CITY OF SANTA CRUZ
Water Department

Water Commission Agenda
Regular Meeting
7:00 p.m. – June 6, 2016
Council Chambers
809 Center Street, Santa Cruz

Agenda

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 1-12)

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

1. Accept information on City Council Actions Affecting Water ☆ (accept info) (Pages 1-2)
2. Approve the May 2, 2016, Water Commission Minutes ☆ (Pages 3-6)
3. Public Correspondence ☆ (Pages 7-12)

Items Removed from the Consent Agenda

General Business (Pages 13-116)

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

4. Long Range Financial Plan ☆ (Pages 13-62)

   Recommendation: Review, discuss and make recommendations to the City Council related to adoption of the Department's Long Range Financial Plan.

5. Recommendations on Water Rate Structure and Charges for FY 2017 – FY 2021☆ (Pages 63-100)

   Recommendation: Receive presentation on proposed water rates for FY 2017 – FY 2021 and make recommendations to the City Council on:
   1. water rate structures and rate increases for this period,
   2. establishing an Infrastructure Reinvestment Fee to support both pay-as-you-go and debt financed capital spending,
   3. retaining a Drought Cost Recovery Fee structure, and
   4. using a $1 per CCF surcharge to increase the Rate Stabilization Reserve to provide for long term revenue stability as well as rate stability.

6. Quarterly Update on Status of Work on Water Supply Augmentation Strategy ☆ (Pages 101-116)

   Recommendation: Accept the report of the Status of Work on Water Supply Augmentation-Strategy.

Subcommittee/Advisory Body Oral Reports

7. 2015 Urban Water Management update.

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

Adjournment

☆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

WATER COMMISSION
REPORT

DATE: May 19, 2016

TO: Water Commission

FROM: Rosemary Menard
Water Director

SUBJECT: City Council Items Affecting Water

May 10, 2016
2nd Reading and Final Adoption of Ordinance No. 2016-06 Amending Chapter 16.04 (Water Services), Amending Section 16.13.010 (Unified Utilities Billing System); Adding Chapters 16.00 (General Water Service Definitions), 16.09 (Water Service Improvements, 16.11 (Water Service Accounts), 16.14 (System Development Charges); and 16.15 (Water Use) (WT)
2nd Reading and Final Adoption of Ordinance No. 2016-06 Amending Chapter 16.04 (Water Services), Amending Section 16.13.010 (Unified Utilities Billing System); Adding Chapters 16.00 (General Water Service Definitions), 16.09 (Water Service Improvements, 16.11 (Water Service Accounts), 16.14 (System Development Charges); and 16.15 (Water Use) (WT)

May 24, 2016
Award of Contract for Liquid Alum products (WT)
Motion carried to award a contract to Chemtrade Chemicals (Parsippany, NJ) for Liquid Alum Products and reject all other bids, and authorize the City Manager to execute an agreement in a form approved by the City Attorney.

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Water Department

Water Commission
7:00 p.m. –May 2, 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 7:01 p.m. in the City Council Chambers.

Roll Call
Present: W. Wadlow, L. Wilshusen, D. Baskin, D. Stearns, and A. Schiffrin
Absent: D. Engfer, and D. Schwarm, (with notification)
Staff: R. Menard, Water Director; H. Luckenbach, Deputy Director/Engineering Manager; D. Culver, Chief Financial Officer; T. Goddard, Administrative Services Manager; E. Cross, Community Relations Specialist; C. Berry, Watershed Compliance Manager; M. Kaping, Management Analyst; A. Poncato, Administrative Assistant III

Others: There were approximately 6 members of the public.

Presentation: There were no presentations.

Statement of Disqualification: There were no statements of disqualifications.

Oral Communications: Oral communications by Scott McGilvray and Jerry Paul.

Announcements: There were no announcements.

Consent Agenda
1. City Council Actions Affecting Water
2. Approve the April 4, 2016, Water Commission Minutes
3. Financial Status – Follow-up to Approval of Operating and CIP FY 2017

Commissioner L. Wilshusen moved the consent agenda as amended. Commissioner A. Schiffrin seconded.
VOICE VOTE: MOTION CARRIED
AYES: All.
NOES: None
ABSENT: D. Engfer, and D. Schwarm

Items Removed from the Consent Agenda:

4. Timber Harvesting, information regarding possible timber harvesting in the Watershed.

Chair W. Wadlow opened up the topic for public discussion because he wanted to specifically offer an opportunity to provide direction to staff regarding responding to an email on this topic received from Nancy Macy, Environmental Committee Co-Chair of the San Lorenzo Valley Women's Club.

Public comment by Steve Singer and Betsy Herbert expressed support of the city's direction in this matter.

Final Comments and Requests for Follow Up: Additional Comments

- Request for Ms. Menard to draft a reply to Nancy Macy's for the chair's signature clarifying that we do not commercially harvest timber in the watershed.

Commissioner A. Schiffrin moved to accept the information. Commissioner L. Wilshusen seconded.

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

General Business

5. Water Rate Increase Proposals

This item was presented for discussion, with no Commission action on a recommended rate structure expected at this meeting

Sanjay Gaur from Raftelis Financial Consultants provided a presentation of proposed water rates and water rate structures.

Do we have a rate plan that will raise rates by 10%?

- In 2014, City Council adopted a 5-year rate increase at 10% per year on the fixed charge and 10% per year on the volume charge. The figures in this presentation do not reflect the 10% increase previously approved, which is planned for implementation on July 1, 2016.

Please clarify what a uniform rate is and a simple water budget.

Uniform rate means one rate for each unit used and a simple water budget for a landscape account is set using the amount of landscape to be irrigated and uses general evapotranspiration data to establish the amount of water needed to efficiently irrigate the landscaped area. Using water up to this amount (the 100% water budget) is charged at one rate, and use above this amount is charged at additional rates structured in tiers.

How many metered accounts does UCSC have?

- UCSC has 10 accounts but the University has installed 400 sub meters that provide it

with the information it needs to actively manage its water use.

Please explain what a ready to serve charge means in these proposals.

- A Ready to Serve charge is typically a fixed charge that recovers some defined portion of the total cost of service. Various options for the amount of revenue recovered through fixed charges are presented in the different proposals, with the lowest option recovering only the cost per month per customer for meter reading, meter maintenance, producing and delivering a bill, and providing customer services.

Please clarify inside/outside.

- Inside the city limits and outside the city limits.

What do we mean by the use of the word Commodity as it relates to these rate options? Another term sometimes used instead of commodity rate is volume rate. The commodity rate is the rate charged for the amount of water used, with a specific price established for each unit used. Depending on customer types, the commodity rate can be uniform (Commercial, UCSC) or tiered (Single Family, Multi-Family, or Landscape).

How was the price for the tiers and uniform costs chosen?

- Proposition 218 requires that rates be set based on the cost of providing the service, and the recent San Juan Capistrano court case, established that there needs to be a clear nexus between the cost of service and any tiered rates. All of the rate proposals that have been developed and presented to the Water Commission are based on the Cost of Service Analysis that the City completed last winter, the results of which were presented to the Water Commission on January 4, 2016, and to the City Council on February 23, 2016.

How do these proposed rates compare to the current rates?

- The current rate structure collects about 65% of revenue from the commodity charge and 35% from fixed charges, not including the drought cost recovery fee.

What is the difference between promotes efficiency and promotes conservation?

- Promotes efficiency means, given your lifestyle, what the appropriate amount of water you should use. Promotes conservation means incentivizes people to change your lifestyle to reduce their water use. Examples might be rate structures that use uniform rates and collect more revenue through volume versus fixed charges promote efficiency, and those that use tiered rates incentivize conservation.

Doesn't funding a larger Rate Stabilization Fund as part of our rate increase allow us to stick to our predicted rates better than if we didn't have a rate stability fund?

- Yes.

Can you please add the 10% July increase into the numbers that will be presented at the June Water Commission Meeting?

- Yes, we will present a July 2016 adopted bill versus a December 2016 proposed bill for comparison purposes.

Additional Comments

- IRF is meant to be a line item dedicated to infrastructure needs so the public would know more about the rehabilitation and replacement projects that are being funded.
- The Water Commission should recommend policies with the greatest assurance for overall revenue sufficiency and revenue stability.

Requests for Follow Up:

- Explain the definition of multifamily residences in all scenarios.
- It would be helpful to point out in the proposal that the Water Department simply needs more money to operate the system and to point out that we are changing some of the allocations and perceived equities within the system by changing definitions and how we allocate things.
- Suggestion for page 58 of the agenda packet, page 17 on Water Rate Study: Add an additional column to show the build-up to the total proposed commodity rate.
- Suggestion for page 55 of the agenda packet, page 14 on Water Rate Study: add (operations + infrastructure) in parenthesis after Commodity SFR Impact.
- Keep original page numbers in future agenda packets.
- Add current rates to a table to illustrate the differences.
- Convert the graphs into words to verbally explain the statements to drive in the numbers.
- Thoroughly research how these options will affect our bond rating and the ability to finance our system.
- Staff recommendation will be brought to the Water Commission in June.

Subcommittee/Advisory Body Oral Reports

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

- Ms. Menard will be meeting with the Budget and Finance Committee of the San Lorenzo Valley Water District on Tuesday, May 10, 2016, to discuss current and future water supply projects. (This meeting was rescheduled for June 2, 2016, and she will be presenting to the entire San Lorenzo Water District.)
- Ms. Menard will be presenting at the Soquel Creek Water District meeting on Tuesday, May 17, 2016, to discuss the water supply augmentation strategy work. (This meeting was postponed until further notice.)
- Our water supply is looking good and the San Lorenzo River is running.
- In the upcoming month or two, we will bring an updated draft of the financial plan and strategy that was brought to the Water Commission in February 2016.

Adjournment Meeting adjourned at 9:42 p.m. The next regular meeting of the Water Commission is scheduled for June 6, 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: 2016.06.02 12:04:00 -07'00'

Staff

Community Water Coalition

208 Ocean View Avenue, Santa Cruz, CA 95062
Email: Water_CWC@yahoo.com
Telephone: 831-332-8546

May 10, 2016

Walt Wadlow, Chair
[Sent By Email To: RMenard@cityofsantacruz.com]
City of Santa Cruz Water Commission
C/O Rosemary Menard, Water Director
Water Department
212 Locust Street, Suite A
Santa Cruz, CA 95060

RE: City Water Rates

Dear Chairperson Wadlow and Members of the Commission:

The Community Water Coalition (CWC) understands that the City Water Department is evaluating possible changes to the Water Department's current rate structure. We know that the Commission will be reviewing this matter, and will be providing its advice to both the Water Department and the City Council.

The CWC believes that the rate structure ultimately adopted by the City should build in conservation incentives. Therefore, we urge the Commission to recommend a revised rate structure that will be very significantly weighted towards volume-based rates, with a smaller portion of the total rate charged being composed of fixed charges.

Thank you for taking our comments seriously. We believe that this approach is critical to sustain and build on the Water Department's current conservation program that makes an important contribution to the City's overall strategy better to manage its water resources at a time of increased climate uncertainty.

Very truly yours,

Denise Holbert

Denise Holbert, Chair
Community Water Coalition

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From:	Rosemary Menard
To:	Amy Poncato
Subject:	FW: Water Rate Hikes & Pacific Ave Traffic
Date:	Thursday, May 19, 2016 9:01:41 AM

Please put this in the water commission package.

-----Original Message-----
From: Bren Lehr On Behalf Of City Council
Sent: Thursday, May 19, 2016 8:32 AM
To: Cynthia Chase; Cynthia Mathews; David Terrazas; Don Lane; Micah Posner; Pamela Comstock; Richelle Noroyan
Cc: Tina Shull; Martin Bernal; Scott Collins; Rosemary Balsley; Rosemary Menard; Mark Dettle
Subject: FW: Water Rate Hikes & Pacific Ave Traffic

-----Original Message-----
From: Sally Wittman [mailto:sallywittman@me.com]
Sent: Wednesday, May 18, 2016 6:05 PM
To: City Council
Subject: Water Rate Hikes & Pacific Ave Traffic

May 18, 2016
Dear Mayor and City Council Members,

WATER
I am writing to discuss the proposed two water rate increases and the redirection of traffic. One hike, if I understand correctly, is already set, but the other is under discussion.

My recent water bill was 20% of my social security check (which I try to live on), and, though I have a large lot, I am always careful to apply the rules of water conservation. I live a very frugal lifestyle, and am on the PGE Care low-income program. I would like you to consider the following points:

S. Security has not had an increase in several years, but everything else has gone up. Low-income seniors are hit hard by this situation. Perhaps there should be an automatic discount for at least a baseline amount of water, similar to the CARE program. That would be kind.

Golf probably should not exist when there is a drought. I understand that the city makes money off of their high rates, but that doesn't seem ethical to me. Golf is a recreation. I need a hot shower for my arthritis, and that seems to me to be my right. Do you see the difference? I could go to the gym and take the long shower or bath and reduce my bill, but usage water is water used, so is that ethical? And then I would have to use carbon fuel to get there. I think individuals, especially seniors on CARE or others on medical programs should get a little help and luxury water use should be the first to be cut out. Essential water use should come before luxury use.

TRAFFIC
This totally confusing traffic issue is just a bunch of baloney. I think the downtown association likes to snap its fingers and make the rest of us jump. Studies show that shopping is down all over the country. It has nothing to do with local traffic.

Forward-looking cities all over the world turn their shopping streets into park-like walking streets with great success, creating community, drawing tourists, and killing two birds with one stone. This constant nagging about the direction of traffic is annoying, messes with residents lives, and is beginning to feel like the ugly RIVER STREET sign issue—back and forth, back and forth. Tell these people to worry about their own businesses. It is really not the purpose of the city government to redesign traffic every few years because the economy is down. We have many other municipal problems to solve. Let's get to it.

Thank you for listening,
Sally Wittman
City Resident

SANTA CRUZ COUNTY GROUP
Of The Ventana Chapter
P.O. Box 604, Santa Cruz, CA 95061
https://ventana2.sierraclub.org/santacruz/
e-mail: sierraclubsantacruz@gmail.com

May 12, 2016

Walt Wadlow, Chair
City of Santa Cruz Water Commission
c/o Rosemary Menard, Water Director
Water Department
212 Locust Street, Suite A
Santa Cruz, CA 95060

Re: City of Santa Cruz Water Rates

Dear Chair Wadlow and Water Commissioners:

The Santa Cruz Sierra Club is aware that City Water Department is currently looking into changes to the rate structure. We know that the Commission will be reviewing this matter, and will be providing its advice to the Water Department and the City Council.

The Sierra Club supports a rate structure to be adopted by the City that builds-in incentives that strongly encourages conservation and allows customers to understand and track their water use.

Therefore, we urge the Commission to recommend that the new rate structure places very significant weight towards volume-based, with a much smaller portion of the total rate charged falling into readiness-to-serve charges. The current Option 1A appears to serve this purpose and gains our support.

We believe that this approach is not only in line with the adopted WSAC recommendations but is also critical to sustain and build on the Water Department's admirable conservation program that makes an important contribution to the City's overall strategy to manage our precious water resources when future water supplies are less predictable. This is good public policy and good for our environment.

Thank you for time and thoughtful consideration.

Sincerely,

Greg McPheeters
Chair, Santa Cruz Group, Sierra Club

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WATER COMMISSION
INFORMATION REPORT

DATE: June 1, 2016

AGENDA OF: June 6, 2016

TO: Water Commission

FROM: Rosemary Menard

SUBJECT: Long Range Financial Plan

RECOMMENDATION: Review, discuss and make recommendations to the City Council related to adoption of the Department's Long Range Financial Plan.

BACKGROUND: The Department has developed a ten year Capital Improvement Program that recommends investing nearly $300 million in rehabilitating and replacing existing Santa Cruz water system infrastructure and in adding one or more water supply augmentation projects to address water system reliability issues. The scale of the anticipated investment dictated that the Department identify and plan for financing these investments.

DISCUSSION: The Long Range Financial Plan is a comprehensive review of the Department's current financial condition and future financial needs. The Long Range Financial Plan has been developed to identify the terms, conditions, and methods needed to pay for the ongoing operation of the Department and support the needed capital investments in the water system. It includes both the analytical foundation needed to prepare the plan and specific recommendations related to financial reserves and water rates.

During development of the Long Range Financial Plan, the Department worked with Raftelis Financial Consultants and Public Financial Management to develop financial tools and model that can be used as management tools to support ongoing financial management and decision-making. In particular, the Department expects to use these models to help support decision-making about the size and timing of debt and will be working to maintain and update the financial data that the model uses so that it is able to fine tune financial decisions as needed over the coming decade.

The Department is looking to the Water Commission for final input on the Financial Plan in anticipation of taking the Plan to Council for its review and action on June 14th.

FISCAL IMPACT: The Financial Plan is the foundation for a series of recommendations that are implemented largely through the recommended rate increases contained in the staff report

and presentation for the Water Commission agenda item immediately following this one. The Water Rates staff report presents the general fiscal impacts and implications of implementing this Long Range Financial Plan.

PROPOSED MOTION: Move to recommend to the City Council adoption of the Department's 2016 – 2026 Long Range Financial Plan.

ATTACHMENTS: June 2016 Long Range Financial Plan

CITY OF SANTA CRUZ WATER DEPARTMENT

LONG RANGE FINANCIAL PLAN

JUNE 2016

LONG RANGE FINANCIAL PLAN

TABLE OF CONTENTS

Executive Summary

The Long Range Financial Plan (LRFP or Financial Plan) was developed to ensure the financial sustainability of the City of Santa Cruz's Water Enterprise Fund during the ten year period 2016 – 2026. This Financial Plan is specifically designed to support the continued operations and maintenance of the water system and its ability to serve the community with high quality and reliable water supply, and to lay out the funding strategy that will be needed to finance major capital investments in water system infrastructure and the construction of a water supply augmentation project.

To prepare this Financial Plan, the Water Department and its consultants Raftelis Financial Consultants and Public Financial Management developed a series of financial planning inputs and outputs including:

- Prepared annual Operations and Maintenance Budgets for the Water Department;
- Developed a 10 Year Capital Improvement Plan;
- Integrated the Department's financial planning with existing Financial Policies and Goals, including developing a new financial policy on debt service coverage ratios and providing a strategy for fully funding all reserves;
- Projected revenue requirements for the 10 year period July 2016 through June 30 2026;
- Completed a comprehensive Cost of Service Analysis;
- Identified a financing strategy that combines debt financing and pay-as-you-go investments to support the implementation of the 10 Year Capital Improvement Program;
- Updated Water Rate Structures, including considering the impacts to customers or a range of rate structure options; and
- Developed recommended Water Rates to implement the recommended water rate structure and meet the identified revenue requirements.

Capital investments of $127.9 million are planned for the next five years from Fiscal Year (FY) 2017 through FY 2021, with 33% of those costs ($42 Million) required to comply with state regulatory requirements. The CIP for FY 2022 through FY 2026 requires an additional investment of $169 million for a ten year CIP total of $296.9 million.

Using the revenue requirements data developed as part of the financial planning work, a five-year schedule of water rates is proposed for implementation. The proposed water rate structure includes the following assumptions and provisions:

- For the purposes of rate development, assume that the amount of water to be sold during the five-years covered by the proposed rates is 2.5 billion gallons per year.
- Adopt a rate structure that collects enough fixed fee revenue to recover the revenue necessary to cover the cost of meter reading, meter maintenance, billing preparation and distribution, and customer service. For FY 2017 this amounts to about 10% of total operating costs. Adopt volume-based user rates to collect the remaining revenues.
- Create a new fee called the Infrastructure Reinvestment Fee (IRF). The purpose of this fee is to help communicate to customers what their rate dollars are paying for which, in this case, involves major reinvestments in existing water system infrastructure. This fee would generate the revenues needed to pay for "pay-as-you-go" capital investments and debt service for capital projects. The cost to customers of this fee would be based on customer water use which, again, supports achievement of high priority pricing objectives.
- Acknowledge and mitigate for the risks to revenue stability associated with moving to a more volume based rate using two strategies:
  1. Maintaining the conservative assumption at 2.5 billion gallons per year;
  2. Beginning with the planned July 1, 2018 rate increase, apply a $1.00 surcharge per unit of water consumption (a hundred cubic feet or CCF) to increase the amount of the Rate Stabilization Reserve from the current minimum level of $2.3 million to a total of $10 million. In any normal water year where 2.5 billion gallons of water is not sold, the revenue shortfall associated with this situation would be covered by resources from this fund.

This Financial Plan lays out a road map for the Department and informs policy makers and the community about what it will take for the Department to develop and operate the water system needed to deliver service to 95,000 customers in northern Santa Cruz county.

In addition to three appendices that provide some additional details, a Glossary of terms can be found at the end of the Plan.

1. INTRODUCTION

This Long Range Financial Plan includes a ten year financing strategy with a specific financial plan for the first five year period. Overall, the Financial Plan is intended to support the City of Santa Cruz Water Department in achieving the following goals:

- **Address the repair and rehabilitation of critical infrastructure and the needed augmentation of the City's available water supply;**
- **Establish and maintain financial policies, reserve levels, and stable revenues needed to ensure financial sustainability and provide flexibility to adapt to unforeseen circumstances or challenges;**
- **Maintain the credit rating needed to support the Department's ability to debt finance the major capital investments and reinvestments needed to ensure supply and system reliability;**
- **Maintain reasonable rates in the near and medium term;**
- **Achieve an equitable allocation of capital costs/charges between current and future system users; and**
- **Manage rates in a predictable and reasonably stable manner.**

Working together with its consultants, Public Financial Management (PFM) and Raftelis Financial Consultants (Raftelis), a financial planning model was created to allow the Department to project operating and capital budgets and forecast annual revenue requirements. These projections include:

- **Revenues needed to cover debt service payments for the financing expected to be used to fund capital investments;**
- **Assumptions about how much of the capital program will be cash (pay-as-you-go funding) financed versus debt financed; and**
- **Funds required to meet financial reserve targets.**

Raftelis developed proposed water rates using these revenue projections, the Cost of Service Analysis, and Rate Structure Redesign work they completed during the fall and winter of 2015. Based on input received from the Water Commission and City Council in March 2015, priority objectives for pricing water were established to include:

- Revenue sufficiency,
- Promotes efficiency;
- Perceived to be fair by the public;

- Affordable for essential uses
- Revenue stability
- Understandable by customers
- Promotes conservation; and
- Rate stability.

2. BACKGROUND

The Santa Cruz Water Department is an entirely self-funded operation. User rates, fees, and charges are the source of all revenues used to support the ongoing operation, maintenance, planning, management, and capital investments needed to deliver water to some 95,000 water users every day.

The unrestricted fund balance of the Water Operating fund (Fund 711) has historically been strong, but has been declining during the past four fiscal years. A major cause of this decline is cash funding of large Capital Improvement Program (CIP) projects such as the $26 million reconstruction of the Bay Street Reservoir.

The customer base is stable, primarily residential and reasonably diverse with the top 10 customers accounting for only 11% of total operating revenues. The service area economy is also stable and anchored by the University of California at Santa Cruz.

The three primary cost drivers of the LRFP include the following;

- **Capital projects to comply with State regulatory requirements;**
- **Capital projects to address infrastructure reinvestment and rehabilitation of major elements of the water system; and**
- **One or more capital projects to augment water supply that will result from implementing the recommendations of the Water Supply Advisory Committee.**

1.1 PLANNED CAPITAL INVESTMENTS

Capital investments of $127.9 million are planned for the next five years from Fiscal Year (FY) 2017 through FY 2021, with 33% of those costs ($42 Million) required to comply with state regulatory requirements. The CIP for FY 2022 through FY 2026 requires an additional investment of $169 million[1] for a ten year CIP total of $296.9 million.

Capital projects planned for over the ten year period include:

- **PROJECTS FOCUSED ON EITHER REHABILITATING OR REPLACING EXISTING FACILITIES:**
  - Felton Diversion Dam and Pump Station
  - Laguna Dam
  - Majors Creek Diversion
  - San Lorenzo River Diversion and Tait Wells
  - Newell Creek Pipeline (between Newell Creek Dam and the Graham Hill Water Treatment Plant via Felton)
  - Newell Creek Dam Inlet/Outlet Pipeline – a project required to meet state regulatory requirements
  - Additional Phases of the North Coast Pipeline Replacement Project
  - Graham Hill Water Treatment Plant Concrete Tanks
  - Graham Hill Water Treatment Plant Solids Handling
  - Distribution System Water Main Replacements
  - Recoating of University Reservoir Tanks No. 4 and 5
  - Pressure Regulating Stations
  - Beltz 11 Well Replacement
  - Water Treatment Upgrades
- **PROJECTS FOCUSED ON UPGRADING OR IMPROVING EXISTING FACILITIES:**
  - Advanced Metering Infrastructure
  - Loch Lomond Recreation ADA Improvements
  - Photovoltaic/Solar Projects

[1] These figures are in inflation adjusted 2015 dollars

  - Building for Water Resources Staff
  - Security Camera and Building Access Upgrades
- **PROJECTS FOCUSED ON IMPLEMENTING THE RECOMMENDATIONS OF THE WATER SUPPLY ADVISORY COMMITTEE TO IMPROVE WATER SUPPLY RELIABILITY:**
  - Winter water harvest strategies including in lieu recharge and studies to evaluate and pilot test aquifer storage and recovery
  - Study of options for the development and use of recycled water
  - Source water quality evaluation related to future potential water treatment requirements, especially as changing source water characteristics might affect water treatment requirements
  - Construction of one or some combination of water supply augmentation projects as needed to either increase available stored water by 2.4 billion gallons or provide an additional 3 to 4 million gallons per day source of supply to meet community needs during drought conditions.

The Department proposes to fund these projects with a combination of annual pay-as-you-go revenues and long-term debt.

The total capital investment for the 10 year planning horizon equals $296.9 million.

1.2 CURRENT FINANCIAL PROFILE

In the spring of 2014, the Water Department worked with the City's Finance Department staff to refinance its one existing debt issue from 2006. This step was undertaken to deal with a declining fund balance and the looming impacts of drought-required reductions in water use. The goal of the refinancing was to lower the interest rate and establish a less constraining debt service coverage requirement.

Standard and Poor's Rating Service and Fitch Ratings were asked to provide credit ratings for the Water Department as part of the 2014 refinancing of its debt. A credit rating is useful when an agency needs to access capital markets and issue debt at lower interest rates than would be available without a credit rating. Higher credit ratings can reduce borrowing costs and generate more competition from investors.

The Department's historical credit rating has been AA (high quality). Following the credit rating agency review, Standard and Poor's Rating Service downgraded the utility's credit rating to AA-

with a Negative Rating Outlook. Fitch Ratings went farther, providing a rating of A+ (upper medium grade), two steps down from the Department's former AA rating. Both Rating Agencies cited the lack of a recent rate increase, the Department's declining fund balance, in insufficient debt service coverage, and the pending drought as reasons for their views of the Department's creditworthiness.

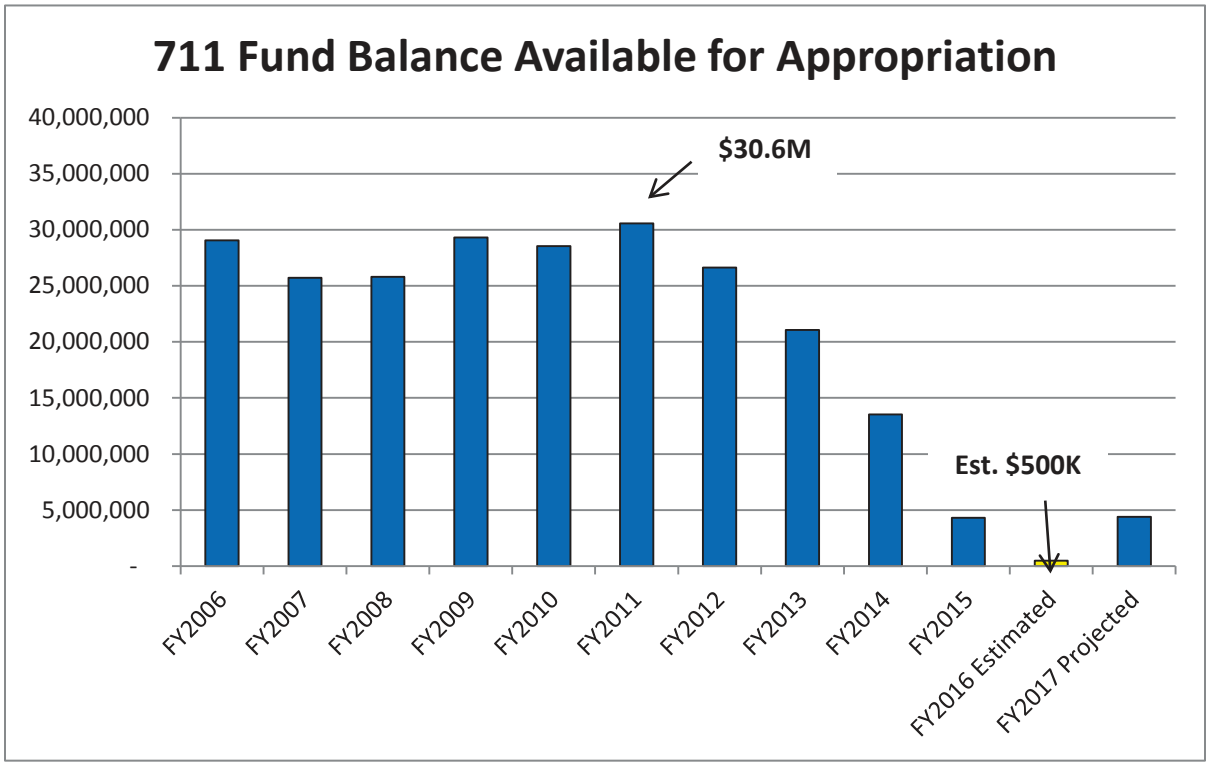
In the summer of 2015, Standard & Poor's revisited the Water Department's rating. This review took into account the City's action on a five-year program of rate increases in September 2014, the utility's and the community's positive response to required water rationing, and the progress being made on the community-based water supply planning process. Standard and Poor's chose to retain the previous AA- rating but revised its rating outlook from Negative to Stable. Fitch Ratings is scheduled to revisit its rating for the Water Department in June of this year.

Annual rate increases of 10% have been approved through 2018. Water rate structure redesign and rate-setting work are currently underway and revised rates will be proposed for action by the Water Commission and the City Council during the winter and spring of 2016. The redesigned rates will replace and extend the original five-year rate increase program adopted in 2014.

For planning purposes, it has been assumed that the first year of any revised rate structure and increase will be applied on October 1, 2016. However, to address the immediate issue of declining cash and fund balance it is recommended that the originally planned 10% increase be implemented on July 1, 2016 and be replaced when the new structure is implemented in October. Remaining rate increases for years two through five of the new five-year rate program would be applied on July 1, in each year 2017, 2018, 2019, and 2020.

Figure 1 shows the Department's fund balance in Water Enterprise Operating Fund (Fund 711) demonstrating a high of $30.6 Million in 2011 that has steadily declined in the last five years and is estimated to approach $500,000 by end of FY 2016. The cause of the steady decline in this fund balance is cash financing the Department's Capital Improvement Program, reduced revenues resulting from restricting water use in the summers of 2014 and 2015, and rates not being set high enough to recover ongoing operating costs, even when water use is not restricted.

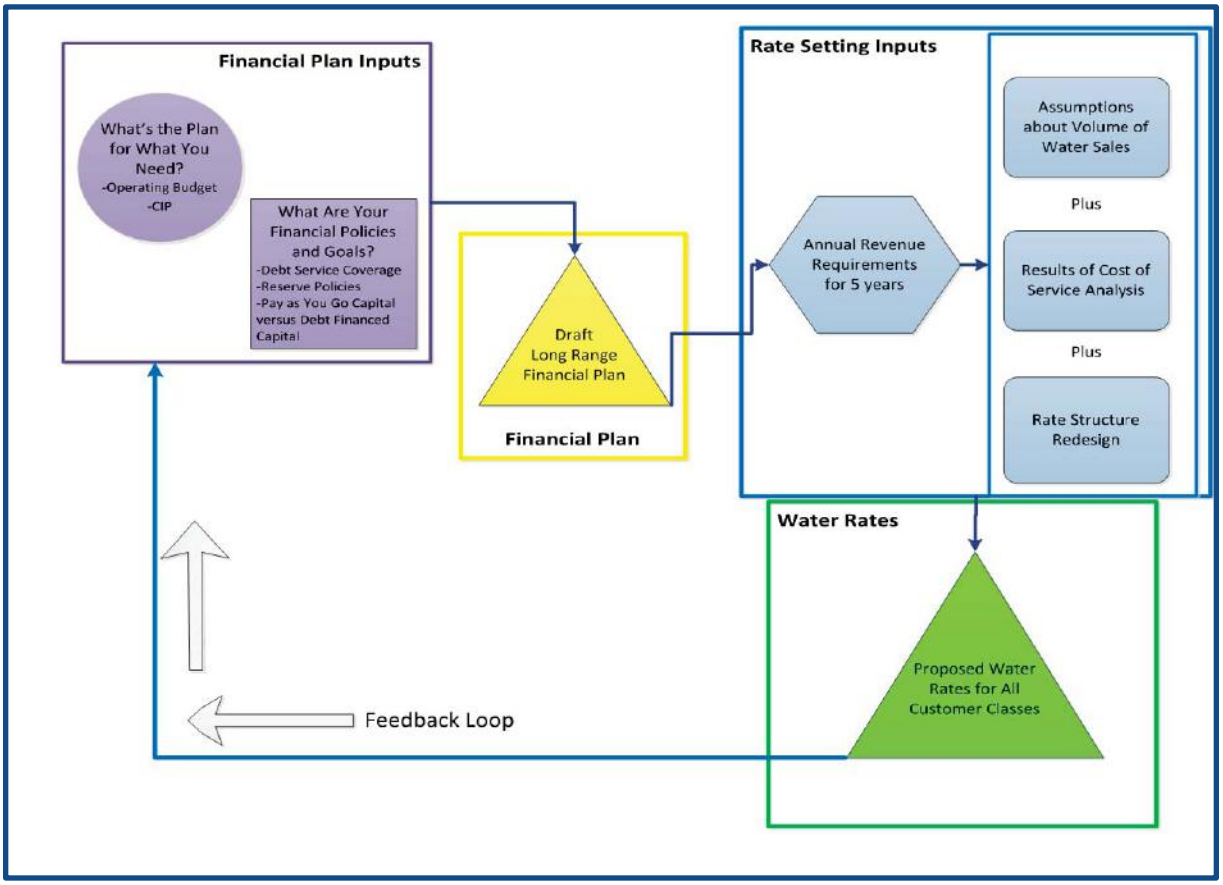
Figure 1
Operating Fund Balance



3. CONCEPTUAL MODEL FOR UTILITY FINANCIAL PLANNING

Financial planning and rate making for today's water utility involves a multi-stepped process depicted in Figure 2 below. The figure shows the inputs and outputs of the utility financial planning and rate making processes. It also shows the feedback loop between proposed rates, the end product of the process, and the organization's budget and CIP, which are key inputs to the beginning of the process.

Figure 2
Conceptual Model of Utility Financial Planning and Rate Making



Financial policies and financial indicators are a second key input in the financial planning process. These policies and indicators help measure financial performance. An organization's financial performance is a key factor in establishing its credit rating, which affects the interest rate that will be charged on borrowed funds.

4. INPUTS TO THE FINANCIAL PLAN

The draft Financial Plan and ten-year Pro Forma shown in Appendix A have been prepared using an Excel-based capital planning model developed by PFM. Briefly, the model uses as inputs the following financial data:

1. **The beginning fund balance for the Department's Operating Fund (Fund 711),**
2. **Multi-year operating expenses, as modified by specific inflation factors,**

3. **Multi-year capital costs, including specific inflation factors, and**
4. **Multi-year debt service costs.**

The model then produces the following outputs:

1. **Multi-year revenue projections,**
2. **Financial performance metrics related to the debt service coverage ratio and financial reserve goals, and**
3. **The sizing and timing of new debt issues.**

4.1 KEY FINANCIAL POLICIES AND GOALS

Having and meeting goals for key financial performance indicators is central to good financial management. This Financial Plan is purposefully focused on defining and creating a clear and achievable method to meet a set of financial policies and performance indicators that will be necessary for the Department's financial success.

4.1.1 UTILITY CREDIT RATINGS

One typical measure of a Utility's financial performance is its credit rating. Table 1 below describes the factors considered by Credit Rating Agencies in assigning credit ratings.

Table 1

Rating Agency Factors Used in Assigning an Agency Credit Rating

Rating Factor	Rating Sub-Factors & Description
System Characteristics	• asset condition • service area wealth (median family income) • gross county product • unemployment rate • annual utility bill as a % of median family income • system size (O&M)
Financial Strength	• annual debt service coverage • days cash on hand • debt to operating revenues • debt to capitalization ratio
Management	• rate management • regulatory compliance • capital planning • financial planning (debt & investment policies) • operational risk (water supply adequacy)
Legal Provisions	• rate covenant • debt service reserve requirement

Credit rating agencies consider a variety of factors in assigning a credit rating, and utilities that have the best credit ratings typically will include policies that specifically address the financial strength metrics listed in Table 1.

4.1.2 FINANCIAL GOALS AND PERFORMANCE INDICATORS

Over the years, the City Council has established some financial performance metrics for the Water Utility, including a Rate Stabilization Reserve in 1993, and Operating and Emergency Reserves in 2014. As of June 30, 2015, the Rate Stabilization Reserve Fund balance was $2.4

million and the Emergency Reserve Fund balance was $600,000. A 90 Day Operating Reserve Fund was also created in September 2014, but was not funded at Jun 30, 2015.

The Council's intent in creating the Rate Stabilization Reserve[2] in 1993 was to "shield the Water Fund from the financial effects of extraordinary circumstances." As originally approved by the Council at the time, the rate stabilization reserve would have been used to help the Department deal with one or a combination of the following conditions:

- **Increased CIP or capital outlay expenditures due to an extraordinary non-recurring need or circumstance;**
- **A fluctuation in water consumption revenues creating an unanticipated shortfall, or**
- **Catastrophic losses as the result of a natural disaster.**

In the 23 years since the City Council created this $2.3 million reserve, infrastructure and operating costs have increased substantially and in 2014 the Department recommended and the Council approved creating additional reserves. These additional reserves, one for 90 days of operating cash, and one to address natural disaster types of emergency conditions, effectively replaced the first and third purposes intended to be served by the original Rate Stabilization Reserve. These more substantial reserves also begin the process of moving the utility to a stronger financial position, which better prepares it to deal with future costs.

This Financial Plan incorporates and, in the Financial Plan implementation section later in this document, proposes a method to fund the following goals for key financial performance metrics:

- **Maintain the Rate Stabilization Reserve (Fund 713) of $2.3 million;**
- **Maintain a Water Emergency Reserve Fund (Fund 717) at minimum level of $3 million; and**
- **Create additional operating reserves equal to 180 days of operating expenses. This would be accomplished by Maintaining the new Water Operating Cash Reserve Fund (Fund 716) at the equivalent of 90 days of operating cash and maintaining a minimum fund balance in Operating Fund (Fund 711) at a minimum of an additional 90 days of operating cash.[3]**

[2] See http://www.cityofsantacruz.com/home/showdocument?id=3255

[3] In Fiscal 2017, 90 days of operating cash is equivalent to $6.5 Million

Another key financial performance metric is a target for debt service coverage ratio (DSCR). The DSCR is a measure of net operating revenues to annual debt payments. The Water Department has issued relatively little debt over the past 20 years so hasn't formally established or used a debt service coverage ratio (DSCR) target in its financial planning. The bond covenant for utility debt issued in 2006 included a 1.25 DSCR. When that debt was refinanced in 2014, the DSCR was reduced to 1.15.

A financial plan that only supports meeting the legal minimum figure can put the utility at risk of technical default on its bonds if revenues are reduced by, say, drought conditions when water use restrictions are put into place. Establishing a target that is above the minimum legal requirement is a good idea because it builds into the system needed flexibility that makes the utility more financially resilient in the face of uncertainty. The LRFP specifically includes the following debt service coverage ratio target:

- **Maintain a minimum debt service coverage ratio target of 1.5, requiring that a ratio of 1.5 be maintained between annual revenues and annual debt service.**

Typically the calculation of the debt service coverage ratio does not include funds held in reserve as including reserves in calculating the ratio could result in masking a structural problem in the way rates are set.

1.2 PROJECTED OPERATING BUDGETS

Table 2 shows anticipated operating and capital expenses for FYs 2017 through 2021. Appendix A includes the complete ten year Pro Forma from which the information in Table 2 was excerpted.

Table 2
Anticipated Expenses FY 2017 – 2021

Operating Expenses	2017	2018	2019	2020	2021
Personnel	$12,741,984	$13,868,008	$15,086,021	$15,882,276	$16,733,349
Services, Supplies & Other	12,616,410	13,247,231	13,909,592	14,605,072	15,335,325
Capital Outlay	965,000	1,013,250	1,063,913	1,117,108	1,172,964
Total Operating	**$26,323,394**	**$28,128,488**	**$30,059,525**	**$31,604,455**	**$33,241,638**

Operating costs have been developed based on very modest changes to staffing and departmental operations over time. The changes in Operating costs are based on the annual inflation factors shown in Table 3. These inflation factors are based on actual historical experience and long term industry trends.

Table 3[4]

Operating Budget Inflation Factors

Expense Category	Annual Inflation Factors (percent)		
	2017	2018	2019-2026
Salaries & Wages	3.0	3.0	3.0
Employee Benefits	9.0	9.0	9.0
Operating Supplies and Chemicals	9.2	5.0	5.0
Energy	9.1	5.0	5.0
All Other Categories	3.0	3.0	3.0

4.3 CAPITAL IMPROVEMENT PLAN

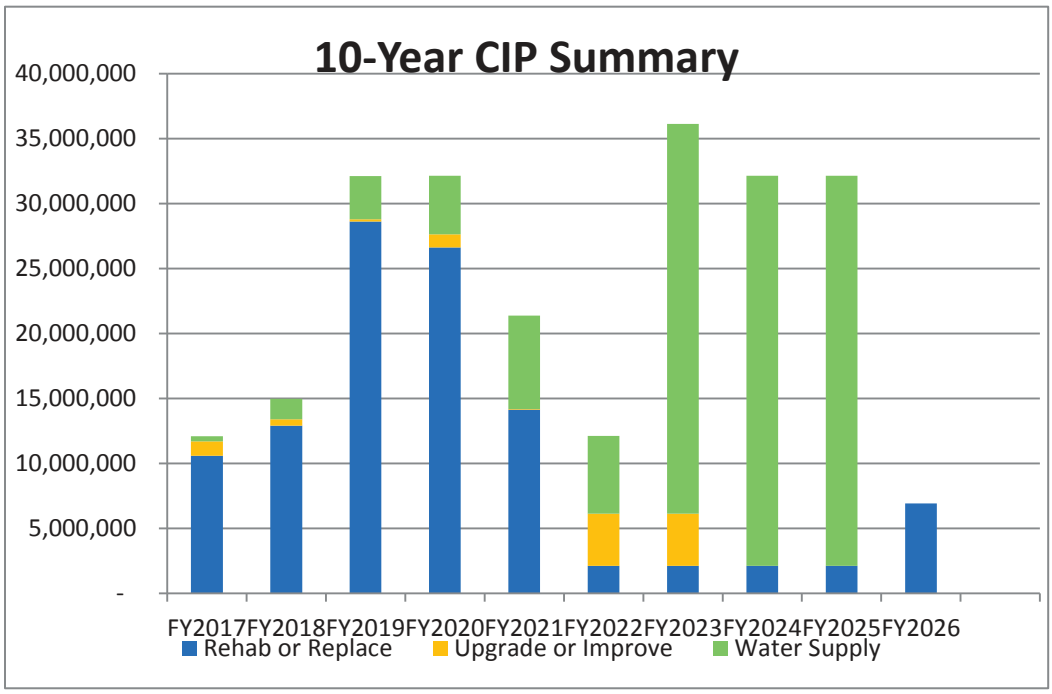
Section 1.1 describes the Department's anticipated capital spending of $127.8 million during the first five years covered by the Financial Plan. Capital projects during the first five years will be focused on system rehabilitation and replacement projects. Major expenses to implement the Water Supply Augmentation Strategy[5] are anticipated to fall in the second five years of the financial planning horizon. Figure 3 summarizes the planned capital spending in the three categories described in Section 1.1 Planned Capital Expenditures. Those categories are:

[4] Inflation factors were developed using a combination of actual historical experience (Energy and Chemicals), City projections (salaries and benefits) and industry trends for everything else. The Handy Whitman Index, which focuses on the inflation of construction cost for projects using significant quantities of concrete and steel, and is particularly applicable for water utilities, has been used to escalate the cost of projects in the Capital Improvement Program. in

[5] The Water Supply Augmentation Strategy is the result of the community-based water supply planning process completed by the City Council appointed Water Supply Advisory Committee in October 2015.

- **Rehabilitation and Replacement, including projects to meet regulatory requirements**
- **Upgrades and Improvements**
- **Water Supply Augmentation**

Figure 3
10 Year CIP



Appendix B provides the details of the Ten Year Capital Improvement Plan, including both brief project descriptions and a ten year plan of spending.

5. LONG RANGE FINANCIAL PLAN RECOMMENDATIONS

This LRFP has been developed based on a specific five year forecast within a ten year planning horizon. The purpose of using the 10 year time frame is to ensure that steps taken during the first five years don't unduly constrain what financial capacity the Department has to address the financial investments needed during the second five years when it expects to construct one or more projects to augment water supply. The specific recommendations are limited to the first five years because that is as far ahead as the Department can establish rates under the limits set by California's Proposition 218.

$113 M

The elements of the Long Range Financial Plan integrate the key financial plan inputs included in Section 4 above, as well as a Capital Financing Strategy, a forecast of Revenue Requirements, and Water Rates needed to meet the Revenue Requirements.

5.1 CAPITAL FINANCING STRATEGY

The Financial Plan recommends that the identified CIP be funded with a combination of rate revenue and debt financing. Over the next five years, pay-as-you-go rate revenue would cover an average of 33% of capital costs, with debt financing covering 67%. Using debt financing to fund a major portion of the CIP provides for inter-generational equity and, by spreading these costs over time, helps to moderate and stabilize near term adjustments to water rates.

In a preliminary way, implementation of this recommendation has already begun. The Department's request for a loan of $25 million from the California Infrastructure and Economic Development Bank (I-Bank) was approved on March 22, 2016. Funding from the I-Bank is expected to be disbursed following completion of the anticipated Proposition 218 notification process planned for August 2016. At the very least, the LRFP will be comprehensively reviewed and revised as needed at the end of five years, with additional reviews and revisions occurring as needed in the interim.

The I-Bank loan provides for the retro-active debt financing of significant capital expenditures that have resulted in depletion of the utility's fund balance in its main operating fund (Fund 711). This approach was authorized by the Council when it adopted a reimbursement resolution on April 8, 2014. Of the $25 Million I-Bank loan, the Department expects to replenish its fund balance by reimbursing itself for $22 Million in already expended capital costs. As discussed later in this Financial Plan, once the department has been reimbursed for prior capital costs, available funding will provide the resources needed to fully fund reserves. The remainder of the I-Bank funds would support additional capital projects planned to be completed in FY 2017 and 2018.

One of the reasons for developing the LRFP was to be able to assess the Department's capacity to use debt financing for major elements of its CIP. A measure of the Department's financial capacity is what portion of its revenues would be used for debt service. For example, the amount of financial flexibility of an organization is substantially reduced as the percent of its revenue dedicated to paying debt service rises.

During the first five years, the Department anticipates issuing debt totaling $85.5 million. The annual average debt service is not expected to exceed 14% of annual rate revenue during the

first five years, but it would continue to rise to a maximum of about 21% of annual revenues at the end of the 10 year period. These figures are obviously significantly greater than the Department's figure of less than 5% of its revenues being currently dedicated to debt service, but the Department's financial advisors are satisfied that the Department has the debt capacity needed to support the implementation of the LRFP capital financing strategy, as long as the Department is able to increase rates and charges as outlined in the LRFP, and is able to meet key financial targets, including maintaining financial reserves and meeting the 1.5 debt service coverage ratio.

5.2 REVENUE REQUIREMENTS FOR FY 2017 – FY 2021

As shown in Figure 2, a significant output of financial planning is the revenue requirements that inform the rate making process. Based on the recommendations and assumptions described in Section 4, the Department was able to calculate revenue requirements. Table 4 summarizes the revenue requirements, operating and capital costs, and debt service coverage in the first five years of the financial plan.

Table 4
FY 2017 – FY 2021 Projected Revenue Requirements

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Infrastructure Reinvestment Fee Amount	$5,990,512	$8,700,797	$9,166,040	$10,169,506	$11,239,068
Rate Stabilization Reserve Amount	-	$3,342,224	$3,342,224	$3,342,224	$3,342,224
O&M Revenue Requirement	$26,323,394	$28,128,488	$30,059,525	$31,604,455	$33,241,638
TOTAL	**$32,313,906**	**$40,171,529**	**$42,567,809**	**$45,116,205**	**$47,822,950**

Revenue requirements have been set at a level needed to ensure that both a minimum 1.50 debt service coverage ratio and a minimum of 180 days of operating cash are maintained.

A more complete version of this table which provides the Department's detailed Financial Pro Forma can be found in Appendix A.

5.3 WATER RATES

Using the revenue requirements data developed as part of the financial planning work and shown in Table 4 above, a five-year schedule of water rates is proposed for implementation. The proposed water rate structure includes the following assumptions and provisions:

- **For the purposes of rate development, assume that the amount of water to be sold during the five-years covered by the proposed rates is 2.5 billion gallons per year[6].**
- **Adopt a rate structure that collects enough fixed fee revenue to recover the revenue necessary to cover the cost of meter reading, meter maintenance, billing preparation and distribution, and customer service. For FY 2017 this amounts to about 10% of total operating costs. Adopt volume-based user rates to collect the remaining revenues.**
- **Create a new fee called the Infrastructure Reinvestment Fee (IRF). This fee would generate the revenues needed to pay for "pay-as-you-go" capital investments and debt service for capital projects. The cost to customers of this fee would be based on customer water use which, again, supports achievement of high priority pricing objectives.**

The IRF is designed specifically to help focus and support customer communication about what water rates are paying for, particularly during the first five years of the CIP, which is emphasizing system rehabilitation and replacement projects for major elements of the system's backbone infrastructure.

- **Acknowledge and mitigate for the risks to revenue stability associated with moving to a more volume based rate using two strategies**:

  1. **Maintaining the conservative assumption at 2.5 billion gallons per year;**
  2. **Beginning with the planned July 1, 2018 rate increase, apply a $1.00 surcharge per unit of water consumption (a hundred cubic feet or CCF) to increase the amount of the Rate Stabilization Reserve from the current minimum level of $2.3 million to a total of $10 million. In any normal water year where 2.5 billion**

[6] Note: Water sales in calendar year 2013 equaled 3 billion gallons, in calendar year 2014 equaled 2.5 billion gallons and in calendar year 2015 equaled 2.25 billion gallons.

gallons of water is not sold, the revenue shortfall associated with this situation would be covered by resources from this fund.[7]

In addition to the water rate structure changes and described above, the revenue requirements shown in Table 4 require a significant increase in FY 2017 to begin to fund the capital program, maintain operations, and establish the financial foundation described in Section 4. On a simple year over year basis, revenue need to increase 19% between FY 2016 and FY 2017, followed by a 9% increase in FY 2108, a 7% increase in FY 2019, and a 5% increase in both FY 2020 and FY 2021.

These percent increases in revenues are not translated directly to customer bills because of different use patterns and the recommended rate structures. For example, one impact of the recommended rate structure that emphasizes volume based rates is that it will tend to stabilize the cost of water for those whose use of water is very low. Conversely, customer whose use of water contributes to peaking will experience greater increases. And inside city customer will experience a greater increase than outside city customers due to the reduction in the outside city surcharge from 27.5% to 14.5%.

Additional details about the recommended rate structure and water rates can be found in Appendix C.

6. IMPLEMENTING THE LONG RANGE FINANCIAL PLAN

The LRFP is intended to be a living document that will provide a financial foundation for the Department to use in annual budget planning and management activities. A major review and revision of the LRFP will occur at the five year mid-point and, along with other relevant work such as an updated cost of service analysis, revisions to the Financial Plan and water rates will

[7] The Rate Stabilization Reserve Fund would be used to augment revenues during "normal" water years if the amount of water sold falls below 2.5 billion gallons. In water years where water restrictions are required due to inadequate supply, a Drought Cost Recovery charge would be used to ensure revenues are adequate to meet system costs and debt service obligations.

be developed as needed. The LFRP will also be used to measure progress toward meeting LRFP goals during each five year segment covered by the plan.

Working with its consultant team, Department staff has created a Financial Plan that is realistic and implementable. Details of the approaches needed to implement the Plan are presented in the following sections.

6.1 FUND BALANCE RESERVE GOALS

Reserve policies are particularly important to manage risks to an agency's financial condition. In addition, they help an organization establish and maintain a good bond rating, thereby reducing the cost of borrowing.

Beginning in 1993, the Department has built and maintained a Rate Stabilization Reserve Fund (Fund 713). In 2014, the City Council approved two additional reserve funds; a 90-Day Operating Cash Reserve Fund (716) and an Emergency Reserve Fund (717).

Apart from the Rate Stabilization Fund, the remaining reserves have not been fully funded as the utility's financial condition did not enable it to address this important goal. A major driver of the Department's inability to fund these new reserves was the drought, which had a significant negative impact on the Department's revenues. Table 5 provides information on the status at 6-30-2015 and goals of each of the Department's reserve funds.

Table 5
Fund Balance Reserve Goals

Fund		Fund Balance (6-30-2015)	Funding Goal
711	Water Operations & Maintenance	$4,321,718	90 Days Operating Cash $6.5M in 2017
713	Water Rate Stabilization Reserve	$2,447,938	$10,000,000
716	Water 90-Day Operating Cash Reserve	$0	90 Days Operating Cash$6.5 M in 2017
717	Water Emergency Reserve	$600,000	$3,000,000

Establishing the 90-Day Operating Cash Reserve Fund was an important step, however for bond rating purposes a 180-day reserve is preferable. To that end, the financial plan also envisions

keeping a 90-day reserve in the operating fund (711) in addition to the 90-Day Operating Cash Reserve Fund (716). Providing a reserve equal to 180-days of operating expenses (between balances in Fund 711 and 716) is considered to be the minimum reserve to maintain a strong bond rating (AA category) and access to capital markets. Increasing these reserves above 180-days operating cash may be pursued if and when resources become available.

The Rate Stabilization Reserve Fund has been maintained at the historic $2.3 million level and seeks to provide a cushion to cover one-time situations where expenses exceed rate revenue. At 6-30-2015, this fund had increased to $2.4 million including interest income. As noted above, the $1/CCF surcharge will be used to help increase this fund to $10 million, as part of the mitigation for moving to a more volume based rate structure. This approach is discussed in greater detail in Section 6.5.2 below.

Initial funding of $600,000 for the Emergency Reserve Fund was made possible by using drought related one-time excessive use penalty revenue accrued during calendar year 2014. . An additional $500,000 was accrued from penalty revenue in calendar year 2015 and is expected to be used to increase this reserve for a total of $1.1 Million. The goal for the Emergency Reserve Fund is to maintain a $3 million funding level that would provide funds in the event of an extreme event or natural disaster.

6.2 APPROACH TO FULLY FUNDING RESERVES

In April of 2014, the Water Department recommended that the City Council approve a reimbursement resolution that would allow the Department to debt finance capital improvement work already in construction. The purpose of this request was to allow the Department to reimburse the Department's main operating fund for cash expenditures for capital projects such as the $26 Million Bay Street Reservoir replacement project once a bond issue was completed.

From the $25 Million I-Bank loan mentioned previously, the Department expects to receive reimbursement of $22 million in past capital expenditures from the Department's fund balance. Resources from this cash balance would be used to fund the Department's reserves as follows:

- **$6.5 Million to fully fund the 90-Day Operating Cash Reserve Fund (716)**
- **$2.0 Million to bring the existing $1.1 Million in cash (from excess water use penalties received in FY 2014 and 2015) to $3.1 Million (Fund 717); and**
- **Additional resources needed to maintain a fund balance in the Department's Operating Fund (711) at 90 days of operating cash**

6.3 DEBT FINANCING ASSUMPTIONS

In evaluating future financing needs, the LRFP includes assumptions on the initial and ongoing costs associated with issuing debt. Table 6 shows the projected current interest rate and terms for various debt issuance mechanisms that would most likely be used in debt funding the planned CIP.

Table 6
Debt Mechanism Estimated Rates & Terms

Debt Mechanism	Assumed Interest Rate (percent)	Term (years)
Tax-Exempt Financing (Bonds)	**5.0**	**30**
California Infrastructure & Economic Development Bank (I-Bank)	**3.24**	**30**
Drinking Water State Revolving Loan Fund	**1.6**	**30**

For planning purposes, additional debt issuance is assumed to be tax-exempt bonds issued in seven series. In addition to borrowing, the Department will work to acquire grant funding for capital investments if and as available. Grant funds may most likely be an option to defray some of the costs of the projects included in the Water Supply Augmentation Strategy. The Department will also pursue below market Drinking Water State Revolving Loan Fund loans for rehabilitation and replacement projects that would score well in meeting that program's competitive criteria.

The size and timing of debt issues to finance these capital projects are summarized in Table 7. The draft LRFP envisions three debt issue series from FY 2017 through FY 2021 for a total of $85.9 million. Another four debt issues series are shown from FY 2022 to FY 2025 for a total of $140 million. The total for all seven series is $226 million.

Table 7
Size and Timing of Debt Issues Needed to Fund Capital Program

Debt Issuance Assumptions								
Series	Series 2018	Series 2020	Series 2021	Series 2022	Series 2024	Series 2025	Series 2026	7 Series Total
Assumptions								
Debt Proceeds	$ 37,515,936	$ 29,775,262	$ 18,648,772	$ 51,733,379	$ 39,162,683	$ 42,572,248	$ 6,798,552	$ 226,206,832
Term of Debt	30 Years	30 Years	30 Years	30 Years	30 Years	30 Years	30 Years	
Call Date	3/1/2028	3/1/2030	3/1/2031	3/1/2032	3/1/2034	3/1/2035	3/1/2036	
Assumed Rate	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	
Project Fund Earnings	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	

6.4 CONSIDERATIONS IN THE TIMING AND SIZING OF DEBT

In order to effectively use a debt financing approach to minimize interest costs associated with borrowing, it is necessary to actively manage the timing and sizing of debt issues to avoid paying interest on cash sitting idle in a bank account. Given this concern, when issuing debt, it makes sense to take into account the following:

- **Set a minimum debt financing amount of $15 million;**[8]
- **Consider the spending rate on current and near term capital projects;**[9]
- **Consider market conditions or interest rate changes that might be more or less favorable in the future;**
- **Explore the potential to use one or more bridge funding mechanisms such as a bank letter of credit or internal borrowing (from City reserve funds, for example) that would allow for debt issuance at a later date.**

The PFM model includes a debt sizing function that can be used to forecast capital expenditures and anticipate when additional borrowing is needed. The model uses both built in parameters, such as the minimum $15 million in borrowing, and the opportunities to consciously consider the sizing and timing of debt. City staff will be actively using this model in ongoing financial analyses and management activities, and the timing and sizing of each debt issue may be revised based on market conditions at the time.

6.5 WATER RATES NEEDED TO MEET REVENUE REQUIREMENTS

[8] The reason for establishing a minimum issuance amount for a debt issue is based on reasoning that is similar to the advice of travel gurus regarding going to the ATM when you're on vacation in a foreign country. There are certain transaction costs associated with taking money out of the ATM that don't vary (or don't vary very much) with the size of the withdrawal. Therefore, it is more cost effective to go to the ATM fewer times and take out more money rather than doing the opposite. Issuing debt also has certain borrowing costs that accrue, and borrowing in bigger chunks helps manage and minimize the impact of some of these costs.

[9] The Department's CIP shows spending patterns that reflect the staff's best estimate of how the project will play out. The environmental review, right-of-way, and regulatory climate in California is complex and project spending can be greatly influenced by this reality. In sizing and timing debt issues, it will be important to use the most up-to-date information about progress on projects.

During FY 2016, Water Department staff worked with Raftelis Financial Consultants and the Santa Cruz Water Commission to evaluate several options for rate structures, each of which would need to address the City's priority pricing objectives as identified by the Council and the Water Commission during the winter of 2015. These pricing objectives are shown in Table 8 below, in priority order:

Table 8
Priority Pricing Objectives

Composite Pricing Objectives for the City Council and Water Commission, March 2015	
1. Revenue sufficiency	5. Revenue stability
2. Promotes efficiency	6. Understandable by customers
3. Perceived to be fair by the public	7. Promotes conservation
4. Affordable for essential uses	8. Rate stability

In designing new rates for FY 2017 – FY 2021, the Department took into account these priorities and the very strong preference stated by customers in various forums to reduce the amount of revenue generated by fixed charges.

Santa Cruz's water customers are unusual in many respects, including their typically lower levels of water consumption. Even before the drought, 15% of single family customers used an average of 2 CCF or less per month. And 46% (15% + 31%) used an average of 5 or fewer CCF per month. Sixty-four percent used no more than 7 CCF per month.

In 2004, the Department changed its rate structure to increase the number of tiers for single family customers from three to five and also implemented a series of fairly significant price increases between 2004 and 2011. As a result of these actions, many single family residential customers were incentivized to reduce consumption of the more expensive blocks of water, contributing to the distribution patterns that were being observed prior to the drought. Included in this pattern was a shift of the total percent of annual consumption used between May 1 and October 31 from 65% to 59%. Two years of water rationing for residential customers further reinforced these new use patterns.

Coupled with a strong conservation ethic in Santa Cruz is the concern for affordability of water for those customers using very low amounts of water. Fixed charges are viewed as diluting the conservation incentive that rates can provide as well as raising the cost of water for those routinely using small amounts of water.

6.5.1 CHANGES TO THE RATE STRUCTURE

The Department is recommending moving from its current rate structure in which about 35% of revenue is collected through fixed charges and 65% is collected through volume or commodity charges to one that collects substantially more of the total revenue through volume charges. Roughly 10% of operating costs would be collected in fixed costs based on meter size, with the remainder being collected in the form of charges related to the amount of water used.

Tiered rates for single family residential customer would be retained with the number of tiers being reduced from five to four[10]. Revised tiers would be as follows:

- **0 – 5 CCF = Tier 1 (average winter use)**
- **6 – 7 CCF = Tier 2 (average spring and fall use)**
- **8 – 9 CCF = Tier 3 (average summer use)**
- **≥ 10 CCF = Tier 4**

Multi-family residential rates would also be tiered using the same tiers as for single family but multiplying the tier allocations by the number of dwelling units in a master metered complex.[11]

Landscape irrigation accounts would be billed based on a simplified water budget system that would establish an allocation for each account. Usage up to that water budget allocation would be billed at tier 1 of the irrigation rates, up to 150% of the allocation would be billed at tier 2 of the irrigation rates, and all usage above 150% of the allocation would be billed at tier 3 of the landscape irrigation rates.

The remaining customer classes would be billed using uniform rates established for each class based on the Cost of Service Analysis. For example, this means that the University of California at Santa Cruz, whose water use includes some seasonal peaking, would pay a higher uniform rate than those customer classes that do not.

[10] The change in the number of tiers was the result of the analysis done by Raftelis Financial Consultants as part of the Cost of Service Study and was based on evolving water use patterns for residential customers.

[11] Master metered systems may include irrigation or have irrigation on a separate meter. For water utility billing purposes, individually metered multi-family units are treated as single family residential properties.

6.5.2 MITIGATING THE POTENTIAL REVENUE STABILITY RISKS OF MOVING TO A MORE VOLUME BASED RATE STRUCTURE

Moving to a more volume-based rate structure creates inherent revenue stability risks for a utility. In making a decision to move in this direction, Water Department staff carefully considered how this risk might influence revenues by evaluating the character and water use consumption patterns in the City's service area.

Even before the recent drought, Santa Cruz water customers were among the lowest water users in the state on both system-wide and residential gallons per capita per day metrics. During the drought, that pattern continued. Anecdotally, staff is observing some continuing shifts in water use that may reflect some long-term changes in use patterns that will ultimately be attributed to the drought becoming permanent. One very likely candidate for this kind of change is residential landscape irrigation.

Revenue streams that depend on the volume of water sold are particularly susceptible to weather driven changes in consumption, and changes in consumption due to price effects. The Department's recent experiences make it keenly aware of this dynamic. The challenges of managing ongoing operations and management of the water utility while simultaneously planning for and implementing major capital improvements aren't insurmountable with a more volume based rate structure, but certainly introduce an element of uncertainty that should be carefully considered before proceeding. This is what Department staff has done.

Rather than avoid recommending a rate structure that seems well-suited to the community's and policy maker's values and priorities, Department staff recommends planning for and implementing as part of the rate structure the mechanisms needed to mitigate these potential risks.

These risks come in two basic forms: drought risks, and non-drought risks. The risk mitigation approaches being recommended to address each is discussed in more detail below.

6.5.2.1 DROUGHT RISKS

In 2014, the Water Department instituted a drought cost recovery fee mechanism that is put in place as a fixed charge. Table 9 shows the Drought Cost Recover Fee revenue recovery target for each stage of the City's Water Shortage Contingency Plan and provides the amount charged for a typical single family residential customer using a 5/8th or 3/4th inch meter.

Table 9
Drought Cost Recovery Fee Financial Targets and
Example Fixed Charge for 5/8th and 3/4th inch Meters

Drought Stage	Cutback Required	Targeted Cost Recovery	Fixed Charge per 5/8th or 3/4th inch meter
Stage 1	5%	$1.0 Million	$2.45
State 2	15%	$2.5 Million	$6.12
Stage 3	25%	$4.0 Million	$9.79
Stage 4	35%	$5.5 Million	$13.46
Stage 5	50%	$7.5 Million	$18.35

Additional Details on the Drought Cost Recovery Fees for other meter sizes can be found in Appendix C.

A Drought Cost Recovery Fee was levied in Santa Cruz from October 1, 2014 through June 30, 2016. Levying the fee is explicitly linked to an action by the Santa Cruz City Council to declare a drought and establish curtailment stage in advance of each year's dry season (May through October).

The Department's 2014 Proposition 218 notice included the Drought Cost Recovery Fee Schedule. The planned summer 2016 Proposition 218 notice will also include publication of this fee.

6.5.2.2 NON-DROUGHT RELATED RISKS

In the earlier discussion of rates in Section 5.3 above, the basic risk mitigation approach for non-drought years was described. It involved two basic strategies:

1 **Setting the assumption about how much water will be sold at a conservative 2.5 billion gallons per year;**
2 **Beginning in July 2018, apply a $1.00 per unit of water consumption surcharge to increase the amount of the Rate Stabilization Reserve from the current level of $2.3 million to a total of $10 million. In any "normal" year where 2.5 billion gallons of water**

is not sold, use revenues from the rate stabilization reserve to cover the resulting revenue shortfall.

The planned $1.00 surcharge is not being designed to be an "on-off" mechanism but is currently proposed to be permanent. Use of these funds once the Rate Stabilization Reserve reaches $10 million is recommended to be used as follows:

- **Once the Rate Stabilization Reserve reaches its target level of $10 Million, funds from this surcharge would be allocated as needed to ensure that Operating Cash and Emergency Reserves are fully funded and then directed to fund "pay-as-you-go" capital expenditures, reducing the need to issue debt.**

6.5.3 ALLOCATIONS OF REVENUES THAT ARE HIGHER THAN EXPECTED

A reasonable question is what to do if revenue stability does not turn out to be an issue because consumption is either stable at 2.5 billion gallons per year or a greater. The Department proposes the following conditional approach to addressing this situation if it occurs:

If….

- **the minimum debt service coverage ratio target of 1.5 is being consistently met, and**
- **reserves are fully funded, and**
- **"pay-as-you-go" capital is being funded at an average over the previous 3 years of at least 25%;**

Then either…

- **additional planned rate increases will be adjusted to the level needed to produce required revenues without any excess,[12] or**
- **The Water Department will ask the City Council for additional direction regarding adjusting the amount of funding in the Emergency Reserve and the Rate Stabilization Reserve to be an established percent of the Operating budget (rather than a fixed**

[12] The public notices required under Proposition 218 are required to identify (and justify based on the cost of service) the maximum amount that will be charged for a service. A utility has the option of charging less than the maximum amount published in the required notices. The obverse, however, is not true, which is the major reason for building into a more heavily volumetric rate structure a mechanism to mitigate for lower than anticipated revenues due to lower than forecasted water sales.

dollar amount), accelerating capital reinvestment in system infrastructure, or increasing the proportion of capital that is being paid for with "pay-as-you-go" funding.

Glossary

- **Bond covenant** – A legally binding term of an agreement between a bond issuer and a bond holder. Bond covenants are designed to protect the interests of both parties. Bond covenants are commitments that the City makes to the bondholders to ensure timely payment of principal and interest.
- **Capital Improvement Plan** – A multi-year plan that lists the rehabilitation, replacement, major maintenance, and new water system facilities and systems that are needed to maintain reliable and high quality water service or meet regulatory requirements;
- **CCF** (One Hundred cubic feet of water) – 748 gallons of water. A CCF is the unit used by the Santa Cruz Water Department as the basis for charges to customers based on water use.
- **Debt service coverage ratio** – The ratio of net operating revenue to annual debt payments.
- **Emergency reserve fund** – A reserve fund specifically designed to provide resources to address the consequences of natural disasters on water system facilities or resources or a catastrophic failure of a water system facility;
- **Pro forma** (financial statement) - A pro forma financial statement is a forecast of the utility's revenues and expenditures based on certain assumptions and projections;
- **Ninety-day operating cash reserve fund** – A reserve created to help ensure the utility's ability to meet operating expenses, provide financial stability, and resilience and support establishing and maintaining a good credit rating.
- **Operating budget** – The portion of the Department's overall budget that pays for ongoing operations of the utility, including the costs related to personnel, materials and services such as water treatment chemicals, and energy resources, and non-capital improvement project professional and technical services;
- **Pay-as-you-go capital funding** – paying for capital improvement projects using current year or accumulated rate revenues rather than the use of short or long term debt;
- **Proposition 218** – a 1996 California Constitutional Amendment that established the "cost-of-service" requirements for utility rates as well as certain noticing and public review process requirements related to water rate increases;[13]

[13] Proposition 218 also includes other provisions that aren't relevant to water rates and finances.

- **Rate structure design** – Characteristics of water rates that provides for the amount of revenue produced by fixed and variable charges, the use of different tiers for different amounts of water use, etc.;
- **Rate stabilization reserve** – a financial reserve specifically intended to provide a hedge against revenue variability resulting from weather conditions, such as a cool wet spring that results in less water than projected being used for outdoor irrigation.
- **Reimbursement resolution** – A Council action that authorizes the Department to reimburse itself for funds expended on capital projects using proceeds from future debt issues.
- **Water Supply Augmentation Strategy** – This is the plan developed by the Council appointed Water Supply Advisory Committee and accepted by the City Council for implementation in November 2015.

APPENDIX A – FINANCIAL PRO FORMA

This Appendix includes a 10 year Pro Forma from the Department's financial Model.

City of Santa Cruz Water Department FY 2017 – FY 2026 Financial Pro-Forma

City of Santa Cruz Water Department Pro-Forma Projections

Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Revenues										
Rate Revenue										
Fixed Fee Revenue	$ 4,655,461	$ 2,960,622	$ 3,153,062	$ 3,358,011	$ 3,576,282	$ 3,808,740	$ 4,056,308	$ 4,319,968	$ 4,600,766	$ 4,899,816
Volumetric Revenue	$ 27,555,340	$ 33,747,904	$ 35,941,518	$ 38,277,717	$ 40,765,768	$ 43,415,543	$ 46,237,553	$ 49,242,994	$ 52,443,789	$ 55,852,635
Elevation Surcharges	$ 103,105	$ 120,759	$ 130,985	$ 138,233	$ 138,656	$ 139,242	$ 139,830	$ 140,421	$ 141,015	$ 141,611
Rate Stabilization Surcharge	$ -	$ 3,342,244	$ 3,342,244	$ 3,342,244	$ 3,342,244	$ 3,342,244	$ 3,342,244	$ 3,342,244	$ 3,342,244	$ 3,342,244
Total Rate Revenue	$ 32,313,906	$ 40,171,529	$ 42,567,809	$ 45,116,205	$ 47,822,950	$ 50,705,769	$ 53,775,936	$ 57,045,628	$ 60,527,814	$ 64,236,306
Non-Rate Revenue										
Other Income	$ 203,600	$ 203,600	$ 203,600	$ 203,600	$ -	$ -	$ -	$ -	$ -	$ -
Investment Income	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Non-Rate Revenue	$ 203,600	$ 203,600	$ 203,600	$ 203,600	$ -	$ -	$ -	$ -	$ -	$ -
Total Revenues	$ 32,517,506	$ 40,375,129	$ 42,771,409	$ 45,319,805	$ 47,822,950	$ 50,705,769	$ 53,775,936	$ 57,045,628	$ 60,527,814	$ 64,236,306
Operating Expenses										
Personnel	$ 12,741,984	$ 13,868,008	$ 15,086,021	$ 15,882,276	$ 16,733,349	$ 17,643,670	$ 18,618,048	$ 19,661,714	$ 20,780,352	$ 21,980,139
Services, Supplies & Other	$ 12,616,410	$ 13,247,231	$ 13,909,592	$ 14,605,072	$ 15,335,325	$ 16,102,091	$ 16,907,196	$ 17,752,556	$ 18,640,184	$ 19,572,193
Capital Outlay	$ 965,000	$ 1,013,250	$ 1,063,913	$ 1,117,108	$ 1,172,964	$ 1,231,612	$ 1,293,192	$ 1,357,852	$ 1,425,745	$ 1,497,032
Other Operating Expenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Expenses	$ 26,323,394	$ 28,128,488	$ 30,059,525	$ 31,604,455	$ 33,241,638	$ 34,977,373	$ 36,818,437	$ 38,772,122	$ 40,846,280	$ 43,049,364
Net Operating Revenues	$ 6,194,112	$ 12,246,641	$ 12,711,884	$ 13,715,350	$ 14,581,312	$ 15,728,396	$ 16,957,500	$ 18,273,506	$ 19,681,534	$ 21,186,943
Capital Expenditures	$ 12,457,850	$ 15,886,978	$ 35,774,344	$ 37,574,757	$ 26,251,158	$ 15,635,558	$ 48,913,507	$ 45,672,352	$ 47,955,970	$ 10,854,470
Grant Funded	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
SRF Funded	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Currently Funded	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pay-Go Funded	$ 12,457,850	$ 9,092,599	$ 5,052,786	$ 7,799,495	$ 7,602,387	$ 7,467,490	$ 5,348,196	$ 6,509,669	$ 5,383,722	$ 4,055,918
Debt Funded	$ -	$ 6,794,378	$ 30,721,558	$ 29,775,262	$ 18,648,772	$ 8,168,068	$ 43,565,311	$ 39,162,683	$ 42,572,248	$ 6,798,552
Debt Service	$ 1,110,238	$ 2,089,418	$ 3,364,562	$ 4,286,397	$ 6,171,547	$ 7,404,928	$ 10,701,862	$ 10,800,876	$ 13,275,920	$ 16,046,053
Net Income	$ (7,373,976)	$ 1,064,624	$ 4,294,536	$ 1,629,457	$ 807,378	$ 855,979	$ 907,441	$ 962,961	$ 1,021,892	$ 1,084,972
Total Cash Balances										
Beginning Total Cash Balance	$ 4,071,118	$ 18,697,143	$ 22,761,766	$ 27,056,302	$ 28,685,759	$ 29,493,137	$ 30,349,115	$ 31,256,557	$ 32,219,518	$ 33,241,410
I-Bank Reimbursements	$ 22,000,000	$ 3,000,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Calculated Change to Cash Balances	$ (7,373,976)	$ 1,064,624	$ 4,294,536	$ 1,629,457	$ 807,378	$ 855,979	$ 907,441	$ 962,961	$ 1,021,892	$ 1,084,972
Ending Total Cash Balance	$ 18,697,143	$ 22,761,766	$ 27,056,302	$ 28,685,759	$ 29,493,137	$ 30,349,115	$ 31,256,557	$ 32,219,518	$ 33,241,410	$ 34,326,381
Beginning Cash Balances by Fund										
Fund 717 (Emergency Reserve)	$ 1,100,000	$ 3,100,000	$ 3,100,000	$ 3,100,000	$ 3,100,000	$ 3,100,000	$ 3,100,000	$ 3,100,000	$ 3,100,000	$ 3,100,000
Fund 713 (Rate Stabilization)	$ 2,447,939	$ 2,447,939	$ 5,790,183	$ 9,132,427	$ 10,000,000	$ 10,000,000	$ 10,000,000	$ 10,000,000	$ 10,000,000	$ 10,000,000
Fund 716 (90 Day Operating Reserve)	$ -	$ 6,490,700	$ 6,935,792	$ 7,411,938	$ 7,792,879	$ 8,196,568	$ 8,624,558	$ 9,078,519	$ 9,560,249	$ 10,071,685
Fund 711 (Water Operations)	$ 523,179	$ 6,658,504	$ 6,935,792	$ 7,411,938	$ 7,792,879	$ 8,196,568	$ 8,624,558	$ 9,078,038	$ 9,559,269	$ 10,069,724
Changes to Cash Balances by Fund										
Fund 717 (Emergency Reserve)	$ 2,000,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fund 713 (Rate Stabilization)	$ -	$ 3,342,244	$ 3,342,244	$ 867,573	$ -	$ -	$ -	$ -	$ -	$ -
Fund 716 (90 Day Operating Reserve)	$ 6,490,700	$ 445,092	$ 476,146	$ 380,942	$ 403,689	$ 427,989	$ 453,961	$ 481,731	$ 511,436	$ 543,226
Fund 711 (Water Operations)	$ 6,135,324	$ 277,288	$ 476,146	$ 380,942	$ 403,689	$ 427,989	$ 453,480	$ 481,231	$ 510,456	$ 541,746
Ending Cash Balances by Fund										
Fund 717 (Emergency Reserve)	$ 3,100,000	$ 3,100,000	$ 3,100,000	$ 3,100,000	$ 3,100,000	$ 3,100,000	$ 3,100,000	$ 3,100,000	$ 3,100,000	$ 3,100,000
Fund 713 (Rate Stabilization)	$ 2,447,939	$ 5,790,183	$ 9,132,427	$ 10,000,000	$ 10,000,000	$ 10,000,000	$ 10,000,000	$ 10,000,000	$ 10,000,000	$ 10,000,000
Fund 716 (90 Day Operating Reserve)	$ 6,490,700	$ 6,935,792	$ 7,411,938	$ 7,792,879	$ 8,196,568	$ 8,624,558	$ 9,078,519	$ 9,560,249	$ 10,071,685	$ 10,614,912
Fund 711 (Water Operations)	$ 6,658,504	$ 6,935,792	$ 7,411,938	$ 7,792,879	$ 8,196,568	$ 8,624,558	$ 9,078,038	$ 9,559,269	$ 10,069,724	$ 10,611,470
Coverage and Targets										
Debt Service Coverage (W/Out Reserves)	5.58x	4.26x	2.78x	3.00x	2.36x	2.12x	1.58x	1.69x	1.48x	1.32x
Debt Service Coverage Target	1.50x	1.50x	1.50x	1.50x	1.50x	1.50x	1.50x	1.50x	1.50x	1.50x
Debt Service Coverage (W/Reserves)	22.42x	16.76x	11.82x	9.89x	7.14x	6.22x	4.51x	4.67x	3.99x	3.46x
Days' Cash (Includes only Funds 711 & 716)	182	180	180	180	180	180	180	180	180	180
Days' Cash Target	180	180	180	180	180	180	180	180	180	180

APPENDIX B – 10 YEAR CIP

This Appendix includes a spreadsheet listing projects, funding and schedules and project descriptions

Water Department FY 2017 – FY 2018 Capital Improvement Program

10-Year CIP by Primary Driver										
	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026
Rehabilitate or Replace										
Felton Diversion Replacement & Pump Station		1,500,000	1,500,000	1,500,000						
Laguna Dam										500,000
Majors Creek Diversion										300,000
San Lorenzo River Diversion & Tait Wells										
Newell Creek Pipeline Rehabilitation	1,000,000	1,000,000	8,000,000	8,000,000						
Newell Creek Dam I/O Pipeline & Aerators	2,000,000	2,000,000	14,000,000	12,000,000	12,000,000					
North Coast System Rehab	4,150,000									4,000,000
WTP Concrete Tank Evaluation & Replacement	600,000	3,000,000	3,000,000	3,000,000						
WTP Solids Handling	500,000									
Water Main Replacements - City Engineering	1,395,000	1,440,000	1,440,000	1,440,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000
Water Main Replacements - Outside Agency	250,000	250,000	250,000	250,000	250,000	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	50,000	50,000	50,000	50,000	50,000
Water Main Replacements - Distribution	325,000	325,000	325,000	325,000	325,000	325,000	325,000	325,000	325,000	325,000
Pressure Regulating Stations	10,000	60,000	60,000	60,000						
Recoat University Reservoir No. 4	75,000	1,300,000								
Recoat University Reservoir No. 5	75,000	1,675,000								
Beltz 11	70,000	300,000								
Water Treatment Upgrades	100,000									
Subtotal	**10,600,000**	**12,900,000**	**28,625,000**	**26,625,000**	**14,125,000**	**2,125,000**	**2,125,000**	**2,125,000**	**2,125,000**	**6,925,000**
With inflation	**10,918,000**	**13,685,610**	**31,886,676**	**31,141,725**	**17,347,257**	**2,740,252**	**2,877,265**	**3,021,128**	**3,172,185**	**10,854,470**
Upgrade or Improve										
Advance Metering Infrastructure (AMI)					50,000	4,000,000	4,000,000			
Loch Lomond Rec Improvements			165,000	1,000,000						
Photovoltaic/SolarProjects		500,000								
Water Resources Building	1,000,000									
Security Camera & Building Access Upgrades	95,000									
Subtotal	**1,095,000**	**500,000**	**165,000**	**1,000,000**	**50,000**	**4,000,000**	**4,000,000**	-	-	-
With inflation	**1,127,850**	**530,450**	**183,801**	**1,169,642**	**61,406**	**5,158,122**	**5,416,028**	-	-	-
Water Supply Reliability										
Aquifer Storage & Recovery		1,075,000	325,000	300,000						
Recycled Water										
Water Supply- WSAS Implementation				1,200,000	7,200,000	6,000,000	30,000,000	30,000,000	30,000,000	
Source Water Evaluation & Implementation	400,000	500,000	3,000,000	3,000,000						
Subtotal	**400,000**	**1,575,000**	**3,325,000**	**4,500,000**	**7,200,000**	**6,000,000**	**30,000,000**	**30,000,000**	**30,000,000**	-
With inflation	**412,000**	**1,670,918**	**3,703,867**	**5,263,390**	**8,842,495**	**7,737,183**	**40,620,213**	**42,651,224**	**44,783,785**	-
Total Projects w/o Inflation	12,095,000	14,975,000	32,115,000	32,125,000	21,375,000	12,125,000	36,125,000	32,125,000	32,125,000	6,925,000
Handy-Whitman Construction Inflation Factor	3%	3%	5%	5%	5%	5%	5%	5%	5%	5%
Total Projects with Cumulative Inflation	12,457,850	15,886,978	35,774,344	37,574,757	26,251,158	15,635,558	48,913,507	45,672,352	47,955,970	10,854,470

REHABILITATE OR REPLACE
Felton Diversion Replacement & Pump Station (c701602) This project consists of evaluating the existing dam and pump station with recommendations to rehabilitate or replace existing facilities. Alternate diversions to be considered will include horizontal collector wells and other subsurface intake(s). This project will replace aging facilities and evaluate potentially more efficient ways to divert water from the San Lorenzo River at Felton. Additional funding for construction in FY2019.
Laguna Dam (c70xxxx) Evaluate condition of dam and make recommended modifications. The project will follow completion of anadromous Habitat Conservation Plan.
Majors Creek Diversion (c701302) Majors Creek Diversion is nearly 100 years old. This project will evaluate the condition of the structure, make recommendations to replace or repair, and complete the construction. Evaluation of facility to occur in FY2017 with scheduling of rehabilitation TBD.
San Lorenzo River Diversion & Tait Wells (c709872) Conduct a condition assessment of the existing diversion and wells including consideration of sanding issues, potential dam replacement, the potential use of infiltration gallery, and relocation of existing wells. Project will ensure reliable and efficient diversion of water from the San Lorenzo River at Tait St. Condition assessment followed by recommended intake modifications and/or new wells. Current project consists of replacing 2 wells, rehabilitating 1 existing well, and abandoning 1 well. (Project title modified from San Lorenzo Tait Intake.)
Newell Creek Pipeline Rehabilitation (c701701) 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. This pipeline was constructed in the 1960s. This project is intended to ensure continued reliability of this water supply transmission main. (Project title modified from Newell Creek Supply Main Rehabilitation.)
Newell Creek Dam I/O Pipeline & Aerators (c701606) The Newell Creek Dam was installed in the 1960's. A pipeline runs through the base of the dam to deliver water to the reservoir from Felton Diversion and from the reservoir to the Graham Hill Water Treatment Plant. The pipeline rehabilitation includes inspection of the pipeline and its appurtenances which will result in rehabilitation or replacement of all or parts of the facility.
North Coast System Rehab (c709835) Springs and streams along the coast north of the City limits supply approximately 25% of the City's raw water. Some of the facilities related to these water supplies are reaching the end of their useful life. This program consists of multiple projects over the next 15 to 20 years to evaluate, rehabilitate, and replace portions of the existing infrastructure to ensure continued reliability. Engineering, environmental review, and permitting for the coast segment (Phase 3) began in FY 2013 and continues through FY 2017. Construction scheduled to begin in FY 2016.
WTP Concrete Tank Evaluation & Replacement (c701501) As part of an overall plan to ensure compliance with changing water quality regulations, improvements are needed at the Graham Hill Water Treatment Plant. This project will evaluate

the condition of four concrete tanks located at the site (as well as an off-site concrete tank), make improvement recommendation, and construction. Project title modified from WTP Filter Water Tank. Includes $145,000 endowment for MHJB HCP mitigation.
WTP Solids Handling (c701605) Solids produced at the Graham Hill Water Treatment Plant are currently disposed of in the City's sewer collection system. Treatment and disposal of these solids needs to be evaluated with the existing Water Treatment Plant Concrete Tank Assessment and Rehabilitation project (c701501) with improvements made accordingly.
Water Main Replacements - City Engineering (c700002, c709833, and c700017) Recurring program to replace deteriorated or undersized mains as identified and prioritized by the Department. Priorities are based on the need to maintain water system reliability, deliver adequate fire flows, improve circulation and water quality, and reduce maintenance costs. These projects focus on pipes less than 10" in diameter and are typically installed by contractors according to bid plans and specifications.
Water Main Replacements - Outside Agency (c700003) Water main, service line, valve, or water meter relocation necessitated by County or other Agency road improvement, storm drain improvement projects, and/or other projects that conflict with existing water infrastructure.
Water Main Replacements - Customer Initiated (c700004) Recurring program similar to the other Main Replacement Projects; however, these projects are initiated on an as-needed basis to accommodate customer-requested service connections to undersized or inadequate mains. Funds, to the extent of the appropriation, are disbursed to customers on a first-come, first-served basis. This project is funded by System Development Charges (100% SDC – Fund 715).
Water Main Replacements – Distribution (c701507) Recurring program to replace deteriorated or undersized water mains, as identified and prioritized by the Department and implemented by the Distribution Section. Projects are typically based on leak history, but also address water quality and fire flow issues.
Pressure Regulating Stations (c701703) Evaluation and replacement of pressure regulating stations (PRS). A PRS maintains (sustains or reduces) downstream pressure in order to deliver sufficient water pressure. The water distribution system contains 15 PRS and they vary in age from 66 years old to 8 years old. This project will evaluate the condition of each PRS and prioritize rehabilitation or replacement.
Recoat University Reservoir No. 4 (c701505) Perform engineering analysis and condition assessment of the aging University 4 tank to ensure continued reliable service. Establish scope of work for recoating/rehabilitation project. Acquire construction easements from UCSC and perform environmental analysis to install temporary tank for use during construction. Create plans and specifications for recoating/rehabilitation project.

Recoat University Reservoir No. 5 (c701506) Perform engineering analysis and condition assessment of the aging University 5 tank to ensure continued reliable service. Establish scope of work for recoating/rehabilitation project. Create plans and specifications for recoating/rehabilitation project. Install temporary tank and variable speed pumps for use during construction. Construct recoating/rehabilitation project.
Beltz 11 (c700026) This project would convert an existing monitoring well to a production well, renamed Beltz 11. Beltz 11 would pump from the Santa Margarita aquifer. The project would reduce pumping from the Purisima Formation which is impacted by pumping by the City and other users. Project includes feasibility study, pump test, CEQA and construction efforts.
Water Treatment Upgrades (c700025) Upgrades to the Graham Hill Water Treatment Plant are necessary to meet new and planned regulatory requirements, and increase overall system reliability. This is a recurring project to prioritize needs and make smaller improvements. The current project includes upgrades to the bulk chemical storage area.
UPGRADE OR IMPROVE
Advance Metering Infrastructure (AMI) (c701603) Evaluate the use of AMI as replacement to the current AMR metering (Automatic Meter Reading). AMR provides 1-way communication between a meter and the City and AMI provides two-way communication between a meter and the City as well as between a meter and the customer. Benefits include early leak detection, customer conservation affect, and workflow management. Implementation to occur in future years.
Loch Lomond Rec Improvements (c701301) Complete facilities assessment and improvement program at Loch Lomond. A Use study was completed in FY 2013 which resulted in a number of planned projects to enhance the recreation area usability for its visitors. Several ADA and other recreational improvements are being pursued over the next 5 years.
Photovoltaic/Solar Projects (c701607) Ongoing project to evaluate, design and construct PV systems on various water department facilities. The current project is at the Bay Street Tank Site. Once installed, each project will add to the departments and City's green energy portfolio and work towards meeting and exceeding our climate action goals.
Water Resources Building (c701702) The Watershed Resources Division is currently housed in temporary trailers. This project consists of a needs assessment, design, and construction. The needs assessment portion of the project has been completed; FY 2016 will focus on site selection and design; FY 2017 will be construction.
Security Camera & Building Access Upgrades (c701704) Evaluation and implementation of security camera and building access upgrades at various Water facilities. Current security equipment is proprietary and could be improved. A transition to a new system will require camera replacement and additional video storage equipment.

WATER SUPPLY RELIABILITY
Aquifer Storage & Recovery (c701609 and c701610) Evaluate the feasibility of Aquifer Storage and Recovery as per the recommendations of the Water Supply Advisory Committee. Funds in FY 2016 and 2017 will be used for Phase 1 of the proposed study. Phase 2 will include pilot work and be funded in FY 2018. Project would potentially provide additional potable water to City and other agency customers, addressing part or all of water supply deficiencies.
Recycled Water (c701611 and c701612) Evaluate the feasibility of using advanced treated wastewater for beneficial uses as per the recommendations of the Water Supply Advisory Committee. The project will be collaboration amongst the Water and Public Works Departments. The project would potentially provide additional water to City and other agency customers, addressing all or part of water supply deficiencies.
Water Supply- WSAS Implementation (c70xxxx) Funding tentatively scheduled for FY2020.
Source Water Evaluation & Implementation (c701608) Evaluate source water quality, operational and infrastructure alternatives to maximize use of surface water. This project was prompted in part by the recommendations of the Water Supply Advisory Committee, accepted by Council in Nov 2015, to evaluate use of additional winter flows in the San Lorenzo River for various purposes to solve the regional water supply issues.

APPENDIX C – PROPOSED WATER RATES AND FEES FOR FY 2017-FY 2021

The tables below were excerpted from a more complete presentation on water rates and charges prepared for and presented to the Santa Cruz Water Commission on June 6, 2016. That presentation can be accessed online at the Water Commission's website.
(see http://www.cityofsantacruz.com/departments/water/city-water-commission/meetings-and-agenda)

Table C-1
Inside City Customer Fixed Monthly Charges

Inside		FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Meter Size	# of Meters	Proposed Ready-to-Serve ($/Meter)	9%	7%	5%	5%
5/8-in	14,348	$ 8.78	$ 9.53	$ 10.18	$ 10.71	$ 11.26
3/4-in	150	$ 9.01	$ 9.78	$ 10.45	$ 10.99	$ 11.56
1-in	748	$ 9.70	$ 10.53	$ 11.25	$ 11.83	$ 12.44
1 1/2-in	294	$ 10.61	$ 11.52	$ 12.31	$ 12.94	$ 13.61
2-in	250	$ 13.14	$ 14.26	$ 15.24	$ 16.02	$ 16.85
3-in	35	$ 31.74	$ 34.45	$ 36.82	$ 38.71	$ 40.71
4-in	15	$ 38.63	$ 41.93	$ 44.81	$ 47.11	$ 49.55
6-in	6	$ 54.70	$ 59.37	$ 63.45	$ 66.71	$ 70.16
8-in	3	$ 73.07	$ 79.31	$ 84.76	$ 89.11	$ 93.73
10-in	3	$ 93.74	$ 101.75	$ 108.73	$ 114.32	$ 120.24

Table C-2
Inside City Customer Volume Rates

Inside	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Class	Proposed O&M Charge ($/ccf)	9%	7%	5%	5%
SFR & MFR					
Tier 1	$ 5.75	$ 6.24	$ 6.66	$ 7.01	$ 7.37
Tier 2	$ 6.42	$ 6.97	$ 7.45	$ 7.83	$ 8.24
Tier 3	$ 7.41	$ 8.05	$ 8.60	$ 9.04	$ 9.51
Tier 4	$ 8.79	$ 9.54	$ 10.20	$ 10.72	$ 11.28
COM					
Uniform	$ 6.57	$ 7.13	$ 7.62	$ 8.01	$ 8.43
UCSC					
Uniform	$ 6.70	$ 7.27	$ 7.77	$ 8.17	$ 8.60
North Coast AG					
Uniform	$ 3.58	$ 3.88	$ 4.15	$ 4.36	$ 4.59
Landscape					
Tier 1	$ 6.86	$ 7.44	$ 7.95	$ 8.36	$ 8.80
Tier 2	$ 9.15	$ 9.93	$ 10.62	$ 11.16	$ 11.74
Tier 3	$ 10.27	$ 11.14	$ 11.91	$ 12.52	$ 13.17
Elevation Surcharge					
Elevation Surcharge	$ 0.42	$ 0.46	$ 0.49	$ 0.51	$ 0.54

Table C-3
Outside City Customer Fixed Monthly Charges

Outside		FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Meter Size	# of Meters	Proposed Ready-to-Serve ($/Meter)	9%	7%	5%	5%
5/8-in	7,507	$ 10.05	$ 10.91	$ 11.66	$ 12.26	$ 12.89
3/4-in	65	$ 10.32	$ 11.20	$ 11.97	$ 12.59	$ 13.24
1-in	574	$ 11.11	$ 12.06	$ 12.89	$ 13.55	$ 14.25
1 1/2-in	164	$ 12.16	$ 13.20	$ 14.10	$ 14.83	$ 15.60
2-in	157	$ 15.05	$ 16.34	$ 17.46	$ 18.35	$ 19.30
3-in	14	$ 36.36	$ 39.47	$ 42.17	$ 44.34	$ 46.64
4-in	9	$ 44.25	$ 48.03	$ 51.33	$ 53.96	$ 56.76
6-in	5	$ 62.66	$ 68.01	$ 72.68	$ 76.42	$ 80.37
8-in	1	$ 83.71	$ 90.86	$ 97.10	$ 102.09	$ 107.38
10-in	-	$ 107.38	$ 116.55	$ 124.55	$ 130.95	$ 137.74

Table C-4
Outside City Customer Volume Rates

Outside	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Class	Proposed O&M Charge ($/ccf)	9%	7%	5%	5%
SFR & MFR					
Tier 1	$ 6.59	$ 7.16	$ 7.65	$ 8.04	$ 8.46
Tier 2	$ 7.37	$ 8.00	$ 8.55	$ 8.99	$ 9.46
Tier 3	$ 8.54	$ 9.27	$ 9.90	$ 10.41	$ 10.95
Tier 4	$ 10.15	$ 11.02	$ 11.78	$ 12.38	$ 13.02
COM					
Uniform	$ 7.53	$ 8.17	$ 8.73	$ 9.18	$ 9.66
Landscape					
Tier 1	$ 7.85	$ 8.53	$ 9.11	$ 9.58	$ 10.08
Tier 2	$ 10.48	$ 11.38	$ 12.16	$ 12.79	$ 13.45
Tier 3	$ 11.76	$ 12.77	$ 13.64	$ 14.34	$ 15.09
Elevation Surcharge		$ -	$ -	$ -	$ -
Elevation Surcharge	$ 0.48	$ 0.52	$ 0.56	$ 0.59	$ 0.62

Table C-5

Drought Cost Recovery Fees

Meter Size	Stage 1 – 5% cutback	Stage 2 – 15% cutback	Stage 3 – 25% cutback	Stage 4 – 35% cutback	Stage 5 – 50% cutback
5/8-in	$2.45	$6.12	$9.79	$13.46	$18.35
3/4-in	$2.45	$6.12	$9.79	$13.46	$18.35
1-in	$6.13	$15.30	$24.48	$33.65	$45.88
1 1/2-in	$12.25	$30.60	$48.95	$67.30	$91.75
2-in	$19.60	$48.96	$78.32	$107.68	$146.80
3-in	$36.75	$91.80	$146.85	$201.90	$275.25
4-in	$61.25	$153.00	$244.75	$336.50	$458.75
6-in	$122.50	$306.00	$489.50	$673.00	$917.50
8-in	$281.75	$703.80	$1,125.85	$1,547.90	$2,110.25
10-in	$347.90	$869.04	$1,390.18	$1,911.32	$2,605.70

Back Cover

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WATER COMMISSION
INFORMATION REPORT

DATE: June 1, 2016

AGENDA OF: June 6, 2016

TO: Water Commission

FROM: Rosemary Menard

SUBJECT: Recommendations on Water Rate Structure and Charges for FY 2017 – FY 2021

RECOMMENDATION: Receive presentation on proposed water rates for FY 2017 – FY 2021 and make recommendations to the City Council on:

1. water rate structures and rate increases for this period,
2. establishing an Infrastructure Reinvestment Fee to support both pay-as-you-go and debt financed capital spending,
3. retaining a Drought Cost Recovery Fee structure, and
4. using a $1 per CCF surcharge to increase the Rate Stabilization Reserve to provide for long term revenue stability as well as rate stability.

BACKGROUND: Over the last six months the Water Commission has received several presentations and participated in several discussions regarding the Department's current financial condition and future financial needs. The water rate structure changes and water rate increase proposals being recommended to the Water Commission by the Department are intended to both return the utility to a much more financially stable condition and provide the funding needed to address both the infrastructure reinvestments as well as anticipated new investments in one or more projects needed to augment water supply and improve water supply reliability.

DISCUSSION: The Department's recommended rate structure changes include the following:

1. Moving from a rate structure that collects about 65% of revenue in volume charges (based on the amount of water used) to one that collects about 90% of revenues from volume charges.
2. Establishing an Infrastructure Reinvestment Fee that will collect the funding needed to support pay-as-you-go capital and debt service costs. This fee would be collected as a separate charge based on water use.
3. Retaining the existing system of Drought Cost Recovery Fees that would be collected on the fixed charge. If needed, the amount of the fee to be levied would be linked to a specific drought stage as declared by the Santa Cruz City Council, and would be collected for an entire fiscal year.

4. Mitigating the potential revenue instability associated the recommended rate structure by establishing a $1.00 per ccf surcharge on water use that would, over time, increasing the Rate Stabilization Reserve Fund to a total of $10 million. This surcharge would go into effect on July 1, 2017. Funds from this reserve account would be used to augment revenues in normal water years should consumption fall below 2.5 billion gallons.

FISCAL IMPACT: The series of recommendations contained in this staff report are necessary to ensure the long-term financial health of the utility. The proposed rate increases will enable the Department to support ongoing operations and maintenance of the water system, and make the capital investments required comply with regulations, rehabilitate and replace aging infrastructure.

This package of recommendations will raise an estimated $208 million over the five year period beginning October 1, 2016 thru June 30, 2021, which will fund an estimated $127.9 million in capital improvements over the same time period. In addition to funding capital improvements and the operating budgets, the increase allow the Department to establish and maintain financial reserves that will stabilize the utility's finances as well as position the department to borrow some $85 million in funds to support capital investments at more competitive rates.

PROPOSED MOTION: Move to recommend to the City Council

1. The recommended water rate structures and rate increases for the period October 1, 2016 through June 30, 2021,
2. Establish an Infrastructure Reinvestment Fee to support both pay-as-you-go and debt financed capital spending,
3. Retain a Drought Cost Recovery Fee structure, and
4. Establish a $1 per CCF surcharge to increase the Rate Stabilization Reserve from $2.3 million to $10 million to provide for long term revenue and rate stability.

ATTACHMENTS: Presentation

City of Santa Cruz

COMPREHENSIVE WATER COST OF SERVICE STUDY

WATER COMMISSION

JUNE 6, 2016

Agenda

Goals of Today's Meeting

Key Assumptions

Financial Impacts

Review Proposed Tier Definition

Customer impacts

Review 5 Years of Proposed Rates

Goals of Today's Meeting

- Present the proposed rate structure and associated 5 years of rates
- Based on Water Commission comments, RFC will present these rates to the City Council on June 14

Key Assumptions

Estimated Usage of 2.5 BGY

- (reduced 2013 usage by approximately 17%)

Base Revenue Requirements of $25,915,101

- Assumes a full fiscal year

Infrastructure Reinvestment fee (IRF) Requirements of $7,794,919

- Assumes a full fiscal year

Outside / Inside Customer difference is 14.5%

Financial Impact

Based on usage of 2.5 BGY under the current rate structure and FY 2017 rates, the City will collect $28.4M

- Does not include drought rates / revenue

The proposed financial plan will collect ~$33.7M ($25.9M + $7.8M)

This is an 19% increase in overall rates

In addition, the change in inside/outside surcharge from ~28% to 14.5% results in an increase to the inside customers of approximately 5%

Note the overall affect is ~21% increase for inside customer

5 Year Financial Plan

	FYE 2017	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021
O&M Rev Req	$28,418,253	$25,915,101	$28,128,488	$30,059,525	$31,604,455	$33,241,638
IRF Rev Req	N/A	$7,794,919	$8,700,797	$9,166,040	$10,169,506	$11,239,068
Rate Stab Req	N/A	$0	$3,342,244	$3,342,244	$3,342,244	$3,342,244
Total Rev Requirement	**$28,418,253**	**$33,710,020**	**$40,171,529**	**$42,567,809**	**$45,116,205**	**$47,822,950**
O&M % Change			9%	7%	5%	5%
IRF % Change			12%	5%	11%	11%

Note:
FY 2017 rates will be implemented in Oct 2016. Revenues generated in this fiscal year will be 3 month adopted 2017 rates and 9 month of proposed rates. Revenues are projected to be ~$32.3M

Tier Definition

Given the current legal climate, Tier break points need to have a clear and logical rationale

Average Winter use – used as a proxy to determine indoor household needs for lowest cost water (Tier 1)

Average Summer use – average indoor use plus outdoor needs (Tier 3)

	Current	Proposed	Tier Break Rationale
Tier 1	0-4 units	0-5 units	Average Winter usage
Tier 2	5-9 units	6-7 units	Average Fall usage
Tier 3	10-14 units	8-9 units	Average Summer Usage
Tier 4	15-18 Units	10 & above	
Tier 5	19 & above		

Summary of Proposed Rate Structure

Proposed Rate Structures

- SFR – Inclining Tiers
  - 4 Tiers:
    - Tier 1: 0 to 5ccf
    - Tier 2: 6 to 7ccf
    - Tier 3: 8 to 9 ccf
    - Tier 4: 10+ ccf
- MFR – Same Tiered rates as SFR but based on # of DU's
- COM,UCSC, and North Coast Ag –Uniform
- Landscape – Simple Water Budget

Evaluated Scenarios

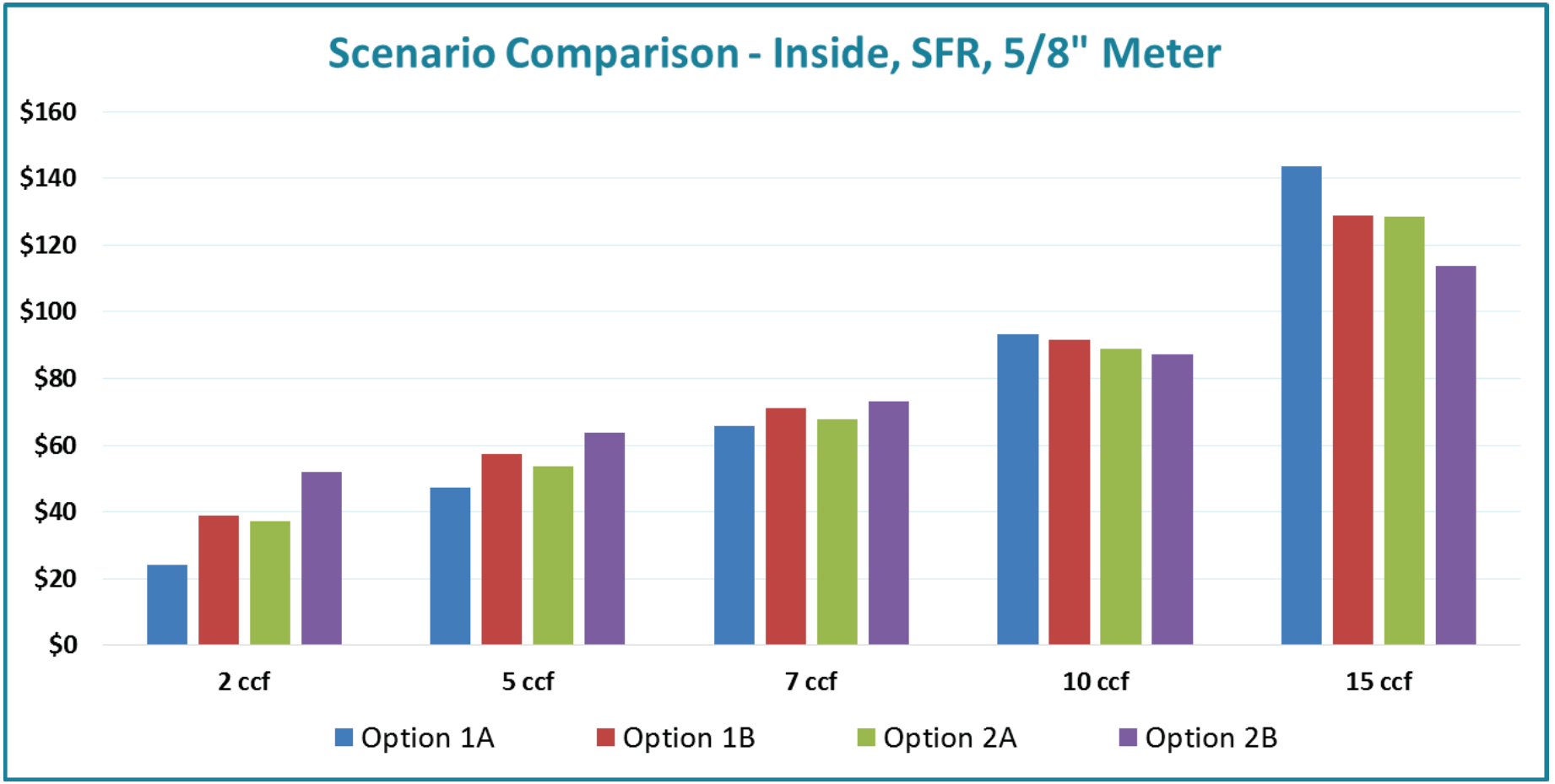
- Normal Rates with RTS and Tiered Rates ($25.9M)
  1. 90% Variable / 10% Fixed
  2. 60% Variable / 40% Fixed
- IRF ($7.8M)
  a) 100% Commodity
  b) 100% Fixed based on Meter Size (AWWA Ratio)

Total of 4 scenarios were evaluated

Summary of Rate Scenario Impact

	Proposed SFR Bills - Inside, 5/8" Meter, includes Elevation Surcharge				
	2 ccf	5 ccf	7 ccf	10 ccf	15 ccf
Option 1A	$24.22	$47.38	$65.72	$93.23	$143.67
Option 1B	$38.93	$57.44	$71.14	$91.69	$128.91
Option 2A	$37.16	$53.81	$67.81	$88.81	$128.43
Option 2B	$51.87	$63.87	$73.23	$87.27	$113.64

Summary


Scenario Comparison - Inside, SFR, 5/8" Meter
$160
$140
$120
$100
$80
$60
$40
$20
$0
2 ccf
5 ccf
7 ccf
10 ccf
15 ccf
Option 1A
Option 1B
Option 2A
Option 2B

Summary of Financial Stability

Scenarios	Option 1A	Option 1B	Option 2A	Option 2B
Fixed	8%	31%	31%	54%
Tier 1	40%	31%	29%	20%
Tier 2	8%	6%	6%	4%
Tier 3	6%	4%	5%	3%
Tier 4	11%	8%	9%	6%
Uniform	26%	20%	20%	14%
Total	100%	100%	100%	100%

Scenario vs. Pricing Objectives

Rankings	Pricing Objectives	Option 1A (90/10 – Com)	Option 1B (90/10 – Fixed)	Option 2A (60/40 – Com)	Option 2B (60/40 – Fixed)
Most Important	Revenue Sufficiency	★★★	★★★	★★★	★★★
Very Important	Promotes Efficiency	★★★	★★	★★	★
	Revenue Stability	★	★★	★★	★★★
	Perceived to be Fair to the Public	?	?	?	?
	Affordability for Essential Use	★★★	★★	★★	★
	Customer Understanding	★★★	★★★	★★★	★★★
	Promotes Conservation	★★★	★★	★★	★
	Rate Stability	★	★★	★★	★★★

Staff Recommendation

Staff recommends that the City proceeds with 1A

- Option 1A
  - Normal Rates with RTS and Tiered Rates - 90% Variable / 10% Fixed
  - IRF – 100% Commodity

Option 1A – 90% Variable / 10% Fixed Impact

Increase in commodity rates, based on usage and peaking

Commodity SFR Impact (inside)

- IRF Component adds the following to each SFR Tier:
  - Tier 1 – $1.55
  - Tier 2 – $2.32
  - Tier 3 – $2.86
  - Tier 4 – $3.85

Option 1A – 90% Variable / 10% Fixed Inside Fixed Charge

Meter Size	Proposed Inside Ready-to-Serve ($/Meter)	Current Inside	Difference ($)	Difference (%)
5/8-in	**$8.78**	$23.19	-$14.28	-62%
3/4-in	**$9.01**	$23.19	-$14.04	-61%
1-in	**$9.70**	$57.94	-$48.09	-83%
1 1/2-in	**$10.61**	$115.88	-$105.10	-91%
2-in	**$13.14**	$185.38	-$172.03	-93%
3-in	**$31.74**	$347.59	-$315.35	-91%
4-in	**$38.63**	$579.32	-$540.08	-93%
6-in	**$54.70**	$1,158.60	-$1,103.03	-95%
8-in	**$73.07**	$2,664.74	-$2,590.51	-97%
10-in	**$93.74**	$3,290.36	-$3,195.14	-97%

Option 1A – 90% Variable / 10% Fixed Outside Fixed Charge

Meter Size	Proposed Outside Ready-to-Serve ($/Meter)	Current Outside	Difference ($)	Difference (%)
5/8-in	**$10.05**	$29.56	-$19.35	-65%
3/4-in	**$10.32**	$29.56	-$19.08	-65%
1-in	**$11.11**	$73.88	-$62.60	-85%
1 1/2-in	**$12.16**	$147.72	-$135.37	-92%
2-in	**$15.05**	$236.35	-$221.06	-94%
3-in	**$36.36**	$443.17	-$406.24	-92%
4-in	**$44.25**	$738.62	-$693.67	-94%
6-in	**$62.66**	$1,477.21	-$1,413.56	-96%
8-in	**$83.71**	$3,398.51	-$3,313.49	-97%
10-in	**$107.38**	$4,195.23	-$4,086.16	-97%

Justification for Tiered Rates Inside City

Commodity	Proposed Tier	Water Supply	Treatment	Delivery	Peaking	Conservation	IRF	Proposed FY2017 Rate ($/ccf)
SFR & MFR								
Tier 1	0-5	$1.76	$0.46	$2.17	$1.35	$0.00	$1.55	**$7.30**
Tier 2	6-7	$1.76	$0.46	$2.17	$2.03	$0.00	$2.32	**$8.75**
Tier 3	8-9	$1.76	$0.46	$2.17	$2.51	$0.51	$2.86	**$10.28**
Tier 4	& Above	$1.76	$0.46	$2.17	$3.37	$1.03	$3.85	**$12.65**
COM								
Uniform	Uniform	$1.76	$0.46	$2.17	$1.98	$0.20	$2.27	**$8.84**
UCSC								
Uniform	Uniform	$1.76	$0.46	$2.17	$2.10	$0.21	$2.40	**$9.11**
North Coast AG								
Uniform	Uniform	$1.76	$0.00	$1.55		$0.27	$3.05	**$6.63**
Landscape								
Tier 1	100% of TWB*	$1.76	$0.46	$2.17	$2.46	$0.00	$2.82	**$9.68**
Tier 2	150% of TWB	$1.76	$0.46	$2.17	$3.69	$1.07	$4.22	**$13.38**
Tier 3	& Above	$1.76	$0.46	$2.17	$3.74	$2.14	$4.27	**$14.54**
Elevation Surcharge								
Elevation	Uniform							**$0.42**

Justification for Tiered Rates Outside City

Commodity	Proposed Tier	Water Supply	Treatment	Delivery	Peaking	Conservation	IRF	Proposed Rate ($/ccf)
SFR & MFR								
Tier 1	0-5	$2.02	$0.53	$2.48	$1.56	$0.00	$1.78	**$8.38**
Tier 2	6-7	$2.02	$0.53	$2.48	$2.34	$0.00	$2.68	**$10.05**
Tier 3	8-9	$2.02	$0.53	$2.48	$2.89	$0.62	$3.30	**$11.85**
Tier 4	& Above	$2.02	$0.53	$2.48	$3.89	$1.23	$4.44	**$14.60**
COM								
Uniform	Uniform	$2.02	$0.53	$2.48	$2.27	$0.23	$2.59	**$10.13**
Landscape								
Tier 1	100% of TWB*	$2.02	$0.53	$2.48	$2.82	$0.00	$3.23	**$11.09**
Tier 2	150% of TWB	$2.02	$0.53	$2.48	$4.23	$1.22	$4.83	**$15.32**
Tier 3	& Above	$2.02	$0.53	$2.48	$4.28	$2.45	$4.89	**$16.66**
Elevation Surcharge								
Elevation	Uniform							**$0.48**

Option 1A

Inside Commodity Rates

Commodity	Proposed Tier	O&M Rates	IRF Rates	Total Inside Commodity Rate	Current Commodity Rate
SFR					
Tier 1	0-5	$5.75	$1.55	$7.30	$2.11
Tier 2	6-7	$6.42	$2.32	$8.75	$5.33
Tier 3	8-9	$7.41	$2.87	$10.28	$6.86
Tier 4	& Above	$8.80	$3.86	$12.65	$9.40
Tier 5					$11.71
MFR					
Tier 1	0-5	$5.75	$1.55	$7.30	$5.33
Tier 2	6-7	$6.42	$2.32	$8.75	$5.33
Tier 3	8-9	$7.41	$2.87	$10.28	$5.33
Tier 4	& Above	$8.80	$3.86	$12.65	$5.33
Tier 5					$5.33
COM					
Uniform	Uniform	$6.57	$2.27	$8.84	$5.33
UCSC					
Uniform	Uniform	$6.70	$2.40	$9.11	$5.33
North Coast AG					
Uniform	Uniform	$3.58	$3.05	$6.63	$1.70
Landscape					
Tier 1	100% of TWB*	$6.86	$2.82	$9.68	$5.33
Tier 2	150% of TWB	$9.15	$4.22	$13.38	$5.33
Tier 3	& Above	$10.27	$4.27	$14.54	$5.33
Elevation Surcharge					
Elevation Surcharge				$0.42	$0.20

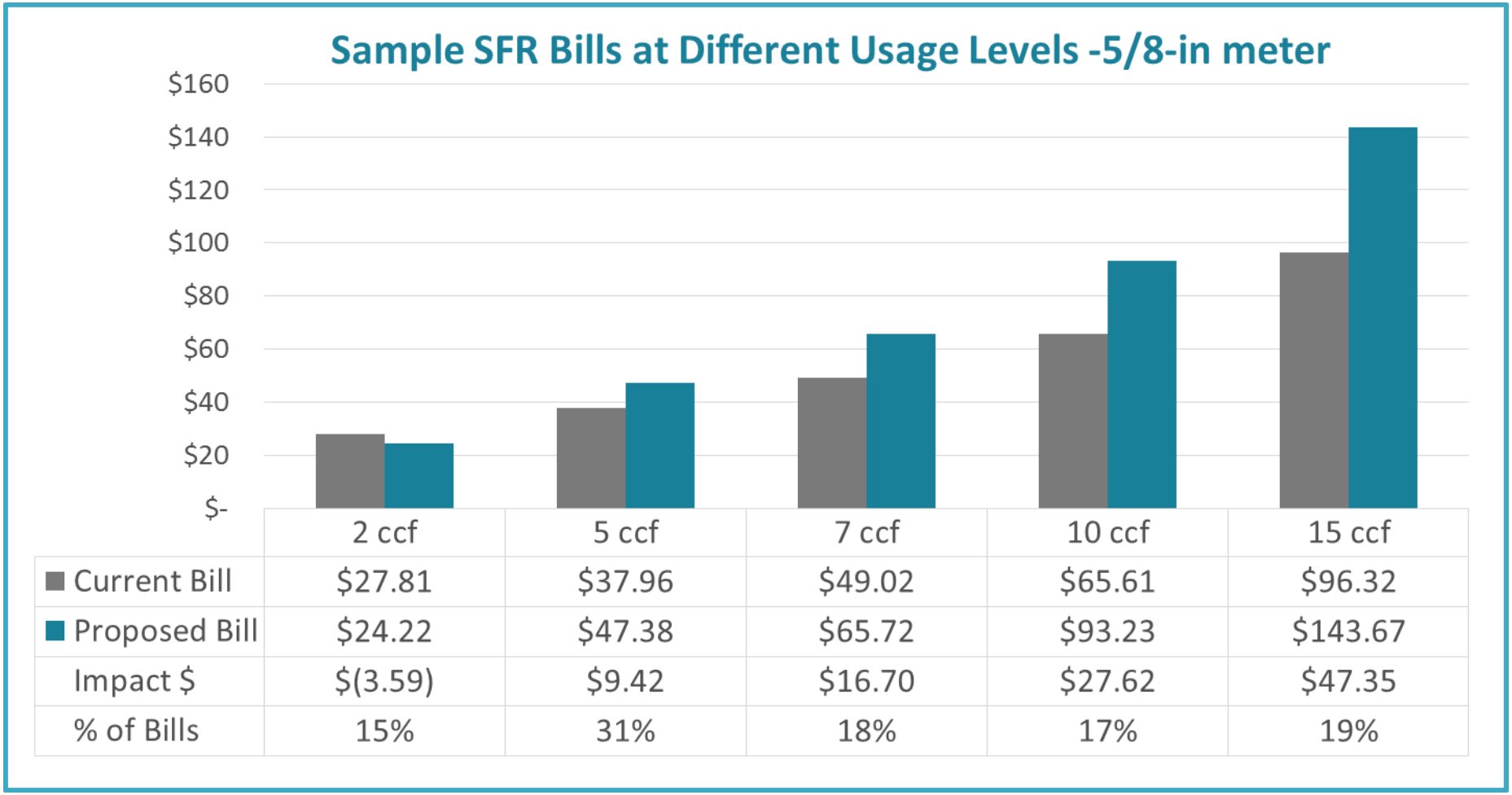
*Total Water Budget

Option 1A

Outside Commodity Rates

Commodity	Proposed Tier	O&M Rates	IRF Rates	Proposed Outside Commodity Rate	Current Commodity Rate
SFR					
Tier 1	0-5	$6.59	$1.78	$8.38	$2.67
Tier 2	6-7	$7.37	$2.68	$10.05	$6.80
Tier 3	8-9	$8.54	$3.31	$11.85	$8.74
Tier 4	& Above	$10.15	$4.44	$14.60	$11.96
Tier 5					$14.94
MFR					
Tier 1	0-5	$6.59	$1.78	$8.38	$6.80
Tier 2	6-7	$7.37	$2.68	$10.05	$6.80
Tier 3	8-9	$8.54	$3.31	$11.85	$6.80
Tier 4	& Above	$10.15	$4.44	$14.60	$6.80
Tier 5					$6.80
COM					
Uniform	Uniform	$7.53	$2.60	$10.13	$6.80
UCSC					
Uniform	Uniform		N/A		$6.80
North Coast AG					
Uniform	Uniform		N/A		$1.70
Landscape					
Tier 1	100% of TWB	$7.85	$3.23	$11.09	$6.80
Tier 2	150% of TWB	$10.48	$4.84	$15.32	$6.80
Tier 3	& Above	$11.76	$4.90	$16.66	$6.80
Elevation Surcharge					
Elevation Surcharge				$0.48	$0.20

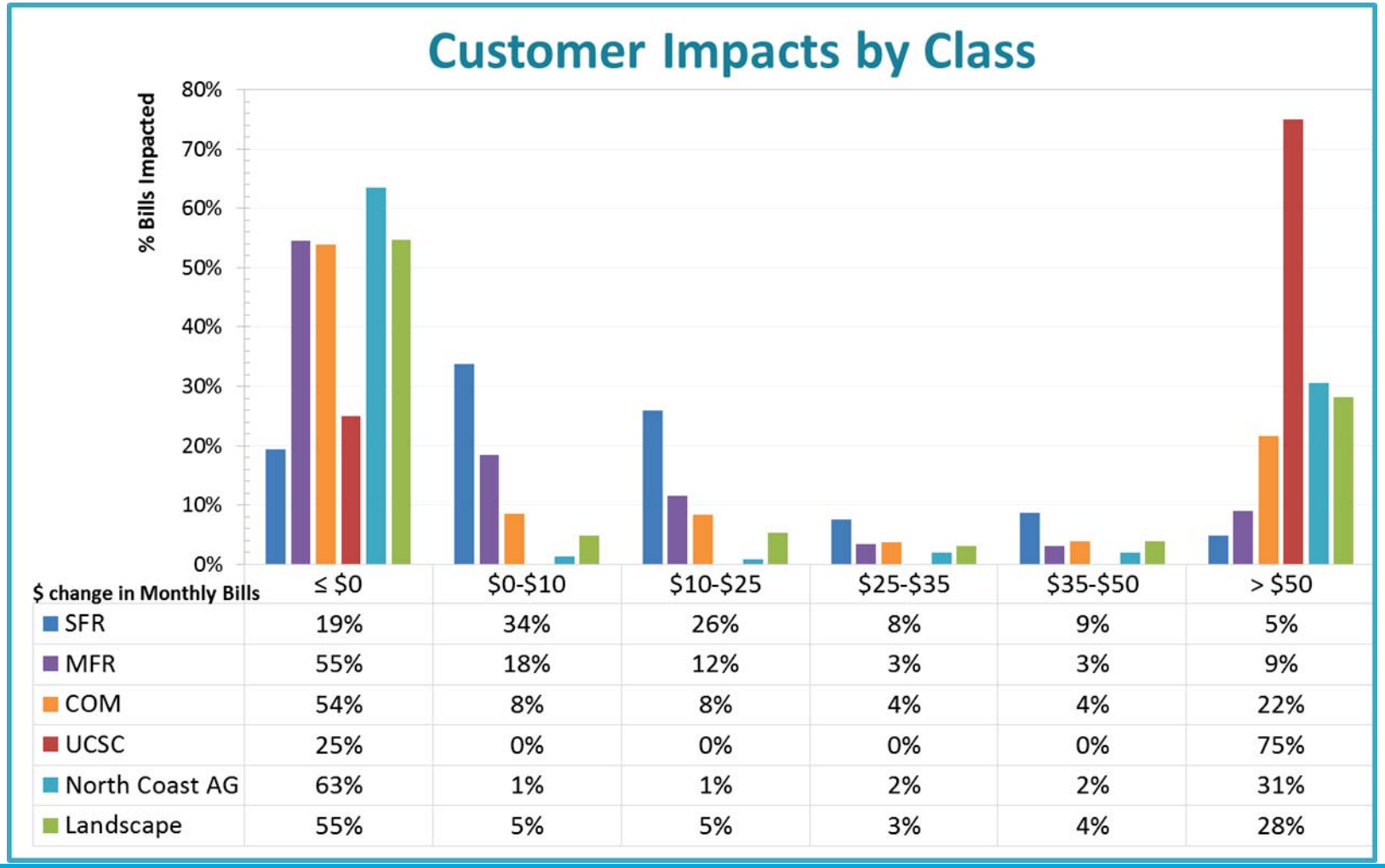
Option 1A – 90% Variable / 10% Fixed SFR Sample Impact



	2 ccf	5 ccf	7 ccf	10 ccf	15 ccf
Current Bill	$27.81	$37.96	$49.02	$65.61	$96.32
Proposed Bill	$24.22	$47.38	$65.72	$93.23	$143.67
Impact $	$(3.59)	$9.42	$16.70	$27.62	$47.35
% of Bills	15%	31%	18%	17%	19%

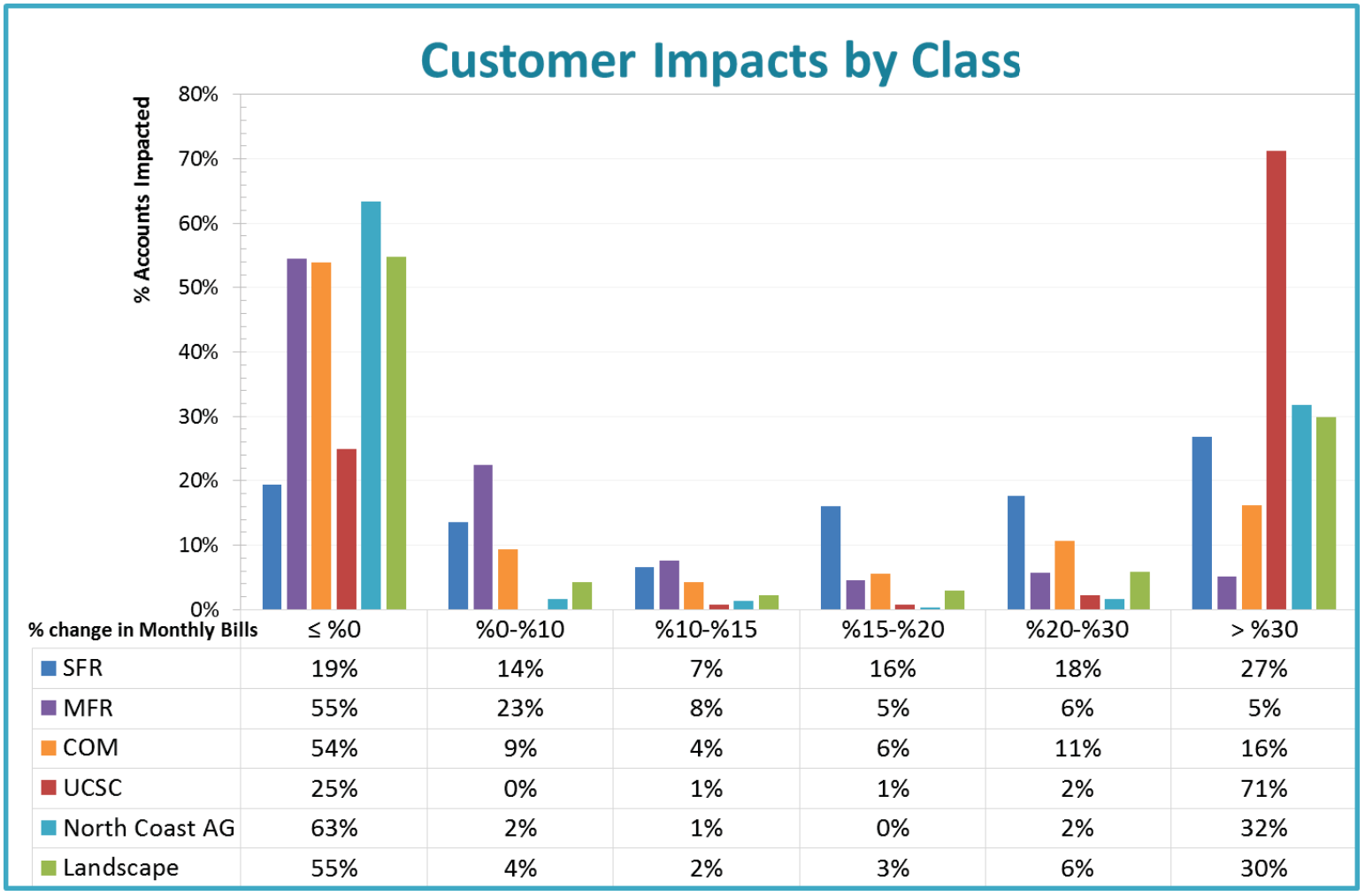
**Inside customer, includes elevation surcharge*

Option 1A – 90% Variable / 10% Fixed Customer Impacts by Class ($)



$ change in Monthly Bills	≤ $0	$0-$10	$10-$25	$25-$35	$35-$50	> $50
SFR	19%	34%	26%	8%	9%	5%
MFR	55%	18%	12%	3%	3%	9%
COM	54%	8%	8%	4%	4%	22%
UCSC	25%	0%	0%	0%	0%	75%
North Coast AG	63%	1%	1%	2%	2%	31%
Landscape	55%	5%	5%	3%	4%	28%

Option 1A – 90% Variable / 10% Fixed Customer Impacts (%)



% change in Monthly Bills	≤ %0	%0-%10	%10-%15	%15-%20	%20-%30	> %30
SFR	19%	14%	7%	16%	18%	27%
MFR	55%	23%	8%	5%	6%	5%
COM	54%	9%	4%	6%	11%	16%
UCSC	25%	0%	1%	1%	2%	71%
North Coast AG	63%	2%	1%	0%	2%	32%
Landscape	55%	4%	2%	3%	6%	30%

Proposed 5 Years Rates Inside – Fixed Rates

Inside		FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Meter Size	# of Meters	Proposed Ready-to-Serve ($/Meter)	9%	7%	5%	5%
5/8-in	14,348	$ 8.78	$ 9.53	$ 10.18	$ 10.71	$ 11.26
3/4-in	150	$ 9.01	$ 9.78	$ 10.45	$ 10.99	$ 11.56
1-in	748	$ 9.70	$ 10.53	$ 11.25	$ 11.83	$ 12.44
1 1/2-in	294	$ 10.61	$ 11.52	$ 12.31	$ 12.94	$ 13.61
2-in	250	$ 13.14	$ 14.26	$ 15.24	$ 16.02	$ 16.85
3-in	35	$ 31.74	$ 34.45	$ 36.82	$ 38.71	$ 40.71
4-in	15	$ 38.63	$ 41.93	$ 44.81	$ 47.11	$ 49.55
6-in	6	$ 54.70	$ 59.37	$ 63.45	$ 66.71	$ 70.16
8-in	3	$ 73.07	$ 79.31	$ 84.76	$ 89.11	$ 93.73
10-in	3	$ 93.74	$ 101.75	$ 108.73	$ 114.32	$ 120.24

Proposed 5 Years Rates Outside – Fixed Rates

Outside		FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Meter Size	# of Meters	Proposed Ready-to-Serve ($/Meter)	9%	7%	5%	5%
5/8-in	7,507	$ 10.05	$ 10.91	$ 11.66	$ 12.26	$ 12.89
3/4-in	65	$ 10.32	$ 11.20	$ 11.97	$ 12.59	$ 13.24
1-in	574	$ 11.11	$ 12.06	$ 12.89	$ 13.55	$ 14.25
1 1/2-in	164	$ 12.16	$ 13.20	$ 14.10	$ 14.83	$ 15.60
2-in	157	$ 15.05	$ 16.34	$ 17.46	$ 18.35	$ 19.30
3-in	14	$ 36.36	$ 39.47	$ 42.17	$ 44.34	$ 46.64
4-in	9	$ 44.25	$ 48.03	$ 51.33	$ 53.96	$ 56.76
6-in	5	$ 62.66	$ 68.01	$ 72.68	$ 76.42	$ 80.37
8-in	1	$ 83.71	$ 90.86	$ 97.10	$ 102.09	$ 107.38
10-in	-	$ 107.38	$ 116.55	$ 124.55	$ 130.95	$ 137.74

Proposed 5 Years Rates
Fire Protection Rates

Fire Service Size	# of Lines	FY 2017 Proposed Fire Protection Charge ($/Line)	FY 2018 9%	FY 2019 7%	FY 2020 5%	FY 2021 5%
1-in	-	$ 0.18	$ 0.20	$ 0.21	$ 0.22	$ 0.23
2-in	228	$ 1.12	$ 1.22	$ 1.30	$ 1.37	$ 1.44
3-in	-	$ 3.24	$ 3.52	$ 3.76	$ 3.95	$ 4.16
4-in	12	$ 6.90	$ 7.49	$ 8.00	$ 8.41	$ 8.85
6-in	6	$ 20.03	$ 21.74	$ 23.23	$ 24.43	$ 25.69
8-in	8	$ 42.67	$ 46.31	$ 49.49	$ 52.04	$ 54.73
10-in	-	$ 76.74	$ 83.29	$ 89.01	$ 93.59	$ 98.44

Proposed 5 Year Rates Inside – O&M Component

Inside	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Class	Proposed O&M Charge ($/ccf)	9%	7%	5%	5%
SFR & MFR					
Tier 1	$ 5.75	$ 6.24	$ 6.66	$ 7.01	$ 7.37
Tier 2	$ 6.42	$ 6.97	$ 7.45	$ 7.83	$ 8.24
Tier 3	$ 7.41	$ 8.05	$ 8.60	$ 9.04	$ 9.51
Tier 4	$ 8.79	$ 9.54	$ 10.20	$ 10.72	$ 11.28
COM					
Uniform	$ 6.57	$ 7.13	$ 7.62	$ 8.01	$ 8.43
UCSC					
Uniform	$ 6.70	$ 7.27	$ 7.77	$ 8.17	$ 8.60
North Coast AG					
Uniform	$ 3.58	$ 3.88	$ 4.15	$ 4.36	$ 4.59
Landscape					
Tier 1	$ 6.86	$ 7.44	$ 7.95	$ 8.36	$ 8.80
Tier 2	$ 9.15	$ 9.93	$ 10.62	$ 11.16	$ 11.74
Tier 3	$ 10.27	$ 11.14	$ 11.91	$ 12.52	$ 13.17
Elevation Surcharge					
Elevation Surcharge	$ 0.42	$ 0.46	$ 0.49	$ 0.51	$ 0.54

Proposed 5 Year Rates Outside – O&M Component

Outside	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Class	Proposed O&M Charge ($/ccf)	9%	7%	5%	5%
SFR & MFR					
Tier 1	$ 6.59	$ 7.16	$ 7.65	$ 8.04	$ 8.46
Tier 2	$ 7.37	$ 8.00	$ 8.55	$ 8.99	$ 9.46
Tier 3	$ 8.54	$ 9.27	$ 9.90	$ 10.41	$ 10.95
Tier 4	$ 10.15	$ 11.02	$ 11.78	$ 12.38	$ 13.02
COM					
Uniform	$ 7.53	$ 8.17	$ 8.73	$ 9.18	$ 9.66
Landscape					
Tier 1	$ 7.85	$ 8.53	$ 9.11	$ 9.58	$ 10.08
Tier 2	$ 10.48	$ 11.38	$ 12.16	$ 12.79	$ 13.45
Tier 3	$ 11.76	$ 12.77	$ 13.64	$ 14.34	$ 15.09
Elevation Surcharge		$ -	$ -	$ -	$ -
Elevation Surcharge	$ 0.48	$ 0.52	$ 0.56	$ 0.59	$ 0.62

Proposed 5 Year Rates Inside - IRF Component

Inside	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Class	Proposed IRF Charge ($/ccf)	12%	5%	11%	11%
SFR & MFR					
Tier 1	$ 1.55	$ 1.73	$ 1.82	$ 2.02	$ 2.23
Tier 2	$ 2.32	$ 2.59	$ 2.73	$ 3.03	$ 3.34
Tier 3	$ 2.86	$ 3.20	$ 3.37	$ 3.74	$ 4.13
Tier 4	$ 3.85	$ 4.30	$ 4.53	$ 5.02	$ 5.55
COM					
Uniform	$ 2.27	$ 2.53	$ 2.66	$ 2.96	$ 3.27
UCSC					
Uniform	$ 2.40	$ 2.68	$ 2.82	$ 3.13	$ 3.46
North Coast AG					
Uniform	$ 3.05	$ 3.40	$ 3.58	$ 3.98	$ 4.39
Landscape					
Tier 1	$ 2.82	$ 3.14	$ 3.31	$ 3.67	$ 4.06
Tier 2	$ 4.22	$ 4.71	$ 4.96	$ 5.50	$ 6.08
Tier 3	$ 4.27	$ 4.77	$ 5.02	$ 5.57	$ 6.16

Proposed 5 Year Rates Outside - IRF Component

Outside	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Class	Proposed IRF Charge ($/ccf)	12%	5%	11%	11%
SFR & MFR					
Tier 1	$ 1.78	$ 1.99	$ 2.10	$ 2.33	$ 2.57
Tier 2	$ 2.68	$ 2.99	$ 3.15	$ 3.49	$ 3.86
Tier 3	$ 3.30	$ 3.69	$ 3.88	$ 4.31	$ 4.76
Tier 4	$ 4.44	$ 4.96	$ 5.22	$ 5.80	$ 6.41
COM	$ -	$ -	$ -	$ -	$ -
Uniform	$ 2.59	$ 2.90	$ 3.05	$ 3.38	$ 3.74
Landscape	$ -	$ -	$ -	$ -	$ -
Tier 1	$ 3.23	$ 3.60	$ 3.79	$ 4.21	$ 4.65
Tier 2	$ 4.83	$ 5.39	$ 5.68	$ 6.30	$ 6.97
Tier 3	$ 4.89	$ 5.46	$ 5.75	$ 6.38	$ 7.05

Rate Stabilization

- The Rate Stabilization charge begins in FY 2018

- Consists of a uniform commodity charge of $1.00 per ccf

- Does not increase during the 5-year period

Total Proposed Commodity Charge

Inside	FY 2017 Commodity Rate ($/ccf)	FY 2018 Commodity Rate ($/ccf)	FY 2019 Commodity Rate ($/ccf)	FY 2020 Commodity Rate ($/ccf)	FY 2021 Commodity Rate ($/ccf)
SFR & MFR					
Tier 1	$ 7.30	$ 8.97	$ 9.49	$ 10.03	$ 10.60
Tier 2	$ 8.75	$ 10.56	$ 11.18	$ 11.86	$ 12.59
Tier 3	$ 10.28	$ 12.25	$ 12.97	$ 13.78	$ 14.64
Tier 4	$ 12.65	$ 14.85	$ 15.73	$ 16.75	$ 17.84
COM					
Uniform	$ 8.84	$ 10.67	$ 11.29	$ 11.97	$ 12.70
UCSC					
Uniform	$ 9.11	$ 10.96	$ 11.60	$ 12.31	$ 13.06
North Coast AG					
Uniform	$ 6.63	$ 8.29	$ 8.74	$ 9.34	$ 9.99
Landscape					
Tier 1	$ 9.68	$ 11.59	$ 12.27	$ 13.04	$ 13.86
Tier 2	$ 13.38	$ 15.65	$ 16.58	$ 17.67	$ 18.83
Tier 3	$ 14.54	$ 16.91	$ 17.93	$ 19.10	$ 20.33
Elevation Surcharge					
Elevation Surcharge	$ 0.42	$ 0.46	$ 0.49	$ 0.51	$ 0.54

Total Proposed Commodity Charge

Outside	FY 2017 Commodity Rate ($/ccf)	FY 2018 Commodity Rate ($/ccf)	FY 2019 Commodity Rate ($/ccf)	FY 2020 Commodity Rate ($/ccf)	FY 2021 Commodity Rate ($/ccf)
SFR & MFR					
Tier 1	$ 8.38	$ 10.15	$ 10.75	$ 11.37	$ 12.03
Tier 2	$ 10.05	$ 12.00	$ 12.70	$ 13.49	$ 14.32
Tier 3	$ 11.85	$ 13.96	$ 14.79	$ 15.73	$ 16.72
Tier 4	$ 14.60	$ 16.98	$ 18.01	$ 19.18	$ 20.43
COM					
Uniform	$ 10.13	$ 12.07	$ 12.79	$ 13.57	$ 14.40
Landscape					
Tier 1	$ 11.09	$ 13.13	$ 13.91	$ 14.79	$ 15.73
Tier 2	$ 15.32	$ 17.78	$ 18.85	$ 20.10	$ 21.42
Tier 3	$ 16.66	$ 19.23	$ 20.40	$ 21.73	$ 23.14
Elevation Surcharge					
Elevation Surcharge	$ 0.48	$ 0.52	$ 0.56	$ 0.59	$ 0.62

Discussion

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WATER COMMISSION
INFORMATION REPORT

DATE: June 2, 2016

AGENDA OF: June 6, 2016

TO: Water Commission

FROM: Rosemary Menard

SUBJECT: Water Supply Augmentation Strategy, Quarterly Work Plan Update

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RECOMMENDATION: Receive Information regarding the status of the various components of the Water Supply Augmentation Strategy and provide feedback.

BACKGROUND: As per the Final Agreements and Recommendations of the Water Supply Advisory Committee (WSAC), the Water Commission shall receive quarterly updates on the status of the various elements of the recommended plan. This is the second quarterly update.

Elements of the Water Supply Augmentation Strategy (WSAS) include the various water supply strategies (i.e., In Lieu water transfers with neighboring agencies, Aquifer Storage and Recovery, Recycled Water, and Seawater Desalination) as well as a number of other related studies and potential projects, demand management, and public outreach and communication. The following report strives to provide a clear picture of the scope, schedule and status of each element and also provides several areas where input is requested from the Water Commission.

DISCUSSION: For reference and broader context, the Water Department's current 5-year Capital Improvement Plan is shown on Attachment A and includes project, schedule, and budget. Attachment B shows the description for each of the projects. (Note, the WSAC recommendations were not included in the Water Department's FY2016 capital program; a budget adjustment was approved by Council in February 2016 that created and funded WSAS projects for 2016.) Progress and status of the various WSAS-related work is described in detail below.

In Lieu Water Transfers

The City and SqCWD entered into a 5-year agreement under which the City will transfer available winter supply from Majors Creek and Liddell Springs to the District under a resource management pilot program. This project will also consider potential future extension of the agreement beyond the 5-year pilot period. Under certain conditions, winter water will be directed from existing intakes on Liddell Spring and/or Majors Creek through the City's system (north

coast piping, coast pump station, GHWTP, and potable water distribution system) and then to existing metered interties with the District. The source water is from the City's pre-1914 appropriative water rights, and the amount of water transferred will be within the range of what has been delivered to and used in the City in the past.

Based on the hydraulic capacity of the interties and recent modeling conducted of the City's system, the City could transfer an average of approximately 115 million gallons (mg), during the winter months (November through April) to the District; however, the range may vary from 11mg to 217mg depending upon the water year type (i.e., critically dry, dry, normal, wet) and any instream flow agreements in place between the City and resource agencies.

Department staff has been involved in ongoing discussions with potential partner agencies for in lieu recharge. Potential partner agencies include the Soquel Creek Water District, the Scotts Valley Water District and the San Lorenzo Valley Water District. At its June 21st Board of Director's meeting, the Soquel Creek Water District has tentatively scheduled a presentation and discussion of the report on managing water quality during water transfers that was prepared by its consultant team, Black and Veatch and that same evening, Water Director Rosemary Menard will present a status report to the Soquel Board on work related to in lieu and aquifer storage and recovery. On June 2nd, Ms. Menard also presented the WSAC's recommendations and the planned implementation timeline to the Board of Directors of the San Lorenzo Valley Water District.

Aquifer Storage and Recovery (ASR)

The ASR work plan was segregated into three phases as follows.

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

Pueblo Water Resources (PWR) was hired in February 2016 to complete Phase 1 work. Attachment C is a schedule of their work. This is a two year project, scheduled to conclude at the end of calendar year 2017. The work done to date has included several key meetings shown below; staff from potential partnering agencies is currently fulfilling a data request by PWR. This information is needed to complete several Phase 1 tasks including the geochemical interaction analysis and siting study.

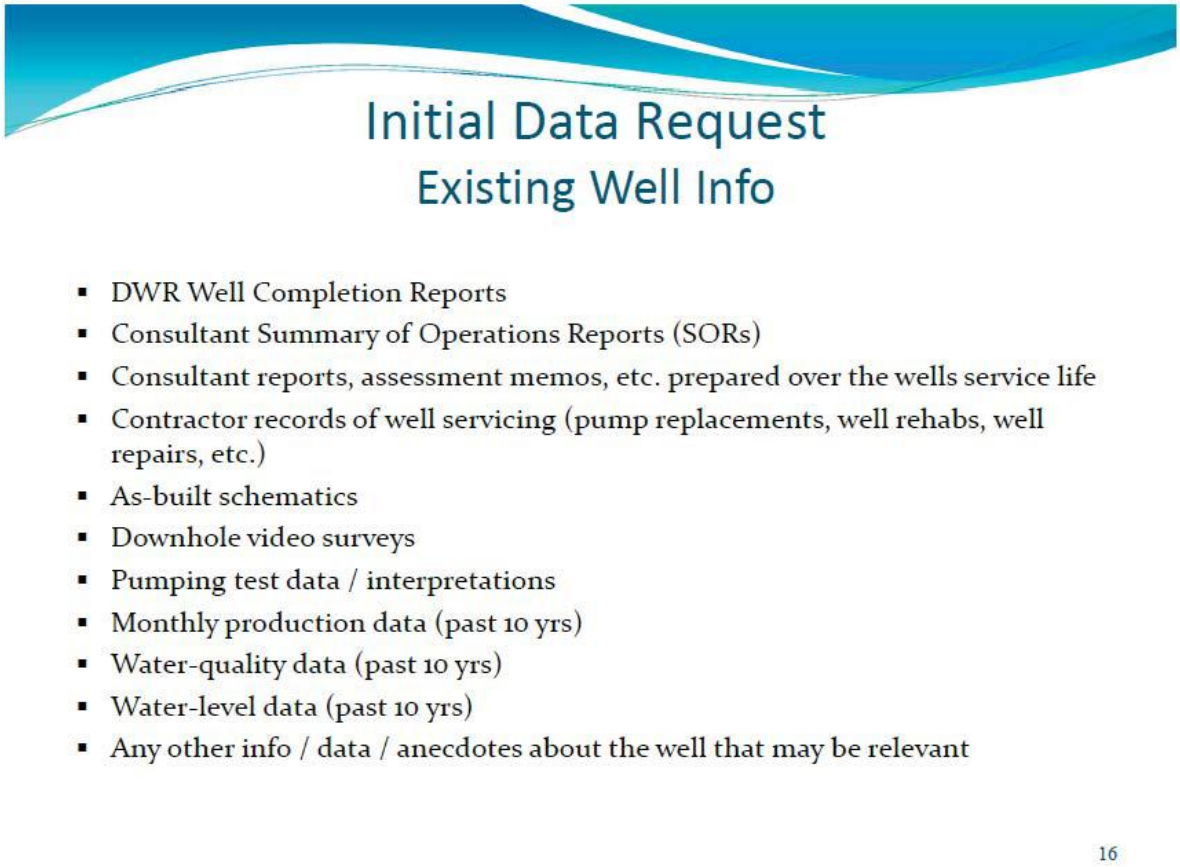
Key Meetings Occurring in the Quarter

- Kick off meeting with City staff
- Kick off meeting with potential regional partners (Scotts Valley Water District [SVWD], Soquel Creek Water District [SqCWD], County of Santa Cruz)
- Meeting with members of the WSAC Technical Team. The WSAC process required a number of assumptions be made to develop the alternatives in a more meaningful way and a way that would allow them to be evaluated as potential water supply solutions.

This meeting was held to confirm which variables were assumed, the basis for the assumptions, and which require additional vetting within the ASR study.

Data Request

The following data request, submitted by PWR, is currently being fulfilled by the City, SVWD, SqCWD and the County of Santa Cruz.



Groundwater Models

A key component of the ASR study is the completion and use of the groundwater models for the Purisima and the Santa Margarita groundwater basins. The Santa Margarita groundwater model is complete and being used primarily by Scotts Valley Water District for recharge projects in their service area. The Purisima groundwater model is being developed by HydroMetrics WRI. This computerized model will utilize MODFLOW and related groundwater model codes developed by the US Geological Survey (USGS). The model provides an additional tool to evaluate groundwater conditions and will assist in evaluating the effectiveness of proposed water resources projects. For example, potential groundwater model uses include:

- Evaluating the basin deficit and sustainable yield
- Estimating the time needed to raise groundwater levels to protective elevations under various pumping and recharge/injection scenarios

- Assessing the impact of various pumping and recharge/injection scenarios on ongoing seawater intrusion

While the model will be used to help validate the assumptions and hence the opportunities and limitations of each of the alternatives, as with all models they require years to be reliably calibrated. As such, the results will be used in combination with other findings to evaluate each project alternative.

Below is the current schedule for the completing this project, updated May 2016.

Months	Tasks
May - June 2016	Calibrate
June 2016	Draft Memo
June 2016	Implement Seawater Intrusion Package
July 2016	TRC (Technical Review Committee) Meeting
August 2016	Draft Memo
October 2016	Draft Memo on Calibration and TRC Meeting on GSFLOW Calibration, Direction for Groundwater Management Alternatives, and Climate Change
Oct 2016 – Dec 2016	Model Simulations on Groundwater Management Alternatives
Oct 2016 – Jan 2017	Incorporate Seawater Intrusion Package
Oct 2016 – Jan 2017	Climate Change Scenarios
Jan 2017	Draft Memo and TRC Meeting on Model Simulations, Selection of Alternative for Climate Change Scenarios and Predictive Uncertainty
Feb 2017 – Apr 2017	Seawater Intrusion, Climate Change, and Predictive Uncertainty Simulations
May 2017	Final Report

In fall 2016 there will be a calibrated model to be able to run scoped scenarios of various management alternatives and have a deliverable on the model evaluation of those alternatives January 2017.

Technical Working Group

Staff recommends the use of a third-party review team whose job will be to:

- Review and confirm that the scope of work is adequate
- Review, modify, approve the various model scenarios
- Evaluate findings
- Recommend modifications to the study
- Present material in a workshop setting.

Several entities have tentatively agreed to participate in the group including Hydrometrics, Todd Groundwater (Mike Maley of Todd Groundwater was a key developer of the Santa Margarita groundwater model), and Dr. Andrew Fisher with UCSC. Agreements will be finalized in June 2016.

Recycled Water Feasibility Study (RW)

The contract for the Recycled Water study was awarded in February 2016. This is a joint project between the Water and Public Works Departments, funded in part by a grant from the California State Water Resources Control Board (SWRCB). Attachment D is the most recent schedule. Several key meetings have been held including the following.

- Kick off with staff and regional partners (SqCWD, SVWD, County of Santa Cruz)
- Driving tour of regional facilities and potential project locations
- Meeting with SWRCB

The project team and regional partners agreed on the goals of the study which include the following.

- Meet SWRCB Grant Requirements
- Assess beneficial reuse of wastewater from a resource recovery perspective
- Evaluate local and regional recycled water projects
- Identify near-term, mid-term and long-term projects
- Meet schedule for WSAC Outcome Element #3 - Advanced Treated Recycled Water
- Initiate strategy for continued outreach related to recycled water

Attachment E includes the compiled suite of alternatives that were contemplated during the WSAC process. They include projects of all sizes, costs, and beneficial uses. The process currently underway by the project team is to reduce this list to a more manageable list of projects that will then be screened against a set of criteria. Attachment F is the list of criteria and the proposed weighting. The project team is meeting the week of June 27; the goals of that meeting are to:

- Review and accept as complete the full list of alternatives (Attachment E)
- Review and approve the list of criteria and weighting

Technical Working Group

Similar to the ASR study, staff had recommended the use of a third-party review team. However, in trying to define the purpose of this team as it relates to this study, staff has decided to recommend against forming this group for this study.

In staff's experience, this kind of group is well suited for projects that are significantly beyond the feasibility stage, where recommendations are anticipated on constructible project elements. The RW study is a feasibility study and will likely result in a project or projects that merit further consideration. It will be worth reconsidering a technical working group for future studies.

Staff requests Water Commission input on the completeness of list of alternatives, the criteria and their ability to screen out alternatives, and Technical Working Group recommendation. Other input on these three items is welcome.

Other (Source Water Monitoring, Newell Creek Pipeline Evaluation, Felton Diversion)

Budgets, schedules, and descriptions for these projects are shown in Attachments A and B. In addition to what is shown in Attachment A, the following have funding remaining from FY2016.

- Source Water Monitoring, ~$170,000
- Felton Diversion, ~$225,000

Work Plans for all three projects are currently under development internally. In addition, the department is evaluating different models for delivering a 10year CIP of this scope and magnitude. Staff will report back to the Commission on this topic, but in general various project delivery models and staffing models are being evaluated to help inform decisions about how to proceed.

Demand Management

On April 12, 2016, the City Council unanimously approved the recommended Water Conservation Program described in the Technical Memorandum prepared by Maddaus Water Management, Inc. and directed staff to proceed with the production of the final report. Report production is now underway, with internal review and a completed draft plan scheduled for the end of June. The full report would be presented to the Water Commission shortly thereafter as an informational item. It is staff's intent to have the plan adopted by City Council as an element of the City's 2015 Urban Water Management Plan, just as it is adopting the WSAC recommendations through the Urban Water Management Plan update process.

Staff has been moving forward with plan implementation as follows.

- The Water Loss Control project (No. 1 of 35 programs listed) is close to completion. A report and presentation on this project will be scheduled in the next few months.
- Expansion of the landscape water budget program (No. 25) is underway, with 43 new sites having been mapped and added this spring. The program now covers 291 accounts at 230 sites representing 18.6 million square feet of landscaping and includes all sites that used 100 CCF per year, or more, in 2015.
- Landscape water budget-based rates (No. 3) is also moving forward, with landscape area measurement of 128 additional sites with dedicated irrigation accounts in anticipation of the new water rate study.
- Finally, conservation staff is working out the program details related to increasing rebate amounts for the High Efficiency Clothes Washer Rebate program (No. 10) and turf removal programs (Nos. 23 and 24) starting with the new fiscal year.

The Water Department is in the process recruiting for a new Water Conservation Analyst to replace a vacant position and help manage the workload.

Outreach and Communication

For this reporting period, outreach and communications have been primarily via press releases, social media, and regular email news updates.

Following monthly Water Commission meetings, a report on progress made on WSAC recommendations is distributed via an email newsletter. With approximately 1,250 emails on the distribution list, the newsletter has a 25%-30% opening rate, which is at and slightly above the standard government rate. In addition, a press release goes out both before and after each Water Commission meeting to report on the commission's progress – including WSAS.

The first annual WSAC "report to the community" is planned for this fall, at which time a written report will be provided to all households on the mail carrier route, similar to the SCMU Review.

FISCAL IMPACT: None.

PROPOSED MOTION: Accept the report of the Status of the Water Supply Augmentation Strategy, Quarterly Work Plan Update.

ATTACHMENTS:
Attachment A 5 year CIP
Attachment B Project Descriptions
Attachment C Schedule for Aquifer Storage and Recovery Study
Attachment D Schedule for Recycled Water Study
Attachment E List of Recycled Water Alternatives
Attachment F Recycled Water Alternative Selection Criteria

Projects by Category	FY2017	FY2018	FY2019	FY2020	FY2021	Subtotal
WATER SOURCES						
Felton Diversion Replacement & Pump Station		$ 1,500,000	$ 1,500,000	$ 1,500,000		
Majors Creek Diversion						
San Lorenzo River Diversion & Tait Wells						
Aquifer Storage & Recovery		$ 1,075,000	$ 325,000	$ 300,000		
Recycled Water						
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*	***14,600,000***
COLLECTION						
Newell Creek Pipeline Rehabilitation	$ 1,000,000	$ 1,000,000	$ 8,000,000	$ 8,000,000		
Newell Creek Dam I/O Pipeline & Aerators	$ 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*	***64,150,000***
TREATMENT OF WATER						
Beltz 11	$ 70,000	$ 300,000				
WTP Concrete Tank Evaluation & Replacement	$ 600,000	$ 3,000,000	$ 3,000,000	$ 3,000,000		
WTP Solids Handling	$ 500,000					
WTP Filter Rehabilitation and Upgrades						
Source Water Evaluation & Implementation	$ 400,000	$ 500,000	$ 3,000,000	$ 3,000,000		
WTP Flocculator Mixers						
WTP Hypochlorite Generation						
WTP UV System - Pasatiempo						
Water Treatment Upgrades	$ 100,000					
Treatment Subtotal	*1,670,000*	*3,800,000*	*6,000,000*	*6,000,000*	*0*	***17,470,000***
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 - Distribution	$ 325,000	$ 325,000	$ 325,000	$ 325,000	$ 325,000	
Gravity Trunk Main Valve Replacement						
Wharf Water Main						
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*	***10,530,000***
FACILITIES						
Advance Metering Infrastructure (AMI)					$ 50,000	
Spoils & Stockpile Handling Facilities Improvements						
Loch Lomond Rec Improvements			$ 165,000	$ 1,000,000		
Photovoltaic/SolarProjects		$ 500,000				
Water Resources Building	$ 1,000,000					
Security Camera & Building Access Upgrades	$ 95,000					
Facilities Subtotal	*1,095,000*	*500,000*	*165,000*	*1,000,000*	*50,000*	***2,810,000***
STORAGE OF WATER						
Bay Street Reservoir Reconstruction						
Recoat University Reservoir No. 4	$ 75,000	$ 1,300,000				
Recoat University Reservoir No. 5	$ 75,000	$ 1,675,000				
Storage Subtotal	*150,000*	*2,975,000*	*0*	*0*	*0*	***3,125,000***
Total Projects	**12,095,000**	**14,975,000**	**32,115,000**	**32,125,000**	**21,375,000**	**112,685,000**
Handy-Whitman Construction Inflation Factor	**3%**	**3%**	**5%**	**5%**	**5%**	
Cumulative Inflation	**103.00%**	**106.09%**	**111.39%**	**116.96%**	**122.81%**	
Total Projects with Cumulative Inflation	**12,457,850**	**15,886,978**	**35,774,344**	**37,574,757**	**26,251,158**	**127,945,087**

WATER SOURCES
Felton Diversion Replacement & Pump Station (c701602) This project consists of evaluation of the existing dam and pump station with recommendations to rehabilitate or replace existing facilities. Alternate diversions to be considered will include horizontal collector wells and other subsurface intake(s). This project will replace aging facilities and evaluate potentially more efficient ways to divert water from the San Lorenzo River at Felton. Additional funding for construction in FY2019.
Majors Creek Diversion (c701302) Majors Creek Diversion is nearly 100 years old. This project will evaluate the condition of the structure, make recommendations to replace or repair, and complete the construction. Evaluation of facility to occur in FY2017 with scheduling of rehabilitation TBD.
San Lorenzo River Diversion & Tait Wells (c709872) 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. Project will ensure reliable and efficient diversion of water from the San Lorenzo River at Tait St. Condition assessment followed by recommended intake modifications and/or new wells. Current project consists of replacing 2 wells, rehabilitating 1 existing well, and abandoning 1 well. (Project title modified from San Lorenzo Tait Intake.)
Aquifer Storage & Recovery (c701609 and c701610) Evaluate the feasibility of Aquifer Storage and Recovery as per the recommendations of the Water Supply Advisory Committee. Funds in FY 2016 and 2017 will be used for Phase 1 of the proposed study. Phase 2 will include pilot work and be funded in FY 2018. Project would potentially provide additional potable water to City and other agency customers, addressing part or all of water supply deficiencies.
Recycled Water (c701611 and c701612) Evaluate the feasibility of using advanced treated wastewater for beneficial uses as per the recommendations of the Water Supply Advisory Committee. The project will be collaboration amongst the Water and Public Works Departments. The project would potentially provide additional water to City and other agency customers, addressing all or part of water supply deficiencies.
Water Supply Reliability (c701402 and c701403) 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.
Water Supply- WSAS Implementation (project set-up in process) Funds budgeted in FY2020-2024 will fund the design and construction of water supply project(s) and other system improvements that have been demonstrated to meeting the water supply, treatment and reliability goals of the WSAC, the Water Department and the City of Santa Cruz. These project(s) and improvements may include portions of the Water Supply Reliability projects (Aquifer Storage and Recovery and Recycled Water) as well as the water transfer project(s), desalination and/or improvements to existing infrastructure.
COLLECTION
Newell Creek Pipeline Rehabilitation (c701701) 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. This pipeline was constructed in the 1960s. This project is intended to ensure continued reliability of this water supply transmission main. (Project title modified from Newell Creek Supply Main Rehabilitation.)
Newell Creek Dam I/O Pipeline & Aerators (c701606) The Newell Creek Dam was installed in the 1960's. A pipeline runs through the base of the dam to deliver water to the reservoir from Felton Diversion and from the reservoir to the Graham Hill Water Treatment Plant. The pipeline rehabilitation includes inspection of the pipeline and its appurtenances which will result in rehabilitation or replacement of all or parts of the facility.
North Coast System Rehab (c709835) Springs and streams along the coast north of the City limits supply approximately 25% of the City's raw water.

Some of the facilities related to these water supplies are reaching the end of their useful life. This program consists of multiple projects over the next 15 to 20 years to evaluate, rehabilitate, and replace portions of the existing infrastructure to ensure continued reliability. Engineering, environmental review, and permitting for the coast segment (Phase 3) began in FY 2013 and continues through FY 2017. Construction scheduled to begin in FY 2016.

TREATMENT OF WATER

Beltz 11 (c700026)

This project would convert an existing monitoring well to a production well, renamed Beltz 11. Beltz 11 would pump from the Santa Margarita aquifer. The project would reduce pumping from the Purisima Formation which is impacted by pumping by the City and other users. Project includes feasibility study, pump test, CEQA and construction efforts.

WTP Concrete Tank Evaluation & Replacement (c701501)

As part of an overall plan to ensure compliance with changing water quality regulations, improvements are needed at the Graham Hill Water Treatment Plant. This project will evaluate the condition of four concrete tanks located at the site (as well as an off-site concrete tank), make improvement recommendation, and construction. Project title modified from WTP Filter Water Tank. Includes $145,000 endowment for MHJB HCP mitigation.

WTP Solids Handling (c701605)

Solids produced at the Graham Hill Water Treatment Plant are currently disposed of in the City's sewer collection system. Treatment and disposal of these solids needs to be evaluated with the existing Water Treatment Plant Concrete Tank Assessment and Rehabilitation project (c701501) with improvements made accordingly.

WTP Filter Rehab and Upgrades (c701303)

As part of an overall plan to ensure compliance with changing water quality regulations, improvements are needed at the Graham Hill Water Treatment Plant. This project will rehabilitate and improve the filter performance. Project will be complete in the Fall 2016.

Source Water Evaluation & Implementation (c701608)

Evaluate source water quality, operational and infrastructure alternatives to maximize use of surface water. This project was prompted in part by the recommendations of the Water Supply Advisory Committee, accepted by Council in Nov 2015, to evaluate use of additional winter flows in the San Lorenzo River for various purposes to solve the regional water supply issues. This project is funded in FY2017-2020 and will result in improvements and/or changes to infrastructure dedicated to the diversion, conveyance and treatment of water.

WTP Flocculator Mixers (c701502)

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).

WTP Hypochlorite Generation (c701401)

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.

WTP UV System – Pasatiempo (c701503)

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.

Water Treatment Upgrades (c700025)

Upgrades to the Graham Hill Water Treatment Plant are necessary to meet new and planned regulatory requirements, and increase overall system reliability. This is a recurring project to prioritize needs and make smaller improvements. The current project includes upgrades to the bulk chemical storage area.

DISTRIBUTION OF WATER

Water Main Replacements - City Engineering (c700002, c709833, and c700017)

Recurring program to replace deteriorated or undersized mains as identified and prioritized by the Department. Priorities are based on the need to maintain water system reliability, deliver adequate fire flows, improve circulation and water quality, and reduce maintenance costs. These projects focus on pipes less than 10" in

diameter and are typically installed by contractors according to bid plans and specifications.
Water Main Replacements - Outside Agency (c700003) Water main, service line, valve, or water meter relocation necessitated by County or other Agency road improvement, storm drain improvement projects, and/or other projects that conflict with existing water infrastructure.
Water Main Replacements - Customer Initiated (c700004) Recurring program similar to the other Main Replacement Projects; however, these projects are initiated on an as-needed basis to accommodate customer-requested service connections to undersized or inadequate mains. Funds, to the extent of the appropriation, are disbursed to customers on a first-come, first-served basis. This project is funded by System Development Charges (100% SDC – Fund 715).
Water Main Replacements – Distribution (c701507) Recurring program to replace deteriorated or undersized water mains, as identified and prioritized by the Department and implemented by the Distribution Section. Projects are typically based on leak history, but also address water quality and fire flow issues.
Gravity Trunk Main Valve Replacement (c701504) The gravity trunk main is the primary water main delivering water from the Graham Hill Water Treatment Plant to the community and was installed in the 1960s. Phase 1 of this project was completed in FY16 and replaced failed isolation valves on and surrounding the 36 inch trunk transmission main and made improvements needed to inspect the condition of the pipeline. Phase 2 of this project includes inspection of the transmission main. The inspection may result in future projects to ensure pipeline integrity and reliable service.
Wharf Water Main (c701613) New emergency project to repair the Wharf Water Main that failed during strong swell in late January 2016. This project will be complete by Fall 2016.
Pressure Regulating Stations (c701703) Evaluation and replacement of pressure regulating stations (PRS). A PRS maintains (sustains or reduces) downstream pressure in order to deliver sufficient water pressure. The water distribution system contains 15 PRS and they vary in age from 66 years old to 8 years old. This project will evaluate the condition of each PRS and prioritize rehabilitation or replacement.
FACILITIES
Advance Metering Infrastructure (AMI) (c701603) Evaluate the use of AMI as replacement to the current AMR metering (Automatic Meter Reading). AMR provides 1-way communication between a meter and the City and AMI provides two-way communication between a meter and the City as well as between a meter and the customer. Benefits include early leak detection, customer conservation affect, and workflow management. Implementation to occur in future years.
Spoils and Stockpile Handling Facilities Improvements (c701508) 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.)
Loch Lomond Rec Improvements (c701301) Complete facilities assessment and improvement program at Loch Lomond. A Use study was completed in FY 2013 which resulted in a number of planned projects to enhance the recreation area usability for its visitors. Several ADA and other recreational improvements are being pursued over the next 5 years.
Photovoltaic/SolarProjects (c701607) Ongoing project to evaluate, design and construct PV systems on various water department facilities. The current project is at the Bay Street Tank Site. Once installed, each project will add to the departments and City's green energy portfolio and work towards meeting and exceeding our climate action goals.
Water Resources Building (c701702) The Watershed Resources Division is currently housed in temporary trailers. This project consists of a needs assessment, design, and construction. The needs assessment portion of the project has been completed; FY 2016 will focus on site selection and design; FY 2017 will be construction.
Security Camera & Building Access Upgrades (c701704)

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

STORAGE OF WATER

Bay Street Reservoir Reconstruction (c700313 and c700027)

The Bay Street Reservoir reached the end of its useful life and was replaced with two 6 MG tanks. This is the largest potable water storage facility for the City and serves average and peak demands as well as fire flows. Construction of Tank 1 was completed in FY 2014; construction of Tank 2 was completed in FY 2016. Final project elements include site clean-up, security, and landscaping. A portion of the project is funded by System Development Charges (20% SDC-Fund 715).

Recoat University Reservoir No. 4 (c701505)

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

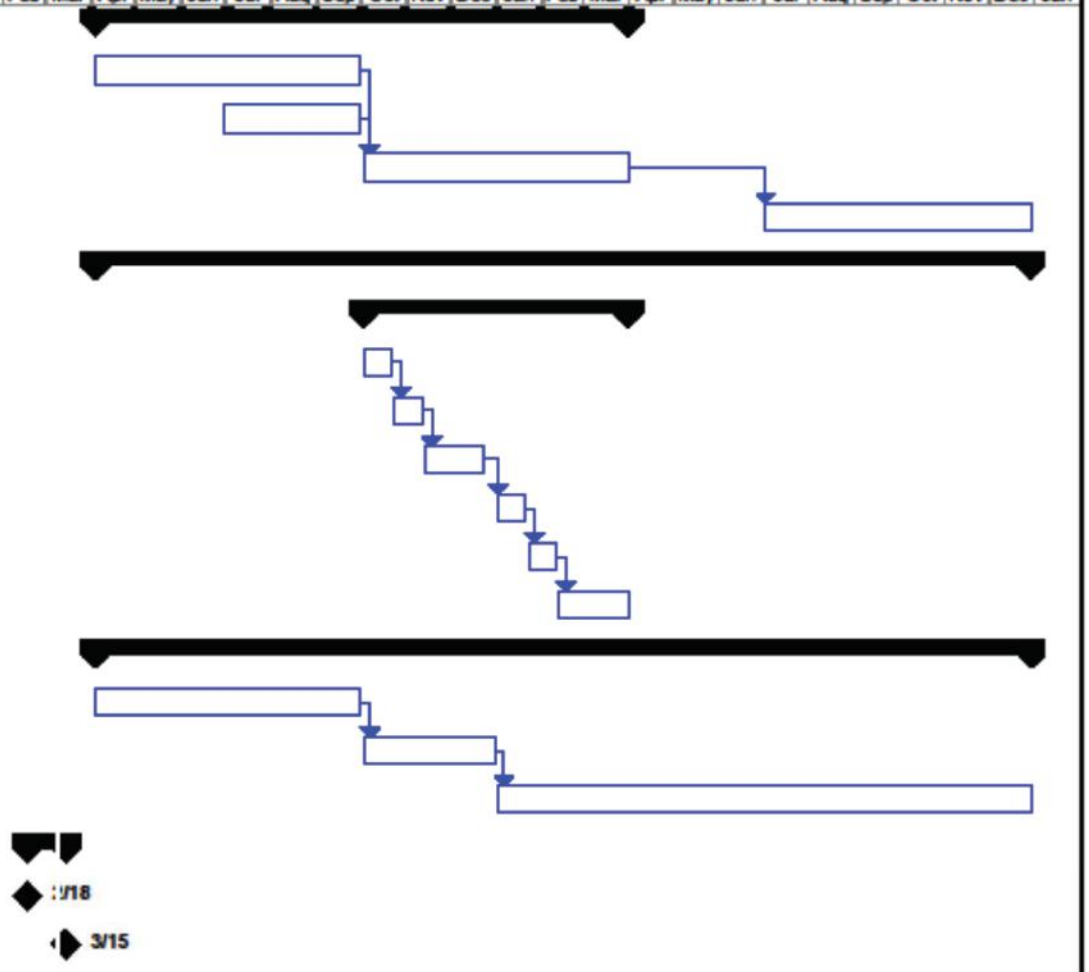
Recoat University Reservoir No. 5 (c701506)

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

City of Santa Cruz Water Department
ASR Project - Phase 1 Feasibility Investigation
PWR Project No. 15-0111

PROJECT SCHEDULE

ID	Task Name
1	**Higher-Level Feasibility Analyses**
2	T1.1 - Existing Wells Screening
3	T1.2 - Site-Specific Injection Capacity Analyses
4	T1.3 - Geochemical Interaction Analysis
5	T1.4 - Pilot ASR Testing Program Development
6	**Groundwater Modeling**
7	**T.5.1 - Well Siting Study**
8	T1.5.1.1 - Review Hydrogeologic Literature
9	T1.5.1.2 - Prepare Existing Well Database
10	T1.5.1.3 - Compile and Review GIS Databases
11	T1.5.1.4 - PCA Assessment
12	T1.5.1.5 - Field Surveys
13	T1.5.1.6 - Potential Well Site Ranking
14	**T1.5.2 - Groundwater Modeling Coordination**
15	T1.5.2.1 - Confluence Model Coordination
16	T1.5.2.2 - ASR Model Scenario Development
17	T1.5.2.3 - Modeling Coordination
18	**PM and Meetings**
19	NTP
20	Project KO Meeting



Project: 15-0111_SC_ASR_Ph_1_sch
Date: Wed 3/9/16

Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks
External Milestone
Deadline

Page 1

Attachment D: Overall Project Schedule Kennedy/Jenks

Task and Key Deliverables	2016														2017							
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
SWRCB Grant Commitment Letter	✓																					
SWRCB Meeting					✷											⭘						
Notice to Proceed				✓																		
Task 1 – PM & QA/QC					❩	❩	❩	❩	❩	❩	❩	❩	❩	❩	❩	❩	❩	❩	❩	❩	❩	❩
Task 2 – Background Info																						
Task 3 – Recycled Water Market Analysis																						
Task 4 – Treatment Eval/Reg Requirements																						
Task 5 – Alternatives Analysis																						
Task 6 – Stakeholder Involvement																						
Task 7 – Recommended Project																						
Task 8 – Financial Analysis																						
Task 9 – Regional RWFPS Report																◆			◆		✓	
Task 10 - Meetings and Workshops					🗋			🗋			🗋		🗋			🗋			🗋			🗋
					Kickoff			*Long-List Prelim Screening*			*Short-List Ranking*		*Recommended Facilities Plan*			*Admin Draft*			*Draft*			*Final*

✷ SWRCB Scoping Call
⭘ SWRCB Meeting
🗋 F2F Meeting/Workshop
❩ Conf Call/Web
◆ Draft Deliverable
✓ Final Deliverable

Attachment E - Recycled Water Alternatives - DRAFT

Long-List of Projects	Recycled Water Use	Source Water	Treatment	DRAFT Long List for Screening	Breakdown by Project Area(s)	Potential Benefits	Potential Challenges
1	Non-Potable Reuse	Santa Cruz WWTP	Secondary	Limited Uses	In plant or Restricted Use Areas	available now	limited use
2					Limited Use Truck Filling	available now	limited use
3					Pasatiempo Golf Course		pumping requirements
4			Tertiary	NPR for Anchor Customers and along pipeline alignments	Truck Filling Station(s) / Demonstration Site (park irrigation)	public relations	conflicting project timelines b/t PW, SqCWD and SCWD
5					Westside City Irrigation	direct potable offset	conveyance requirements
6					Northside City Irrigation	direct potable offset	conveyance requirements
7					Eastside City Irrigation	direct potable offset	conveyance requirements
8					Pasatiempo Golf Course (N/A)		pumping requirements
9					UC Santa Cruz	large user	pumping requirements
10					North Coast Agricultural Irrigation		pumping requirements, water rights
11			Advanced Treatment	Customers along pipelines alignments to IPR/DPR	North Coast Agricultural Irrigation	higher WQ	more costly
12					Customers along IPR/DPR Alignments	higher WQ	more costly
13		Local Raw Wastewater	MBR (Tertiary)	NPR for Anchor Customers	Westside City Irrigation	reduced conveyance	sensitive neighbors
14					Northside City Irrigation	reduced conveyance	sensitive neighbors
15					Eastside City Irrigation	reduced conveyance	sensitive neighbors
16					Pasatiempo Golf Course		
17					UC Santa Cruz		
18					North Coast Agricultural Irrigation		pumping requirements, existing raw water contractual agreements farmers have regarding raw water use
19		Scotts Valley WWTP	Secondary (outfall)	Service to Pasatiempo	Pasatiempo Golf Course	right water for right use	satelitte treatment operation
20	Seawater Intrusion Barrier	Santa Cruz WWTP	Advanced Treatment	Screen Out	Lower Groundwater Basin - Site A?	Potential Partnerships?	Public Acceptance?
21					Lower Groundwater Basin - Site B?		
22		Local Raw Wastewater	MBR + Advanced Treatment	Screen Out	Lower Groundwater Basin - Site A?		
23					Lower Groundwater Basin - Site B?		
24	Groundwater Replenishment	Santa Cruz WWTP	Advanced Treatment	City GW Basins	Tait Well Field	Potential Partnerships?	Public Acceptance?
25					Beltz 12 Well		
26					Beltz Well Field		
27					Upper Groundwater Basin - Other Sites?		
28					Lower Groundwater Basin - Other Sites?		
				SqCWD GW Basin	Aptos/Purisima		
29				SVWD GW Basin	Santa Margarita GW Basin		
30		Local Raw Wastewater	MBR + Advanced Treatment	City GW Basins	Tait Well Field	Potential Partnerships?	Public Acceptance?
31					Beltz 12 Well		
32					Beltz Well Field		
33					Upper Groundwater Basin - Other Sites?		
34					Lower Groundwater Basin - Other Sites?		
35		Scotts Valley WWTP	Advanced Treatment	Screen Out	Santa Margarita GW Basin - Hansen Quarry	Potential Partnerships?	Public Acceptance?
36					Santa Margarita GW Basin - Other Sites?		
37	Reservoir Augmentation	Santa Cruz WWTP	Advanced Treatment	Loch Lomond Reservoir	Loch Lomond Reservoir - near Dam		Public acceptance, Pumping requirements
38					Loch Lomond Reservoir - extend north		Public acceptance, Pumping requirements
39	Streamflow Augmentation	Santa Cruz WWTP	Tertiary	San Lorenzo River	San Lorenzo River - d/s Felton Diversion	Increased allowable diversion	Permitting, Environmental
40					San Lorenzo River - d/s Tait Street Diversion		
41					Tait Well Field (indirect discharge)		Permitting, Environmental
42			Advanced Treatment	San Lorenzo River	San Lorenzo River - d/s Felton Diversion	Increased allowable diversion	
43					San Lorenzo River - d/s Tait Street Diversion		
44					Tait Well Field (indirect discharge)		
45	Direct Potable Reuse	Santa Cruz WWTP	Advanced Treatment	Raw water blending	Raw Water Blending at Graham Hill WTP		Not Regulated, Public Acceptance
46					Raw Water Blending at Coast Pump Station		
47				Pipe-to-Pipe	Pipe to Pipe - Site A?	Minimal Conveyance	Not Regulated, Public Acceptance
48					Pipe to Pipe - Site B?	Minimal Conveyance	Not Regulated, Public Acceptance

Attachment F: Recycled Water Alternative Potential Screening Criteria - DRAFT

Criteria	Considerations for Assessing Project based on Criteria	Weighting	Guidance for Scoring				
			Fully Exceeds Criteria	Mostly Exceeds Criteria	Generally Meets Criteria	Somewhat Meets Criteria	Unable to Meet Criteria
			5	4	3	2	1
Improve Regional Water Supply	- Ability to fill supply gap (1.2 billion gallons/year) '- New source or offset	35%	· Can fully fill supply gap		Partially fills supply gap		Does not provide any water towards supply gap
	- Project supply will be provided in a timely manner		0-5 years		5-10 years		10+ years
Economic Feasibility & Financial Viability	- Economically feasible/Cost effective project (relative unit costs compared to other sources)	15%	Anticipated LOW relative unit cost $/AF and $/MG		…range… $/AF and $/MG		Anticipated VERY HIGH relative unit cost $/AF and $/MG
	- Financially implementable project (relative capital investment required)		LOW capital cost (<$10 mil)		…range...		VERY HIGH capital cost (>$100 mil)
Regulatory Viability and Permittability	- Current regulatory pathway/approved use	25%	Existing regulations allow type of reuse with straightforward permitting requirements		Case-by-Case approach possible		Existing regulations have not been developed or highly complex permitting process
	- Opportunity to transition/incrementally upgrade for DPR		Flexibility to transition to DPR		no impact on ability to transition to DPR		Prohibits/Limits transition to DPR
Sustainability/ Environmental Enhancement	- Energy Demand in kWh/AF and kWh/MG	15%	Low er energy requirements than replacement supply		Similar energy to replacement supply		High energy requirements than replacement supply
	- Enhance local and regional ecosystems and environments including rivers, groundwater basins		Directly contributes to env enhancements		Provides indirect benefit to env		Does not contribute directly to environmental enhancements
Social Issues & Siting	- Perceived public acceptance and comfort with level of public health and safety	10%	Public supportive of type of reuse		Public acceptance unknown		Public opposed to type of reuse
	Requires purchase of land (area), construction of facilities (# of building, height of buildings, wellheads), and new impact (construction and ongoing maintenance) of local residents on property not currently owned by the City		Can be completed on currently owned City property		Mix of new and existing		Requires all new property and buildings