER SYSTEM ORDINANCE	
	Chapter 16.09 WATER SERVICE IMPROVEMENTS
Chapter 16.10 DESALINATION PLANT – VOTER APPROVAL	
	Chapter 16.11 WATER SERVICE ACCOUNTS
Chapter 16.12 SEWER RATES AND CHARGES	
Chapter 16.13 UNIFIED UTILITIES BILLING SYSTEM	
	Chapter 16.14 SYSTEM DEVELOPMENT CHARGES
	Chapter 16.15 WATER USE
Chapter 16.16 WATER-EFFICIENT LANDSCAPING	
Chapter 16.18 STORMWATER MANAGEMENT UTILITY	
Chapter 16.19 STORM WATER AND URBAN RUNOFF POLLUTION CONTROL	
Chapter 16.20 MUNICIPAL SOLAR UTILITY	
Chapter 16.22 IMPACT MITIGATION – UNIVERSITY GROWTH	
Chapter 16.24 UTILITY SERVICE AREA EXPANSION	

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WATER COMMISSION
INFORMATION REPORT

DATE: 03/29/16

AGENDA OF: April 4, 2016

TO: Water Commission

FROM: Toby Goddard, Administrative Services Manager

SUBJECT: Water Conservation Master Plan Technical Memorandum

RECOMMENDATION: That the Water Commission recommend the City Council approve the recommended program described in the Technical Memorandum and direct staff to proceed with production of the final report.

BACKGROUND: On March 7, 2016, the Water Commission received a presentation and reviewed an updated technical memorandum on the Water Conservation Master Plan as one part of the WSAC Work Plan Update. Commission members had a number of questions, comments, and suggestions but indicated its unanimous approval of the overall findings and direction of the plan.

DISCUSSION: The technical memorandum has been revised based on comments received at the March 7 meeting. Measure numbers have been added to Figure 6-1. Revisions were made the descriptions of turf removal and hot water recirculation measures (measures 23, 24, and 32). Estimates of water savings and costs of water saved were dropped for the Innovation Incubator item (measure 35). A reference was added in section 6.7 calling for a review and update of the entire plan on a five-year cycle. As mentioned at the meeting, implementation and administration of the plan will be addressed in the process of preparing the final report.

FISCAL IMPACT: None.

ATTACHMENTS:
1. Technical Memorandum, Maddaus Water Management, March 30, 2016

Technical Memorandum

Prepared for:	The City of Santa Cruz
Project Title:	Water Conservation Master Plan, Phase 2
Subject:	Overview of Current Findings from Water Conservation Master Planning Effort
Date:	March 30, 2016
To:	Toby Goddard, City of Santa Cruz Water Department
From:	Lisa Maddaus, Maddaus Water Management Inc.
	Bill Maddaus, Maddaus Water Management Inc.

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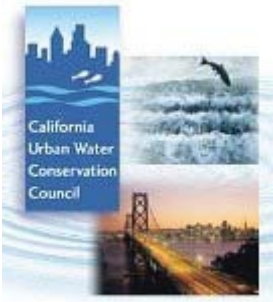
1. INTRODUCTION

This technical memorandum provides an overview of current findings from the water conservation master planning effort.

1.1 Background

Water is a precious natural resource that is vital to the health and welfare and to the economy of the Central Coast region. The City of Santa Cruz relies entirely on local sources for the community's drinking water supply. Because water supplies are limited, it is important that everyone uses water efficiently. The City of Santa Cruz has had a long-standing commitment to water conservation and offers a variety of programs, informational materials, and incentives to help City water customers become more water-efficient.



In 2000, the City adopted a Water Conservation Plan, the goal of which was to reduce water demand system-wide by 282 million gallons per year in 2010. Through plumbing fixture and appliance rebate programs, technical assistance, regulations, and other strategies, residential and commercial customers have saved over 330 million gallons of water per year so far. The City is also a member of the California Urban Water Conservation Council (CUWCC) and is active in promoting water conservation statewide.

In 2013, the Water Conservation Office contracted with Maddaus Water Management (MWM) to develop an updated Water Conservation Master Plan. The goal of the updated plan is to define the next generation of water conservation activities and serve as a roadmap to help our community achieve maximum, practical water use efficiency. Strengthening water conservation efforts has been identified as top priority by the City Council, the City's Water Commission, and more recently by the City's Water Supply Alternatives Committee in its effort aimed at delivering a safe, adequate, affordable, and environmentally sustainable water supply.

1.2 Need and Plan Objectives

The City of Santa Cruz's Water Conservation Master Plan (WCMP or Plan) strives to maximize the community's efficient use of water in the most equitable and cost-effective manner to the extent practical for implementation by City staff.

Key priorities of the WCMP include the following:

- Capitalize on opportunities to meet the future water needs of the Santa Cruz Water Department customers through cost-effective and sustained water conservation and water use efficiency efforts
- Demonstrate environmental stewardship and foster innovative, responsible and efficient practices
- Commit to and implement a water conservation program that supports the health of rivers, streams, and groundwater integral to the region's quality of life and economy
- Monitor and measure performance to ensure conservation potential is being met as forecasted

Achieving these goals will allow the Water Department to:

- Maintain and exceed the water savings already achieved by the City of Santa Cruz as well as identify the best path to achieve those savings and to monitor commitments to the CUWCC Memorandum of Understanding (MOU) Regarding Urban Water Conservation;
- Maintain a long-term plan for compliance with SB X7-7 to meet the gallons per capita per day (GPCD) target by 2020; and
- Meet the City's integrated water resource management goals to reduce peak season demands.

1.3 WSAC Recommended Approach to Demand Management

The City's Water Supply Advisory Committee (WSAC) was supported by City staff and Maddaus Water Management in its review of remaining conservation potential to future goals for the City's Conservation Program. In the WSAC's Final Report

published in October 2015, the following key assumptions about the demand management program (Recommended Program) were presented:

- "The Econometric Demand Forecast [building on previous assumptions prepared by MWM in the DSS Model] includes significant demand reductions associated with the implementation of existing plumbing and building codes, the continuation of existing demand management programs (as a baseline) and as a function of the effect on demand of expected increases in water rates.
- "A focus of new demand management programs will be on peak season demand reduction, which is also a significant focus of the expected demand reduction associated with anticipated price increases.
- "New and enhanced demand management programs will be developed to build on the Water Department's current program that has contributed to reducing per capita demand in Santa Cruz to one of the lowest levels in the state.
- "The programs to be implemented in the coming decade[s] are a mix of lower cost and some higher cost measures. Those higher cost measures are meant as small-scale experiments that may be broadened if they prove popular and their costs decline over time. Together these measures incur an average total program cost of no more than $10,000 per million gallons of water saved. This figure is lower than the expected cost of supply augmentation projects recommended to be pursued as a result of WSAC's work."

2. PLAN DEVELOPMENT (SUMMARY OF PROCESS)

Work on the Water Conservation Master Plan began with a kick-off meeting in January 2013. Since that time, the Water Commission has developed the goals of the planning effort; identified and selected a suite of potential quantifiable conservation measures for technical analysis; and evaluated system-wide conservation potential through selection of a recommended program scenario.

In preparation for this project, the City completed a Residential and Commercial Baseline Water Use Survey in May 2013 to assess the current status of plumbing fixtures, appliances, and landscape characteristics present in the City's water service area.

There have been two (2) main phases in the City's planning process separated by an intervening year that included an in-depth review of the work by WSAC. The process followed in the Plan is summarized as follows:

Phase 1: January 2013-October 2014

- Analyze water use and review City's Baseline Survey for remaining conservation potential
- Identify, screen, and prioritize measures, with significant public input via Water Commission Meetings and workshops
- Model measures
- Formulate programs, leading to a recommended Program "C" to maximize total annual water savings based on conservation potential
- Present outcomes to Water Commission on October 6, 2014

WSAC Review: October 2014-September 2015

- Review prior Phase 1 analytical results from the Least Cost Decision Support System Model (DSS Model – Model described in Appendix A) and seek to answer additional questions with City and MWM technical assistance
- Shift conservation program emphasis to peak season (April-October) water savings rather than maximizing overall higher annual volume and/or more cost-effective water efficiency savings to better address the City's supply-demand gap.
- Prepare and adopt a new econometric-based demand forecast

- Produce recommendations for additional conservation measures to be included in the Final Water Conservation Master Plan

Phase 2: October 2015-present

- Recalibrate model to updated econometric demand forecast and reset planning horizon to 2015-2035
- Incorporate input (changes to existing measures and adding new measures) from WSAC process, with focus on peak season demand reduction
- Incorporate new plumbing code changes based on the State's Emergency Drought Regulations, effective December 1, 2015
- Formulate the "Recommended Program" into the DSS Model and evaluate results

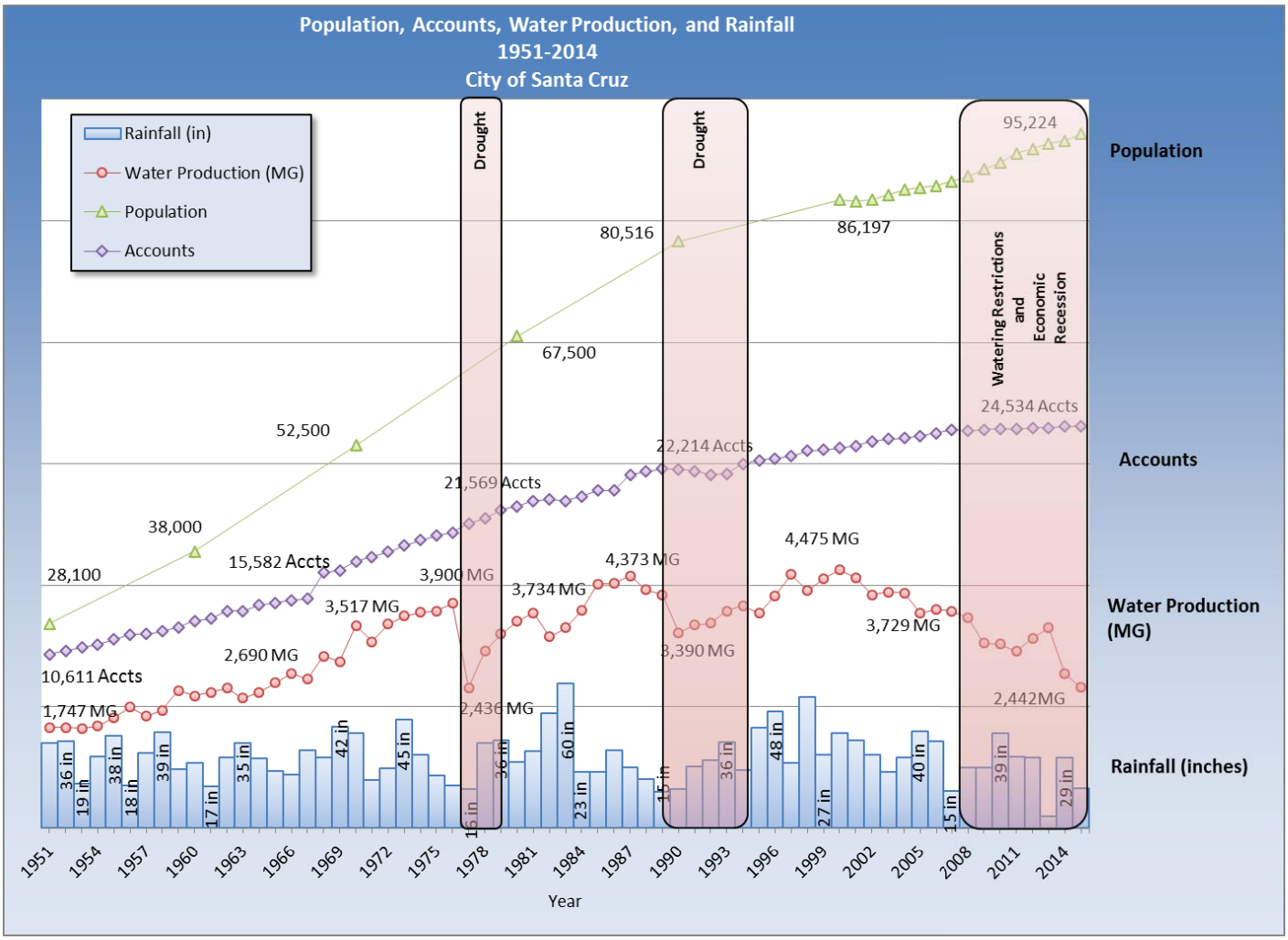
3. BASELINE DEMANDS

The WCMP process comprises four distinct steps: 1) input/analysis of system-wide demand projections to establish demand planning baseline with and without plumbing and building codes; 2) evaluation of system-wide conservation potential; 3) identification and study of potential conservation measures; and 4) deliberation and adoption of preferred long-term conservation program. Each of these steps is described in more detail in the following sections. This section presents a summary of the City's historical demand trends as well as the basis for the demand forecast.

3.1 Historical Trends

As seen in Figure 3-1, the historic trend in system water use paralleled account growth and population, except during two major drought periods. Around 2000, the pattern changed and system demand began a long period of decline, accelerated in 2009 by drought, economic downturn, and other influencing factors. The City has not seen a full demand recovery since the recent economic recession due to the ongoing drought. In 2013 system-wide demand was 3,364 million gallons per year, with Stage 1 water shortage regulations and restrictions in effect. In 2015 with the full rationing scheme in place, the City reduced production to 2,442 million gallons on the level not seen since the drought in the 1970s. Water demands are projected to remain depressed after the year 2015 due to persistent drought conditions and long-term behavioral changes related to water use. While it is prudent to assume that future demands will eventually recover when rainfall patterns/drought conditions and the economy normalize, it might not be to the same level as before due to widespread, long-term conservation measures taken in response to drought and ongoing adjustments in water rates.

Figure 3-1. Historical Trends for City of Santa Cruz



3.2 Basis for Demand Forecast

Maddaus Water Management (MWM) employed its Least Cost Planning Decision Support System Model (DSS Model) for the technical analysis. In addition to considering historical demand trends based on billing consumption data, the DSS Model takes into account the following parameters: total population, single family population, multifamily population, UC Santa Cruz population, commercial employment, business-industrial growth, and municipal growth.

In the M.Cubed August 2015 "City of Santa Cruz Water Demand Forecast," David Mitchell conducted an econometric analysis of water demand and forecasts of class-level customer demands and total system production through 2035. The report was commissioned by the City of Santa Cruz Water Department and the City's Water Supply Advisory Committee. Its purpose was to update the Department's existing demand forecast adopted as part of the 2010 UWMP to reflect current information on water usage and to account for effects of current conservation (using DSS Model Program A), water rates, and other factors expected to impact the future demand for water. With the start of Phase 2, MWM's DSS Model was carefully updated to incorporate this econometric analysis by inputting the regression equations and data sets used by M.Cubed and calibrated to ensure consistency between the two demand forecast models.

The updated DSS model starts with a "baseline" demand forecast, which is <u>not</u> the same forecast as presented by M.Cubed. It differs in that it backs out the earlier estimates for plumbing code savings and the estimated future water saving associated with the City's current water conservation program that were provided by MWM to M.Cubed in 2015 and embedded in that final demand forecast. All other variables, including average water use per account, forecasts of account growth, and economic factors used to forecast water use in the M.Cubed report, were taken directly from that model and used to populate the DSS model.

Table 3-1 below compares the primary water demand forecast presented by M.Cubed without the code savings and program savings that were previously generated from the DSS Model analysis completed in October 2014 compared to the updated DSS "baseline" demand completed in February 2016.

Table 3-1. Comparison of M.Cubed Demand Forecast and DSS "Baseline" Forecast (MG)

Demand (MG)	2020	2025	2030	2035
M.Cubed Final Demand Forecast, October 2015	3,385	3,351	3,388	3,442
2014 Estimate of Plumbing Code Savings (Prior DSS Model version)	65	132	197	235
2014 Estimate of Conservation Program Savings – Program "A" (Prior DSS Model version)	110	143	139	134
M.Cubed Final Demand Forecast without Plumbing Code or Conservation Program Savings	3,560	3,626	3,724	3,811
DSS Model "Baseline" Demand	3,560	3,636	3,743	3,838
Difference, MG	0	10	19	27
Difference, %	0.0%	0.3%	0.5%	0.7%

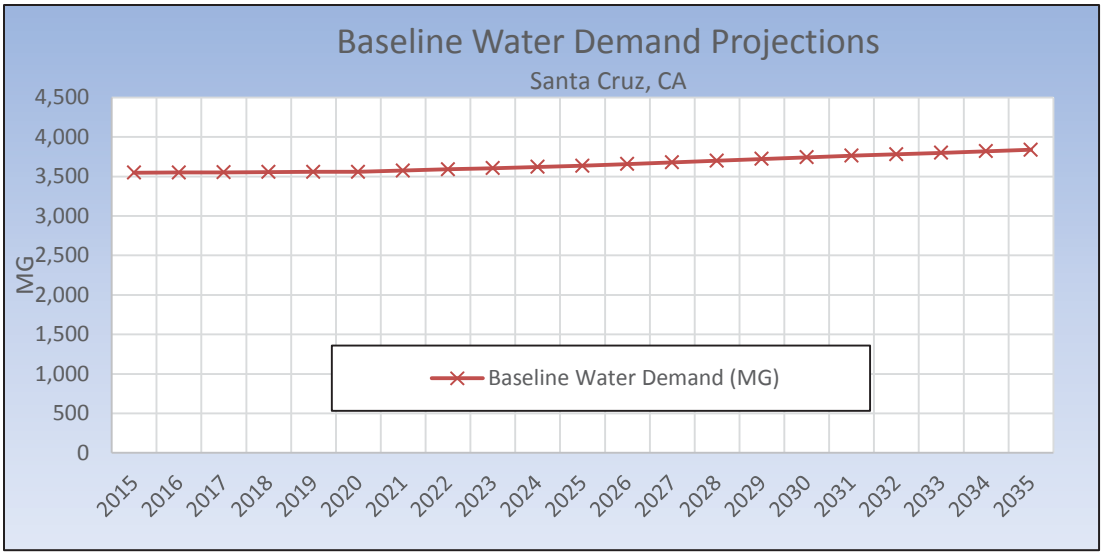
Note: Plumbing code and program savings: M.Cubed, 2015, Attachment 8, were originally based on results from the DSS Model prior work in 2014 by Maddaus Water Management, which are updated with the most recent DSS Model results from February 2016.

As can be seen in the above table, the two models are in close agreement and in all years differ by less than 1%.

The baseline demand forecast is shown in the following Figure 3-2. As referenced in the M Cubed report, the baseline forecast is predicated on average weather and normal economic conditions and is not expected to match realized demand, especially in the short term. City staff will continue to monitor production and consumption through and following the drought.

The next step involves calculating the effect of passive savings against the "baseline" demand. The results differ from earlier estimates of plumbing code savings presented in 2014-15 for two reasons: 1) lower baseline demand and 2) additional passive savings due to recent changes in California codes resulting from 2015 emergency conservation regulations adopted in California, effective December 1, 2015 (after the publication of the M.Cubed report).

Figure 3-2. Baseline Demand Forecast Without Plumbing Code Savings



Source: City of Santa Cruz. DSS Model, Section: Demand Analysis, Feb 16, 2016.

4. BASELINE DEMANDS WITH PASSIVE SAVINGS 2015-2035

Future community-wide conservation savings will be achieved by implementing both passive and active measures. Passive measures are federal and state codes and standards that increase conservation savings as older appliances and fixtures are replaced over time naturally with more water efficient models. Active measures are those in which the City will invest to promote water conservation, such as incentives and educational programs.

4.1 Basis for Plumbing Code Savings

Since it is beneficial to model the impact of the natural changes in the mix of types of appliances, the DSS Model forecasts service area water fixture use. In the codes and standards part of the DSS Model, specific fixture end-use type (point of use fixture or appliance), average water use, and lifetime are compiled. Additionally, state and national plumbing codes and appliance standards for toilets, urinals, showers, and clothes washers are modeled by customer category. These fixtures and plumbing codes can be added to, edited, and/or deleted by the user. This yields two demand forecasts – one with and one without plumbing code savings.

A key input in the model is fixture water use and life, as well as the initial proportions of individual fixtures in each customer class. The following Figure 4-1 presents an example of the initial proportions used in existing single family accounts. Table 4-1 on the following page provides the list of fixtures, average water use, and assumptions for fixture life used in this analysis.

Figure 4-1. Initial Fixture Proportions for Single Family Toilets (screen shot from the DSS Model)

Initial Fixture Proportions - Single Family Toilets	
1.28 gpf HET Residential	7.2%
1.6 gpf ULFT Residential	82.7%
High Use Toilet Residential	10.1%
<1.0 gpf Toilet Residential	0.0%
Total	100.0%

Data collected from the recently completed City of Santa Cruz Water Use Baseline Survey was used for this purpose. Other input parameters include estimates for annual replacement rate and assumed market share for both replacement and new equipment at various points in the planning horizon.

The scope of analysis involved assessing the rate of change of toilets, shower heads, lavatory and non-lavatory/kitchen faucets, and clothes washers in both existing single family and multifamily accounts, and toilets, urinals, and lavatory and non-lavatory/kitchen faucets in commercial accounts. Fixture characteristics are also tracked in new accounts, which are subject to the requirements of the 2015 California Green Building Code and 2015 California Code of Regulations Title 20 Appliance Efficiency Regulations adopted by the California Energy Commission (CEC) on September 1, 2015. This was an update in Phase 2, from the prior work in Phase 1, of preparing the DSS Model.

The controlling law for **toilets** is Assembly Bill (AB) 715. This bill requires high efficiency toilets (1.28 gpf) to be exclusively sold in California beginning January 1, 2014. The controlling law for wall-mounted urinals is the 2015 CEC efficiency regulations requiring that ultra-high efficiency pint **urinals** (0.125 gpf) be exclusively sold in California beginning January 1, 2016. This is an efficiency progression for urinals from AB 715's requirement of high-efficiency (0.5 gpf) urinals starting in 2014 that was modeled during WCMP Phase 1.

Standards for **residential clothes washers** fall under the regulations of the U.S. Department of Energy. Even though both front loading and top loading models will still be available for the foreseeable future, national water efficiency standards for both types are becoming more stringent over time, in steps. In March 2015, the federal standard reduced the maximum water factor for non-Energy Star certified top- and front-loading washing machines to 8.4 and 4.7, respectively. In 2018, the maximum water factor for standard top-loading machines will be further reduced to 6.5. Beginning in 2015, the maximum water factor for Energy Star certified washers was 4.3 for top-loading machines and 3.7 for front-loading.

Showerhead flow rates are newly regulated under the 2015 California Code of Regulations Title 20 Appliance Efficiency Regulations adopted by the CEC, which requires the exclusive sale in California of 2.0 gpm showerheads at 80 psi as of July 1, 2016 and 1.8 gpm showerheads at 80 psi as of July 1, 2018. The WaterSense specification applies to showerheads that have a

maximum flow rate of 2.0 gallons per minute (gpm) or less. This represents a 20% reduction in showerhead flow rate over the current federal standard of 2.5 gpm, as specified by the Energy Policy Act of 1992.

Faucet flow rates have likewise been recently regulated by the 2015 CEC Title 20 regulations. This standard requires that the residential faucets and aerators manufactured on or after July 1, 2016 be exclusively sold in California at 1.2 gpm at 60 psi; and public lavatory and kitchen faucet/aerators sold or offered for sale on or after January 1, 2016 be 0.5 gpm at 60 psi, and 1.8 gpm at 60 psi (with optional temporary flow of 2.2 gpm), respectively. Previously, all faucets had been regulated by the 2010 California Green Building Code at 2.2 gpm at 60 psi.

Plumbing code related water savings are considered reliable, long-term savings, and can be counted on over time to help reduce the City's overall system water demand. This projection further assumes no active involvement by the City, and that the costs of purchasing and installing replacement equipment (and new equipment in new construction) are borne solely by the customers, occurring at no direct utility expense. The inverse of the Fixture Life is the natural replacement rate, expressed as a percent (i.e., 10 years is a rate of 10% per year).

Table 4-1. List of Fixtures

Fixture Name	End Use	Average Water Use	Units	Fixture Life (yrs.)
Efficient Front Loader	Clothes Washers	13.0	gal per use	10
Medium Efficient Front Loader	Clothes Washers	19.0	gal per use	10
Top Loader	Clothes Washers	34.0	gal per use	10
0.5 gpm Non-Residential Lavatory Faucet	Lavatory Faucets	0.1	gal per use	15
1.2 gpm Residential Lavatory Faucet	Lavatory Faucets	0.3	gal per use	10
2.2 gpm Residential Lavatory Faucet	Lavatory Faucets	0.6	gal per use	10
2.2 gpm Non-Residential Lavatory Faucet	Lavatory Faucets	0.6	gal per use	15
2.5 gpm Residential Lavatory Faucet	Lavatory Faucets	0.6	gal per use	10
2.5 gpm Non-Residential Lavatory Faucet	Lavatory Faucets	0.6	gal per use	15
>2.5 gpm Residential Lavatory Faucet	Lavatory Faucets	0.9	gal per use	10
>2.5 gpm Non-Residential Lavatory Faucet	Lavatory Faucets	0.9	gal per use	15
1.8 gpm Residential Non-Lavatory/Kitchen Faucet	Non-Lavatory/Kitchen Faucets	1.8	gal per use	10
1.8 gpm Non-Residential Non-Lavatory/Kitchen Faucet	Non-Lavatory/Kitchen Faucets	1.8	gal per use	15
2.2 gpm Residential Non-Lavatory/Kitchen Faucet	Non-Lavatory/Kitchen Faucets	2.2	gal per use	10
2.2 gpm Non-Residential Non-Lavatory/Kitchen Faucet	Non-Lavatory/Kitchen Faucets	2.2	gal per use	15
2.5 gpm Residential Non-Lavatory/Kitchen Faucet	Non-Lavatory/Kitchen Faucets	2.5	gal per use	10
2.5 gpm Non-Residential Non-Lavatory/Kitchen Faucet	Non-Lavatory/Kitchen Faucets	2.5	gal per use	15
>2.5 gpm Residential Non-Lavatory/Kitchen Faucet	Non-Lavatory/Kitchen Faucets	3.5	gal per use	10
>2.5 gpm Non-Residential Non-Lavatory/Kitchen Faucet	Non-Lavatory/Kitchen Faucets	3.5	gal per use	15
High Efficiency 1.5 gpm	Showers	10.4	gal per use	25
High Efficiency 1.8 gpm	Showers	12.5	gal per use	25
High Efficiency 2 gpm	Showers	13.9	gal per use	25
Low Flow 2.5 gpm	Showers	18.3	gal per use	25
High Flow > 3 gpm	Showers	23.5	gal per use	25

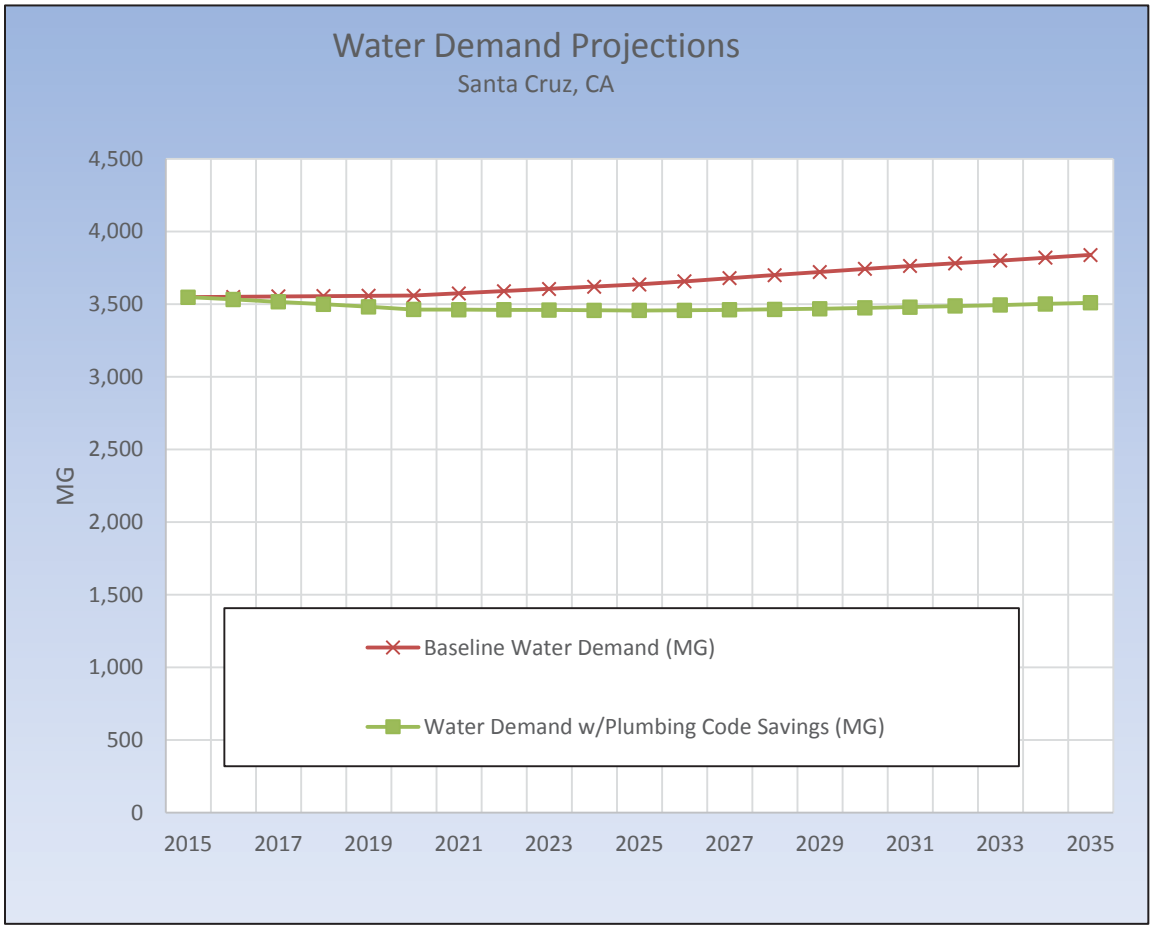
Table 4-1. List of Fixtures (continued)

Fixture Name	End Use	Average Water Use	Units	Fixture Life (yrs.)
<1.0 gpf Toilet Non-Residential	Toilets	1.0	gpf	50
1.28 gpf HET Residential	Toilets	1.3	gpf	50
1.28 gpf HET Non-Residential	Toilets	1.3	gpf	50
1.6 gpf ULFT Residential	Toilets	1.8	gpf	33
1.6 gpf ULFT Non-Residential	Toilets	1.8	gpf	50
High Use Toilet Residential	Toilets	3.5	gpf	25
High Use Toilet Non-Residential	Toilets	3.5	gpf	33
Waterless Urinal	Urinals	0.0	gpf	50
Pint Urinal	Urinals	0.1	gpf	50
Quart Urinals	Urinals	0.3	gpf	50

4.2 Baseline Demands with Passive Savings 2015-2035

The DSS Model estimates total cumulative plumbing code savings of 329 million gallons/year in 2035. As seen in Figure 4-2 below, water savings from fixture and appliance codes alone is expected to reduce total water demand (without plumbing code) from approximately 3.8 million gallons per year to about 3.5 million gallons by 2035, a reduction of about 8.6% due to plumbing code savings. Table 6-3 in section 6.1 shows the water savings in 5-year increments due to plumbing codes. Table 6-4 in section 6.2 presents projected water demands with plumbing code savings in 5-year increments.

Figure 4-2. Demand Forecast With and Without Plumbing Code Savings



Source: City of Santa Cruz. DSS Model, Section: Demand Analysis, Feb 16, 2016.

5. RECOMMENDED MEASURES

Maddaus Water Management (MWM) employed its Least Cost Planning Decision Support System Model (DSS Model) for the technical analysis. The following sections describe key elements used in the analysis that were reviewed during past Water Commission Meetings with public input along with both a webinar and two in-person workshops, including interested local community stakeholders, Water Commission members, and Water Supply Advisory Committee members. This section also presents a summary of the proposed measures, including their descriptions and estimated water savings. Background information on MWM's DSS Model can be found in Appendix A.

The initial process to identify and thoroughly evaluate potential conservation measures was iterative. First, an extensive list of more than 90 potential measures was generated based on input from City staff, consultants, Water Commissioners, and the public. This task included a review of the current active water conservation measures and the identification of new measures that may be appropriate for the City's service area. Next, the list of potential measures was screened to set aside measures that may not be appropriate for myriad reasons to seek those that would be included in the future program. The following criteria were used to narrow the list of potential measures:

- Water Saving Potential – emphasize measures that reduce average daily water use the most within the Santa Cruz community
- Sustainable Water Savings – emphasize measures that have long-term reliability
- Quantifiable Water Savings – emphasize measures where water savings can be accurately predicted
- Widespread Community and Social Acceptance – emphasize measures with high participation rates, low out-of-pocket expenses, and are equitable across customer type and social demographics
- Feasibility of Implementation/Secondary Impacts – emphasize measures that can achieve objectives
- Ancillary Benefits – emphasize measures that achieve additional goals, such as reducing energy/greenhouse gases (GHGs), reducing peak-season use, providing valuable customer service, and other non-quantifiable benefits (behavioral change, public awareness, etc.)

Further details about this process as well as a list of all the 90 potential measures are available from City staff. From the screening, the Water Commission added to and approved the recommended list of measures for the technical analysis phase of the project.

During the WSAC Report development, several additional measures were considered and added to the program. The result of the WSAC work on demand management was to shift the focus more toward reducing peak season use to increase supply reliability. It did so by considering measures to reduce outdoor use in residences and large landscapes, but also by enhancing base or indoor measures that lessen overall demand or that target specific uses, including visitor-serving uses, and thereby help reduce the City's peak season water use. The recommended program now matches the recommended measures list published in the October 2015 Water Supply Advisory Committee Final Report on Agreements and Recommendations, Table 14. The following table presents a basic description of each measure and the types of customers each measure targets. More detailed information and assumptions are described in the DSS Model.

Table 5-1. Basic Measure Descriptions

No.	Measure Name	Type of Customer	Description
1	System Water Loss Reduction	System	This measure's purpose is to identify and reduce water losses in the City's water system. The City is currently doing a water loss control study to review its annual water audit, look at water losses, and design a cost-effective water loss control program. The City currently loses an average of 7.5% of all treated water due to leaks, meter inaccuracies, and other problems. The goal of this measure is to reduce the City's system water losses on a long-term basis by an average of 1%. A new state law passed in 2015 that will require water suppliers to conduct water system audits, verify, and report water losses every year to the state beginning in 2017.
2	Advanced Metering Infrastructure (AMI)	Single Family (SF), Multifamily (MF), Commercial (COM)	This measure involves a major investment to upgrade meter reading technology and data management abilities. The City currently uses an Automatic Meter Reading system (AMR) in which water meters are read monthly by radio equipment that then transmits the information back to the City. This system may increase the frequency of meter reading from once a month to once an hour. The main water conservation (savings) benefits are for customer in-home or outdoor leak detection and increased customer awareness of water use. Other benefits include more action in enforcing the drought restrictions and more efficient customer service. Utility billing would continue to be on a monthly basis.
3	Large Landscape Budget-Based Water Rates	Irrigation (IRR)	This measure includes the development of individual monthly water budgets for irrigation customers. Water budgets are connected to a water rate schedule where water rates increase when a customer goes above their landscape water budget, or decreases if they are below budget. Budgets are typically based on factors like the size of the irrigated area, plant material and changes in weather conditions.
4	General Public Information	SF	This measure addresses opportunities to use public information programs as an effective tool to inform customers about the need for water conservation and conservation-related benefits. The current campaign is called "*Surf City Saves"* program. This measure includes paid and public service advertising, newsletters, bill inserts, information on the utility bill, a website, flyers and brochures, media campaigns, community meetings, direct mailings, community engagement at local activities, and other techniques. Public information is often carried out and coordinated with other agencies, groups, and schools.
5	Public Information (Home Water Use Report)	SF	This measure involves contracting with a firm to produce a detailed water billing report for high use customers that is in addition to their normal utility bill. This billing report compares water use in the neighborhood and offers suggestions to customers on ways to reduce water use.
6	Residential Leak Assistance	SF, MF	Customer leaks can go uncorrected at homes where owners are not able to pay the costs of repair. This measure would involve the City either paying part of the repair or paying the entire cost of the repair with funds that are paid back from customer water bills over time. This measure may also include an option to replace inefficient plumbing fixtures at low-income residences.
7	Single Family Residential Surveys	SF	This measure provides an outdoor water survey for existing single family residential customers. High water users will be targeted. This measure may include giving away water-efficient showerheads, faucet aerators, and toilet devices. This measure would provide a basic outdoor survey (look for leaks, irrigation problems and scheduling, plant information, etc.) and promote landscape and irrigation programs and improvements to reduce peak season water use.
8	Plumbing Fixture Giveaway/ Opt	SF, MF	The City would buy large amounts of efficient showerheads, kitchen and lavatory faucet aerators, shower timers and hose timers. Hose nozzles and leak detection tablets would be available for distribution at the Utility office and at community events.
9	Residential Ultra High Efficiency Toilet Rebates	SF, MF	This measure provides a rebate or voucher for the installation of an ultra-high efficiency toilet (UHET) that uses 1.0 gallons of water or less per flush (gpf).
10	High Efficiency Clothes Washer Rebates	SF, MF	The City would provide a rebate for high-efficiency clothes washing machines (HECW) to single family homes and in-unit condo/apartment complexes that do NOT have common laundry rooms. This program would be similar to the City's current program, except that higher rebate amounts would be increased for qualifying machines that are listed as Energy Star "Most Efficient" Clothes Washers.
11	High Efficiency Clothes Washer - New Development	SF, MF, COM	This measure would involve amending the City's building regulations to require building developers to install an efficient clothes washer (meeting certain water efficiency standards, such as gallons per load). Inspections would be coordinated with City and County building departments to make sure that an efficient washer is installed before the new home or building is occupied.
12	Hot Water On Demand - New Development	SF, MF, COM	The City would work to pass an ordinance requiring developers and major building remodels (for example, 50% of value of improvements) to equip new homes or buildings with efficient hot-water-on-demand systems. These systems use a pump placed under the sink to recycle water sitting in the hot water pipes to the water heater or to move the water heater into the center of the house and/or reduce hot water waiting times by having an on-demand pump on a recirculation line looping back to the hot water heater.
13	Toilet Retrofit at Time of Sale	SF, MF, COM	This measure involves tracking real estate sales within the City's water service area and working with buyers, sellers, and the real estate industry to retrofit older, inefficient toilets, showerheads, and urinals are upgraded with the most efficient fixtures when real estate is sold. A property inspection by either City staff or a licensed plumbing/general building would be required to verify compliance with the regulation.

No.	Measure Name	Type of Customer	Description
14	COM MF Common Laundry Room High Efficiency Clothes Washer	MF, COM	This measure provides a rebate for the installation of a high efficiency commercial washer (HEW) in COM laundromats and MF common area laundry rooms.
15	COM Incentives	MF, COM	After getting a free water use survey (Measure 17), the City will analyze the survey recommendations and determine if the MF or COM site qualifies for a financial incentive (reward). Financial incentives will be provided after analyzing the cost-benefit ratio of each proposed project. Incentives are designed to fit each individual site as each site has varying water savings potentials. Incentives will be given based on the decisions of the City specifically and while the money lasts.
16	Pre-Rinse Spray Nozzle Installation	COM	The City will provide free 1.3 gpm (or lower) pre-rinse spray nozzles, and possibly free installation of nozzles, in restaurants and other commercial kitchens.
17	COM Surveys	MF, COM	This measure will offer top MF and COM water customers a professional water survey that would evaluate ways for the site to save water and money. The surveys would be for large accounts (accounts that use more than 5,000 gallons of water per day, or the top 3%), such as hotels, restaurants, stores, and schools.
18	High Efficiency Urinal Program	COM, Municipal (MUN), Industrial (IND)	The City will provide a rebate or voucher for the replacement of older, high use urinals with high efficiency urinals (HEU) and flush valves using 0.125 gpf (1 pint) or less.
19	Public Restroom Faucet Retrofit - MUN	MUN	This measure includes the direct installation of high efficiency (0.5 gpm) sensor faucet fixtures in institutional (public) buildings, such as schools, hospitals, etc. High-use municipal building will be focused on first.
20	Public Restroom Faucet Retrofit - COM	COM	This measure includes the direct installation of high efficiency (0.5 gpm) sensor faucet fixtures in commercial buildings, such as businesses. High-use commercial buildings will be focused on first.
21	School Retrofit	MUN	This school retrofit program involves a school receiving funding to replace non-efficient fixtures, retrofit mixed use meters to dedicated irrigation meters, and upgrade irrigation systems.
22	Water Efficient Landscape Ordinance	SF, MF, COM, MUN, IND	This measure accounts for the lower irrigation water use that new accounts have due to their more efficient landscape designs, which are a result of the City's Landscape Code (implementation of Statewide Model Landscape Ordinance). The City is in the process of updating this code to keep up with new state regulations and technology for irrigation controllers and irrigation equipment.
23	Single Family Residential Turf Removal	SF	This measures provides a per-square-foot incentive to SF customers to remove and replace turf (grass) with low-water-use plants or permeable hardscape (pavers, concrete, etc. that allows water to soak through and into the ground). This is modeled after the City's current program. The rebate is currently $0.50 per square foot and capped at $500 per year for a single family residence. To increase participation, this measure would increase the rebate to $1 per square foot and a $1,000 maximum per year, or more in both cases.
24	Multifamily Residential/CII Turf Removal	MF, COM, MUN, IRR	This measure provides a per-square-foot incentive to MF, COM, MUN, and IRR customers to remove and replace turf with low-water-use plants or permeable pavers (or other permeable hardscape). The rebate is currently $0.50 per square foot of turf removed and capped at $2,500 per year for multifamily or commercial residences. This measure would increase the rebate to $1 per square foot and a $5,000 maximum per year, or more to increase participation.
25	Expand Large Landscape Survey/Water Budgets	IRR	This measure expands on the City's existing landscape water budget program to include more dedicated irrigation accounts Outdoor water audits will be offered for existing customers with problems of overwatering or water waste. Normally those with high water use are focused on and provided a customized report telling them how to save water. All multifamily residential, CII, and public irrigators of large landscapes would be eligible for free landscape water audits upon request. This measure is connected to Measure 3 above, Large Landscape Budget-Based Water Rates.
26	Sprinkler Nozzle Rebates	SF, MF, COM	The City will provide rebates to replace standard spray sprinkler nozzles with more efficient rotating nozzles. Nozzles cost about $6 each.
27	Gray Water Retrofit	SF	The City will hold a workshop to support a Gray Water Challenge or similar program. A rebate will be offered that will help to cover a portion of the cost to single family homeowners per year who install gray water systems. A gray water kit/package, available from local hardware stores, would be supported by this City rebate.
28	Residential Rain Barrels	SF	The City will provide an incentive for the installation of rain barrels. This could involve rebates, purchasing rain barrels in high quantities, and giveaways of barrels, as well as workshops on proper installation and use of captured rain water for landscape irrigation.
29	Climate Appropriate Landscaping	SF, MF, COM, MUN	This measure will provide incentives for the installation of climate-appropriate and rainwater infiltration landscape (soaks up water on-property as opposed to running off-property). This measure will provide rebates to Home Owners Associations (HOAs), businesses, and institutions that increase their outdoor water use efficiency

No.	Measure Name	Type of Customer	Description
	and Rainwater Infiltration		by replacing qualifying high water use landscape and/or upgrading to qualifying high efficiency irrigation equipment or climate appropriate landscape. To qualify, sites must participate in a pre-inspection before beginning their project or purchasing materials. Single family homes, multifamily homes, and business properties with qualifying irrigated landscape (i.e., irrigated turf or a functional swimming pool) can receive rebates for replacing high-water-use landscape (e.g., irrigated turf grass) with a minimum of 50% plant coverage consisting of low-water-use plants from the Approved Plant List. Recommendations from the Water Supply Alternatives Committee (WSAC) Report include: • Increase turf conversion rebate • Require conversion of spray to drip for shrub irrigation • Discourage runoff through rainwater infiltration features (i.e., permeable pavers) • Support local actions for climate-appropriate landscaping • Focus on landscape narrower than 10 feet – no spray irrigation and/or next to hardscapes
30 SF	SF Conservation Pricing - Water and Sewer	SF	This measure is awaiting the results of an ongoing rate study conducted by Rafetlis Financial Consultants, Inc. in 2016.
30 MF	MF Conservation Pricing - Water and Sewer	MF	This measure is awaiting the results of an ongoing rate study conducted by Rafetlis Financial Consultants, Inc. in 2016.
30 COM	COM Conservation Pricing - Water and Sewer	COM	This measure is awaiting the results of an ongoing rate study conducted by Rafetlis Financial Consultants, Inc. in 2016.
31	Single Family Multifamily Dishwasher Rebates	SF, MF	This measure provides incentives for the purchase of water efficient dishwashers (Residential WF of 6.25 or less).
32	Hot Water Recirculation Systems	SF, MF, COM	This measure provides incentives for the installation of a hot water recirculation system. Having hot water discharge promptly is important for energy and water use efficiency. A hot water recirculating system enables the cold water in the hot water pipes to be continually returned to the water heater and reheated before the hot water faucet is turned on. Rebates would be available to the following water customer groups: - single family dwellings, including townhomes and mobile homes - apartment complexes - commercial institutions - commercially zoned businesses or institutions Maximum rebates allowable: (a) $300 per single family account and (b) $3,000 per commercial, industrial, or institutional account (e.g., as laundromats and apartments).
33	Rewarding Businesses For Adopting Best Practices	COM	This measure offers commercial customers who employ best practices an increased water supply reliability and a lower price. For a business, the difficulty of rationing water during severe drought years can have a negative effect on its profits. This measure proposes that the City's Water Shortage Contingency Plan be changed so that businesses who adopt best practices, such as efficient plumbing fixtures, hotel laundry recycling, and climate-appropriate landscaping, would get a lower level of water usage reduction during a severe drought. For example, in a Stage 4 drought, with a system-wide goal of 35% reduction, the current plan is to have the water allotment of businesses be 87% of their normal year water use. Under this measure, businesses adopting best practices would be expected to cut back to only 95% of normal use, rather than 87%. These businesses could also be rewarded with a lower rate for their water use.
34	Additional Building Code Requirements for New Development	SF, MF, COM, MUN, IND	New CalGreen Building Codes already included in DSS Model (see Section 4 above) already takes many of the items recommended by WSAC into account. This measure currently cannot be measured with regard to future additional CalGreen updates and water savings. This measure involves the coming together of a working group of planners, builders, conservation groups, and Water Department personnel to evaluate possible additions to current codes and fee structures that would encourage water conservation. Some examples include: (1) requiring high efficiency washers in new development and (2) requiring hot water on demand/structured plumbing in new development. It is also intended that the work group track and incorporate new technologies in future City codes.
35	Innovation Incubator Program	SF, MF, COM, MUN	This measure would establish an Innovation Incubator Program allowing Santa Cruz to continue its leadership in water management by creating a program that supports new developments in: • New technologies, customer financing programs, and customer outreach programs; and • Pilot projects to promote popular adoption of rainwater for toilets & washers, new technology toilets in institutional buildings, onsite recycling of graywater, rainwater irrigated lawns, and promotion of native plant landscapes. Small grants would be offered to local businesses and/or working with state and national organizations like California Urban Water Conservation Council, California Water Foundation, California Urban

No.	Measure Name	Type of Customer	Description
			Water Agencies, University of California (Santa Cruz or Davis), Alliance for Water Efficiency, Water Research Foundation, US Bureau of Reclamation, or other coalitions of utilities or research-focused organizations.

Notes:	HECW – high efficient clothes washing machine	MF – multifamily
AMI – Advance Metering Infrastructure	HEU – high efficiency urinal	MUN – municipal
AMR – Automatic Meter Reading System	HEW – high efficiency commercial washer	SF – single family
COM – commercial	HOA – Home Owners Association	UHET – ultra-high efficiency toilet
gpf – gallons per flush	IND – industrial	WF – water factor, gallons per cubic foot
gpm – gallons per minute	IRR – irrigation	WSAC – Water Supply Alternatives Committee

A total of 35 individual measures are evaluated in the current Santa Cruz DSS Model. This number counts the three pricing measures as one measure (which is yet to be fully defined until the City's Water Rate Study is complete). For each measure selected to be modeled, a measure description, as well as details on each measure's utility and customer costs, time period, and targets can be found in the DSS Model's measure inputs. More detailed information on model inputs for each measure is available from City staff. Some of the key assumptions used in evaluating the water savings, benefits, and costs include the following:

- Applicable customer class
- Applicable end use
- Estimated annual account participation rates
- Evaluation start and end year
- Measure length, years
- Measure life, years
- Utility unit cost, $
- Customer unit cost, $
- Estimated annual administration and marketing overhead, %

These measures listed in Table 5-1 make-up the City's Recommended Program which consists of both passive and active elements. Plumbing code measures account for 53% of the future conservation potential achieved and are independent of any program – the savings are based on customers following applicable current local, state and federal laws, building codes and ordinances. Recommended Program active measures fall within one of four categories: 1) general measures, 2) residential measures (indoor), 3) commercial measures (indoor), and 4) irrigation measures (outdoor).

6. RECOMMENDED PROGRAM RESULTS

This section presents the Recommended Program water savings as well as projected demand and per capita water use with these savings. The Recommended Program's overall cost of water saved and proposed schedule is also shown.

6.1 Total Water Savings

Table 6-1 below presents each Recommended Program measure's water savings in million gallons (MG) per year for year 2035 as a result of each measure's design and implementation schedule. Year 2035 savings include ongoing savings still valid since the measure's start. Savings per measure presented in the Table assume the measures are implemented on a stand-alone basis (i.e., without interaction or overlap from other measures that might address the same end use or uses).

It is important to understand that the savings from measures presented in the table, which address the same end use(s) are not simply additive. The DSS Model uses impact factors to avoid double counting in estimating the water savings from programs of measures. For example, if two measures are planned to address the same end use and both save 10% of the prior water use, then the net effect is not the simple sum (20%). Rather it is the cumulative impact of the first measure reducing the use to 90% of what it was without the first measure in place and then reducing the use another 10% to result in the use being 81% of what it was originally. In this example the net savings is 19%, not 20%. Using impact factors, the model computes the reduction as follows, 0.9 x 0.9 = 0.81 or 19% water savings.

Since interaction between measures has not been accounted for in Table 6-1 below, it is not appropriate to include a total in the bottom row. However, the table is useful to give a close approximation of the savings of each individual measure.

Table 6-1. Recommended Program Individual Measure Cost of Water Saved and 2035 Water Savings (MGY)

No.	Measure Name	Cost of Water Saved ($/MG)	2035 Water Savings (MG)
1	System Water Loss Reduction	$3,923	34.87
2	Advanced Metering Infrastructure	$1,269	45.94
3	Large Landscape Budget-Based Water Rates	$194	12.83
4	General Public Information	$8,334	5.73
5	Public Information (Home Water Use Report)	$2,518	11.39
6	Residential Leak Assistance	$2,117	22.03
7	Single Family Residential Surveys	$7,735	2.78
8	Plumbing Fixture Giveaway/Opt	$1,479	2.03
9	Residential Ultra High Efficiency Toilet Rebates	$5,316	2.91
10	High Efficiency Clothes Washer Rebates	$2,794	36.20
11	High Efficiency Clothes Washer - New Development	$1,368	12.53
12	Hot Water On Demand - New Development	$7,849	4.46
13	Toilet Retrofit at Time of Sale	$1,516	8.70
14	CII MF Common Laundry Room High Efficiency Clothes Washer	$4,258	3.07
15	CII Incentives	$533	18.39
16	Pre-Rinse Spray Nozzle Installation	$153	9.16
17	CII Surveys	$4,056	19.24
18	High Efficiency Urinal Program	$5,220	3.22
19	Public Restroom Faucet Retrofit - MUN	$23,467	0.29
20	Public Restroom Faucet Retrofit - COM	$9,780	8.47
21	School Retrofit	$1,883	2.88
22	Water Efficient Landscape Ordinance	$602	6.66
23	Single Family Residential Turf Removal	$22,157	4.18
24	Multifamily Residential/CII Turf Removal	$32,186	2.39
25	Expand Large Landscape Survey/Water Budgets	$20,948	1.97
26	Sprinkler Nozzle Rebates	$13,643	3.35
27	Gray Water Retrofit	$15,742	0.24
28	Residential Rain Barrels	$4,672	3.42
29	Climate Appropriate Landscaping and Rainwater Infiltration	$33,221	8.26
30SF	SF Conservation Pricing - Water and Sewer[1]	N/A	N/A
30MF	MF Conservation Pricing - Water and Sewer[1]	N/A	N/A
30COM	COM Conservation Pricing - Water and Sewer[1]	N/A	N/A
31	Single Family Multifamily Dishwasher Rebates	$29,602	0.20
32	Hot Water Recirculation Systems	$15,650	1.38
33	Rewarding Businesses For Adopting Best Practices	$6,030	3.64
34	Additional Building Code Requirements for New Development[2]	N/A	N/A
35	Innovation Incubator Program	N/A	N/A

[1]Pricing measure costs and savings are not yet available. These measures are awaiting the results of an ongoing rate study scheduled to be completed in 2016.
[2] New CalGreen Building codes, effective as of January 2016, are already modeled. This measure is awaiting support from a Working Group yet to be formed.

Notes:

1. This table does not contain a total in the bottom row intentionally. It is not applicable since interaction between measures has not been accounted for in this table but is at the program level.
2. Source: City of Santa Cruz. DSS Model, Section: Conservation Analysis, Feb 16, 2016.

Table 6-2 presents the benefit cost analysis summary for the Recommended Program, which includes all the measures listed in the previous Table 6-1.

Cost categories are defined as follows:

- Utility Costs – those costs that the City as a water utility will incur to operate the measure including administrative costs

- Utility Benefits – the avoided cost of producing water

The column headings in Table 6-2 are defined as follows:

- Average Cost of Water Saved ($/MG) = average cost to implement the program divided by the water savings over the life of the conservation measure.
- Water Savings in 2035 (MGY) = water saved in million gallons. The year 2035 is presented as this represents the end of the planning horizon for both the 2015 UWMP and this analysis effort.

Table 6-2. Recommended Program Costs and Savings

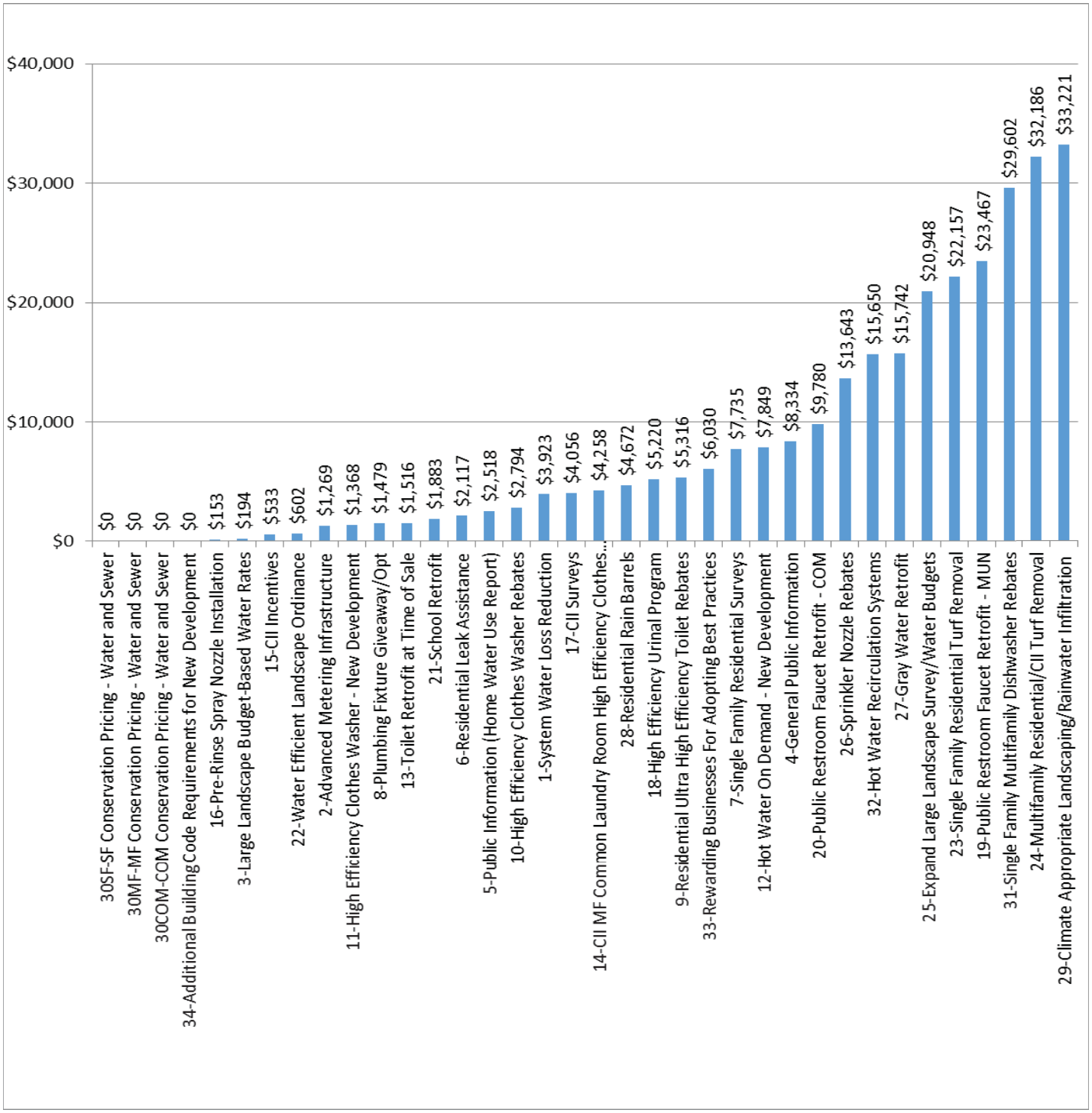
Conservation Program	Average Cost of Water Saved $/MG	Water Savings over "Baseline" Demand in 2035 (MGY)
Recommended Program with Plumbing Code Savings	$4,572/MG	619

Notes:

1. Across the modeling time period of 2015-2035, administrative costs average approximately 22% of total utility costs annually.
2. Source: City of Santa Cruz. DSS Model, Section: Results, Feb 16, 2016.

Figure 6-1 shows the costs of water saved for individual measures ranked from lowest to highest. The measures to be implemented in the next several years are a mix of some lower cost and some higher cost measures. Several of the measures addressing peak season water use have the highest unit costs, but, together as a package, the Recommended Program is $4,572/MG, well below the $10,000/MG the maximum level established by the WSAC which is lower than the expected unit cost of supply augmentation projects recommended to be pursued as a result of the WSAC's work.

Figure 6-1. Conservation Measures Unit Cost of Water Saved ($/MG)



Source: City of Santa Cruz. DSS Model, Section: Results, Feb 16, 2016.

Table 6-3 below shows the savings in 5-year increments for the plumbing codes, Recommended Program, and the Recommended Program with plumbing code savings.

Table 6-3. Long Term Conservation Program Savings over "Baseline" Demand (MG/Year)

Conservation Program	2020	2025	2030	2035
Plumbing Code	96	179	269	329
Recommended Program	137	232	269	291
Recommended Program with Plumbing Code Savings	233	411	538	619

Source: City of Santa Cruz. DSS Model, Section: Results, Feb 16, 2016.

The Recommended Program consists of both passive (plumbing codes which include state and Federal legislation for efficient fixture requirements for customers served by the City) and active elements. Plumbing code measures account for 53% of the future conservation potential achieved and are independent of any active conservation program.

6.2 Water Demand with Projected Savings

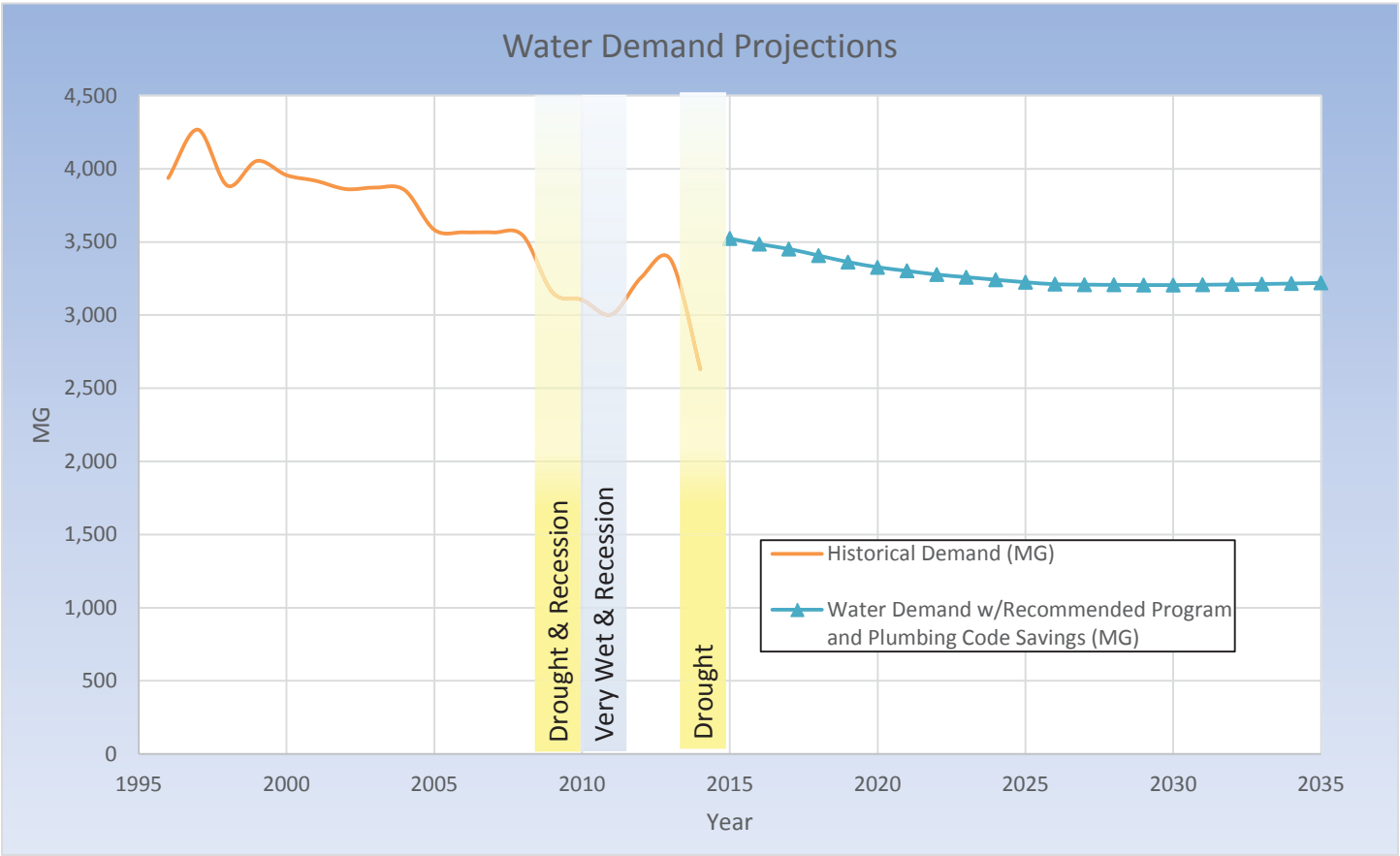
The Recommended Plan is envisioned to include strong customer participation to support additional planned growth while keeping total water use relatively constant for the next 20 years. New development will be built to water efficient standards following the 2015 CalGreen Plumbing Code, 2015 CEC Code, and other local ordinances (e.g., City's landscape ordinance). Water use in new homes should be less and more efficient than existing homes on comparable lot sizes. Table 6-4 and Figure 6-2 below present the Recommended Program projected water demands. Note that the Recommended Program with Plumbing Code is lower than the Demand Forecast by M.Cubed shown in Table 3-1. The Recommended Program forecast is 222 MGY lower (6%) than the M.Cubed forecast in 2035. This is due to increased savings by the new plumbing codes and new conservation programs that would be added over time.

Table 6-4. Water Use Projections (MG/Year)

	2020	2025	2030	2035
Demand with Plumbing Code (MGY)	3,464	3,456	3,474	3,510
Demand with Plumbing Code and Recommended Program (MGY)	3,327	3,225	3,205	3,220

Source: City of Santa Cruz. DSS Model, Section: Results, Feb 16, 2016.

Figure 6-2. Recommended Program Projected Water Demands



Source: City of Santa Cruz. DSS Model, Section: Results, Feb 16, 2016.

6.3 Per Capita Water Use

With two possible conservation target tracks to follow, the City has selected to aim to achieve SB X7-7 Method 3: 95% of State Hydrological Region Target by 2020. The City's baseline and target GPCD are as follows:

- Baseline GPCD = 113 GPCD
- 2015 Interim Target = 111 GPCD
- 2020 target = 110 GPCD
- CUWCC 2018 target = 101 GPCD

Table 6-5 below shows the projected per capita water use in gallons per day per person (GPCD) in 5-year increments for the projected demand with no plumbing code savings, projected demand with plumbing code savings, and projected demand with Recommended Program implementation and plumbing code savings.

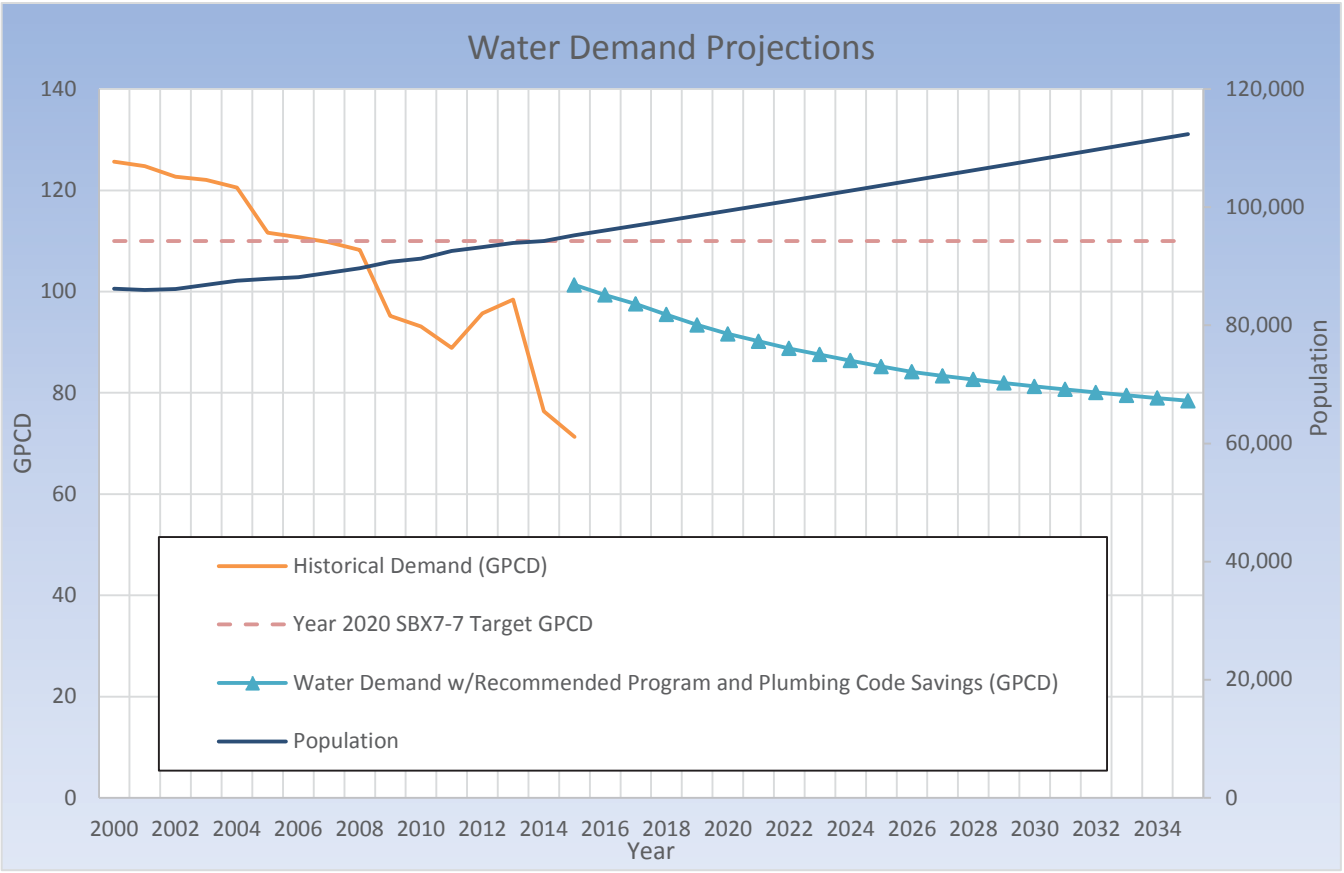
Table 6-5. Projected Population and Per Capita Water Use (GPCD)[1]

	2020	2025	2030	2035
Population [2]	99,403	103,620	107,989	112,390
"Baseline" Demand without Plumbing Code (GPCD)	98	96	95	94
Demand with Plumbing Code (GPCD)	95	91	88	86
Demand with Plumbing Code and Recommended Program (GPCD)	92	85	81	78

[1] City of Santa Cruz. DSS Model, Section: Results, Feb 16, 2016.
[2] WSAC Final Report, October 2015.

The following Figure 6-3 presents the SB X7-7 year 2020 GPCD target and historical and projected GPCD estimates with plumbing codes and Recommended Program savings. As seen below, the City has already met its state-mandated 2020 target and surpassed its voluntary CUWCC 2018 goal. The goal of the City's plan is to press beyond these state targets and instead maximize conservation savings to help meet local resource needs for current and future water demands.

Figure 6-3. Water Conservation Program Savings Projections – SB X7-7 Target, GPCD



Source: City of Santa Cruz. DSS Model, Section: Results, Feb 16, 2016.

6.4 Overall Cost of Water Saved

The cost of water saved per unit volume ($/MG) for the Recommended Program is $4,572/MG. This is below the Water Supply Alternatives Committee's recommended threshold for overall cost of water saved, which is $10,000/MG.

The cost of water saved for the Recommended Program can be compared to the City's avoided cost of water as one indicator of the cost effectiveness of the conservation program. It should be noted that the cost of water saved value somewhat undervalues the cost of savings because program costs are discounted to present value and the water benefit is not.

6.5 Key Findings

As a result of this comprehensive analysis here are some summary observations and conclusions:

1. The additional, incremental water savings from the Recommended Program, compared to the City's recent demand forecast, amount to about 220 million gallons in 2035.
2. The estimated annual demand will decline over time to about 3.2 billion gallons per year (bgy) in 2035, versus about 3.4 bgy estimated in the demand study. That estimate is comparable to the actual level of water production experienced in the late 1960s, when the service area population was around 50,000.
3. The impact on water savings from 2015 changes in the fixture plumbing codes prompted by the emergency conservation regulations (which would not have been factored in but for the delay associated with the Water Supply Advisory Committee's process) is over 100 million gallons more than previously estimated.
4. The overall cost of water saved by the Recommended Program is about half of what the WSAC set as a recommended threshold.
5. Gross per capita water use is expected to gradually decline to a level of less than 80 GPCD in 2035.

6.6 Proposed Schedule

The following Figure 6-4 presents the proposed Recommended Program implementation schedule.

Figure 6-4. Recommended Program Proposed Implementation Schedule

No.	Measure	Time Period	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
1	System Water Loss Reduction	2015 - 2035	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2	Advanced Metering Infrastructure	2021 - 2035							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
3	Large Landscape Budget-Based Water Rates	2018 - 2020				■	■	■															
4	General Public Information	2015 - 2035	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
5	Public Information (Home Water Use Report)	2018 - 2035				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
6	Residential Leak Assistance	2018 - 2035				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
7	Single Family Residential Surveys	2015 - 2035	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
8	Plumbing Fixture Giveaway/Opt	2015 - 2017	■	■	■																		
9	Residential Ultra High Efficiency Toilet Rebates	2015 - 2020	■	■	■	■	■	■															
10	High Efficiency Clothes Washer Rebates	2015 - 2026	■	■	■	■	■	■	■	■	■	■	■	■									
11	High Efficiency Clothes Washer - New Development	2021 - 2035							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
12	Hot Water On Demand - New Development	2021 - 2035							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
13	Toilet Retrofit at Time of Sale	2015 - 2019	■	■	■	■	■																
14	CII MF Common Laundry Room High Efficiency Clothes Washer	2015 - 2024	■	■	■	■	■	■	■	■	■	■											
15	CII Incentives	2021 - 2026							■	■	■	■	■	■									
16	Pre-Rinse Spray Nozzle Installation	2015 - 2016	■	■																			
17	CII Surveys	2021 - 2026							■	■	■	■	■	■									
18	High Efficiency Urinal Program	2015 - 2018	■	■	■	■																	
19	Public Restroom Faucet Retrofit - MUN	2021 - 2023							■	■	■												
20	Public Restroom Faucet Retrofit - COM	2021 - 2030							■	■	■	■	■	■	■	■	■	■					
21	School Retrofit	2021 - 2030							■	■	■	■	■	■	■	■	■	■					
22	Water Efficient Landscape Ordinance	2015 - 2035	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
23	Single Family Residential Turf Removal	2015 - 2035	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
24	Multifamily Residential/CII Turf Removal	2015 - 2035	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
25	Expand Large Landscape Survey/Water Budgets	2018 - 2035				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
26	Sprinkler Nozzle Rebates	2018 - 2035				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
27	Gray Water Retrofit	2015 - 2035	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
28	Residential Rain Barrels	2015 - 2035	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
29	Climate Appropriate Landscaping and Rainwater Infiltration	2018 - 2035				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
30SF	SF Conservation Pricing - Water and Sewer	2018 - 2035				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
30MF	MF Conservation Pricing - Water and Sewer	2018 - 2035				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
30COM	COM Conservation Pricing - Water and Sewer	2018 - 2035				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
31	Single Family Multifamily Dishwasher Rebates	2018 - 2022				■	■	■	■	■													
32	Hot Water Recirculation Systems	2018 - 2022				■	■	■	■	■													
33	Rewarding Businesses For Adopting Best Practices	2020 - 2035						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
34	Additional Building Code Requirements for New Development	2018 - 2035				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
35	Innovation Incubator Program	2021 - 2035							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

Source: City of Santa Cruz. DSS Model. Section: Conservation Analysis, Feb 16, 2016.

6.7 Monitoring

The Plan is intended to be dynamic and changes and adjustments are expected. Monitoring progress on implementing recommended programs should be a priority. Costs, participation rates, and water use should be tracked to ensure that the plan is on target to meet goals. As new promising technologies emerge, they should be tested and possibly replace programs that are underachieving. Summary reports should be issued citing progress and recommending changes in program content. Comprehensive review of the plan every five years will ensure the plan reflects current technology and codes, and will provide an opportunity to check success and progress in meeting conservation goals.

7. NEXT STEPS

Obtain Commission approval and support to gain City Council direction to proceed with completion of writing the Water Conservation Master Plan document.

8. REFERENCES

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Online: http://www.cityofsantacruz.com/departments/water/conservation/more-information/water-use-baseline-survey

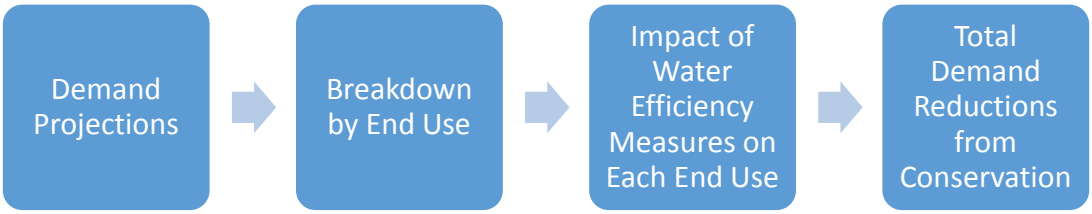
Ibid. Water Supply Advisory Committee (WSAC), Agenda Item 6: Summary of WSAC Work on Demand Management Options and Options for Integrating Demand Management into Potential Water Supply Advisory Committee Recommendations and Agreement, July 17, 2015.
Online: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwja9urN8frKAhUY5GMKHUhZDQQQFggfMAA&url=http%3A%2F%2Fwww.santacruzwatersupply.com%2Ffile%2F970%2Fdownload%3Ftoken%3DwhhI9_KX&usg=AFQjCNEAP7l1z_F7za4JGt-m65VjS-v--A&sig2=_DVOzhQhRPXTEptA-mD5DQ&bvm=bv.114195076,d.cGc&cad=rja

Ibid. Water supply Advisory Committee. Water Supply Advisory Committee Final Report on Agreements and Recommendations, Table 14. October 2015.

M.Cubed. City of Santa Cruz Water Demand Forecast, prepared by David Mitchell, August 2015.
Online: http://www.santacruzwatersupply.com/file/972/download?token=dNx08zIf

Western Policy Research. BMP Cost and Savings Study Update, A Guide to Data and Methods for Cost-Effectiveness Analysis of Urban Water Conservation Best Management Practices, prepared for the California Urban Water Conservation Council, July 2014 update.
Online: http://cuwcc.org/Portals/0/Document%20Library/Resources/Publications/Cost%20and%20Savings%20Studies/BMP%20Cost%20and%20Savings%20Report%20Update%202014%20-%20%20Phase%201.pdf

APPENDIX A: DESCRIPTION OF THE DSS MODEL



The DSS Model prepares long-range, detailed demand projections. The purpose of the extra detail is to enable a more accurate assessment of the impact of water efficiency programs on demand. A rigorous modeling approach is especially important if the project will be subject to regulatory or environmental review.

The DSS Model is an end-use model that breaks down total water production (water demand in the service area) to specific water end uses. The model uses a bottom-up approach that allows for multiple criteria to be considered when estimating future demands, such as the effects of natural fixture replacement, plumbing codes, and conservation efforts. The DSS Model may also use a top-down approach with a utility prepared water demand forecast.

To forecast urban water demands using the DSS Model, customer demand data is obtained from the water agency being modeled. The demand data is reconciled with available demographic data to characterize the water usage for each customer category in terms of number of users per account and per capita water use. The data is further analyzed to approximate the split of indoor and outdoor water usage in each customer category. The indoor/outdoor water usage is further divided into typical end uses for each customer category. Published data on average per-capita indoor water use and average per-capita end use is combined with the number of water users to calibrate the volume of water allocated to specific end uses in each customer category. In other words, the DSS Model checks that social norms from end studies on water use behavior (e.g., flushes per person per day) are not exceeded.

The DSS Model evaluates conservation measures using benefit cost analysis with the present value of the cost of water saved ($/Acre-Foot). Benefits are based on savings in water and wastewater facility operations and maintenance (O&M). The figures above and to the left illustrate the processes for forecasting conservation water savings, including the impacts of fixture replacement due to plumbing codes and standards already in place.

The DSS Model has been used for practical applications of conservation planning in over 230 service areas representing 20 million people, including extensive efforts nationally in California, Colorado, Hawaii, Utah, Georgia, Florida, North Carolina, Oregon, and Ohio, and internationally in Australia, New Zealand, and Canada.

WATER COMMISSION
INFORMATION REPORT

DATE: 03/30/2016

AGENDA OF: April 4, 2016

TO: Water Commission

FROM: Rosemary Menard, Water Director

SUBJECT: Managed Aquifer Recharge

RECOMMENDATION: Receive and discuss information provided by Dr. Andrew Fisher related to Managed Aquifer Recharge.

During the discussion at the Water Commission's March meeting related to Aquifer Storage and Recovery, several questions were asked regarding the opportunities and limitations related to other forms of Managed Aquifer Recharge such as surface spreading. The work of Dr. Andrew Fisher of the University of California Santa Cruz is very relevant in responding to these questions. Dr. Fisher is a Professor of Earth and Planetary Sciences at UCSC and a portion of his work focuses on improving the quantity and quality of water resources in part through the delineation of natural groundwater recharge, and potentially managed recharge, areas.

Dr. Fisher will give a presentation and be available for questions.

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WATER COMMISSION
INFORMATION REPORT

DATE: 03/28/16

AGENDA OF: April 4, 2016

TO: Water Commission

FROM: Toby Goddard, Administrative Services Manager

SUBJECT: 2016 Water Supply Outlook

RECOMMENDATION: For information and discussion by the Water Commission.

BACKGROUND: After a long dry spell for most of February, the weather turned wet again in early March. Rainfall in the City of Santa Cruz now stands at 31.3 inches, equal to 112 percent of normal for the season to date. In the City's watershed, about 15 inches of rain fell in the first two weeks of March, bringing rainfall totals up to between 37 and 43 inches for the year. As a result, the San Lorenzo River is running strong and the reservoir is full and overflowing. For the first time in 5 years, the water year is classified as Normal. The U.S. Drought Monitor recently downgraded the northern coastal region of California, including all of Santa Cruz County, from severe drought to abnormally dry, the lowest of five levels on the national drought intensity scale. The long-range weather forecast continues to indicate above normal rainfall for central California for the period April through June (Figures 1-6).

DISCUSSION: Locally, the water supply outlook is good. A conservative forecast of supply and demand for 2016 shows Loch Lomond Reservoir staying above 70 percent at the end of October (Figure 7). Ordinarily, there would be no reason under the circumstances to declare a water shortage or impose temporary restrictions on water use for 2016, as has been the case every year since 2012.

But the same is not true for all of Santa Cruz County or for the rest of California. Long-term imbalances remain for agencies relying on groundwater as a source of supply – which includes the City of Santa Cruz. And it appears that the exceptional drought experienced over the last four years will linger on for at least parts of the state.

On February 2, 2016, the State Water Resources Control Board revised and extended its statewide emergency water conservation regulations out to October 2016. The emergency regulations consist of 1) end-user requirements, and 2) mandatory actions by water suppliers, including submitting monthly monitoring reports and meeting specific conservation targets. The

Board is expected to review these regulations in April or May and consider easing, changing, or lifting them. Like last year, the City's target under the regulation is to achieve at least an 8 percent reduction in water use compared to the same month in 2013. Since water rationing was lifted in November 2015, monthly water usage has remained between 17 and 31 percent less than in 2013. Given current trends, staff expects that water consumption will rebound somewhat but continue to stay below the state's target without needing to impose local restrictions. Staff will be following developments in Sacramento and report back once a decision has been made. In the meantime, it is staff's intent to transition away from short-term drought management activities and return to the long-term job of water conservation program development envisioned in the Water Conservation Master Plan. Any reports of water waste received from field staff or the general public will continue to be tracked and followed up on appropriately on in accordance with Water Department policy.

FISCAL IMPACT: None.

ATTACHMENTS:
Figure 1: Monthly Rainfall, City of Santa Cruz
Figure 2: Monthly Streamflow, San Lorenzo River at Big Trees
Figure 3: Cumulative Runoff and Water Year Classification
Figure 4: U.S. Drought Monitor Map, California
Figure 5: National Weather Service/Climate Prediction Center's Three Month Precipitation Outlook
Figure 6: US Seasonal Drought Outlook
Figure 7: 2016 Projected Reservoir Drawdown

Figure 1. Monthly Rainfall, City of Santa Cruz, 03/28/2016

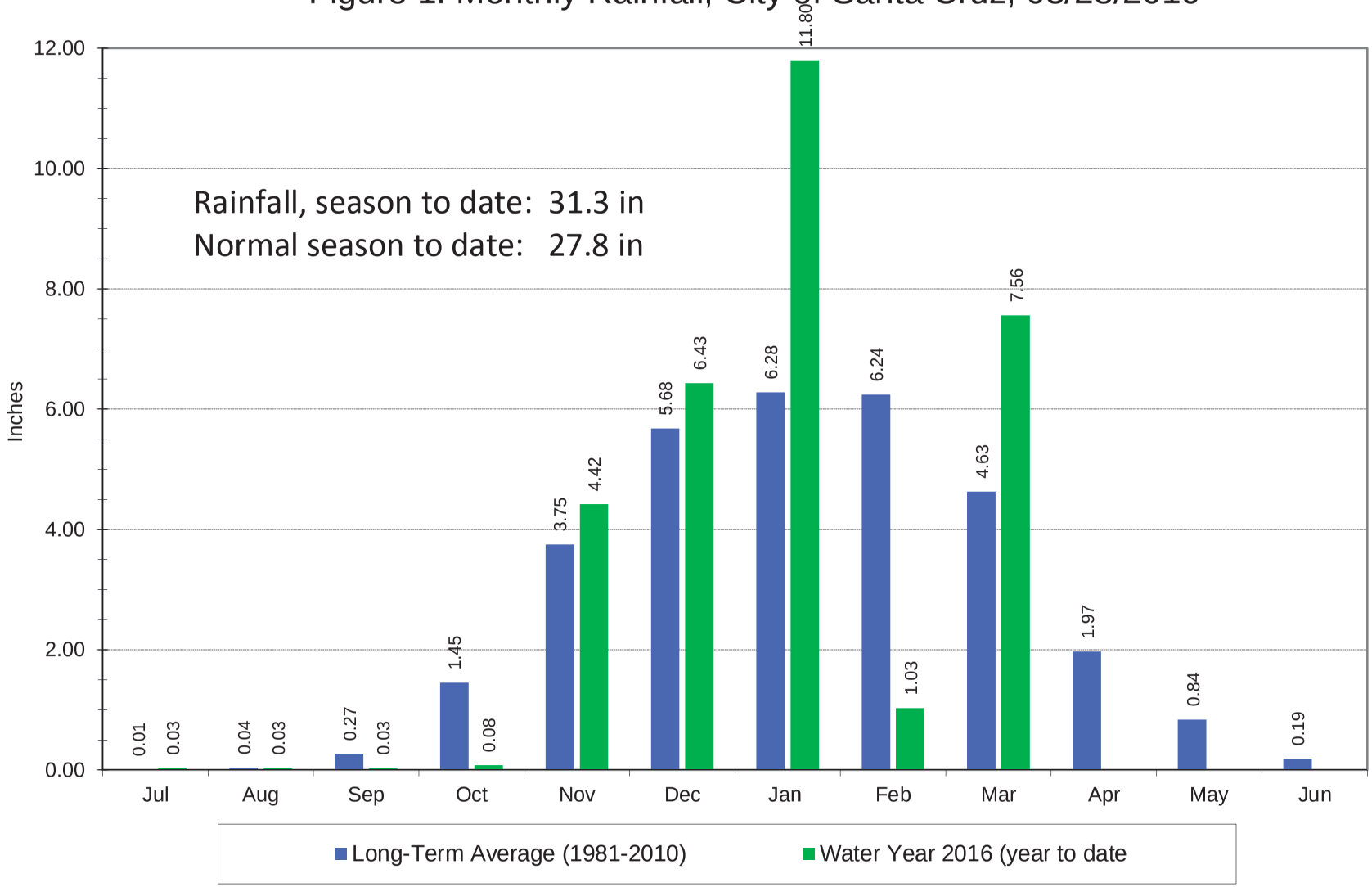


Figure 2. Mean Monthly Streamflow, San Lorenzo River at Big Trees, 03/28/2016 (cubic feet per second)

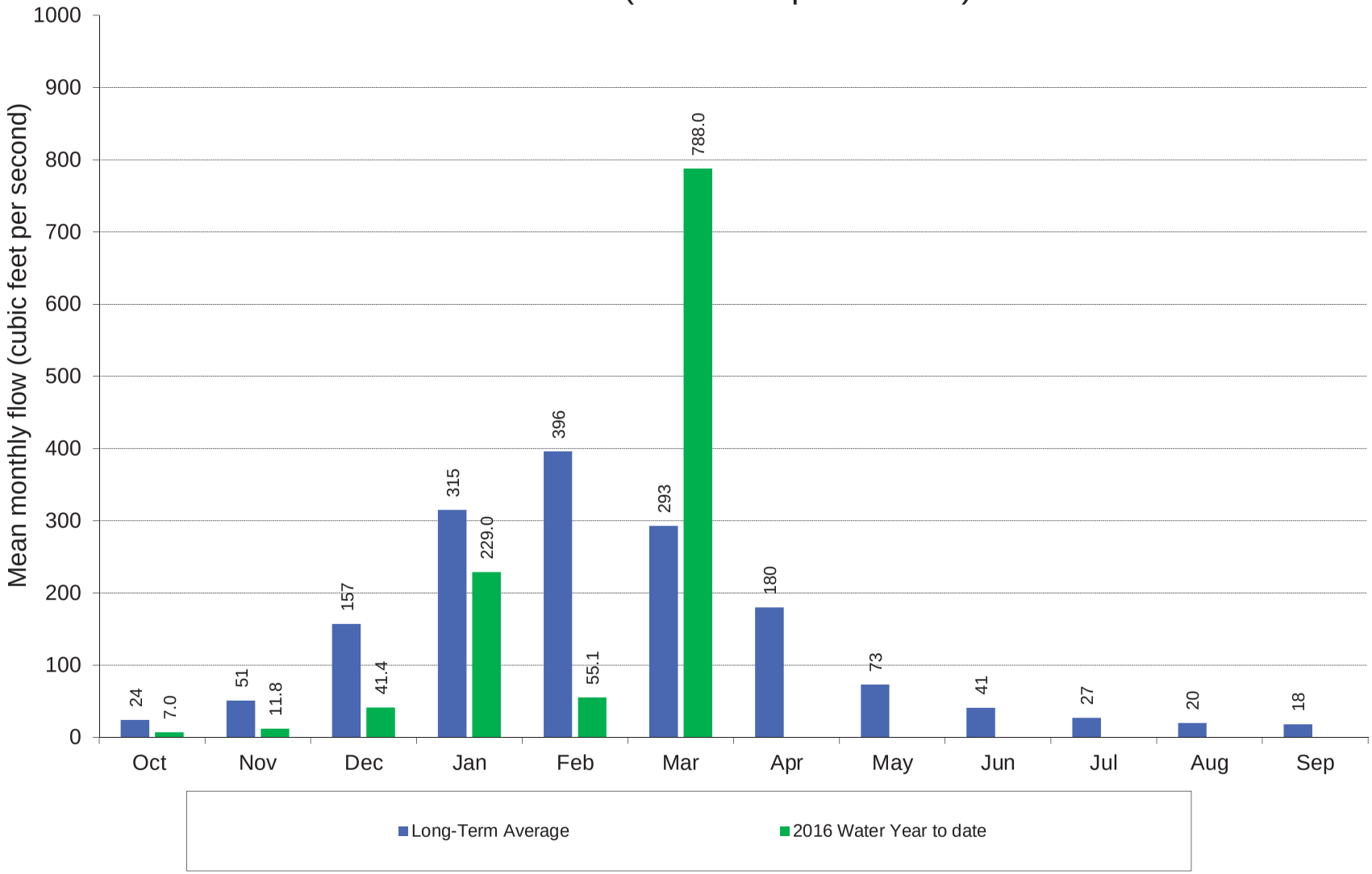
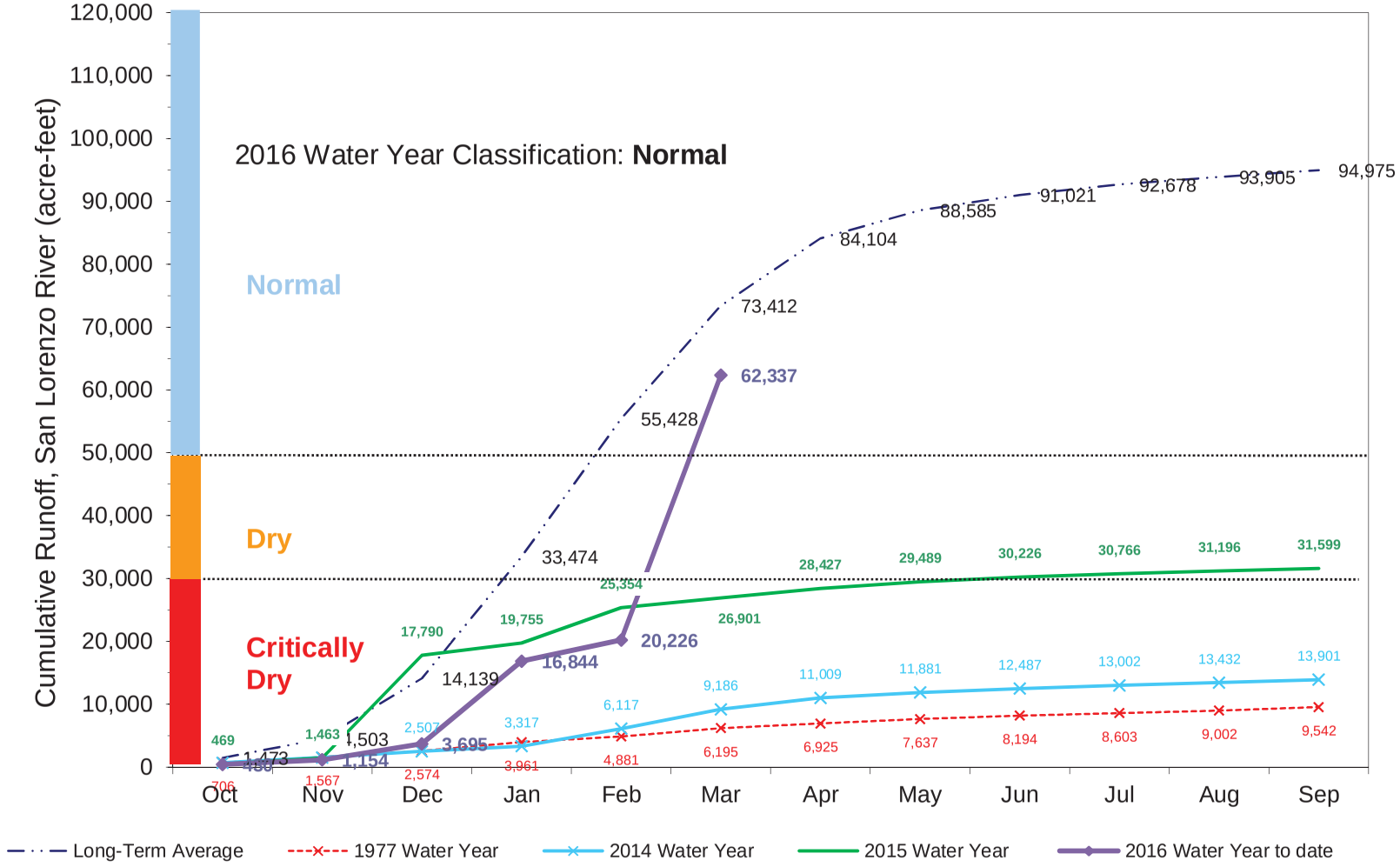
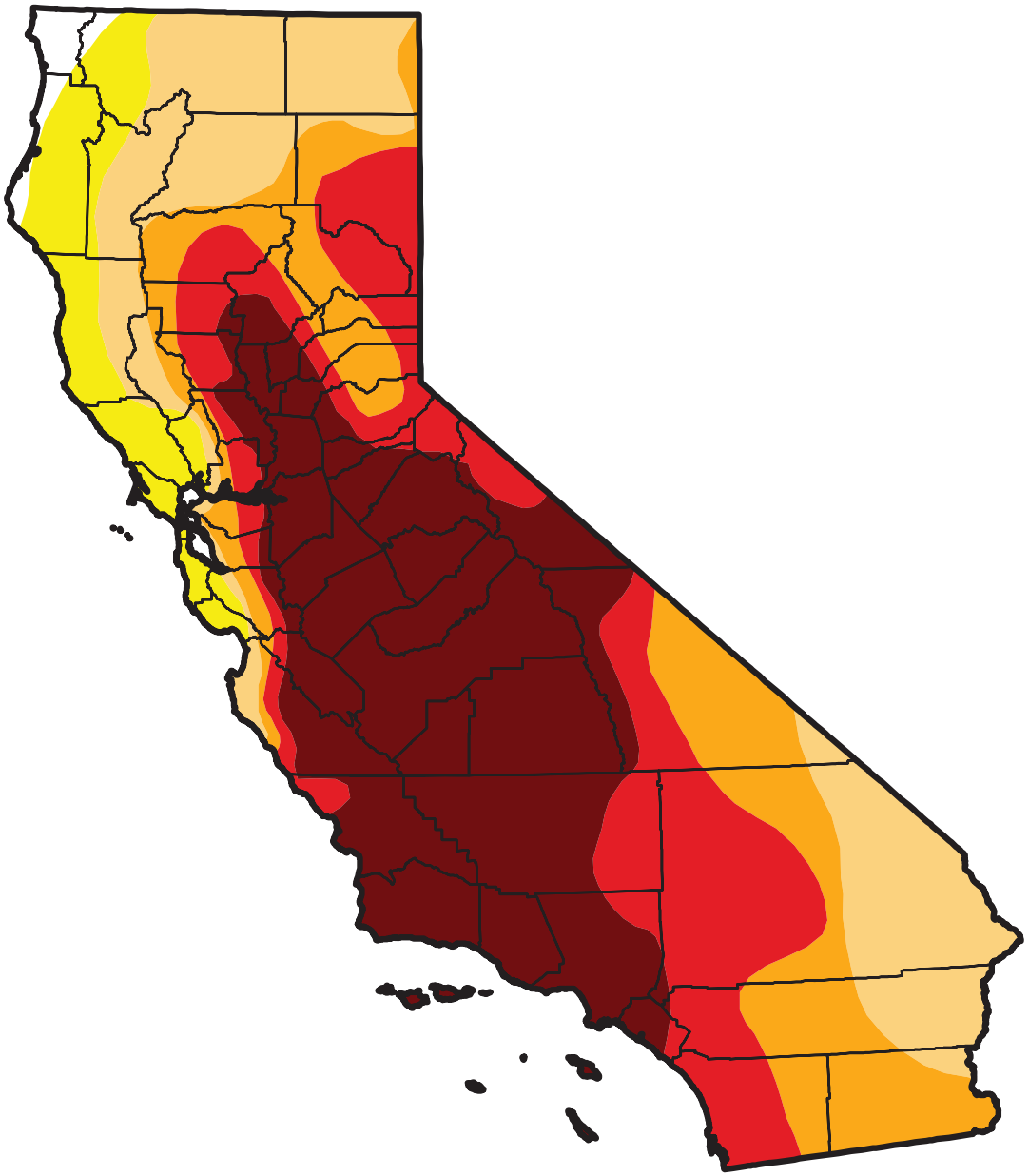


Figure 3. Cumulative Runoff and Water Year Classification, 03/28/2016 (acre-feet)



U.S. Drought Monitor

California



March 22, 2016

(Released Thursday, Mar. 24, 2016)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	1.16	98.84	91.55	72.86	55.31	34.74
Last Week *3/15/2016*	0.43	99.57	93.28	73.64	55.31	34.74
3 Months Ago *12/22/2015*	0.00	100.00	97.33	90.63	69.09	44.84
Start of Calendar Year *12/29/2015*	0.00	100.00	97.33	87.55	69.07	44.84
Start of Water Year *9/29/2015*	0.14	99.86	97.33	92.36	71.08	46.00
One Year Ago *3/24/2015*	0.15	99.85	98.11	93.44	66.60	41.41

Intensity:

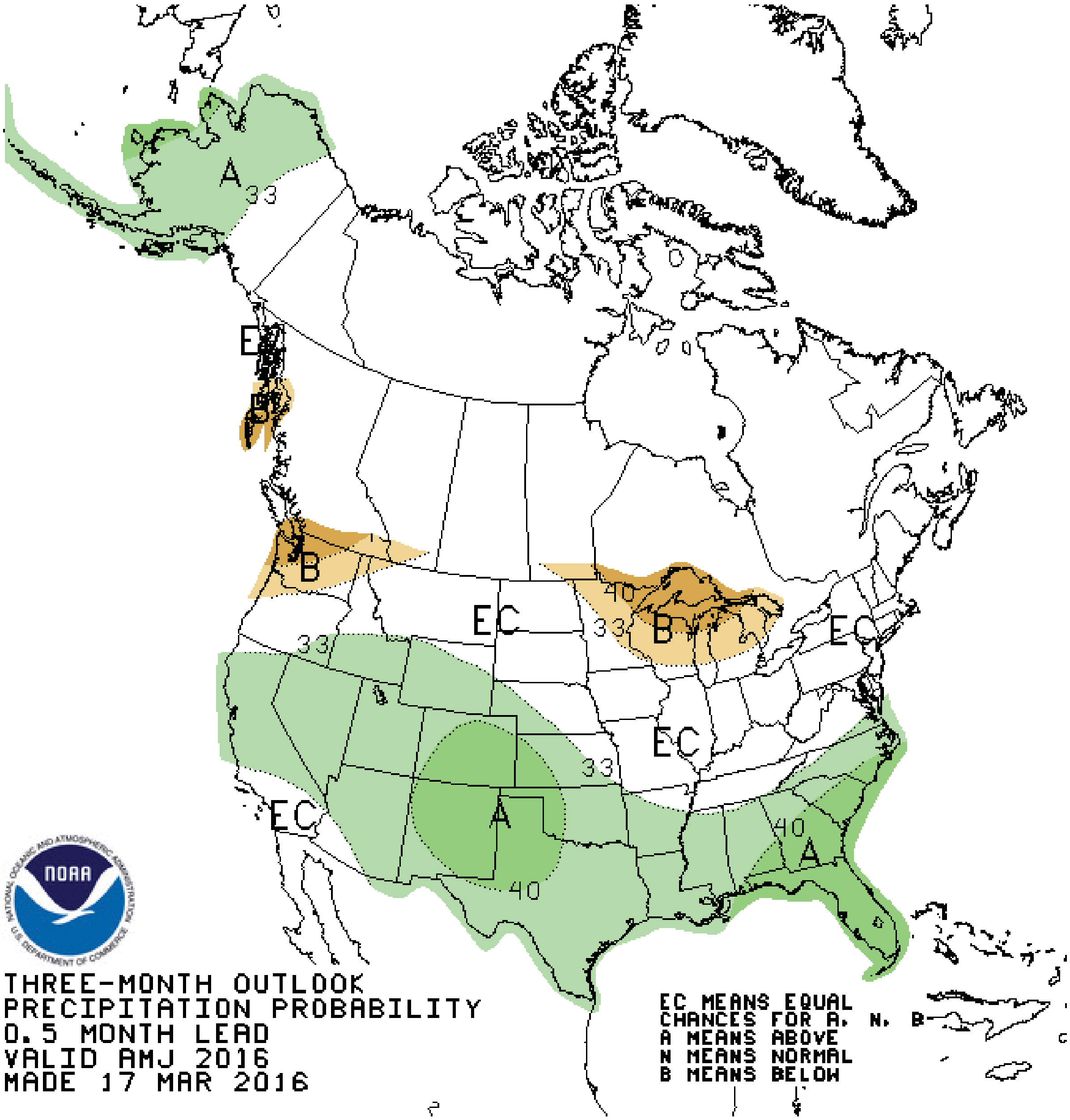
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

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

Author:
Brad Rippey
U.S. Department of Agriculture

USDA National Drought Mitigation Center

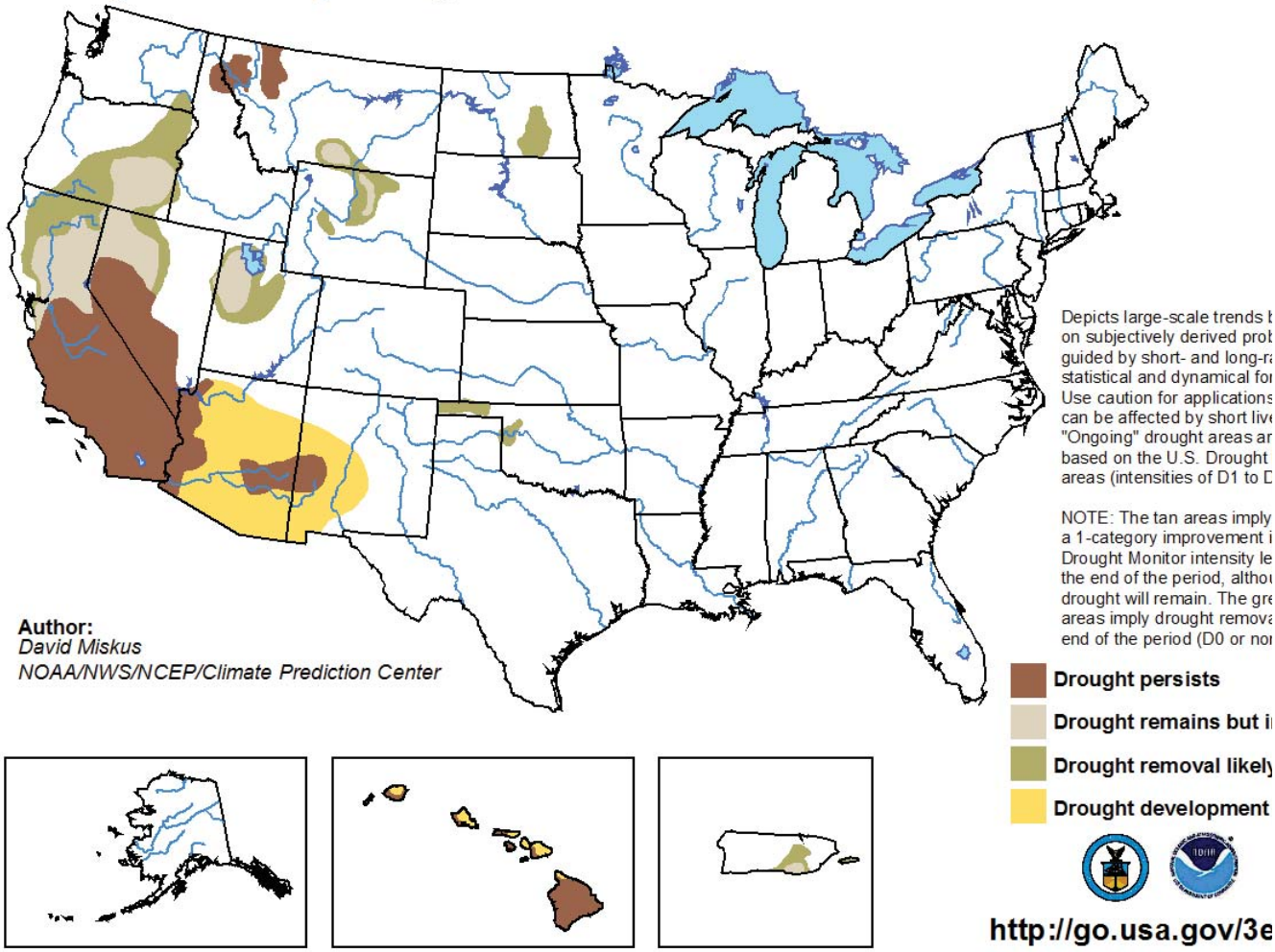
http://droughtmonitor.unl.edu/


A
33
EC
B
B
EC
40
33
B
EC
33
EC
33
EC
A
40
40
A
NOAA
THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.5 MONTH LEAD
VALID AMJ 2016
MADE 17 MAR 2016
EC MEANS EQUAL
CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW

U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for March 17 - June 30, 20
Released March 17, 20



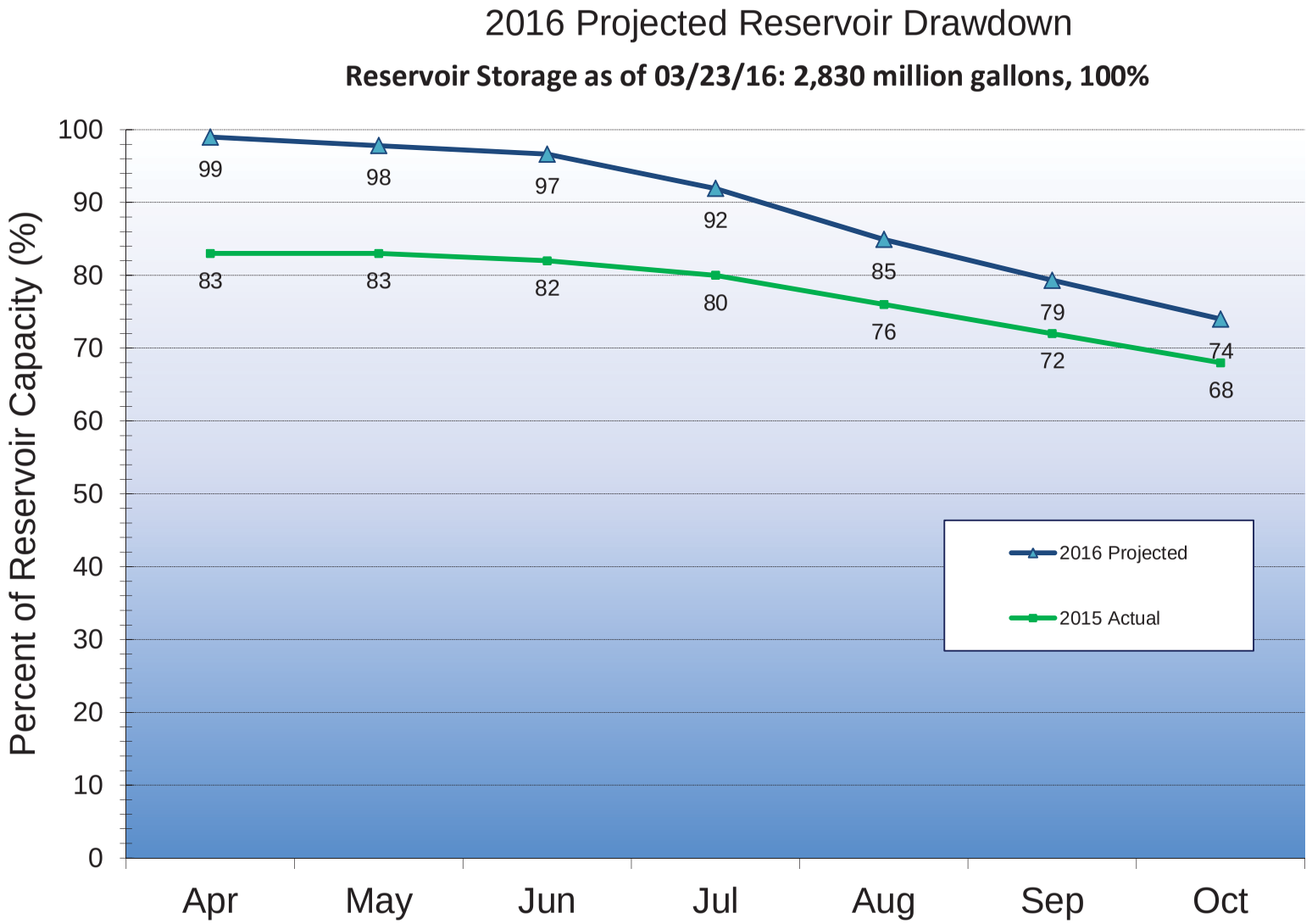
Author:
David Miskus
NOAA/NWS/NCEP/Climate Prediction Center

Depicts large-scale trends b
on subjectively derived prob
guided by short- and long-ra
statistical and dynamical for
Use caution for applications
can be affected by short live
"Ongoing" drought areas ar
based on the U.S. Drought
areas (intensities of D1 to D

NOTE: The tan areas imply
a 1-category improvement i
Drought Monitor intensity le
the end of the period, althou
drought will remain. The gre
areas imply drought remova
end of the period (D0 or nor

Drought persists
Drought remains but i
Drought removal likely
Drought development

http://go.usa.gov/3e


2016 Projected Reservoir Drawdown
Reservoir Storage as of 03/23/16: 2,830 million gallons, 100%
Percent of Reservoir Capacity (%)
100
90
80
70
60
50
40
30
20
10
0
Apr
May
Jun
Jul
Aug
Sep
Oct
99
98
97
92
85
79
74
83
83
82
80
76
72
68
2016 Projected
2015 Actual

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WATER COMMISSION
INFORMATION REPORT

DATE: 3/30/16

AGENDA OF: April 4, 2016

TO: Water Commission

FROM: Malissa Kaping, Management Analyst

SUBJECT: Recommended FY2017 Operating Budget and FY 2017 – 2019 CIP Budget for the Water Department

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RECOMMENDATION: Receive information regarding the recommended FY2017 Operating Budget and FY 2017 – 2019 CIP and recommend approval of the FY2017 Operating Budget and FY 2017 – 2019 CIP to the City Council.

BACKGROUND: On February 1, 2016, the Water Commission received information and discussed inputs for the Water Department's Long-Term Financial Plan, the 10-year Capital Improvement Financing Strategy, and the 5-year operating budget including debt service. The discussion included a review of a 10-year operating budget Pro-Forma and a 10-year Capital Improvement Program (CIP) budget. The Water Department has developed a recommended operating budget for FY2017 and a CIP budget for FY2017-2019 and continues to work through the final tasks to establish a Long Term Financial Plan. The recommended operating and CIP budgets will be posted by Finance to the City's website on May 6th with the public budget hearings scheduled for May 24th – 26th.

Capital Improvement Program for FY 2017 – 2019
As in past years, only the first year budget (FY 2017) will be appropriated. It is traditional for the City to provide two additional years (FY 2018 and FY 2019) in the CIP budget document to provide a longer term view of multi-year projects; however, the Water Department is using either a 5-year or 10-year CIP outlook for financial planning purposes.

For FY2017, the Water Department's capital projects are primarily funded through the Water Enterprise Fund (Fund 711) with a smaller portion of some projects focused on improving system capacity funded through the System Development Fund (Fund 715). Keeping consistent with City policies, the CIP contains capital projects while maintenance projects are categorized as operating expenditures and included in the FY 2017 Operating Budget.

Operating Budget for FY 2017
The Water Enterprise Fund (Fund 711) is nearly the sole source of funding for operating expenses and maintenance projects. A small amount of funding is provided from the System Development Fund (Fund 715) for the cost of water conservation rebates ($350,000) and an even smaller amount ($2,100) can be accessed from the interest earned for the Mt Hermon June Beetle Endowment (Fund 718) to support the protected beetle habitat.

Reserve Funds
The remaining Water Funds (713, 714, 716, and 717) are reserve funds, such as the Water Emergency Reserve Fund, set-aside for specific non-operating purposes established by the City Council in September 2014.

DISCUSSION:

Capital Improvement Program for FY 2017 – 2019
The recommended appropriation for the FY2017 CIP is $14.3 million and includes recently added projects for Source Water Evaluation, Aquifer Storage and Recovery, Recycled Water, and the emergency Wharf water main replacement. The recommended CIP represents a continuation of on-going projects with only two projects, Pressure Regulating Stations and Security Upgrades, proposed to be added in FY 2017. Table A below provides a 5-year overview of the project budgets and Attachment A is the proposed CIP for FY2017-2019 which will be presented to Council and includes project descriptions.

Table A: 5-Year CIP

Projects by Category	**FY2017**	**FY2018**	**FY2019**	**FY2020**	**FY2021**
WATER SOURCES					
Felton Diversion Replacement & Pump Station		1,500,000	1,500,000	1,500,000	
Aquifer Storage & Recovery		1,075,000	325,000	300,000	
Water Supply Reliability					
Water Supply- WSAS Implementation				1,200,000	7,200,000
Sources Subtotal	*0*	*2,575,000*	*1,825,000*	*3,000,000*	*7,200,000*
COLLECTION					
Newell Creek Pipeline Rehabilitation	1,000,000	1,000,000	8,000,000	8,000,000	
Newell Creek Dam I/O Pipeline	2,000,000	2,000,000	14,000,000	12,000,000	12,000,000
North Coast System Rehab	4,150,000				
Collection Subtotal	*7,150,000*	*3,000,000*	*22,000,000*	*20,000,000*	*12,000,000*
TREATMENT OF WATER					
Beltz 11	70,000	300,000			

Projects by Category	FY2017	FY2018	FY2019	FY2020	FY2021
WTP Concrete Tank Eval & Replacement	600,000	3,000,000	3,000,000	3,000,000	
WTP Solids Handling	500,000				
Source Water Evaluation & Implementation	400,000	500,000	3,000,000	3,000,000	
Water Treatment Upgrades	100,000				
Treatment Subtotal	*1,670,000*	*3,800,000*	*6,000,000*	*6,000,000*	*0*
DISTRIBUTION OF WATER					
Water Main Replacements - City Engineering	1,395,000	1,440,000	1,440,000	1,440,000	1,500,000
Water Main Replacements - Outside Agency	250,000	250,000	250,000	250,000	250,000
Water Main Replacements - Customer Initiated	50,000	50,000	50,000	50,000	50,000
Water Main Replacements - c701507	325,000	325,000	325,000	325,000	325,000
Pressure Regulating Stations	10,000	60,000	60,000	60,000	
Distribution Subtotal	*2,030,000*	*2,125,000*	*2,125,000*	*2,125,000*	*2,125,000*
FACILITIES					
Advance Metering Infrastructure (AMI)					50,000
Loch Lomond Rec Improvements			165,000	1,000,000	
Photovoltaic/Solar Projects	500,000				
Water Resources Building	1,000,000				
Security Camera & Building Access Upgrades	95,000				
Facilities Subtotal	*1,595,000*	*0*	*165,000*	*1,000,000*	*50,000*
STORAGE OF WATER					
Recoat University Reservoir No. 4	75,000	1,300,000			
Recoat University Reservoir No. 5	1,750,000				
Storage Subtotal	*1,825,000*	*1,300,000*	*0*	*0*	*0*
Total Projects	**14,270,000**	**12,800,000**	**32,115,000**	**32,125,000**	**21,375,000**

Operating Budget for FY 2017

The current year-end (FY 2016) projection for the operating budget is $24.3M which is a $2.1M savings over the FY 2016 adopted budget. The savings is primarily due to salary savings, delay of capital expenditures, and a delay in executing the IBank debt financing agreement. However, these cost savings will not continue into the FY 2017 requested budget because it is necessary to address the staffing shortages, equipment replacements can no longer be delayed, and the IBank debt payments will begin. With that in mind, the Water Department continued a “maintenance of effort” approach to budget planning with the goal to keep requested budgets stable, with minimal

and expected increases, from year to year. The recommended budget for FY 2017 will be near $28.8M which is a 3.6% increase over the FY 2016 amended budget of $27.8M. The recommended FY 2017 Operating Budget showing personnel, services and supplies, capital outlay, and anticipated revenues by section is attached as Attachment B. Please note that the City is still in the process of developing the recommended budget for Council approval and the figures shown in Attachment B for personnel do not include personnel changes described below.

Personnel Changes for FY 2017
The Water Department has requested a handful of personnel changes that will result in increasing total Water personnel from 102.25 FTE to 104.6 FTE. This includes creating a new apprentice position at the treatment plant and adding two Engineering positions in anticipation of the growing infrastructure support and rehabilitation required to maintain a well-functioning water system. The total financial impact of these changes is estimated at $414K.

FISCAL IMPACT: Development of a financial sustainability plan was thoroughly discussed at the Water Commission's February 2016 meeting. Feedback received from the Water Commission regarding financial policy was taken into consideration during the development of the attached recommended CIP and Operating budgets.

PROPOSED MOTION: Motion to recommend approval of the Water Department's Recommended FY 2016 Operating Budget and FY 2016-2018 CIP budget to the City Council.

Attachments:
Attachment A: Recommended CIP for FY 2017 – 2019
Attachment B: Recommended Operating Budget for FY 2017

Water (NEW)

711- Water & Water System Development

Pressure Regulating Stations

Project Description:

Evaluation and replacement of pressure regulating stations.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701703						**Account # 711-70-92-7151-57302**	
Project Cost Estimate:	-	-	-	10,000	60,000	60,000	130,000
Net Project Cost Estimates:	-	-	-	10,000	60,000	60,000	130,000

Security Camera & Building Access Upgrades

Project Description:

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

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701704						**Account # 711-70-92-7151-57302**	
Project Cost Estimate:	-	-	-	95,000	-	-	95,000
Net Project Cost Estimates:	-	-	-	95,000	-	-	95,000

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

	Prior Year Totals	Fiscal Year 2016 Budget	Fiscal Year 2016 Encumb. + Actuals	FY 2017 Estimate	FY 2018 Estimate	FY 2019 Estimate	Total 2017 - 2019
Total Project Cost Estimate:	-	-	-	105,000	60,000	60,000	225,000
Total Project Funding Estimate:	-	-	-	-	-	-	-
Total Net Project Cost Estimate:	-	-	-	105,000	60,000	60,000	225,000

Water (EXISTING)

711- Water & Water System Development

Advanced Metering infrastructure (AMI)

Project Description:

Evaluate the use of AMI as replacement to the current AMR metering (Automatic Meter Reading). AMI would allow two-way communication; benefits include early leak detection, customer conservation affect, and workflow management. Evaluation and vendor recommendation in FY2016.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701603							**Account # 711-70-91-7153-57302**
Project Cost Estimate:	-	50,000	-	-	-	-	-
Net Project Cost Estimates:	-	50,000	-	-	-	-	-

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.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701609							**Account # 711-70-91-7153-57302**
Project Cost Estimate:	-	374,500	312,459	-	752,500	227,500	980,000
Net Project Cost Estimates:	-	374,500	312,459	-	752,500	227,500	980,000
Project # c701610							**Account # 715-70-91-7153-57302**
Project Cost Estimate:	-	160,500	133,911	-	322,500	97,500	420,000
Net Project Cost Estimates:	-	160,500	133,911	-	322,500	97,500	420,000

Bay Street Reservoir Reconstruction

Project Description:

The Bay Street Reservoir has reached the end of its useful life and will be replaced with two 6 MG tanks. Construction of Tank 1 was completed in FY 2014. Demolition of the temporary tanks and Tank 2 construction commenced in FY 2014. A portion of the project is funded by System Development Charges (20% SDC-Fund 715).

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c700313							**Account # 711-70-91-7153-57302**
Project Cost Estimate:	19,183,702	1,696,974	308,863	-	-	-	-
Net Project Cost Estimates:	19,183,702	1,696,974	308,863	-	-	-	-
Project # c700027							**Account # 715-70-91-7153-57302**
Project Cost Estimate:	4,870,189	423,308	76,615	-	-	-	-
Net Project Cost Estimates:	4,870,189	423,308	76,615	-	-	-	-

Water (EXISTING)

711- Water & Water System Development

Beltz Well #11

Project Description:

This project would convert an existing monitoring well located at the site of Beltz 7 monitoring well and Beltz 10 production well. Beltz 11 would pump from the Santa Margarita. Project includes feasibility study, pump test, CEQA and construction efforts.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c700026							**Account # 711-70-91-7153-57302**
Project Cost Estimate:	64,243	-	-	70,000	300,000	-	370,000
Net Project Cost Estimates:	64,243	-	-	70,000	300,000	-	370,000

Beltz Well #4 Replacement with #12

Project Description:

Replace Beltz Well #4 with a new inland well to redistribute pumping away from the coast. Land was acquired in 2012, drilling of the well took place in FY 2013, engineering and construction of the wellhead in FY 2014. Installation of the treatment system began in FY 2014 and will be complete in early FY 2015.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701003							**Account # 711-70-91-7153-57302**
Project Cost Estimate:	4,688,177	435,384	244,838	-	-	-	-
Net Project Cost Estimates:	4,688,177	435,384	244,838	-	-	-	-

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 may be considered, such as horizontal collector wells or other subsurface intake(s). Additional funding for construction in FY2019.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701602							**Account # 711-70-91-7153-57302**
Project Cost Estimate:	-	300,000	-	-	1,500,000	1,500,000	3,000,000
Net Project Cost Estimates:	-	300,000	-	-	1,500,000	1,500,000	3,000,000

Water (EXISTING)

711- Water & Water System Development

Gravity Trunk Main Valve Replacement

Project Description:

Replace failed isolation valves on and surrounding the 36 inch trunk transmission main leaving the Graham Hill Water Treatment Plant, and make improvements needed to inspect the condition of the pipeline. Project also includes potential inspection of the transmission main.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701504						**Account # 711-70-91-7151-57302**	
Project Cost Estimate:	-	350,000	266,803	-	-	-	-
Net Project Cost Estimates:	-	350,000	266,803	-	-	-	-

Loch Lomond Facilities Improvements

Project Description:

Complete facilities assessment and improvement program at Loch Lomond. A Use study was completed in FY 2013. Further analysis was completed in FY 2016. Several ADA and other recreational improvements are being pursued.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701301						**Account # 711-70-91-7153-57302**	
Project Cost Estimate:	4,676	280,324	75,275	-	-	165,000	165,000
Net Project Cost Estimates:	4,676	280,324	75,275	-	-	165,000	165,000

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 and valve replacement.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701606						**Account # 711-70-91-7153-57302**	
Project Cost Estimate:	-	563,700	363,700	2,000,000	2,000,000	14,000,000	18,000,000
Net Project Cost Estimates:	-	563,700	363,700	2,000,000	2,000,000	14,000,000	18,000,000

Water (EXISTING)

711- Water & Water System Development

Newell Creek Pipeline Rehabilitation

Project Description:

Conduct a condition assessment and program level environmental review followed by full or partial replacement of the pipeline between the base of Loch Lomond Reservoir and the Graham Hill Water Treatment Plant. (Project title modified from Newell Creek Supply Main Rehabilitation.)

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701701							**Account # 711-70-91-7153-57302**
Project Cost Estimate:	-	-	-	1,000,000	1,000,000	8,000,000	10,000,000
Net Project Cost Estimates:	-	-	-	1,000,000	1,000,000	8,000,000	10,000,000

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 were constructed as early as 1889 and are in need of rehabilitation. The program consists of multiple projects over the next 15 to 20 years. Engineering, environmental review, and permitting for the coast segment (Phase 3) began in FY 2013 and continues through FY 2015. Construction scheduled to begin in FY 2016.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c709835							**Account # 711-70-91-7153-57302**
Project Cost Estimate:	5,028,559	5,316,199	2,424,106	4,150,000	-	-	4,150,000
Net Project Cost Estimates:	5,028,559	5,316,199	2,424,106	4,150,000	-	-	4,150,000

Photovoltaic Systems Evaluations/Construction

Project Description:

Ongoing project to evaluate, design and construct PV systems on water department facilities. Current project is at the Bay Street Tank Site.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701607							**Account # 711-70-91-7153-57302**
Project Cost Estimate:	-	40,000	-	500,000	-	-	500,000
Net Project Cost Estimates:	-	40,000	-	500,000	-	-	500,000

Water (EXISTING)

711- Water & Water System Development

Recoat University Reservoir No. 4

Project Description:

Perform engineering analysis and condition assessment of the aging University 4 tank. 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 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701505							**Account # 711-70-91-7153-57302**
Project Cost Estimate:	-	195,000	-	75,000	1,300,000	-	1,375,000
Net Project Cost Estimates:	-	195,000	-	75,000	1,300,000	-	1,375,000

Recoat University Reservoir No. 5

Project Description:

Perform engineering analysis and condition assessment of the aging University 5 tank. 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 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701506							**Account # 711-70-91-7153-57302**
Project Cost Estimate:	32,498	152,502	67,200	1,750,000	-	-	1,750,000
Net Project Cost Estimates:	32,498	152,502	67,200	1,750,000	-	-	1,750,000

Recycled Water

Project Description:

Evaluate the feasibility of using treated water for beneficial uses as per the recommendations of the Water Supply Advisotry Committee. The project will be a collaboration amongst the Water and Public Works Departments.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701611							**Account # 711-70-91-7153-57302**
Project Cost Estimate:	-	350,000	340,200	-	-	-	-
Net Project Cost Estimates:	-	350,000	340,200	-	-	-	-
Project # c701612							**Account # 715-70-91-7153-57302**
Project Cost Estimate:	-	150,000	145,800	-	-	-	-
Net Project Cost Estimates:	-	150,000	145,800	-	-	-	-

Water (EXISTING)

711- Water & Water System Development

San Lorenzo River Diversion and Tait Wells

Project Description:

Conduct a condition assessment of the existing diversion and wells including consideration of sanding issues, potential dam replacement, potential use of infiltration gallery, and relocation of existing wells. Condition assessment followed by recommended intake modifications and/or new wells. (Project title modified from San Lorenzo Tait Intake.)

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c709872						**Account # 711-70-91-7153-57302**	
Project Cost Estimate:	173,338	1,351,676	344,326	-	-	-	-
Net Project Cost Estimates:	173,338	1,351,676	344,326	-	-	-	-

Source Water Evaluation

Project Description:

Evaluate source water quality, operational and infrastructure alternatives to maximize use of surface water.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701608						**Account # 711-70-91-7153-57302**	
Project Cost Estimate:	-	-	-	400,000	500,000	3,000,000	3,900,000
Net Project Cost Estimates:	-	-	-	400,000	500,000	3,000,000	3,900,000

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 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701508						**Account # 711-70-97-7151-57302**	
Project Cost Estimate:	-	350,000	5,100	-	-	-	-
Net Project Cost Estimates:	-	350,000	5,100	-	-	-	-

Water Main Replacements - Distribution

Project Description:

Recurring program of deteriorated mains, as identified and prioritized by the Water Department's Distribution Section, which performs the work. Projects are typically based on leak history, but also address water quality and fire flow issues.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701507						**Account # 711-70-97-7151-57302**	
Project Cost Estimate:	221,430	403,570	463,993	325,000	325,000	325,000	975,000
Net Project Cost Estimates:	221,430	403,570	463,993	325,000	325,000	325,000	975,000

Water (EXISTING)

711- Water & Water System Development

Water Main Replacements -City Engineering

Project Description:

Recurring program to replace deteriorated or undersized mains as identified and prioritized by the Water Department's Engineering Division. Priorities are based on the need to maintain water system reliability, deliver adequate fire flows, improve circulation and water quality, and reduce maintenance costs. This project focuses on pipes less than 10" in diameter.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c700002							**Account # 711-70-91-7151-57302**
Project Cost Estimate:	2,357,430	980,698	793,523	895,000	940,000	940,000	2,775,000
Net Project Cost Estimates:	2,357,430	980,698	793,523	895,000	940,000	940,000	2,775,000

Water Main Replacements -Customer Initiated

Project Description:

Recurring program similar to the City-Initiated Main Replacement Project; 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 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c700004							**Account # 715-70-91-7151-57302**
Project Cost Estimate:	301,259	50,000	-	50,000	50,000	50,000	150,000
Net Project Cost Estimates:	301,259	50,000	-	50,000	50,000	50,000	150,000

Water Main Replacements -Outside Agency

Project Description:

Water main, service line, valve, or water meter relocation necessitated by County or other Agency road improvement and/or storm drain improvement projects.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c700003							**Account # 711-70-91-7151-57302**
Project Cost Estimate:	1,009,923	321,869	23,136	250,000	250,000	250,000	750,000
Net Project Cost Estimates:	1,009,923	321,869	23,136	250,000	250,000	250,000	750,000

Water (EXISTING)

711- Water & Water System Development

Water Resources Building

Project Description:

The Watershed Resources Division is currently housed in temporary trailers. The needs assessment portion of the project has been completed; FY 2016 will focus on site selection and design; FY 2017 will be construction.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701702							**Account # 711-70-91-7153-57302**
Project Cost Estimate:	-	100,000	-	1,000,000	-	-	1,000,000
Net Project Cost Estimates:	-	100,000	-	1,000,000	-	-	1,000,000

Water Transmission System Improvements

Project Description:

Recurring program of water main replacement for pipes 10" and larger (the transmission grid) to extend its useful life and improve performance. Portion of the project funded by System Development Charges (20% SDC - Fund 715)

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c709833							**Account # 711-70-91-7151-57302**
Project Cost Estimate:	1,813,497	871,940	545,218	400,000	400,000	400,000	1,200,000
Net Project Cost Estimates:	1,813,497	871,940	545,218	400,000	400,000	400,000	1,200,000
Project # c700017							**Account # 715-70-91-7151-57302**
Project Cost Estimate:	401,626	191,905	110,225	100,000	100,000	100,000	300,000
Net Project Cost Estimates:	401,626	191,905	110,225	100,000	100,000	100,000	300,000

Water Treatment Plant Filter Rehabilitation and Upgrades

Project Description:

As part of an overall plan to ensure compliance with changing water quality regulations, improvements are needed at the Graham Hill Water Treatment Plant. This project will rehabilitate and improve the filters.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701303							**Account # 711-70-91-7152-57302**
Project Cost Estimate:	3,723,028	2,314,272	1,905,458	-	-	-	-
Net Project Cost Estimates:	3,723,028	2,314,272	1,905,458	-	-	-	-

Water (EXISTING)

711- Water & Water System Development

Water Treatment Plant Flocculator/Sedimentation 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 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701502							**Account # 711-70-91-7152-57302**
Project Cost Estimate:	-	60,000	-	-	-	-	-
Net Project Cost Estimates:	-	60,000	-	-	-	-	-

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 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701401							**Account # 711-70-91-7152-57302**
Project Cost Estimate:	-	75,000	-	-	-	-	-
Net Project Cost Estimates:	-	75,000	-	-	-	-	-

Water Treatment Plant Solids Handling

Project Description:

Solids produced at the Graham Hill Water Treatment Plant currently are disposed of in the City's sewer system. Treatment and disposal of these solids needs to be evaluated prior to any modifications. Project evaluation will occur with the existing Water Treatment Plant Concrete Tank Assessment and Rehabilitation project (c701501).

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701605							**Account # 711-70-91-7153-57302**
Project Cost Estimate:	-	250,000	-	500,000	-	-	500,000
Net Project Cost Estimates:	-	250,000	-	500,000	-	-	500,000

Water (EXISTING)

711- Water & Water System Development

Water Treatment Plant UV System - Pasatiempo

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 upgrading the Pasatiempo Pump system with ultra violet disinfection. This project would need to be constructed in conjunction with improvements to the filtered water tank as part of the WTP Concrete Tank Project.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701503							**Account # 711-70-91-7152-57302**
Project Cost Estimate:	-	40,000	-	-	-	-	-
Net Project Cost Estimates:	-	40,000	-	-	-	-	-

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. Projects include changes to bulk storage area.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c700025							**Account # 711-70-91-7152-57302**
Project Cost Estimate:	313,986	26,561	-	100,000	-	-	100,000
Net Project Cost Estimates:	313,986	26,561	-	100,000	-	-	100,000

Wharf Water Main

Project Description:

New emergency project to repair the Wharf Water Main that failed during strong swell in late January 2016.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701613							**Account # 711-70-91-7151-57302**
Project Cost Estimate:	-	500,000	186,648	-	-	-	-
Net Project Cost Estimates:	-	500,000	186,648	-	-	-	-

Water (EXISTING)

711- Water & Water System Development

WTP Concrete Tanks

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 of-site concrete tank), make improvement recommendation, and construction. Project title modified from WTP Filter Water Tank. Includes $145,000 endowment for MHJB HCP mitigation.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701501							**Account # 711-70-91-7152-57302**
Project Cost Estimate:	173,521	189,799	75,224	600,000	3,000,000	3,000,000	6,600,000
Net Project Cost Estimates:	173,521	189,799	75,224	600,000	3,000,000	3,000,000	6,600,000

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

	Prior Year Totals	Fiscal Year 2016 Budget	Fiscal Year 2016 Encumb. + Actuals	FY 2017 Estimate	FY 2018 Estimate	FY 2019 Estimate	Total 2017 - 2019
Total Project Cost Estimate:	44,361,083	18,915,681	9,212,621	14,165,000	12,740,000	32,055,000	58,960,000
Total Project Funding Estimate:	-	-	-	-	-	-	-
Total Net Project Cost Estimate:	44,361,083	18,915,681	9,212,621	14,165,000	12,740,000	32,055,000	58,960,000

Water (FY 2016 COMPLETED PROJECTS)

711- Water & Water System Development

Water Supply Project

Project Description:

CEQA process continued in FY 2014. A portion of the project is funded by System Development Charges (30% SDC-Fund 715). Remaining project balance will be transferred as needed to the Water Supply Reliability project (c701402, c701403)

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c700305							**Account # 711-70-91-7153-57302**
Project Cost Estimate:	9,987,563	634	633	-	-	-	-
Net Project Cost Estimates:	5,072,470	634	633	-	-	-	-
Project # c700016							**Account # 715-70-91-7153-57302**
Project Cost Estimate:	3,551,828	271	271	-	-	-	-
Net Project Cost Estimates:	1,445,361	271	271	-	-	-	-

Water Supply Reliability

Project Description:

Support the Water Supply Advisory Committee (WSAC) to explore the City of Santa Cruz's water situation and potential supply options. Will include exploration of elements that impact supply such as the Habitat Conservation Plan process, elements affecting demand such as the conservation master plan, and potential water supply alternatives such as water exchange and beneficial uses of recycled water, and funding of Water Supply Advisory Committee facilitation. Potential for funding contributions from other agencies for exploration of regional solutions and/or grant funding. Includes supporting various elements of the WSAC final recommendations.

		Fiscal Year 2016					
	Prior Year	Budgeted	Encumb. + Actuals	FY 2017 Dept Request	FY 2018 Dept Request	FY 2019 Dept Request	FY 2017-2019 Total
Project # c701402							**Account # 711-70-91-7153-57302**
Project Cost Estimate:	1,137,738	592,644	580,416	-	-	-	-
Net Project Cost Estimates:	1,137,738	592,644	580,416	-	-	-	-
Project # c701403							**Account # 715-70-91-7153-57302**
Project Cost Estimate:	36,537	238,746	232,723	-	-	-	-
Net Project Cost Estimates:	36,537	238,746	232,723	-	-	-	-

FY16 Completed Projects for Water & Water System Development Enterprise Fund (711 & 715) Totals

	Prior Year Totals	Fiscal Year 2016 Budget	Fiscal Year 2016 Encumb. + Actuals	FY 2017 Estimate	FY 2018 Estimate	FY 2019 Estimate	Total 2017 - 2019
Total Project Cost Estimate:	14,831,258	832,295	814,044	-	-	-	-
Total Project Funding Estimate:	7,021,560	-	-	-	-	-	-
Total Net Project Cost Estimate:	7,809,699	832,295	814,044	-	-	-	-

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

	Prior Year Totals	Fiscal Year 2016 Budget	Fiscal Year 2016 Encumb. + Actuals	FY 2017 Estimate	FY 2018 Estimate	FY 2019 Estimate	Total 2017 - 2019
Total Project Cost Estimate:	59,192,341	19,747,975	10,026,665	14,270,000	12,800,000	32,115,000	59,185,000
Total Project Funding Estimate:	7,021,560	-	-	-	-	-	-
Total Net Project Cost Estimate:	52,170,781	19,747,975	10,026,665	14,270,000	12,800,000	32,115,000	59,185,000

Water Totals

	Prior Year Totals	Fiscal Year 2016 Budget	Fiscal Year 2016 Encumb. + Actuals	FY 2017 Estimate	FY 2018 Estimate	FY 2019 Estimate	Total 2017 - 2019
Total Project Cost Estimate:	59,192,341	19,747,975	10,026,665	14,270,000	12,800,000	32,115,000	59,185,000
Total Project Funding Estimate:	7,021,560	-	-	-	-	-	-
Total Net Project Cost Estimate:	52,170,781	19,747,975	10,026,665	14,270,000	12,800,000	32,115,000	59,185,000

DEPARTMENT SUMMARY

		Fiscal Year* 2015 Actuals	Fiscal Year 2016 Adopted Budget	Fiscal Year 2016 Amended* Budget	Fiscal Year 2016 Estimated Actual	Fiscal Year 2017 Request
EXPENDITURES BY CHARACTER:						
Personnel Services		10,225,879	11,879,181	12,045,806	10,580,127	12,671,712
Services, Supplies, and Other Charges		11,014,604	12,377,301	13,710,778	12,837,145	12,616,410
Capital Outlay		328,650	338,500	367,484	161,500	965,000
Debt Service		696,815	1,762,552	1,762,552	692,742	2,106,938
Total Expenditures		22,265,947	26,357,534	27,886,620	24,271,514	28,360,060
EXPENDITURES BY ACTIVITY:						
Water Administration	7101	4,233,451	4,720,650	4,985,452	4,641,319	5,173,901
Water Engineering	7102	1,732,543	2,376,051	2,625,863	2,365,724	2,804,861
Water Customer Services	7103	1,193,137	1,330,926	1,410,942	1,424,491	1,495,655
Water Conservation	7104	759,010	941,326	1,227,382	997,775	1,110,626
Water Resources	7105	1,190,178	1,369,219	1,317,332	1,199,382	1,527,333
Water Production	7106	5,630,763	6,278,405	6,550,988	6,080,159	5,999,705
Water Quality	7107	856,347	996,194	1,008,653	945,112	1,010,777
Water Distribution	7108	3,978,580	4,418,767	4,466,975	3,893,187	5,175,357
Water Recreation	7109	697,216	964,580	1,308,820	1,080,072	1,126,238
Meter Shop	7118	966,975	985,611	989,361	772,082	828,669
Water Debt Service	7140	696,815	1,762,552	1,762,552	692,742	2,106,938
Drought Response 2014	7199	330,933	213,253	232,300	179,469	-
Subtotal Other Funds		22,265,947	26,357,534	27,886,620	24,271,514	28,360,060
RESOURCES BY FUND						
Water	711	23,284,501	57,221,775	57,221,775	41,400,193	38,294,778
Water System Development Fees Fund	715	700,034	850,000	850,000	250,000	330,000
Water - Emergency Reserve Fund	717	600,000	-	-	-	-
Total Resources		24,584,535	58,071,775	58,071,775	41,650,193	38,624,778
		FY 2015			**FY 2016**	**FY 2017**
TOTAL AUTHORIZED PERSONNEL:		102.25			102.25	102.25

*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 2015 Actuals	Fiscal Year 2016 Adopted Budget	Fiscal Year 2016 Amended Budget	Fiscal Year 2016 Estimated Actual	Fiscal Year 2017 Request
EXPENDITURES BY ACTIVITY:					
Personnel Services	1,147,830	1,255,255	1,318,255	1,356,527	1,416,040
Services, Supplies, and Other Charges	3,085,621	3,465,395	3,667,197	3,284,792	3,657,861
Capital Outlay	-	-	-	-	100,000
Total Expenditures	4,233,451	4,720,650	4,985,452	4,641,319	5,173,901

*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 2015 Actuals	Fiscal Year 2016 Adopted Budget	Fiscal Year 2016 Amended Budget	Fiscal Year 2016 Estimated Actual	Fiscal Year 2017 Request
EXPENDITURES BY ACTIVITY:					
Personnel Services	1,329,495	1,750,138	1,750,138	1,545,561	2,005,160
Services, Supplies, and Other Charges	372,428	590,913	827,675	795,163	734,701
Capital Outlay	30,620	35,000	48,050	25,000	65,000
Total Expenditures	1,732,543	2,376,051	2,625,863	2,365,724	2,804,861
ACTIVITY RESOURCES:					
Grants	19,097	20,000	20,000	-	-
Rents, & Misc Revenues	-	-	-	1,231	-
Total Resources	19,097	20,000	20,000	1,231	-

*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 2015 Actuals	Fiscal Year 2016 Adopted Budget	Fiscal Year 2016 Amended Budget	Fiscal Year 2016 Estimated Actual	Fiscal Year 2017 Request
EXPENDITURES BY ACTIVITY:					
Personnel Services	838,658	941,897	941,897	944,026	1,037,541
Services, Supplies, and Other Charges	354,479	359,029	439,045	450,465	458,114
Capital Outlay	-	30,000	30,000	30,000	-
Total Expenditures	1,193,137	1,330,926	1,410,942	1,424,491	1,495,655
ACTIVITY RESOURCES:					
Charges for Services	641,935	691,062	691,062	691,062	725,615
Total Resources	641,935	691,062	691,062	691,062	725,615

*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 2015 Actuals	Fiscal Year 2016 Adopted Budget	Fiscal Year 2016 Amended Budget	Fiscal Year 2016 Estimated Actual	Fiscal Year 2017 Request
EXPENDITURES BY ACTIVITY:					
Personnel Services	215,522	390,285	396,410	161,187	465,005
Services, Supplies, and Other Charges	543,488	551,041	830,972	836,588	645,621
Total Expenditures	759,010	941,326	1,227,382	997,775	1,110,626
ACTIVITY RESOURCES:					
Rents, & Misc Revenues	675	-	-	-	-
Total Resources	675	-	-	-	-

*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 2015 Actuals	Fiscal Year 2016 Adopted Budget	Fiscal Year 2016 Amended Budget	Fiscal Year 2016 Estimated Actual	Fiscal Year 2017 Request
EXPENDITURES BY ACTIVITY:					
Personnel Services	516,729	556,260	556,260	503,782	609,969
Services, Supplies, and Other Charges	673,449	812,959	761,072	695,600	917,364
Total Expenditures	1,190,178	1,369,219	1,317,332	1,199,382	1,527,333

*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 2015 Actuals	Fiscal Year 2016 Adopted Budget	Fiscal Year 2016 Amended Budget	Fiscal Year 2016 Estimated Actual	Fiscal Year 2017 Request
EXPENDITURES BY ACTIVITY:					
Personnel Services	2,293,669	2,463,381	2,480,964	2,236,422	2,509,421
Services, Supplies, and Other Charges	3,192,960	3,668,524	3,923,524	3,817,237	3,415,284
Capital Outlay	144,133	146,500	146,500	26,500	75,000
Total Expenditures	5,630,763	6,278,405	6,550,988	6,080,159	5,999,705
ACTIVITY RESOURCES:					
Rents, & Misc Revenues	384	-	-	-	-
Total Resources	384	-	-	-	-

*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 2015 Actuals	Fiscal Year 2016 Adopted Budget	Fiscal Year 2016 Amended Budget	Fiscal Year 2016 Estimated Actual	Fiscal Year 2017 Request
EXPENDITURES BY ACTIVITY:					
Personnel Services	647,816	692,490	704,949	672,247	707,923
Services, Supplies, and Other Charges	208,531	263,704	263,704	242,865	267,854
Capital Outlay	-	40,000	40,000	30,000	35,000
Total Expenditures	856,347	996,194	1,008,653	945,112	1,010,777

*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 2015 Actuals	Fiscal Year 2016 Adopted Budget	Fiscal Year 2016 Amended Budget	Fiscal Year 2016 Estimated Actual	Fiscal Year 2017 Request
EXPENDITURES BY ACTIVITY:					
Personnel Services	2,105,613	2,497,826	2,546,034	2,123,416	2,665,673
Services, Supplies, and Other Charges	1,719,071	1,870,941	1,870,941	1,769,771	1,879,684
Capital Outlay	153,896	50,000	50,000	-	630,000
Total Expenditures	3,978,580	4,418,767	4,466,975	3,893,187	5,175,357

*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 2015 Actuals	Fiscal Year 2016 Adopted Budget	Fiscal Year 2016 Amended Budget	Fiscal Year 2016 Estimated Actual	Fiscal Year 2017 Request
EXPENDITURES BY ACTIVITY:					
Personnel Services	550,572	696,288	711,788	563,032	765,946
Services, Supplies, and Other Charges	146,644	231,292	560,032	517,040	300,292
Capital Outlay	-	37,000	37,000	-	60,000
Total Expenditures	697,216	964,580	1,308,820	1,080,072	1,126,238
ACTIVITY RESOURCES:					
Licenses and Permits	-	600	600	300	600
Grants	4,931	-	-	-	-
Rents, & Misc Revenues	-	85,000	85,000	43,500	130,000
Total Resources	4,931	85,600	85,600	43,800	130,600

*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 2015 Actuals	Fiscal Year 2016 Adopted Budget	Fiscal Year 2016 Amended Budget	Fiscal Year 2016 Estimated Actual	Fiscal Year 2017 Request
EXPENDITURES BY ACTIVITY:					
Personnel Services	375,043	476,361	480,111	304,049	489,034
Services, Supplies, and Other Charges	591,931	509,250	509,250	418,033	339,635
Capital Outlay	-	-	-	50,000	-
Total Expenditures	966,975	985,611	989,361	772,082	828,669

*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 2015 Actuals	Fiscal Year 2016 Adopted Budget	Fiscal Year 2016 Amended Budget	Fiscal Year 2016 Estimated Actual	Fiscal Year 2017 Request
EXPENDITURES BY ACTIVITY:					
Debt Service	696,815	1,762,552	1,762,552	692,742	2,106,938
Total Expenditures	696,815	1,762,552	1,762,552	692,742	2,106,938

*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 2015 Actuals	Fiscal Year 2016 Adopted Budget	Fiscal Year 2016 Amended Budget	Fiscal Year 2016 Estimated Actual	Fiscal Year 2017 Request
EXPENDITURES BY ACTIVITY:					
Personnel Services	204,932	159,000	159,000	169,878	-
Services, Supplies, and Other Charges	126,000	54,253	57,366	9,591	-
Capital Outlay	-	-	15,934	-	-
Total Expenditures	330,933	213,253	232,300	179,469	-
ACTIVITY RESOURCES:					
Fines and Forfeitures	217,229	-	-	-	-
Total Resources	217,229	-	-	-	-

*Sums may have discrepancies due to rounding

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WATER COMMISSION
INFORMATION REPORT

DATE: March 29, 2016

AGENDA OF: April 4, 2016

TO: Water Commission

FROM: Rosemary Menard

SUBJECT: Loch Lomond Westside Recreation Study

RECOMMENDATION: Recommendation to discontinue pursuing evaluation of the potential for increased recreation on the Westside of the City's land holdings at Loch Lomond.

BACKGROUND: On May 28, 2013, the City Council recommended that the Water Department proceed with a feasibility study regarding public access on the west side of Loch Lomond as part of the Loch Lomond Recreational Area Use Study. The Department hired a consultant to begin this study, but the drought response and staffing issues required that other work was prioritized and the feasibility study has been on hold since early 2014.

DISCUSSION: Over the last several years, the Department has become increasingly sensitized to the potential for a wildfire at Loch Lomond, which would very likely be exacerbated by increased public access there. The ramifications of a fire in the watershed on water quality and the damage to the reservoir's ability to store water due to sedimentation associated are a serious threat to the water system's only significant water storage reservoir. Furthermore, the Department became increasingly aware that emergency response to the west side is complicated by the fact that staff is already stretched thin by existing operations and that other local emergency responders (CalFire, etc.) also have concerns about their ability to respond due to their increasing obligations elsewhere.

Finally – upon review of archival files – the Department became aware that the "Watershed Resources Technical Advisory Task Force" had considered expanded recreational activities on the west side back in 2002 and had determined that there were few opportunities that correlated well with overarching management goals at Loch Lomond.

Given these issues and the fact that the primary operational need for the reservoir is to provide drinking water storage and the overall focus of land management surrounding the reservoir is drinking water source protection, we recommend not pursuing further analysis of expanded recreation on the west side of Loch Lomond.

FISCAL IMPACT: None

PROPOSED MOTION: Motion to discontinue the Westside Loch Lomond Recreation Study.

WATER COMMISSION
INFORMATION REPORT

DATE: March 30, 2016

AGENDA OF: April 4, 2016

TO: Water Commission

FROM: Rosemary Menard

SUBJECT: Water Commission Involvement in Department Financial Management

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RECOMMENDATION: Recommendation to discuss and adopt the proposed parameters describing the Water Commission role in matters related to the Water Department's financial planning, administration, and management.

BACKGROUND: Over time, Water Commission members have asked for or been provided with various kinds of financial information regarding the Department's budget, Capital Improvement Plan (CIP), rate proposals, financial planning and financing strategies and analyses. Some months ago, the Department was asked to provide information on the financial impacts of the 2015 rationing program on revenues and that request was followed by a more general request for information on the Department's more general financial status. Staff responded by preparing some materials that were distributed with the meeting packet for the March 7th Commission meeting.

In response to the March 7th item, staff received a number of detailed questions and comments, which in and of themselves were fine and totally appropriate, but the nature of the questions and comments made me ask some questions about the policy purpose and focus of possible action by the Water Commission related to the information provided. In particular, I had questions about whether the nature of some of the questions and comments raised issues about whether or to what degree the Water Commission has a fiduciary responsibility for the operation of the water utility. My specific question was does the Water Commission's role require it, or make it advisable for it to play an active role in monitoring the Department's ongoing management and administration of its annual Council approved budget and CIP? To further explore this question and to frame a discussion of the issue with the Water Commission, I researched the Water Commission's Bylaws, talked to staff and Commissioners with historical perspective, and informally discussed questions about roles, responsibilities, and expectations with several people.

DISCUSSION: Based on the Water Commission's Bylaws, its role is advisory to the City Council (see http://www.cityofsantacruz.com/home/showdocument?id=51121). I've excerpted specific sections of the Bylaws that describe that role below:

ARTICLE II – PURPOSE

The Water Commission will act in an advisory capacity to the City Council in all matters pertaining to the Santa Cruz water system and the maintenance and management thereof.

ARTICLE III – DUTIES AND RESPONSIBILITIES

The Water Commission shall have the ability, as vested by the City Council, and be required to:

- Recommend to the City Council, after public input, the adoption, amendment or repeal of ordinances relating to Chapter 16 Water, Sewers and other Public Services of the Santa Cruz Municipal Code;
- Make recommendations concerning proposed annual Water Department budget, Capital Improvement Program, Water Rate Resolutions and Water Resale Applications;
- Undertake studies and make recommendations in the area of Water Conservation and Water Supply Planning;
- Act in an advisory capacity to the City Council in all matters pertaining to the Santa Cruz water system and the maintenance and management thereof;
- Review and make recommendations to the City Council pertaining to the improvement and extension of the water system of the City, including sources, storage, quality, transmission and distribution of water to the inhabitants, and all subjects related thereto, including estimated costs of carrying out such recommendations;
- Review, monitor, and make long-range recommendations concerning securing sources of domestic water supply for the City; including re-examination of prior reports thereon to ascertain the value thereof if any at this time;
- Receive complaints pertaining to the Santa Cruz water system;
- Perform other duties as may from time to time be prescribed by the City Council.

These bylaw provisions are admittedly broad and perhaps more general than is helpful when dealing with a specific question, but they do not seem to include or imply that the Water Commission has or that Water Commissioners are expected to exercise a fiduciary responsibility[1] for the management of the Departments resources. Moreover, past practice does not indicate that the Water Commission has played any ongoing role in monitoring or taking action on the ongoing implementation, management or administration of the Department's annual budget and CIP.

From my assessment, and with a goal of keeping roles, responsibilities and expectations clear and consistent, I have developed a set of parameters to serve as a guide for the interaction of the Water Commission, Water Commissioners and Department staff related to various kinds of information related to the Department's financial planning, management, and administration

[1] A fiduciary is any person who has the legal responsibility for managing somebody else's money. (excerpted from http://www.investopedia.com/articles/08/fiduciary-responsiblity.asp)

activities. I would like the Commission to discuss these parameters and take action to adopt a set of parameters that will clarify roles and responsibilities and help establish and maintain clear expectations.

- Key financial inputs and assumptions and analyses related to major financial policy, planning or strategic initiatives, for example, cost of service analyses, rate design, and rate increases, system development charges, annual budgets and CIPs or major programmatic initiatives or projects not covered by the CIP, will be provided to and discussed with the Water Commission. Water Commission actions related to these kind of items are expected to include recommendations to the City Council in the form of, for example, recommendations on the annual budget and CIP, or on system development charges, or water rates.
- For agenda items related to specific projects, programs, work plans or initiatives, City staff will provide relevant financial information with a goal of providing context and transparency. Examples of the kinds of things included here would be the Water Supply Augmentation Strategy, and the Water Conservation Master Plan. Staff materials provided on such items will be prepared based on the premise that Commission action on such items will typically be focused on the policy or programmatic implications of these items rather than the details of the fiscal information provided.
- The Department does not have the resources to provide the Water Commission with routine status reporting on the Department's administration and management of its Council approved annual budget and CIP, nor is the Water Commission charged with the fiduciary responsibility for the Department's finances that would necessitate such monitoring and reporting. Water Commission requests for financial information related to specific topics of interest to the Commission as a whole will be considered and responded to by the Water Director on a case by case basis after considering the resources available to respond.

FISCAL IMPACT: None

PROPOSED MOTION: Move to adopt the proposed parameters describing the Water Commission role in matters related to the Water Department's financial planning, administration, and management.

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2015 Urban Water Management Plan Update

Tasks		Description	Coordination Section/Staff	Schedule/ Deadline	Priority	Expected Outcome	Status
Task 1	**Organization, Preparation**						
	1	Review DWR Guidbook, Appendices	WTEN/WTCO	Early December		Understand required versus optional elements	Complete, also participated in webinar about guidebook
	2	Attend UWMP Workshop	WTEN/WTCO	7-Dec-15		Become familiar with changes to law, new guidebook, new population tool, clarify requirements	Complete
	3	Review legislative changes, new requirements (Appendix C)	WTEN/WTCO				Complete
	4	Review checklist	WTEN/WTCO			Use this checklist as steps are completed, and to point DWR to where topics are covered	Complete
	5	Institute weekly progress meetings	WTEN/WTCO	Beginning in January			Ongoing now Friday at 9
Task 2	**Initial Coordination**						
	1	Hold County-wide coordination meeting with relevant water, wastewater, land use and planning agencies and organizations	WTEN/WTCO	2/4		Local agency coordination and identification of common issues	Complete, DWR and AMBAG present
	2	Provide required notice to cities and counties served >60 days prior to public hearing	WTCO	mid December		Satisty notifation requirement to other jursidictions that receive water service from the City	Complete, letter sent to top administrators and planning directors
	3	Consult with City Planning, County, & Capitola re; general plan updates, housing elements, future development plans or projects in service area	WTEN/WTCO	early March		Schedule meetings with City, County & Capitola for housing element updates	Working with City, County, and Capitola on Housing Elements
Task 3	**Establish Report Format and Organization**						
	1	Review new standardized forms, tables, and displays	WTEN/WTCO			Use final forms	Ongoing
	2	Transition to DWR suggested organization	WTEN/WTCO	December		Facilitate mandatory use of DWR tables and their review of document	Decision made to follow recommeded outline
	3	Develop report outline					Will follow writing
Task 4	**Update Chapter 1: Introduction and Overview**						
	1	Summarize changes in law over last 5 years, including state groundwater law	WTCO	Month of January			Draft Chapter 1 complete
	2	Update significant local developments since last plan:	WTCO				Draft Chapter 1 complete
	2.1	Drought conditions and system demands	WTCO				Draft Chapter 1 complete

2015 Urban Water Management Plan Update

Tasks		Description	Coordination Section/Staff	Schedule/ Deadline	Priority	Expected Outcome	Status
	2.2	Instream flow releases	WTCO				Draft Chapter 1 complete
	2.3	Infrastructure needs	WTCO				Draft Chapter 1 complete
	2.4	WSAC Process	WTCO				Draft Chapter 1 complete
	2.5	Regional plans/groundwater law/interagency agreements	WTCO				Draft Chapter 1 complete
	3	Add section on funding eligibility	WTCO				Draft Chapter 1 complete
Task 5	**Update Chapter 2: Plan Preparation**						
	1	Basis for preparing plan	WTCO	Month of January		New section, mainly about process	Draft Chapter2, tables complete
	2	Coordination and outreach	WTCO				Reference Task 2, WSAC process
Task 6	**Update Chapter 3: System Description**						
	1	Review, update profile of service area		Month of February		Thumbnail description of service area	drafted general description can be expanded and/or revised)
	2	Update population forecast	WTCO			20 year forecast of permananet population in service area	Complete - 2014 AMBAG Regional Growth Forecast
	3	Update housing figures	Meet with City County and Capitola			That housing units planned for in demand forecast agree with housing elements	In progress with County, Capitola done
	4	Confirm climate figures, consider adding climate change impact section					Complete
	5	Description of department and key facilites					Complete
	6	Employment and economy	Working with Chamber of Commerce and Economic Development Department; labor market information request in at EDD: Andy Wong				
	7	Draft of chapter 3	KM/TG				Draft nearly complete, finalize with tat
Task 7	**Update Chapter 4: System Water Use**						

2015 Urban Water Management Plan Update

Tasks		Description	Coordination Section/Staff	Schedule/ Deadline	Priority	Expected Outcome	Status
	1	Update water uses by sector		Month of February			Complete
	2	Summarize projected water demands to 2035					Demand forecast completed by David Mitchell as part of WSAC process, adjusted down by WCMP results
	3	Update section on distribution system losses and water loss control					Complete - with reference to Chapter 9
	4	Estimating future water savings					Coordinate with ongoing work by Maddaus Water Management
	5	Water for low income households					Waiting on County for low income housing numbers in water service area
	6	Impacts of climate change on water demand				Recommended section	Communicating with David Mitchell
Task 8		**Update Chapter 5: SB X7-7 Baselines and Targets**					
	1	Review methodologies document	TG	Month of March		Report 2020 and interim target per legal requirements	Complete
	2	Explore DWR Population Tool	RW/TG	2/18		Consider using for unincorporate area, Capitola	Have forwarded tool to Rich Westfall in IT to assist in determining annual population in portion of service area outside City
	3	Review, complete required SB X7-7 Tables	TG	2/5		Confirm meeting interim target	Complete
	4	Add clarifying language: Gross GPCD v.s R-GPCD	TG			Distinguish between different expressions of GPCG used for SBX7-7 vs monthly reports to SWRCB for conservation targets	
	5	Update population estimates and gross water use					Complete
	6	Confirm 2020 target and interim 2015 target					Complete
	7	Complete required tables					Complete
Task 9		**Update Chapter 6: System Supplies**					
	1	Update groundwater portion of plan, including new facilites	Mainly WTEN				Do we need outside consulting assistance?
	1.1	Basin description, boudary modification	midcounty website	February		map and description for report	Complete

2015 Urban Water Management Plan Update

Tasks		Description	Coordination Section/Staff	Schedule/ Deadline	Priority	Expected Outcome	Status
	1.2	Groundwater management	Isidro/Heidi/Catherine	March		update for SAGMC and Regional Work	in progress (20%)
	1.3	Overdraft conditions		February		map and description for report	Complete
	1.4	Historical groundwater pumping	annual reports	February		tables and description	Complete
2		Surface water					Complete description
	2.1	Sources and operations	annual reports			maps and description	Table Complete
	2.2	Production volumes	Terry/Dustin			tables and description	Table Complete
3		Wastewater and recycled water		March			in progress (75%)
	3.1	Wastewater collection, treatment and disposal	Dan Sidel	February		tables and description/send to other agencies	Table Complete
	3.2	Describe investigations and potential recycled water beneficial uses	Catherine	March		update for pilot project info and study	Update schedule for Pasatiempo/Scotts Valley Addition of Recycled water study feasiblity
	3.3	Describe Actions to encourage and optimize future recycled water use	Catherine	March			
4		Desalinated water opportunites		February		show end of IWP	Complete
5		Describe opportunites for exchanges or transfers	Kevin	February		describe WSAC rec and recent agreement with SqCWD	Complete
6		Future Water Projects: WSAC reference to Chapter 7	Heidi, WSAC Final	February		brief mention and reference to next Chapter	Complete
7		Summary of existing and planned sources of water	Heidi, CIP	March		review CIP to be sure description is consistent	in progress (80%)
8		Discuss climate change impacts to water supply	WSAC memos and presen	February		utilized WSAC memos and report to describe impacts	Complete
Task 10		**Update Chapter 7: Water Supply Reliability Assessment**					
1		Water supply problems and contraints on sources: legal, environmental, climatic, water quality	WTEN	March		describe change in status for constraints since 2010 UWMP	Will need to involve Kevin work in conjunction with with Gary Fiske
2		Reliability by type of year: identify 2-year (1976-77) or 3- year period for multiple dry years	Rosemary, Kefin	February		Define multiple dry years as 1976-77-77 per WSAC modeling	complete
3		Supply and Demand Assessment (under what fish flow assumption(s)	Rosemary, Kevin	February		Consensus is to use DFG-5	complete
	3.1	Average Year	Confluence	March		use of historic record to determine average year profile	tables complete

2015 Urban Water Management Plan Update

Tasks		Description	Coordination Section/Staff	Schedule/ Deadline	Priority	Expected Outcome	Status
	3.2	Single Dry	Confluence	March		2014 hydrology	tables complete
	3.3	Multiple Dry years	Confluence	March		sequence 1976-77-77 (WSAC 6 year drought)	tables complete
4		Adressing challenge of water supply reliability: Fold in WSAC work here		March		describe the WSAC reliability work and the implementaiton plan with table	formatting of WSAC strategies
5		Address regional supply reliability (minimize the need to import water)		February		restate water code goal from Chapter 6.	complete
6		Prepare draft chapter		March/April		narrative to support reliabilty tables	in progress (70%)
Task 11		**Update Chapter 8: Water Shortage Contingency Planning**					
1		Background (last 4 years), plan, ordinance, resolution	WTCO				Ordinance updated in 2015
2		Stages of Action					
3		Describe prohibitions on end uses					
4		Penalties and charges					
5		Consumption reduction methods					
6		Determining water shortage reductions					
7		Describe revenue and expenditure impacts (and methods to overcome impacts					
8		Catastrophic supply interuption					
9		Minimun Supply next three years (2016, 2017, 2018) and assuptions for hydrology as part of outlook					Bring in Raftelis for the financial impact part
Task 12		**Update Chapter 9: Demand Management Measures**					
1		Overview	WTCO				
2		Accomplshments, current progams and future programs to meet targets					
3		Water waste prevention					
4		Metering					

2015 Urban Water Management Plan Update

Tasks		Description	Coordination Section/Staff	Schedule/ Deadline	Priority	Expected Outcome	Status
	5	Conservation pricing					
	6	Public outreach and education	WTAD				
	7	Water loss control program					Reference ongoing Water Loss Control program
	8	Implementation, 2020-2015					
	9	Planned implementation - WC Master Plan summary					
Task 13		**Update Chapter 10: Plan Adoption and Submittal**					
	1	Summarize review and adoption process, with placeholders for dates and actions		March-July		include all the steps that took place to complete the plan and work through approvals to submit	Structure completed and will need add
Task 14		**Report Production**					
	1	Prepare Cover, Table of contents, appendicies	Primarily Admin staff				
	2	Produce paper copies for review					
	3	Produce and electronic version for website					
Task 15		**Public Review**					
	1	Provide notice and solicit input from cities, county, area water agencies	WTAD				
	2	Make plan available for public review and encourage involvement		??? APRIL???			Publish online
	3	Water Commission reivew		2-May-16			
	4	Address/respond to public comments, suggestions		Month of May			
Task 16		**City Council Review and Adoption, and Submittal to DWR**					
	1	Publish notice of public hearing		Early June		Once a week for two weeks	
	2	Hold public hearing at City Council		14-Jun-16		Receive public City Council comments	
	3	Address/respond to public comments, suggestions again					

2015 Urban Water Management Plan Update

Tasks	Description	Coordination Section/Staff	Schedule/ Deadline	Priority	Expected Outcome	Status
4	Bring back matter for adoption by City Council		28-Jun-16		Unanimous adoption	
5	Complete checklist		1-Jul-16			
6	Submit plan electronically to DWR, state library, cities and county		1-Jul-16		Meet expected deadline	