CITY OF SANTA CRUZ
Water Department

Water Commission Agenda
Regular Meeting
7:00 p.m. – May 2, 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 1-32)

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

1. City Council Actions Affecting Water ☆ (accept info) (Pages 1-2)
2. Approve the April 4, 2016, Water Commission Minutes ☆ (accept info) (Pages 3-8)
3. Financial Status - Follow-up to Approval of Operating and CIP FY 2017 Budgets ☆ (accept info) (Pages 9-16)
4. Timber Harvesting, information regarding possible timber harvesting in the Watershed ☆ (accept info) (Pages 17-32)

Items Removed from the Consent Agenda

General Business (Pages 33-98)

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

5. Water Rate Increase Proposals ☆(Pages 33-98)

Recommendation: Receive information and provide feedback on the presentation of the proposed water rates and water rate structures.

Subcommittee/Advisory Body Oral Reports

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

Adjournment The next meeting of the Water Commission is tentatively scheduled for June 6, 2016, at 7:00 p.m. in Council Chambers.

☆Denotes written materials included in packet

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

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

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

WATER COMMISSION
REPORT

DATE: April 25, 2016

TO: Water Commission

FROM: Rosemary Menard
Water Director

SUBJECT: City Council Items Affecting Water

April 12, 2016

Financial Advisory Services - Award of Contract (WT)

Motion carried to accept the proposal of Public Financial Management (San Francisco, CA) for financial advisory services and to authorize the City Manager to execute an agreement in a form approved by the City Attorney.

Water Rates Consulting - Amendment No 1 (WT)

Motion carried authorizing the City Manager to execute Amendment No. 1 in the amount of $59,175 for additional consulting tasks for the Water Rate and Fee Issues contract with Raftelis Financial Consultants, Inc. (Pasadena, CA).

Supplemental Resolution to Reaffirm the Incurring of Debt Under General Law Powers (WT)

Resolution No. NS-29,082 was adopted to ratify and reaffirm the incurring of an obligation of debt and to enter into a Financing Agreement with California Infrastructure and Economic Development Bank (IBank) under the City's General Law Powers.

Graham Hill Water Treatment Plant Sludge Tank Cleaning Project – Award of Contract (WT)

Motion carried to accept the proposal of Synagro – WWT, Inc (Baltimore, MD) for sludge tank cleaning services in the amount of $291,698 and to authorize the City Manager to execute an agreement in a form approved by the City Attorney and reject all other proposals.

Water Conservation Master Plan (WT)

Motion carried to approve the recommended Water Conservation Program described in the Technical Memorandum prepared by Maddaus Water Management, Inc. and directed staff to proceed with production of the final report.

April 26, 2016

North Coast System Rehabilitation-Phase 3 – Design and Construction Support Services-Contract Amendment No. 4 (WT)

Motion carried to authorize the City Manager to execute Contract Amendment No. 4 with Hatch Mott

MacDonald (Pleasanton, CA) for design and construction support services, in a form approved by the City Attorney.

North Coast System Rehabilitation - Phase 3 – Approval of Agreements for Temporary Construction Easements and Permanent Easements with State of California Department of Parks and Recreation and Graniterock Construction Inc.; Ratification of a Crossing Agreement with the Santa Cruz County Regional Transportation Commission; and Approval of Quitclaims of Existing Easements (WT)
Motion carried to authorize the City Manager to execute agreements to grant to the City of Santa Cruz a temporary construction easement and permanent easement and to quitclaim an existing easement with the State of California Department of Parks and Recreation located at Assessor Parcel Numbers 059-022-05, 059-131-01, 059-022-04 and 059-131-05, and with Graniterock Construction, Inc. located at Assessor Parcel Numbers 059-141-04 and 059-041-30; and to ratify a Crossing Agreement with the Santa Cruz Regional Transportation Commission located at APN 059-023-10.

Tait Wells Replacement Project Phase 2 – Approval of Plans and Specifications, and Authorization to Advertise for Bids and Award of Contract (WT)
Motion carried to approve the drawings, specifications, and contract documents for the Tait Wells Replacement Project-Phase 2 Pump Stations. The City Manager is hereby authorized and directed to execute the contract as authorized by Resolution No. NS-27,563, in a form approved by the City Attorney.

Water Main Replacement on Cedar Street - Approval of Plans and Specifications, Authorization to Advertise for Bids and Award of Contract (WT)
Motion carried to approve the Plans and Specifications for the Cedar Street Water Main Replacement Project located on Cedar Street, from Laurel Street to Lincoln Street, and authorize staff to advertise for bids and award the contract. The City Manager is hereby authorized and directed to execute the contract as authorized by Resolution No. NS-27,563 in a form approved by the City Attorney.

Water Main Replacement Project on Soquel Avenue from San Lorenzo River Bridge to Morrissey Boulevard - Notice of Completion (WT)
Motion carried to accept the work of Lewis and Tibbitts, Inc. (San Jose, CA) as complete per the plans and specifications and authorizing the filing of a Notice of Completion for the Water Main Replacement Project on Soquel Avenue from San Lorenzo River Bridge to Morrissey Boulevard.

Reorganization and Revision of Santa Cruz Municipal Code Chapter 16.04, Water Services and Charges (WT)
Motion carried to introduced for publication Ordinance No. 2016-06 amending Chapter 16.04 pertaining to water services, amending Section 16.13.010 pertaining to unified utilities billing system, and adding Chapters 16.00 for general water service definitions, 16.09 pertaining to water service improvements, 16.11 pertaining to water service accounts, 16.14 pertaining to system development charges, and 16.15 pertaining to water use.

Water Department

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

Minutes of a Water Commission Meeting

Call to Order: Vice Chair L. Wilshusen called the meeting to order at 7:06 p.m. in the City Council Chambers.

Roll Call

Present: D. Baskin, D. Engfer, D. Schwarm, D. Stearns, A. Schiffrin, and L. Wilshusen
Absent: W. Wadlow (with notification)
Staff: R. Menard, Water Director; T. Goddard, Administrative Services Manager; D. Culver, Chief Financial Officer; Eileen Cross, Community Relations Specialist; Malissa Kaping, Management Analyst; A. Poncato, Administrative Assistant III

Others: There were approximately 7 members of the public.

Presentation: There were no presentations.

Statement of Disqualification: There were no statements of disqualifications.

Oral Communications: Oral communications made by Bill Malone and Jerry Paul.

Announcements: There were no announcements.

Consent Agenda

1. City Council Actions Affecting Water
2. Approve the March 7, 2016, Water Commission Minutes
3. Municipal Code 16.04 Update
4. Recommendations on Water Conservation Master Plan

Commissioner A. Schiffrin moved the consent agenda as amended by removal of item 2 and 3.
Commissioner D. Baskin seconded.
VOICE VOTE: MOTION CARRIED
AYES: All.
NOES: None
ABSENT: W. Wadlow

Items Removed from the Consent Agenda:

2. Approve the March 7, 2016, Water Commission Minutes

Replace the following sentence on page 5, “We are receiving $75,000 from a State, $37,500 from Public Works, and we are covering the rest of the fees.” with, “We are receiving $75,000 from a State grant, $37,500 from Public Works, and we are covering the rest of the fees.”

Correct the spelling of S. McGilvary to S. McGilvray in the Presentation portion of the minutes.

Commissioner A. Schiffrin moved to accept the March 7, 2016, Water Commission Minutes as amended. Commissioner D. Baskin seconded.
VOICE VOTE: MOTION CARRIED
AYES: All.
NOES: None
ABSENT: W. Wadlow

3. Municipal Code 16.04 Update
Ms. Kaping provided an oral report from the Municipal Code Subcommittee and responded to Commission questions.

Why is the previous definition of the term 16.00.110 Property vastly different than the new definition?

- It was agreed upon that fewer wording offers a clearer definition.

Are there any implications to the stability of our analytics due to updating the definition of a Single-Family Residential, as indicated in 16.11.020 Account Classification?

- No, it will not affect that. This new description is consistent with the definitions that are in 16.01 for the purpose of water shortage management.

Final Comments and Requests for Follow Up

- Review Municipal Code to ensure that all defined terms are capitalized in the document.

Commissioner A. Schiffrin moved the recommendation. Commissioner D. Baskin seconded.
VOICE VOTE: MOTION CARRIED
AYES: All.
NOES: None
ABSENT: W. Wadlow

General Business

5. Presentation by UCSC Professor Andy Fisher on Managed Aquifer Recharge
Professor Andy Fisher provided the presentation on Managed Aquifer Recharge and responded to Commission questions.

What is being tested with the run-off water collected?

- We are only measuring the amount of water collected and we are not testing the chemical make up.

Is there going to be a crossover use of the GIS surface and subsurface geology data that has been put together for this pilot that will better inform the ASR program we will be piloting?

- This project has patched and reconciled all of the various data sets so that all of the information is available on the same GIS. The intent of the project is to make these data sets so everyone can use them, which will be of benefit to your project.

Will the water you inject be compatible with the water that is already in the system?

- That is not part of our project. None of the models or calculations that are presented here involves water quality and that would need to be investigated carefully site by site.

Are you testing to determine how much water we can get back after injecting water into the aquifer?

- It is extremely difficult to determine where water goes after going into the aquifer and it's doubtful anyone will ever know.

What is the potential benefit to surface water?

- Our location is unique as we switch between semi-tropic and arid weather conditions annually with many of our streams disconnecting and reconnecting throughout the year. If you raise the water table, shallow streams would retain more water and a stream that loses water would be able to gain more water. As the hydrograph drops, the sediment in the river that accumulates can clog the riverbed and reduces the connection causing a disconnection to the underlying aquifer. In the long run, if we bring water levels up throughout a basin then probably some losing streams will lose less water and some will gain, but it depends on the locations, where you add the water, how good the connection is, and what the streambed is made of.

What is the estimated capital cost of the pilot program you're doing right now?

- $5,000,000.00

6. <u>2016 Water Supply Outlook - Include Recommendations</u>

Mr. Goddard presented the 2016 Water Supply Outlook and responded to Commission questions.

Has the state reached out to local water districts for recommendations on what their regional levels of conservation should be?

- Yes, all water districts should have received a notice for their statewide workshop in April. They are asking what elements should be modified and how so, how to account for regional differences and to what extent the State Board should consider the reliability of urban supplier portfolios in this emergency regulation.

What data are you using to base whether or not we need to cut back this summer?

- It is based on our model of how we dispatch our water supplies to meet daily demand. First, we use North Coast water, then San Lorenzo River water and if that is not enough to meet daily demand we then turn on the Beltz well, and if that is still not enough we turn to the reservoir. We compare what we think our demand is going to be and what the river is going to be providing on a daily basis

What can the Water Commission do to support the Departments efforts to help the community continue to be conservative in its water use? Do you have all the tools? Can we set monthly targets?

- This evening the Water Commission helped by approving the long term conservation plan. If the department can think of other ways the Water Commission can help, we will ask.

Final Comments and Requests for Follow Up: Additional Comments

- Reporting water production to the state will be ongoing from this point forward.
- A public comment expressed support for keeping excessive use fees so citizens don't use as much water as they'd like.

7. Recommendations FY 2017 Operating Budget and FY 2017 – 2020 Capital Improvement Program

   Ms. Kaping provided a summary of the recommendation for the FY 2017 operating budget, the FY 2017-2020 capital improvement program, and responded to Commission questions.

Why haven't we received a breakdown of all the Resources by Fund as referenced on page 133 of the agenda packet?

- That information was presented in detail at the February 1, 2016, Water Commission meeting. The City Council received this information at a study session on February 23, 2016. If necessary, we can bring this information back at the May 2, 2016, Water Commission meeting.

Was the Water Conservation budget reduced in fiscal year 2016?

- The decrease reflects the salary cost savings. The Administrative Service Manager position is allocated in the Administrative budget and both the Conservation Manager, and Environmental Projects Analyst positions have been vacant for the majority of FY 2016.

Final Comments and Requests for Follow Up: Additional Comments

- Call for an informational consent agenda item for the May 2, 2016, Water Commission meeting to include a detailed fund balance.
- Request for a complete income statement and balance sheet.
- Desire for additional information on the timing of how revenue is spent during the course of the year.
- Clearly identify the goal of each capital improvement project.

Commissioner A. Schiffrin moved the staff recommendation on the budget and recommends the operating budget and CIP to the City Council for approval. Commissioner Baskin seconded.

VOICE VOTE:	MOTION CARRIED
AYES:	All.
NOES:	None
ABSENT:	W. Wadlow

8. Westside Loch Lomond Recreation

Ms. Menard summarized the recommendation to discontinue pursuing evaluation of the potential for increased recreation on the Westside of the City's land holdings at Loch Lomond and responded to Commission questions.

Final Comments and Requests for Follow Up: Additional Comments

- Ask CAL FIRE to look at the area in question and advise if there is anything that the City can do to reduce the fire danger in that region.
- Requests for a brief update on timber harvesting on a future agenda.

Commissioner A. Schiffrin moved the recommendation with the added direction that staff report on the potential fire danger in the Loch Lomond Watershed due to the lack of timber management and timber harvesting in the past. Commissioner D. Baskin seconded.

VOICE VOTE: MOTION CARRIED
AYES: All.
NOES: None
ABSENT: W. Wadlow

9. Water Commission Role in Administration and Management of the Department's Council Authorized Annual Budget and CIP

Ms. Menard discussed suggested proposed parameters describing the Water Commissions role in matters relating to the Water Department's financial planning, administration, and management and responded to Commission questions.

Commissioner Comments

- The Water Commission is an action orientated body here to make recommendations and the information we ask for is related to recommendations we would like to make. The requests we make to staff should come from the Commission and staff should advise if the request feasible. The process we have now is sufficient and we do not need to take more action.
- The idea of tracking revenues and expenditures on a monthly basis is not part of what the Commission should be doing.
- In the end, the Commission relies upon the Water Director to do a case by case analysis of what items need to be brought to the Commission.

No action was taken on this item.

Subcommittee/Advisory Body Oral Reports

Mr. Goddard gave a brief presentation about the Urban Water Management Plan and answered questions and concerns from Commissioners.

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

- The majority of items on the May Water Commission agenda will be related to water rates and rate structures.

Is staff making a recommendation on what rate structure should be recommended to City Council?

- Staff will provide a presentation but no action will be taken. We will bring a recommendation to the June Water Commission meeting.
- Review and confirm remaining Water Commission meeting dates for calendar year 2016.

Adjournment Meeting adjourned at 9:51 p.m. The next regular meeting of the Water Commission is scheduled for May 2, 2016, at 7:00 p.m. in the Council Chambers.

Respectfully submitted,

Amy Poncato

Digitally signed by Amy Poncato
DN: cn=Amy Poncato, o=Water Department, ou=Administration, email=aponcato@cityofsantacruz.com, c=US
Date: 2016.04.28 11:24:54 -07'00'

Staff

WATER COMMISSION
INFORMATION REPORT

DATE: April 27, 2016

AGENDA OF: May 2, 2016

TO: Water Commission

FROM: Malissa Kaping, Management Analyst

SUBJECT: Financial Status - Follow-up to Approval of Operating and CIP FY 2017 Budgets

RECOMMENDATION: Accept report of the current financial status of the Water Department.

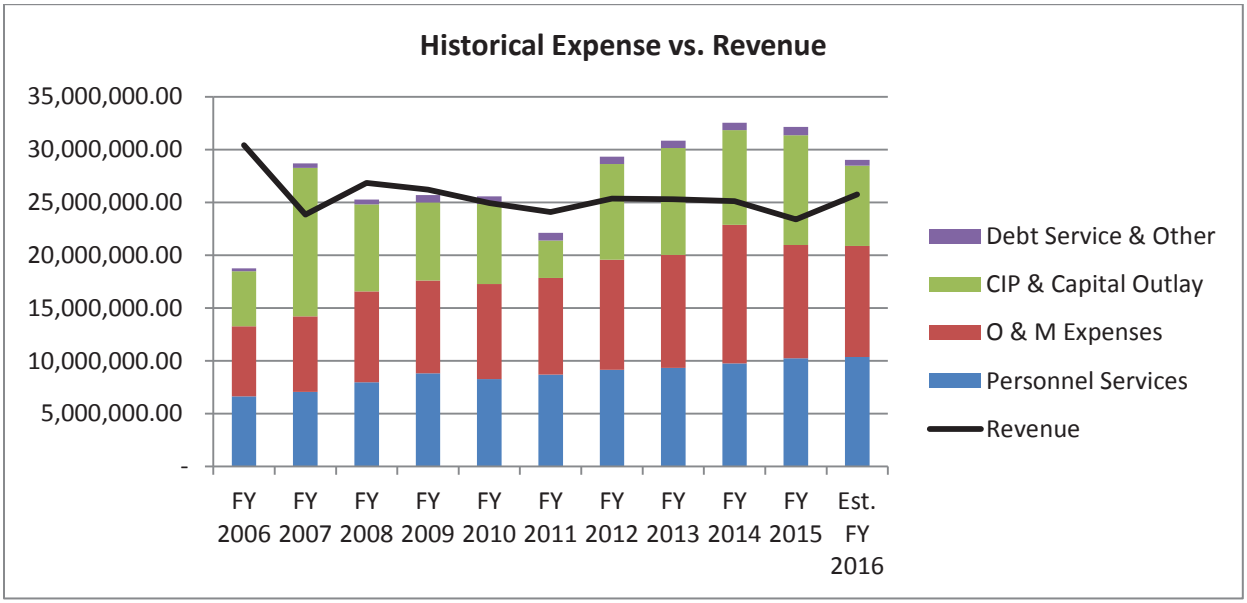
BACKGROUND: At its April 2016 meeting, the Water Commission approved the operating and CIP budgets for FY 2017 and requested additional financial information including:

- Detailed fund balance information;
- Timing of revenue and expenses during the course of the fiscal year;
- Income statement and balance sheet; and
- Additional CIP information identifying the goal or expected outcome of each project.

DISCUSSION: Beginning with a historical view of the Water Department's outgoing expenses compared to incoming revenues will provide the context for the explaining the change in the fund balance. Table 1 below provides a visual of the on-going structural deficient between expenses and revenues which began in FY 2007 but did not become the new status quo until FY 2012. It's worth pointing out that the gap between expenses and revenues was not due to the drought but was a combination of not raising rates enough to keep up with the increase in expenses and an increase in the amount of CIP projects completed and paid for with cash from the fund balance.

The drop in CIP expenses in FY 2011 was not due to an intentional effort to reduce expenses but was a result of an interval between the completion of one set of large CIP projects and the start of the next ones.

Table 1



The impact of this gap to the Water Department's fund balance is significant. The Water Department maintains seven funds which includes four unrestricted funds: the primary Water Enterprise Fund (Fund 711), Water Rate Stabilization Fund (Fund 713), 90-Day Operating Reserve (Fund 716), and Emergency Reserve (Fund 717). The primary operating fund, Fund 711, began FY 2016 with a balance of $4.3M available for appropriation and is projected to end FY 2016 with a balance of $1M available for appropriation. Tables 2 and 3 demonstrate the drop in the fund balance; Table 2 shows only the primary operating fund, Fund 711 and Table 3 shows the total fund balance of all unrestricted funds. The recovery of the fund balance will begin in FY 2017 upon receipt of the reimbursement loan from IBank in the amount of $22M in FY 2017 and an additional $3M in FY 2018.

Table 2

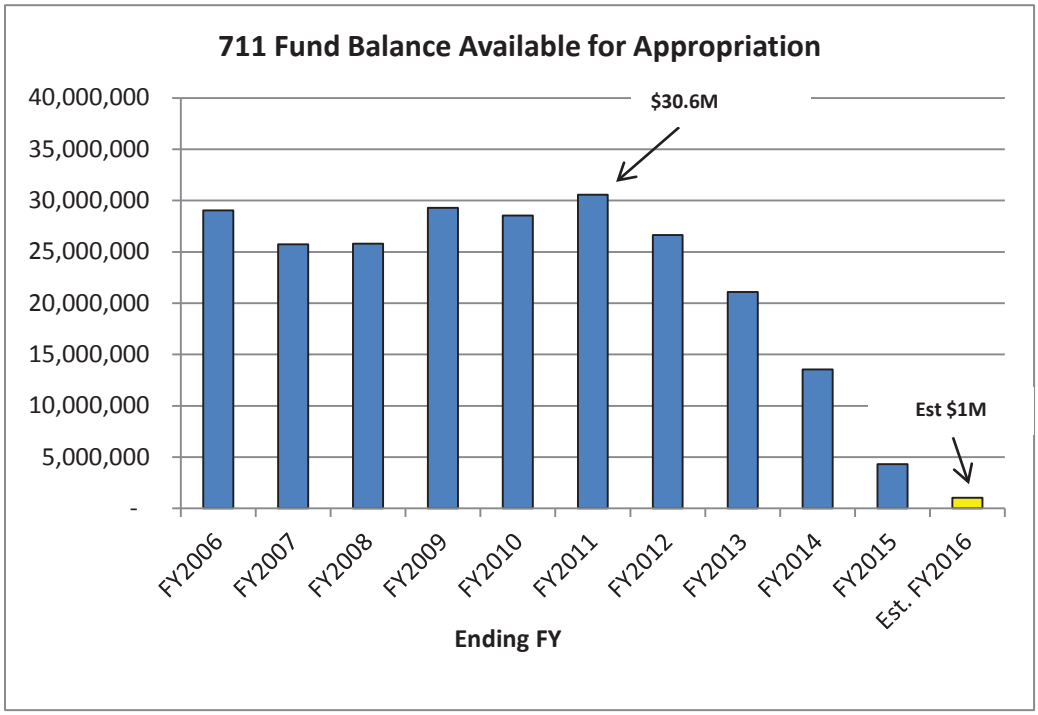
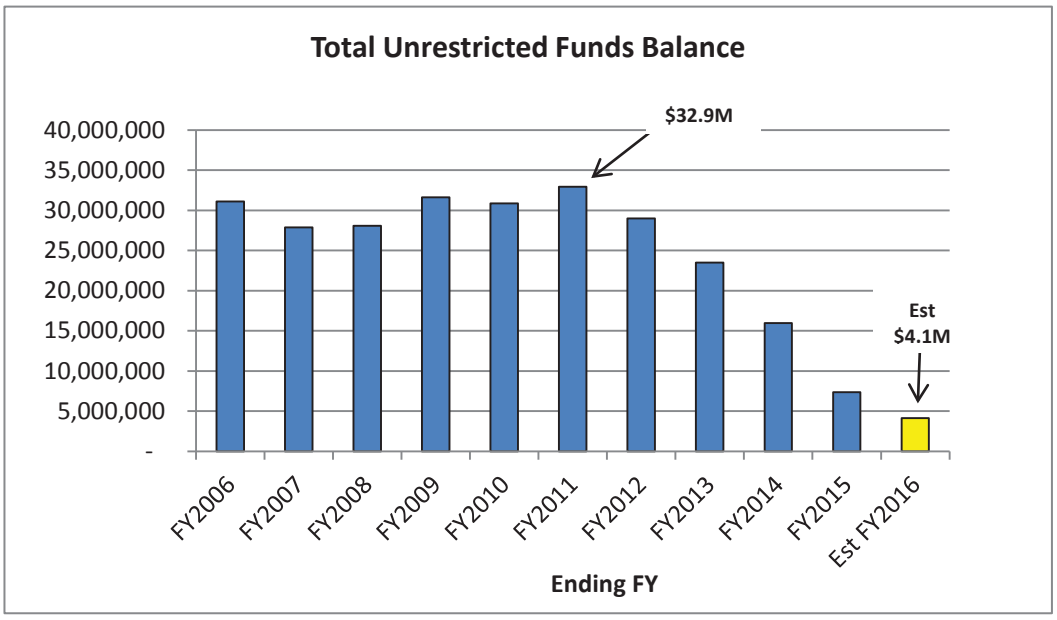


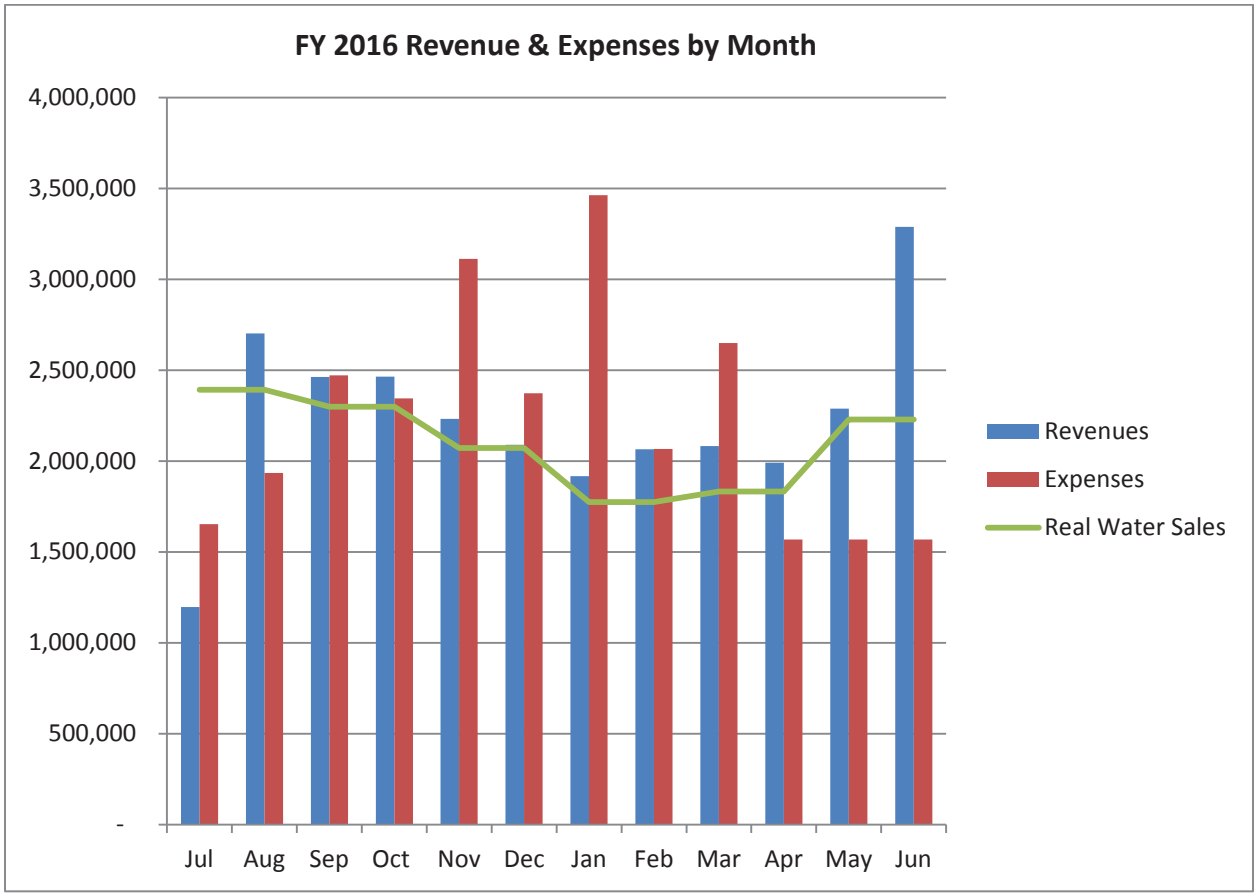
Table 3



The next table demonstrates the timing of revenue and expenses throughout a fiscal year. Table 4 is a chart from a financial report showing both revenues and expenses for FY 2016; data for July through March are actuals, with estimates for the last three months of the fiscal year. Is it typical to see various spikes in our financial reports during a fiscal year for one-time events/adjustments and FY 2016 included several:

- June/July Water Sales - Water sales are billed monthly in arrears based on actual usage. Amounts billed in July for June usage is accrued back to the prior fiscal year. The result is a drop in the financial reports for revenues every July and a spike in revenues every June. The line identified as Real Water Sales is the actual water used and is representative of the normal seasonal change in water use.
- November Expenses – In November we completed $1.3M worth of work on several CIP projects including the Soquel Avenue Water Replacement, Lombardi Gulch Creek Emergency Repair, and Water Treatment Plant Filter Rehab.
- January Expenses – This month included a third payroll cycle which will occur again in July 2016.
- March Expenses – Every March we pay principal and interest on a debt issuance from 2014; our earlier payment is interest only.

Table 4



The Department is working on an income statement for FY 16 and will provide it to the Water Commission at a later date. It is important to note that the information provided in this report is supplemental to the information previously provided to the Water Commission during discussions of the Department's 10 Year Financial Strategy and 5 Year Financial Plan. Such long-term financial planning was the result of acknowledgement of the falling fund balance. Recovery of the fund balance will begin to occur in FY 2017 upon receipt of the IBank reimbursement; however, this is a one-time reimbursement and an increase in on-going revenues is needed to maintain financial stability.

In addition to the current financial information provided above, the Water Commission requested that the CIP descriptions state the goal or expected outcome of each project. Table 5 below provides the updated CIP descriptions.

Table 5

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) Funding tentatively scheduled for FY2020.
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.
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.

FISCAL IMPACT: There is no fiscal impact as the result of this report.

PROPOSED MOTION: Accept report of the current financial status of the Water Utility.

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WATER COMMISSION
INFORMATION REPORT

DATE: 4/27/16

AGENDA OF: May 2, 2016

TO: Water Commission

FROM: Chris Berry, Watershed Manager

SUBJECT: Status of Commercial Timber Harvest on City of Santa Cruz Watershed Lands

RECOMMENDATION: Accept report of the status of commercial timber harvest on City of Santa Cruz Watershed lands.

BACKGROUND: At the April 4, 2016, meeting of the City of Santa Cruz Water Commission, there was a discussion of the opportunities and constraints for increasing public access on the City's Newell Creek watershed lands. Due to concerns regarding increased potential wildfire and lack of resources to effectively patrol, conduct emergency response and maintain additional recreation infrastructure, increased recreation access was not supported. In the midst of this discussion, there was also inquiry of the status of commercial timber harvest on City watershed lands which was followed by direction to staff to bring a brief report back to the Commission at the May meeting.
Generally speaking, open space lands provide important goods and services (aka "natural capital") to the community including:

- Clean, reliable drinking water
- Protection from natural hazards such as floods and coastal storm surges
- Long-term food production and security
- Materials for building construction and pharmaceuticals
- Carbon sequestration and climate change resiliency
- Recreation and tourism opportunities
- Public health benefits, and many others.

Property management on all of the City's watershed lands has always been well aligned with this concept. The natural capital provided by this open space – even without active use such as recreation or timber harvest - is significant in its provisioning and supporting ecosystem services of water supply and habitat. For example, a recent study conducted by the Resource Conservation District of Santa Cruz County found that State Parks in Santa Cruz County yield gross natural capital in terms of ecosystem services on the order of $200 million annually (Schmidt, R., Lozano, S., Robins, J., Schwartz, A., Batker, D., 2015.). State Parks (of which

there are approximately 45,000 acres in Santa Cruz County) do not allow commercial timber harvest and have mixed use with some areas off limits - similar to City of Santa Cruz watershed lands.

The City of Santa Cruz owns 3,880 acres of land in the Newell Creek, Zayante Creek, and Laguna Creek watersheds (see Figure 1 – City Watershed Lands Map) which are managed for drinking water source protection purposes. The City had commercially harvested the second growth forest on most of these lands from 1968 until approximately 2002. The historic commercial harvests averaged $228,329[1] in net revenue annually for the period 1993 to 1999 and were considered models for selective timber harvest with several now widely adopted best practices being pioneered by City foresters during that time. However, in the midst of policy making regarding the County of Santa Cruz timber harvest riparian protection standards, the City proposed a harvest plan for the upper west side of its ownership in the Newell watershed that was in conflict with newly proposed County riparian protection standards. In addition, there was significant public testimony in opposition to the harvests in general. At that time, the City Council halted harvest activities and convened a public advisory body (Watershed Management Technical Advisory Task Force or WMTATF) to initiate a multi-disciplinary watershed land planning process and to advise the City on refined watershed lands management policies with regard to timber harvest and other related issues.

During this process, a study conducted by Swanson Hydrologics found that commercial timber harvests on City watershed lands had simplified the age class of the forest stand, removed old growth fir and overstory canopy in general, the facilitated growth of ladder fuels and increased precipitation runoff rates. Furthermore, the project fire ecologist (Max Moritz, Ph.D.) found that past timber harvesting and fire suppression activities had increased the potential for fires of high severity (Swanson Hydrologics 2001).

Subsequent to hearing these findings the WMTATF recommended that the City Council:

> "Continue to refrain from timber harvesting for commercial purposes, as it is inconsistent with the primary goal of maintenance of water quality. This is not intended to preclude the cutting of trees for the purposes of restoration, wildlife enhancement or ecosystem management opportunities. Further work is needed by the WMTATF to adequately describe conditions where tree cutting might be used as a tool to enhance the ecosystem."

The City Council unanimously supported this recommendation in its vote on Nov 12, 2002, and commercial timber harvest activities ended shortly thereafter upon closure of the (then) ongoing harvest on the Zayante watershed lands. The WMTATF was sunset shortly thereafter in a City-wide advisory downsizing effort related to the (then) financial crisis.

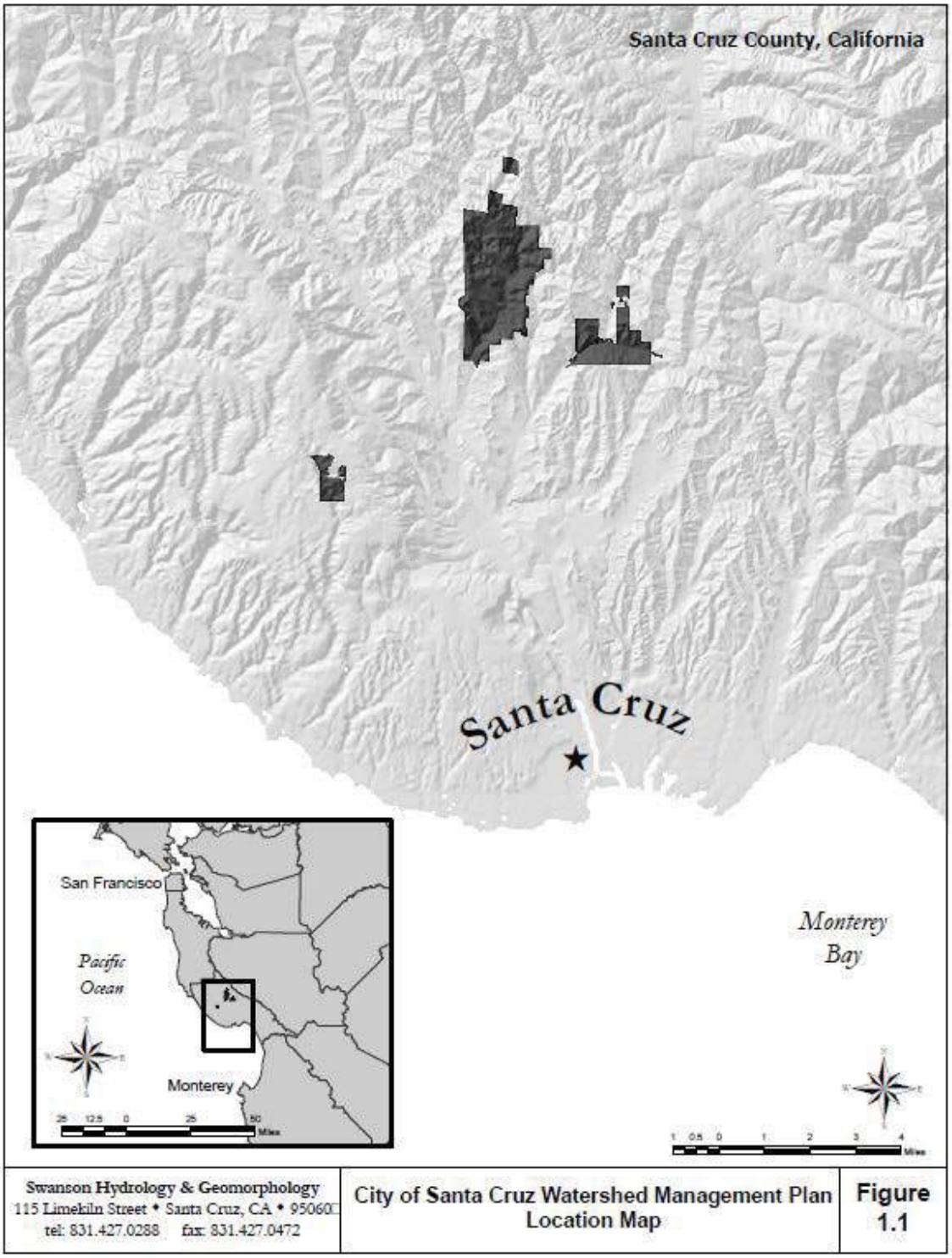
Subsequent to those actions, during Endangered Species Act (ESA) Section 10 permit negotiations with the National Marine Fisheries Service (NMFS) and the Department of Fish and Wildlife (DFW) in 2005, the need to avoid and minimize sedimentation impacts of City Water Department operations on anadromous salmonid (steelhead and coho salmon) habitat led to a

[1] Approximately $54,000 annually was also spent on a watershed lands maintenance contract at this time. Current costs for this work are approximately $63,000.

tentative agreement that the City would not engage in commercial timber harvest, among other related actions. While this agreement is not necessarily binding, reopening discussion of it would likely lead to reopening of other issues which were also tentatively settled at that time. Since commercial timber harvest - as it had been conducted - had been found to be in conflict with the water quality maintenance goal of the WMTATF it has not been reinitiated since the 2002 Council direction. However, other work which better aligns with that goal has continued and been expanded on the City's watershed lands since 2002. Amongst this work is an ever-expanding natural resource interpretive and outreach program, intensified environmental monitoring, road security and drainage improvements, greater coordination with local fire agencies and other resource agency staff and programs, greater expenditure of effort on invasive species issues (particularly with regard to ladder fuels which exacerbate the potential for catastrophic crown fires), rehabilitation of historic fire breaks (particularly in areas with potentially high flame lengths and in wildland/urban interface areas), installation of a weather station, development of Loch Lomond emergency response plans and overall greater focus on fire preparedness activities on City watershed lands. Water Department staff most recently reported on the fire preparedness elements of our watershed protection activities at the Commission's December 7, 2015, meeting (Attachment A).

Currently planned watershed lands forest management activity is primarily limited to dead and dying tree salvage, drainage improvements, expansion of the fire break network, improved surveillance, and patrol, invasive species management and other activities described during the December 7, 2015, meeting. The City currently has a salvage permit for trees which exacerbate fire preparedness along roads and fire breaks in the Newell Creek watershed. While it is unclear what the ongoing effects of the drought may be on forest stand conditions, it is quite likely that there will be a need to manage dead and dying trees more broadly in the future. In keeping with the Council's 2002 direction, more wide-scale restoration-oriented harvests could also be utilized to drive forest stands toward late several conditions, manage fuels, create important snag and cavity habitat, provide large wood for instream restoration projects and (if nominally) contribute toward the overall watershed lands management and drinking water source protection cost recovery. This would also be true on other City open space lands which are located in critical urban/wildland interface areas that are typically the primary focus of fire preparedness-related forest management efforts.

Figure 1 - City Watershed Lands Map



FISCAL IMPACT: There is no fiscal impact as the result of this report.

PROPOSED MOTION: Accept report of the Status of Commercial Timber Harvest on City of Santa Cruz Watershed Lands

ATTACHMENTS: Attachment A – Dec. 7, 2015, Water Commission Fire Preparedness Presentation

Citations:

Schmidt, R., Lozano, S., Robins, J., Schwartz, A., Batker, D., 2015. Nature's Value in Santa Cruz County. Earth Economics, Tacoma, WA & the Resource Conservation District of Santa Cruz County, Capitola, CA.

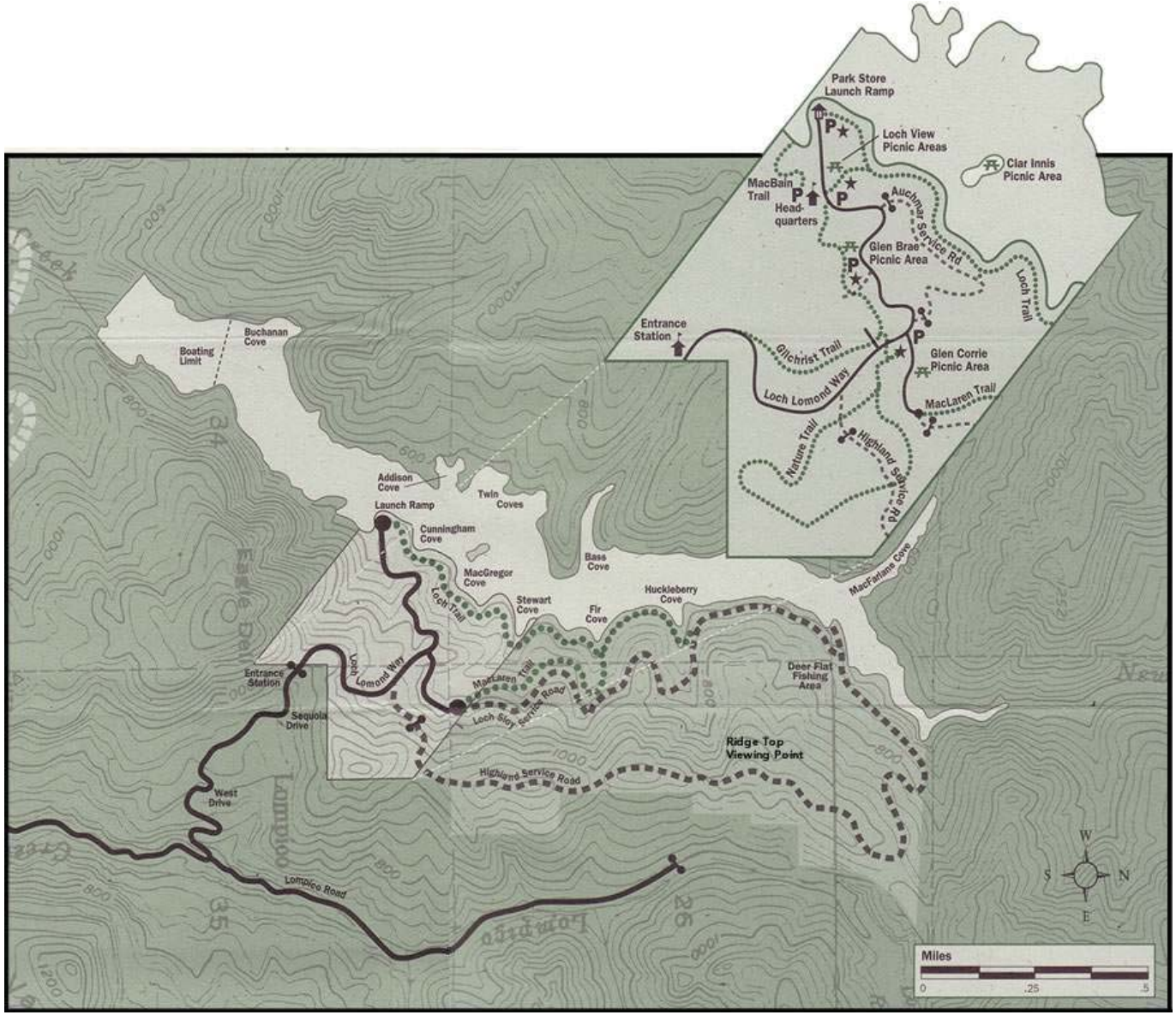
Swanson Hydrologics. 2001. Watershed Resources Management Plan – Existing Conditions Report. Prepared for the City of Santa Cruz Water Department. Santa Cruz, California.

Fire Preparedness at Loch Lomond Recreation Area and Newell Creek Watershed Lands -

December 07, 2015

Loch Lomond Recreation Area

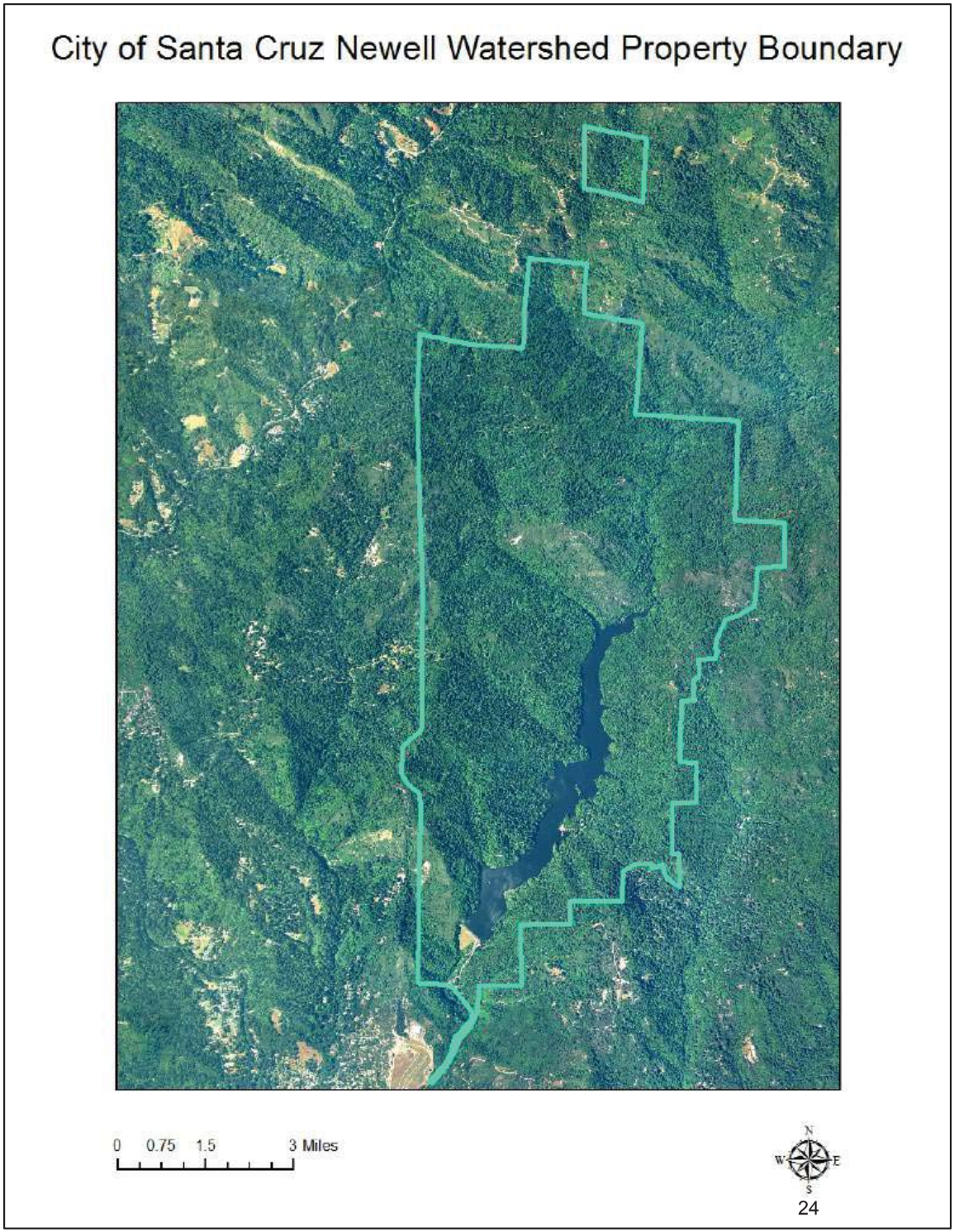
- Though the City has an obligation to manage the property for recreation, “drinking water source protection” is the primary consideration for our operations.



Loch Lomond Recreation Area

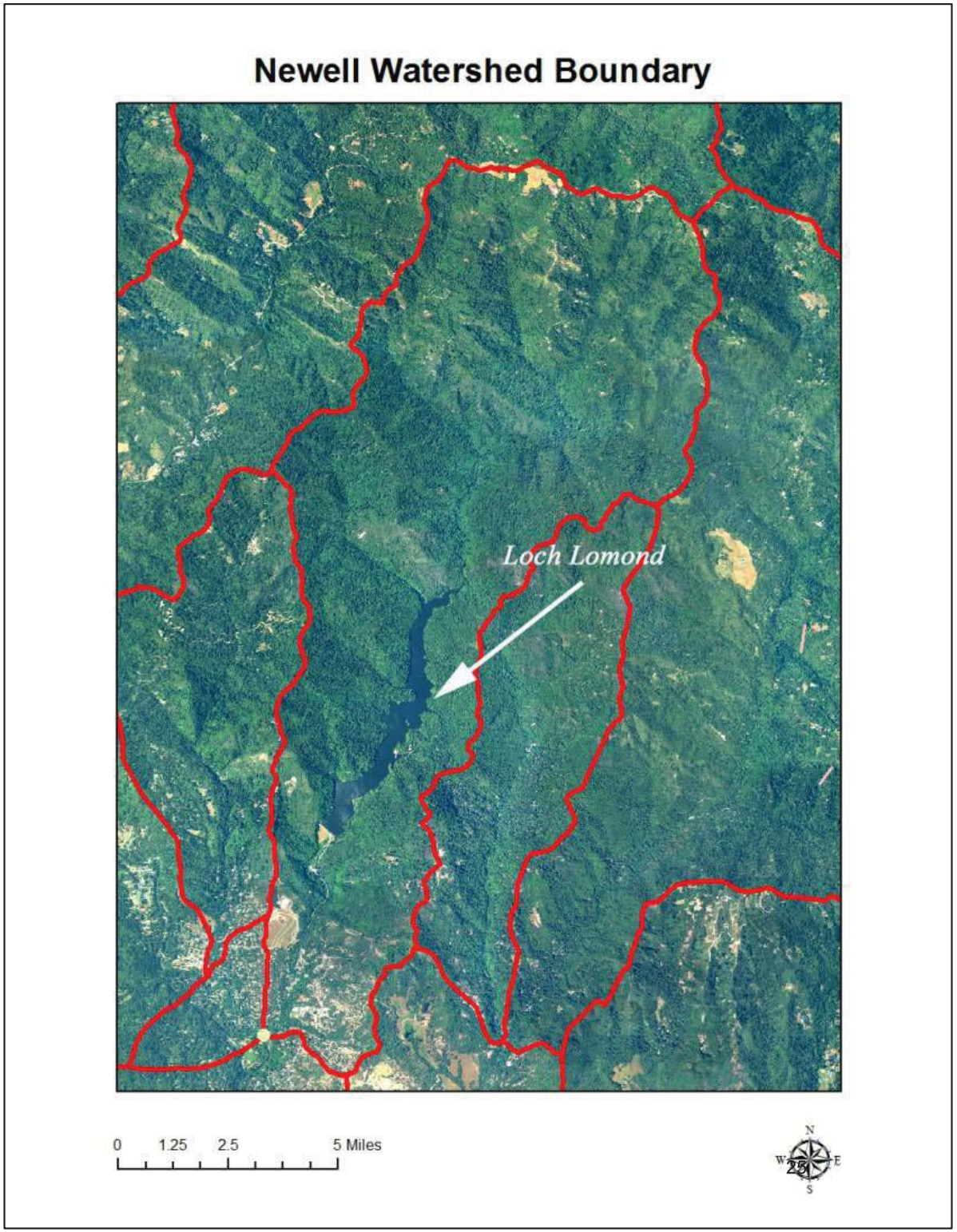
Newell Creek Watershed Property

- The City owns approximately 2,880 acres in the Newell Watershed including the Loch Lomond Recreation Area



Newell Creek Watershed

- The City owns approximately 50% of the total watershed area
- Upstream land uses include agricultural, timber production, mountain residential
- Downstream land uses are primary rural residential/suburban
- Greatest potential for fire at Loch Lomond from starts outside the property in the rural/urban interface

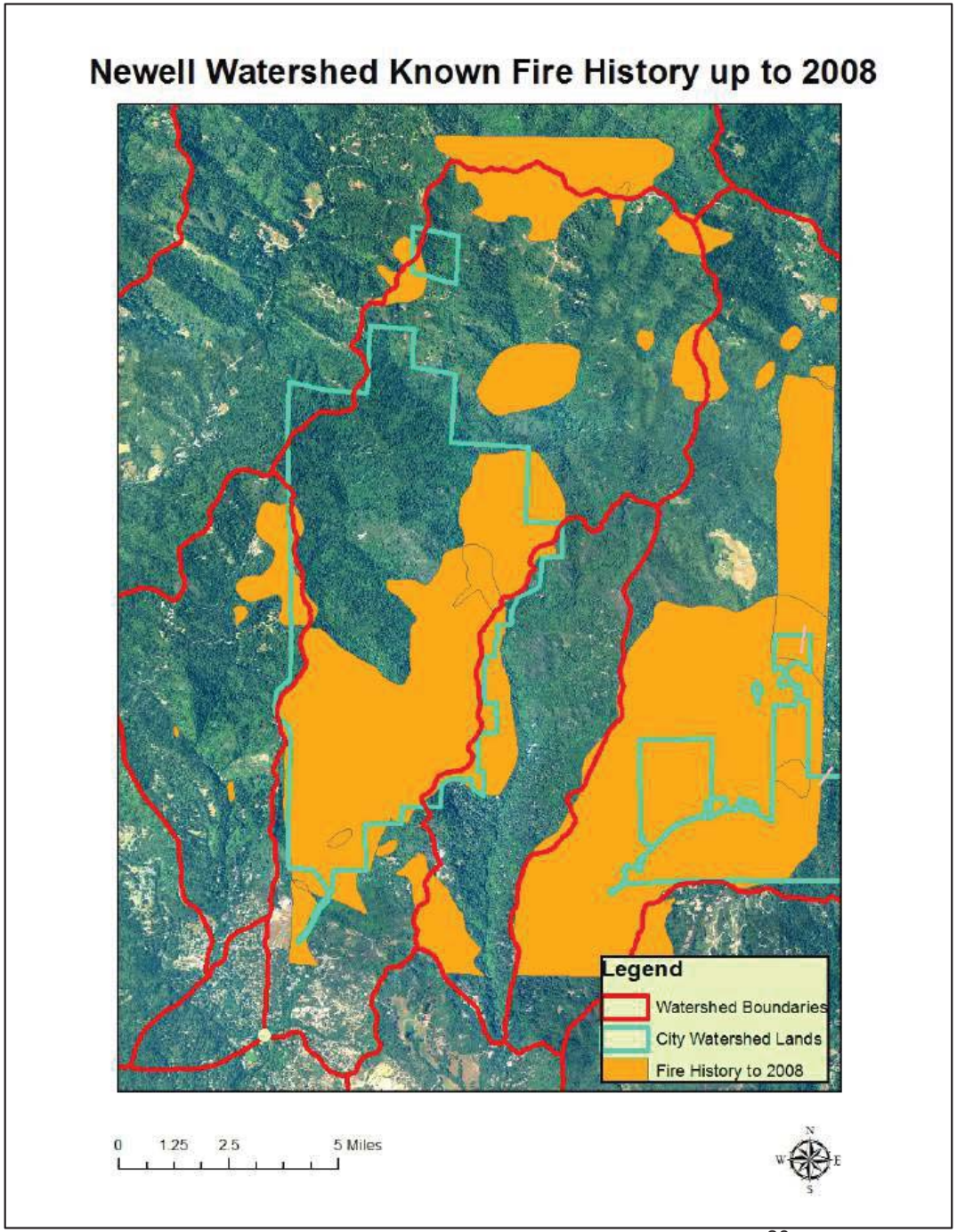


Fire Preparedness - General

- Fire preparedness work is a big component of our operations *every* year – not just in drought conditions.

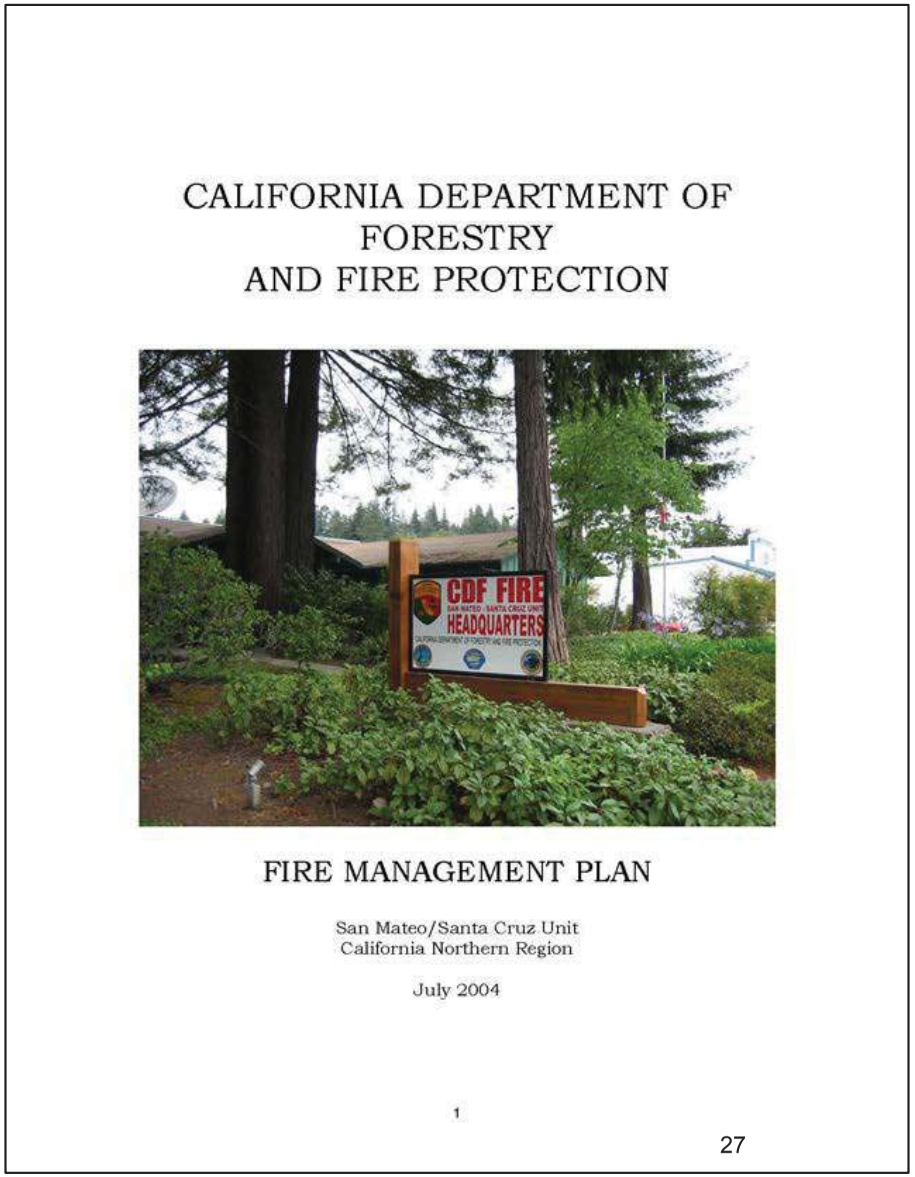
- During the recent drought-related closure, fire preparedness has taken on increasing importance and was one of the primary drivers for the closure of the recreation area.

- Watershed lands are never open to the public with the exception of staff-led tours.



Historic Fire Preparedness Activities

- Developed fire plan for property
- Loch Lomond season of use
- Drought-related recreation area closures
- Watershed lands prohibition on public use
- Eagle Dell fuel break improvement
- Loch Lomond Way shaded fuel break
- Installed weather station
- Created remote access to weather station for CalFire
- Gate installation/maintenance
- Participated in development of regional fire plans
- Participated in the local Fire Safe Council
- Annual tours of properties with local fire agencies
- Road/trail network design and maintenance
- Increased focus on invasive species/ladder fuel removal along roads
- Eagle Tree Lane bridge improvements
- Outreach to Hollister CalFire airbase regarding importance of Loch Lomond to regional water supply



Recent Fire Preparedness Activities

- Recreation area closure
- Fire agency outreach
- Improved/expanded fuel breaks at Loch Sloy, Highland and Eagle's Roost
- Installed water storage tanks
- Dead and dying wood removal permit
- Expanded water access
- Increased patrols
- Surveillance cameras
- Gate numbering
- Road mile markers
- Trail reflective markings
- Fire map updates
- Helicopter landing development

Fire agency tour of expanded fuel break between upper Lompico and Newell Creek watershed lands

Fire Plan - General

- Protective policies
- Control of activities on the property
- Early fire detection/response
- Communicate with fire agencies
- Facilitate fire agency access to watershed lands
- Coordinate evacuation of recreation area visitors
- Assist other Water Department operations with fire-related issues (monitoring, infrastructure maintenance, etc.)
- Post-fire response (monitoring, trespass control, erosion control, patrol, replanting, etc.)

Weather Station adjacent to the Highland Trail

Future Fire Preparedness Activities

- More of the same…
- Near term - maintenance of effort will become more challenging when recreation area reopens.
- Long term - adding more recreational activities which increase risk of fire, decrease ability to respond to fire or reduce ability to patrol our nearly 4,000 acres of watershed lands is of paramount concern.

Watershed lands trespassers attempting to cut around gate

Questions?

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WATER COMMISSION
INFORMATION REPORT

DATE: April 27, 2016

AGENDA OF: May 2, 2016

TO: Water Commission

FROM: Rosemary Menard

SUBJECT: Presentation and Discussion of Proposed Water Rates and Water Rate Structures

RECOMMENDATION: Receive information and provide feedback.

(Note: Water Commission action on this topic will occur at the Commission's June 6, 2016, meeting.)

BACKGROUND: Over the first several months of this calendar year, Water Department and consultant staff have been developing and presenting to the Water Commission materials related to financial planning and rate making.

Specifically, at the Commission's January 4th meeting, Sanjay Guar from Raftelis Financial Consultants presented details of the Cost of Service Analysis and rate structure analyses. At the February 1st meeting, a working draft of the Department's 10 Year Financial Strategy and 5 Year Financial Plan was presented. At the April 4th meeting, the Department's proposed operating and capital budgets for FY 2017 were presented. Materials from all of these meetings can be accessed at the Water Commissions page on the Water Department's website at http://www.cityofsantacruz.com/departments/water/city-water-commission/meetings-and-agenda/-toggle-allpast.

Additional materials related to financial planning and rate making were prepared for, presented to and discussed with the City Council at a February 23, 2016, evening study session (see the 7:00 pm session item on the agenda found at http://scsire.cityofsantacruz.com/sirepub/mtgviewer.aspx?meetid=709&doctype=AGENDA).

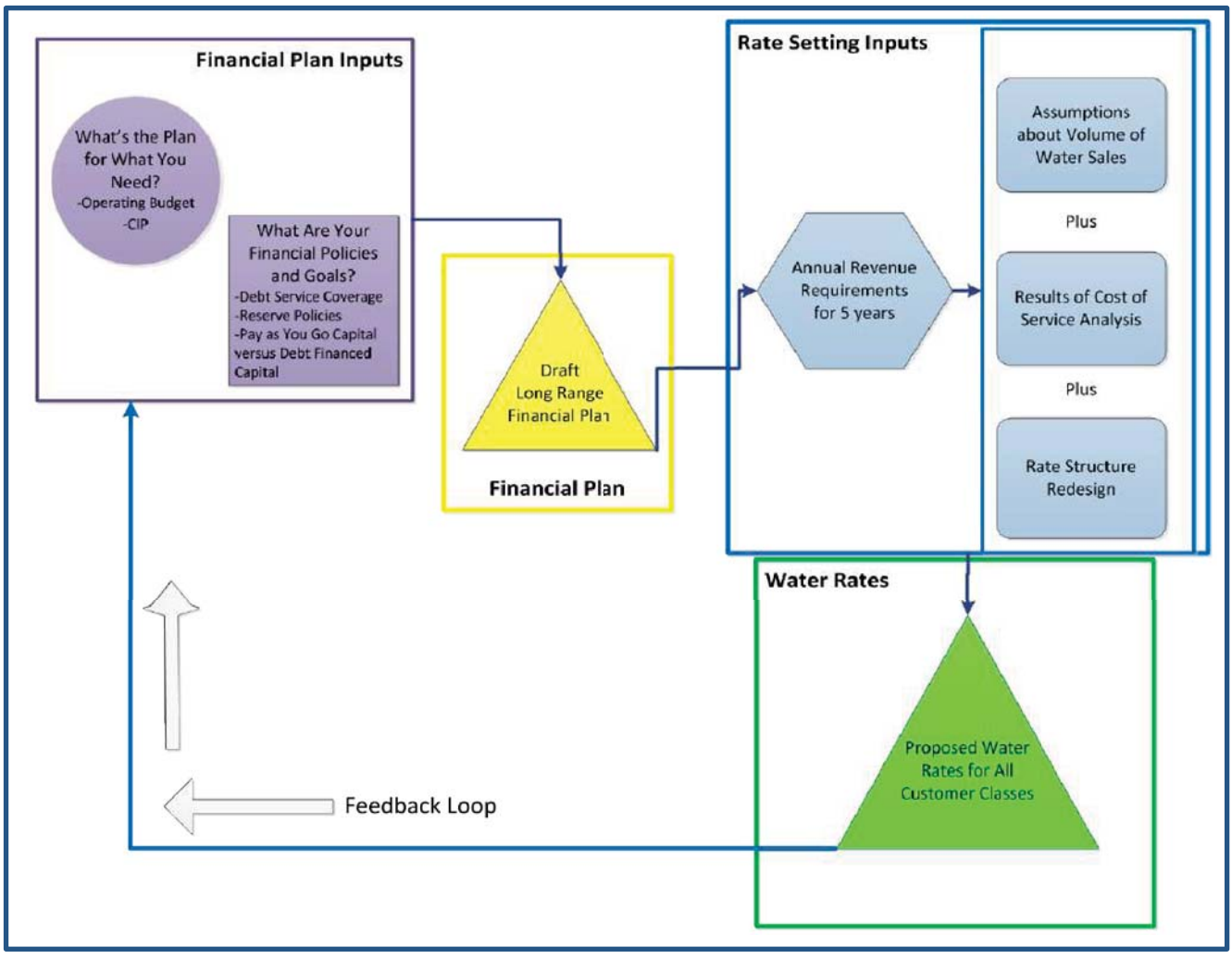
This agenda item takes the financial planning work to the next stage by showing the rates that would need to be implemented to support the Department's ongoing operations and planned capital improvement programs to reinvest in the water system's backbone infrastructure and implement the first stages of the Water Supply Augmentation Strategy.

Before discussing the details of rate proposals and rate structure options that have been evaluated, it makes sense to provide a brief review of the main elements of the work done set the financial foundation for rate-making.

Financial Planning Framework

Figure 1 is a schematic of the basic building blocks of utility rate-making.

Figure 1



In addition to capital and operating budgets, financial reserve policies and policy choices involving financing strategies and the amount of pay as you go capital are key inputs to a Long Range Financial Plan.

Financial Reserves and Goals

The Draft Long Range Financial Plan presented to and discussed with the Water Commission on February 1st included these financial goals and reserves policies:

- Use debt to finance about 75% of the estimated $300 M 2016 to 2026 CIP;
- Establish and maintain a minimum Debt Service Coverage Ratio of 1.5;
- Establish and maintain 180 days of cash operating reserve;
- Establish and maintain a $2.3 M Rate Stabilization Reserve Fund; and
- Establish and maintain a $3 M Emergency Reserve.

Revenue Requirements

Table 1 below shows the Water Enterprise revenue requirements for the five year period FY 2017 – 2021 necessary to fund utility operations, planned capital expenditures, and meet the financial policies and goals described above.

Table 1
FY 2017 – 2021 Projected Revenue Requirements

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Smoothed Infrastructure Reinvestment Fee Amount	$7,794,919	$8,769,284	$9,743,649	$10,718,014	$11,692,379
O&M Revenue Requirement	$25,915,101	$27,592,799	$29,678,817	$31,119,249	$32,658,880
TOTAL	**$33,710,020**	**$36,362,083**	**$39,422,466**	**$41,837,263**	**$44,351,259**

Water Pricing Objectives and Goals

In March 2015 the City Council and the Water Commission held a joint study session to provide high level input to the planned work the Department related to the cost of service and alternative rate structures; Raftelis Financial Consultants is supporting this effort. One product from this session was a set of water pricing objectives that were developed using the input of Council and Commission members who were asked to prioritize a variety of pricing objectives by indicating which were most important (rated as a 1) and which were least important (rated as a 4). Table 2 shows the results based on the input received.

Table 2
Water Commission and City Council Composite Ranking of Pricing Objectives
March 2015

Importance Rankings	Pricing Objectives	Average
Most Important	Revenue Sufficiency	1.1
Very Important	Promotes Efficiency	1.6
	Revenue Stability	1.7
	Perceived to be Fair to the Public	1.8
	Affordability for Essential Use	1.8
	Customer Understanding	1.9
	Promotes Conservation	2.0
	Rate Stability	2.0
Important	Tool for Drought Management Action Plan	2.3
	Equitable in Allocating CIP Cost	2.4
	Potential Funding Mechanism for Alt. Water Supply & Conservation Programs	2.4
	Scientific Method	2.4
	Align Supply & Demand	2.6
	Mitigate Customer Impact	2.7
Least Important	Economic Development	2.9
	Easy to Administer	2.9
	Rewards Past Conservation Effort	3.1
	Easy to Implement	3.1
	Based on Individual Needs	3.2

These results show a strong priority for rate structures that provide sufficient and stable revenues, are easy to understand and viewed as fair, and incentivize efficiency and promote conservation.

Community Feedback

Over the last eighteen months, public comment received at both Water Commission and City Council meetings where topics related to water rates were discussed has focused on the need to make rates for low water users more equitable by reducing the amount of revenue collected through fixed fees. In particular, for single family customers using lower quantities of water, the case is made that on a per unit basis these customers are being disadvantaged by what are perceived to be high fixed costs, which appear on the bill as the Ready to Serve Charge (RTS). For example, if a customer used two units of water each costing $2.00 and paid a $20 RTS, the full bill is $24 dollars. If you divide that amount by the two units used, the cost per unit is $12.

Another customer using 4 units, for example, will pay a bill of $28 and, using the same math, each unit for this customer will cost $7. Because using more water spreads the fixed cost across more units, this approach to analysis shows that larger users pay significantly less for water than smaller users on a dollar cost per unit basis (even though bills for higher users are higher). The take-away message here is that no matter how small the fixed fee is, an analytical approach that combines fixed charges with volume charges and divides the total by the number of units of water used will always disadvantage those customers who use fewer units of water.

From a water utility's perspective, most of the water system's costs are fixed and need to be covered regardless of how much water is used. A short video that does a good job of describing the reasons why this is the case can be found at http://www.brainshark.com/waterrf/vu?pi=zH4z10coY8zK6Ecz0.

The first part of this video, the part before the alternate rate structures are presented, does a great job of describing the situation being faced by the Santa Cruz Water Department. The point of including this video and the information it provides is not intended to specifically advocate for or against any particular rate structure option but rather to provide context for the discussion which is presented in the remainder of this staff report.

DISCUSSION: Working with Raftelis Financial Consultants, the Water Department has explored a range of approaches to structuring water rates, all of which are built on the foundation of the Cost of Service Analysis presented to and discussed with the Water Commission on January 4th, and with the City Council on February 23rd.

The basic rate structures recommended for various classes of customers as presented in the materials used in both the January 4th and February 23rd meetings is shown in Table 3.

Table 3
Recommended Basic Rate Structures for Customer Classes
January/February 2016

Customer Class	Basic Rate Structure
Single Family Residential	Keep inclining tiers, modify tier width and number of tiers
Multi-Family Residential	Tiers based on # of dwelling units
Commercial/Municipal	Maintain Uniform Rate Structure
UCSC	Maintain Uniform Rate Structure
Landscape Irrigation	Transition all Irrigation Accounts to Water Budget-Based Allocations
North Coast Agriculture (untreated water)	Maintain Uniform Rate Structure

More detail on the definition of tiers for Single and Multi-Family customers can be found by reviewing materials presented by Raftelis Financial Consultants to the Water Commission on January 4, 2016. (See link to Water Commission website on page one of this staff report.)

Since January, the Water Department has been working with Raftelis Financial Consultants to develop water rate proposals. Because capital spending is going to increase so dramatically during the next decade, one thing Department staff have been exploring is the creation of a specific fee on the Water Bill that would convey the cost to users of reinvesting in the water system's backbone infrastructure that is planned in the coming decade.

This new fee, the Infrastructure Reinvestment Fee (IRF), would cover the debt service and pay-as-you-go capital spending for identifiable projects and would provide a clear way to communicate about what an increasingly significant part of water user fees will be paying for.

The presentation attached to this staff report provides information on a range of alternatives. The alternatives presented are summarized in Table 4 below:

Table 4
Water Rate Structure Options Developed

Option 1A
• **RTS base the cost of billing, customer service, meter reading and meter maintenance ≈ 10% of total revenue**
• **Volume based tiered rates collecting ≈ 90% total non IRF revenue**
• **IRF – 100% collected based on volume used (linked to tiers when applicable)**
Option 1B
• **RTS base the cost of billing, customer service, meter reading and meter maintenance collecting ≈ 10% of total revenue**
• **Volume based tiered rates collecting ≈ 90% total non IRF revenue**
• **IRF – 100% collected as a fixed fee based on meter size**
Option 2A
• **RTS collecting ≈ 40% of revenues**
• **Volume based tiered rates collecting ≈ 60% of total non IRF revenue**
• **IRF – 100% collected based on volume used (linked to tiers when applicable)**
Option 2B
• **RTS collecting ≈ 40% of revenues**
• **Volume based tiered rates collecting ≈ 60% of total non IRF revenue**
• **IRF – 100% collected as a fixed fee based on meter size**

Volume Based Rates

The inclusion of rates structure options that significantly shift revenue generation to the volume side of the ledger is specifically being proposed to respond to feedback from the community.

As described in the video referenced earlier, rates that depend heavily on the volume used to generate needed revenues can introduce significant challenges with revenue stability, and thereby revenue sufficiency, two of the top pricing objectives presented in Table 2 above. The issues raised by the mismatch of volume based rates being used to generate revenues for a high fixed cost business aren't theoretical ones. Non-drought related real examples exist across the country

of how weather related events such as a cool, wet spring that depresses demand for water can cause revenue short falls. Obviously instituting mandatory curtailments would seriously exacerbate the weather related revenue shortfalls. In Santa Cruz the amount of revenue generated by the series of rate increases that occurred between 2004 and 2011 was 14% lower than projected, and this revenue shortfall is likely attributable to demand reductions resulting from some combination of more sharply inclining tiered rates, price elasticity of demand, conservation programs, plumbing and building code changes and the long economic recession that occurred during the latter half of this period.

Still, recognizing the community's interest in this approach and the potential challenges associated with moving toward an even higher dependence on water use to generate revenue, City staff has considered approaches that could be incorporated into a more volume based rate structure that would help mitigate the potential risks. Two specific options are being considered:

1. Because of uncertainty related to whether or how water demand will rebound from drought restrictions, the assumption about how much water will be consumed (sold) during the coming five years has been set very conservatively at 2.5 billion gallons per year. This figure is 17% less than was sold in 2013 and only 10% more than was sold in 2015 when the second year of water rationing was in place. Because staff doesn't have a clear idea of if or how water consumption will rebound following two years of rationing, the Department is recommending that a relatively conservative assumption be used about water sales during the coming five years. This approach reduces to some degree the potential that needed revenues will <u>not</u> be collected.
2. The Water Utility's Rate Stabilization Reserve fund is currently funded and has about $2.4 M in it. This amount is a reasonable reserve to help mitigate serious impacts of drought but probably isn't adequate to be a regular source of funds to help stabilize revenues in light of moving toward a rate structure that is more heavily dependent on the volume used. Building this amount to say, $10 M would provide a resource that could provide make up revenue to meet annual revenue requirements in the event that consumption fell below the projection of 2.5 billion gallons per year. A $1 per ccf surcharge on water sold would generate an estimated $3.3 M per year on an estimated sales of 2.5 billion gallons, which would allow the Rate Stabilization Reserve to reach about $10 M within a couple of years.

From staff's perspective, the viability of a rate structure emphasizing generating revenue through volume charges is directly linked to incorporating into the plan appropriate mitigation of the risks inherent in these approaches. If more volume based rates are a good fit for Santa Cruz customers it does appear that there are reasonable and affordable mechanisms to mitigate the inherent risks they entail.

<u>Rate Structures that Generate Significant Revenues through Fixed Charges</u>

In Santa Cruz, more than 90% of the cost of running the water system are fixed and do not change whether, for example, the system delivers half the typical amount of water or twice the typical amount. The water system itself is a community asset worth more than $500 M, most of which is buried, aging, and requires daily management and maintenance to assure continued service.

Options 2A and 2B above are very similar to the rates currently in place and that have been in place since 2004 at least. Adding the funds to be recovered from the IRF to the volume side of the ledger, as is the case in Option 2A, shifts the balance between fixed and variable revenues to the 70%/30% "best practice" split described in one of the California Urban Water Conservation Council's approved approaches to demonstrating that an agency's rates appropriately incentivize conservation. With the projected increase in the IRF over time, it is likely that this balance could be maintained.

The larger Ready-to-Serve charge in these options distributes a significant portion of the Department's fixed costs to customers based on meter size. The RTS charge is a surrogate for the benefit each served parcel/property has from having 24/7/365 access to a water system that produces and delivers a quality product to the property. The argument that volume used should dictate the value of water service to a property denies the basic value of water service to community public health and safety and the value to the property of having the system available to deliver a quality product whenever it is needed.

A Rate Structure Emphasizing Fixed Charges and Using Peaking to Set Fixed Charges

One additional rate structure option was explored. The Peak-Set-Base (PSB) option described in the video link include in an earlier part of this staff report seemed to offer a different way of collecting fixed charges than doing so by using meter size. The approach used in PSB allocates fixed charges based on the amount of water use during the peak season.

In the purest form of the PSB option, each user's peak season use would be evaluated and an appropriate fee levied that, in a composite across all customers would collect some very large portion of total revenue requirements, for example, 70%, or 80%. Volume based rates using some combination of tiered rates and uniform rates would be used to collect the remainder of the needed revenue.

The work done by Raftelis and City Staff in exploring the PSB option did not include trying to achieve the pure form of the idea, but rather looked at a more limited application of the concept focused on collecting the revenues needed for the Infrastructure Reinvestment Fee. The concept was to use a binning concept that would calculate a ratio between a customer's peak season use and their off peak season use, where those with higher ratios of peak to non-peak use would pay more. This approach would allow the PSB method to apply to all customers classes.

Incentives for conservation and efficiency exist in the PSB approach but they are probably more muted and less direct than in some of the other options being explored. Nonetheless, conceptually the PSB option seems to have some interesting possibilities that seemed worth exploring. Unfortunately based on the inability of the City's billing system to support the calculations needed, the approach is not feasible. It may be that future versions of the City's billing software will have greater capability than the current version that will make it possible to further explore this rate structure option in the future.

Conclusion

The material presented in the attached presentation focuses on the first year of what is proposed to be five years of rate increases. Returning to the revenue projections provided in Table 1, you can see that rates will need to continue to rise during the five year period to support capital reinvestments. The calculated difference between FY 2017 and 2018 is 7.9%, followed by a 8.4% increase, a 6.1% increase and ending with a 6% increase for FY 2021.

Following the May 2nd Water Commission meeting, City staff and Raftelis Financial Consultants will work together to take the feedback from the Commission discussion and prepare a recommendation on water rates, including developing the multi-year rates. This information needs to be developed and incorporated in the Proposition 218 notice that would be prepared and distributed to water utility customers in the summer of 2016.

PROPOSED MOTION: Motion to provide Commission feedback (provide details) to the Water Department for consideration in developing its recommendations to the Water Commission on a proposed rate structure and water rates at the next Commission meeting.

ATTACHMENTS: Presentation: Comprehensive Cost of Service Study and Rate Scenarios

City of Santa Cruz

COMPREHENSIVE WATER COST OF SERVICE STUDY

RATE SCENARIOS

WATER COMMISSION

MAY 2, 2016

CITY OF SANTA CRUZ

RAFTELIS FINANCIAL CONSULTANTS, INC.

Agenda

Goals of Today's Meeting

Key Assumptions

Financial Impacts

Review Proposed Tier Definition

Rate Scenarios

Evaluation of Rate Scenarios

Goals of Today's Meeting

- Receive direction on which rate structures to present to City Council
  - We will evaluate 4 different rate options for the first year
- Based on Water Commission direction, RFC will develop five years of rates to be adopted
- Future rates will be based on the financial plan

Key Assumptions

- Estimated Usage of 2.5 BGY
  - (reduced 2013 usage by approximately 17%)
- Base Revenue Requirements of $25,915,101
- Infrastructure Reinvestment fee (IRF) Requirements of $7,794,919
- 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 + $7.7M)

This is an 16% 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

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

Summary of Scenarios

- Normal Rates with RTS and Tiered Rates ($26M)
  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

Cost of Service Analysis – FY 2017

Cost Components	Cost of Service	Fixed	Variable
Base Supply	$7,828,609		✓
Base	$7,565,025	✓	✓
Peaking Costs	$6,747,759	✓	✓
Billing & CS	$1,988,009	✓	
Meters	$790,088	✓	
Conservation	$678,525		✓
Elevation Pumping	$264,491		✓
North Coast Ag	$43,018		✓
Private Fire Protection	$9,577	✓	
Infrastructure Reinvestment Fee	$7,794,919	✓	✓
Total	**$33,710,020**		

Rate Scenarios will evaluate different allocations

Pricing Objective Exercise

Most Important / Critical = 1; Very Important = 2; Important = 3; Least Important = 4

Importance Rankings	Pricing Objectives	Average
Most Important	Revenue Sufficiency	1.1
Very Important	Promotes Efficiency	1.6
	Revenue Stability	1.7
	Perceived to be Fair to the Public	1.8
	Affordability for Essential Use	1.8
	Customer Understanding	1.9
	Promotes Conservation	2.0
	Rate Stability	2.0
Important	Tool for Drought Management Action Plan	2.3
	Equitable in Allocating CIP Cost	2.4
	Potential Funding Mechanism for Alt. Water Supply & Conservation Programs	2.4
	Scientific Method	2.4
	Align Supply & Demand	2.6
	Mitigate Customer Impact	2.7
Least Important	Economic Development	2.9
	Easy to Administer	2.9
	Rewards Past Conservation Effort	3.1
	Easy to Implement	3.1
	Based on Individual Needs	3.2

Summary of Scenarios

- Option 1A
  - Normal Rates with RTS and Tiered Rates - 90% Variable / 10% Fixed
  - IRF – 100% Commodity
- Option 1B
  - Normal Rates with RTS and Tiered Rates - 90% Variable / 10% Fixed
  - IRF – 100% Fixed
- Option 2A
  - Normal Rates with RTS and Tiered Rates - 60% Variable / 40% Fixed
  - IRF – 100% Commodity
- Option 2B
  - Normal Rates with RTS and Tiered Rates - 60% Variable / 40% Fixed
  - IRF – 100% Fixed

Scenario 1 Options

Option 1A

- Base Rates - 90% Variable / 10% Fixed
- IRF – 100% Commodity

Option 1B

- Base Rates – 90% Variable / 10% Fixed
- IRF – 100% Fixed based on AWWA Meter Ratio

Option 1A

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 – $2.87
  - Tier 4 - $3.86

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

Meter Size	Proposed Inside Ready-to-Serve ($/Meter)	Current Inside	Difference ($)	Difference (%)
5/8-in	**$8.48**	$23.19	-$14.71	-63%
3/4-in	**$8.80**	$23.19	-$14.39	-62%
1-in	**$9.51**	$57.94	-$48.43	-84%
1 1/2-in	**$14.37**	$115.88	-$101.51	-88%
2-in	**$23.29**	$185.38	-$162.09	-87%
3-in	**$36.02**	$347.59	-$311.57	-90%
4-in	**$57.15**	$579.32	-$522.17	-90%
6-in	**$90.07**	$1,158.60	-$1,068.53	-92%
8-in	**$58.26**	$2,664.74	-$2,606.48	-98%
10-in	**$77.17**	$3,290.36	-$3,213.19	-98%

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

Meter Size	Proposed Outside Ready-to-Serve ($/Meter)	Current Outside	Difference ($)	Difference (%)
5/8-in	**$9.71**	$29.56	-$19.85	-67%
3/4-in	**$10.07**	$29.56	-$19.49	-66%
1-in	**$10.89**	$73.88	-$62.99	-85%
1 1/2-in	**$16.46**	$147.72	-$131.26	-89%
2-in	**$26.67**	$236.35	-$209.68	-89%
3-in	**$41.26**	$443.17	-$401.91	-91%
4-in	**$65.46**	$738.62	-$673.16	-91%
6-in	**$103.17**	$1,477.21	-$1,374.04	-93%
8-in	**$66.73**	$3,398.51	-$3,331.78	-98%
10-in	**$88.40**	$4,195.23	-$4,106.83	-98%

Option 1A

Inside Commodity Rates

Commodity	Proposed Tier	Proposed Commodity Rate	Current Commodity Rate
SFR			
Tier 1	0-5	$7.31	$2.11
Tier 2	6-7	$8.76	$5.33
Tier 3	8-9	$10.30	$6.86
Tier 4	& Above	$12.67	$9.40
Tier 5			$11.71
MFR			
Tier 1	0-5	$7.31	$5.33
Tier 2	6-7	$8.76	$5.33
Tier 3	8-9	$10.30	$5.33
Tier 4	& Above	$12.67	$5.33
Tier 5			$5.33
COM			
Uniform	Uniform	$8.86	$5.33
UCSC			
Uniform	Uniform	$9.12	$5.33
North Coast AG			
Uniform	Uniform	$5.33	$1.70
Landscape			
Tier 1	100% of TWB*	$9.69	$5.33
Tier 2	150% of TWB	$13.39	$5.33
Tier 3	& Above	$14.55	$5.33
Elevation Surcharge			
Elevation Surcharge		$0.42	$0.20

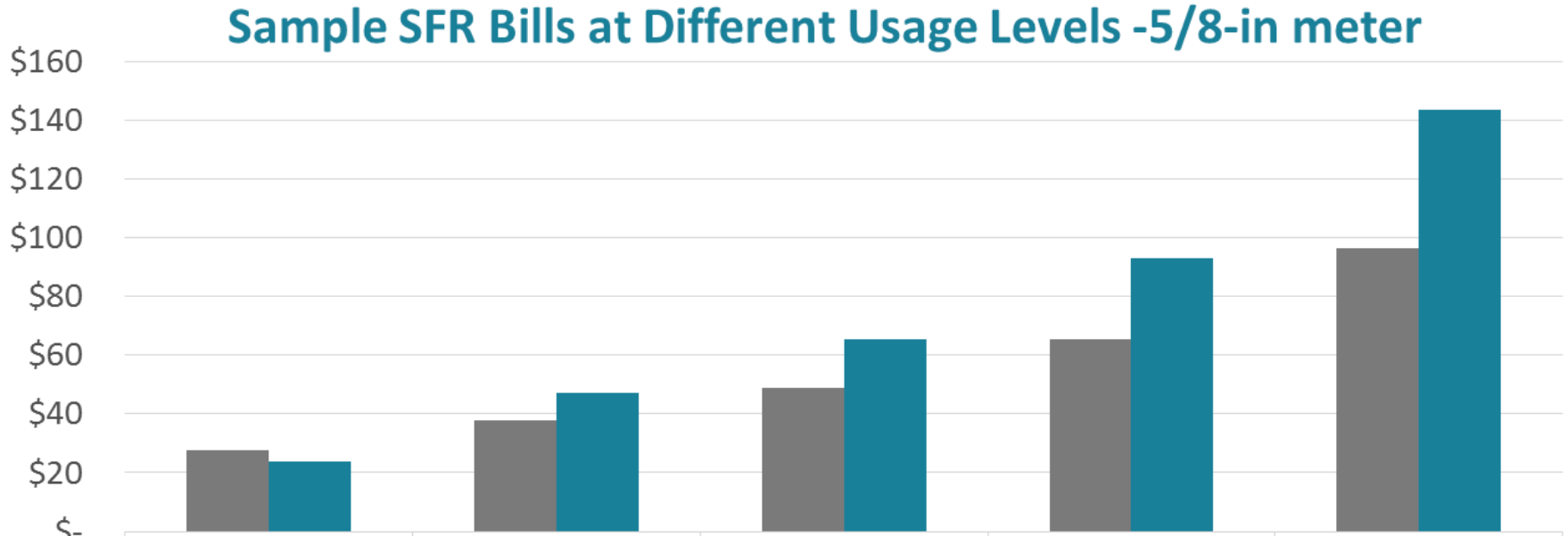
*Total Water Budget

Option 1A

Outside Commodity Rates

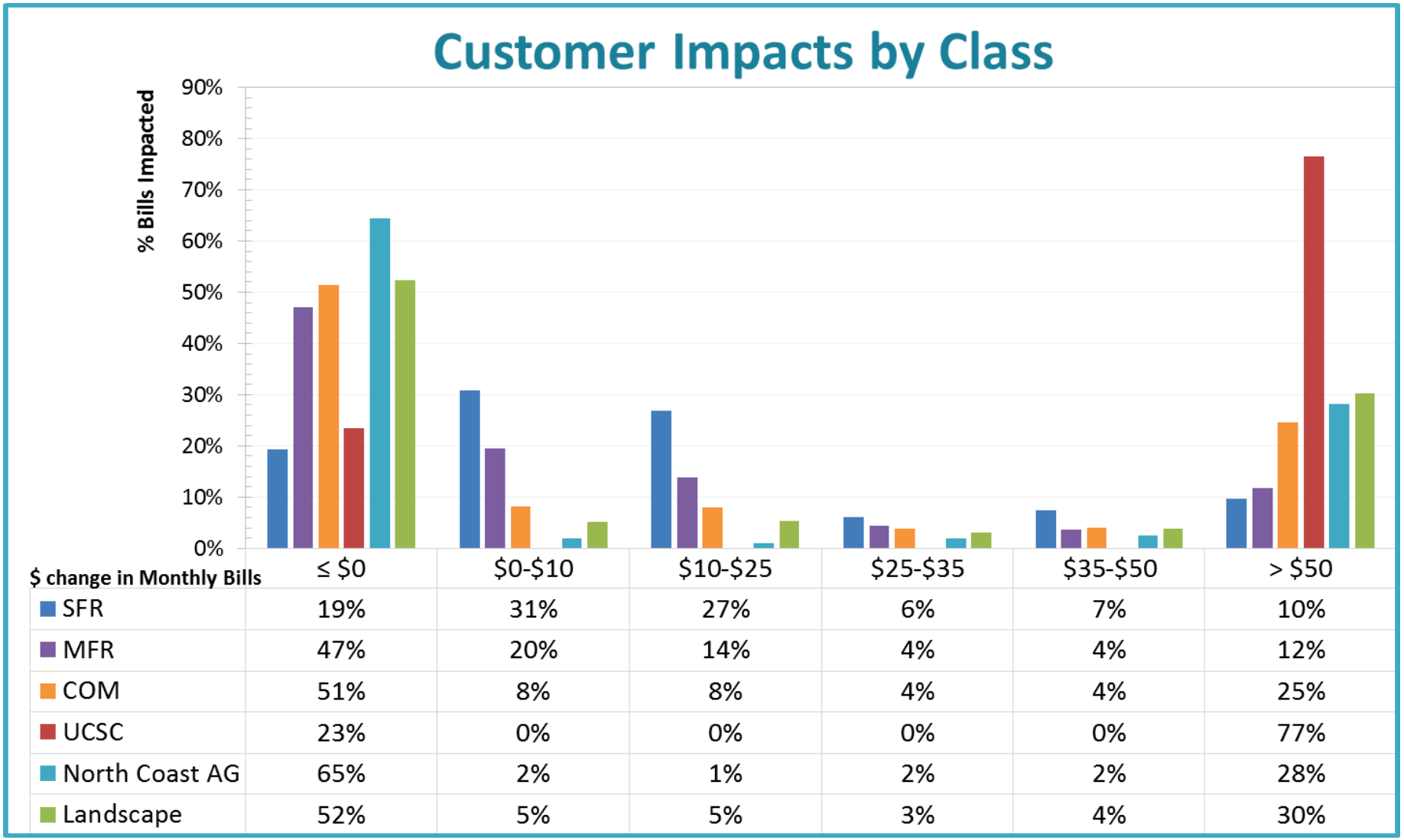
Commodity	Proposed Tier	Proposed Commodity Rate	Current Commodity Rate
SFR			
Tier 1	0-5	$8.40	$2.67
Tier 2	6-7	$10.07	$6.80
Tier 3	8-9	$11.87	$8.74
Tier 4	& Above	$14.62	$11.96
Tier 5			$14.94
MFR			
Tier 1	0-5	$8.40	$6.80
Tier 2	6-7	$10.07	$6.80
Tier 3	8-9	$11.87	$6.80
Tier 4	& Above	$14.62	$6.80
Tier 5			$6.80
COM			
Uniform	Uniform	$10.14	$6.80
UCSC			
Uniform	Uniform	N/A	$6.80
North Coast AG			
Uniform	Uniform	N/A	$1.70
Landscape			
Tier 1	100% of TWB	$11.10	$6.80
Tier 2	150% of TWB	$15.34	$6.80
Tier 3	& Above	$16.68	$6.80
Elevation Surcharge			
Elevation Surcharge		$0.48	$0.20

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



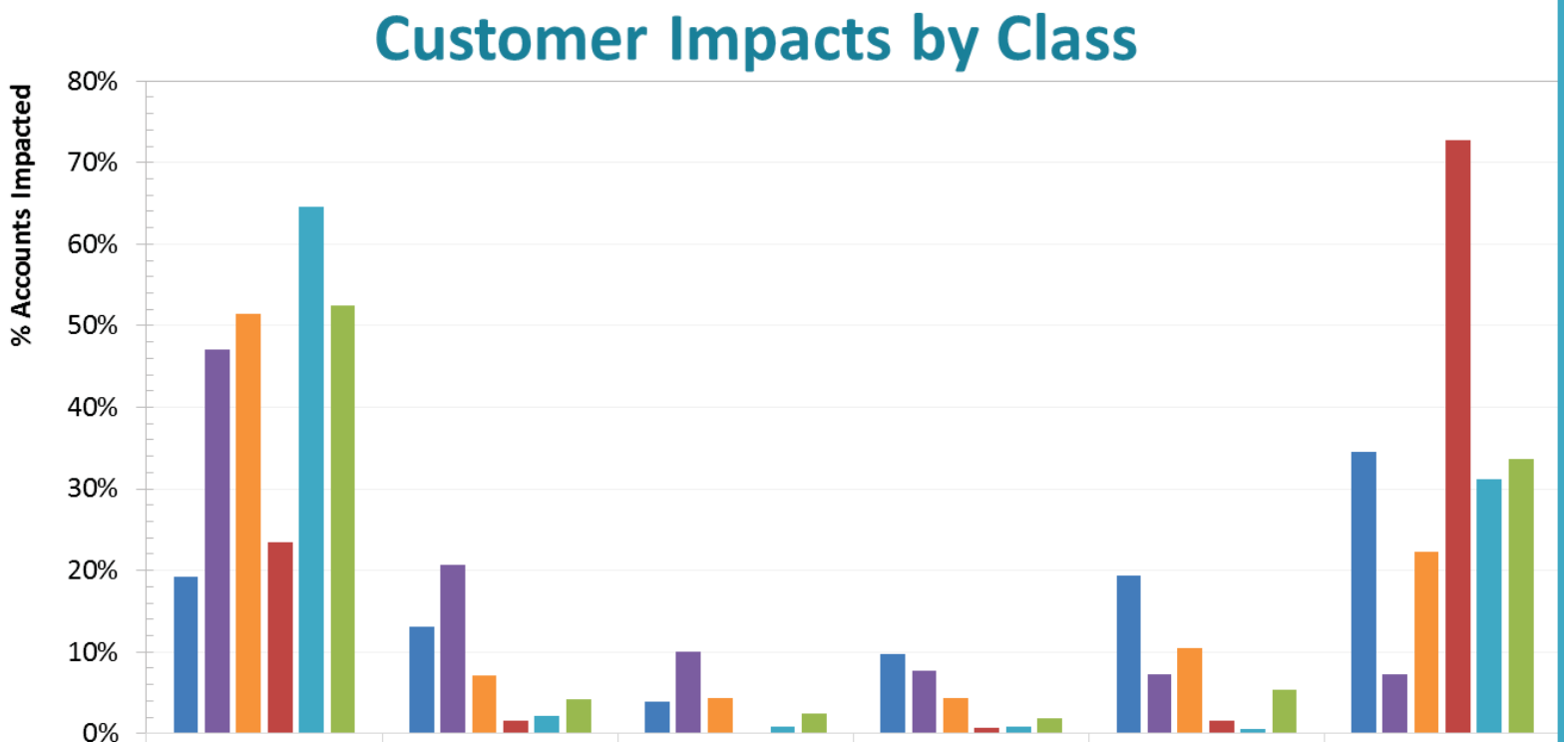
	2 ccf	5 ccf	7 ccf	10 ccf	15 ccf
Current Bill	$27.81	$37.96	$49.02	$65.61	$96.32
Proposed Bill	$23.94	$47.13	$65.49	$93.03	$143.55
Impact $	$(3.87)	$9.17	$16.47	$27.42	$47.23
% of Bills	15%	31%	18%	17%	19%

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%	31%	27%	6%	7%	10%
MFR	47%	20%	14%	4%	4%	12%
COM	51%	8%	8%	4%	4%	25%
UCSC	23%	0%	0%	0%	0%	77%
North Coast AG	65%	2%	1%	2%	2%	28%
Landscape	52%	5%	5%	3%	4%	30%

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



% change in Monthly Bills	≤ %0	%0-%10	%10-%15	%15-%20	%20-%30	> %30
SFR	19%	13%	4%	10%	19%	35%
MFR	47%	21%	10%	8%	7%	7%
COM	51%	7%	4%	4%	10%	22%
UCSC	23%	2%	0%	1%	2%	73%
North Coast AG	65%	2%	1%	1%	1%	31%
Landscape	52%	4%	2%	2%	5%	34%

Option 1B

90% VARIABLE / 10% FIXED

IRF – 100% FIXED – AWWA METER

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

- IRF Component increases the Fixed Meter Charge
- Based on AWWA Meter Ratios
- Inside impact shown in table to the right

Meter Size	IRF ($/Meter)
5/8-in	**$17.81**
3/4-in	**$26.71**
1-in	**$44.52**
1 1/2-in	**$89.03**
2-in	**$142.44**
3-in	**$311.58**
4-in	**$560.83**
6-in	**$1,424.33**
8-in	**$2,492.58**
10-in	**$3,738.87**

Option 1B - 90% Variable / 10% Fixed Inside Fixed Charge

Meter Size	Proposed Inside Fixed ($/Meter)	Current Inside	Difference ($)	Difference (%)
5/8-in	**$26.29**	$23.19	$3.10	13%
3/4-in	**$35.51**	$23.19	$12.32	53%
1-in	**$54.03**	$57.94	-$3.91	-7%
1 1/2-in	**$103.40**	$115.88	-$12.48	-11%
2-in	**$165.73**	$185.38	-$19.65	-11%
3-in	**$347.60**	$347.59	$0.01	0%
4-in	**$617.98**	$579.32	$38.66	7%
6-in	**$1,514.40**	$1,158.60	$355.80	31%
8-in	**$2,550.84**	$2,664.74	-$113.90	-4%
10-in	**$3,816.04**	$3,290.36	$525.68	16%

Option 1B - 90% Variable / 10% Fixed Outside Fixed Charge

Meter Size	Proposed Outside Fixed ($/Meter)	Current Outside	Difference ($)	Difference (%)
5/8-in	**$30.11**	$29.56	$0.55	2%
3/4-in	**$40.67**	$29.56	$11.11	38%
1-in	**$61.88**	$73.88	-$12.00	-16%
1 1/2-in	**$118.44**	$147.72	-$29.28	-20%
2-in	**$189.83**	$236.35	-$46.52	-20%
3-in	**$398.17**	$443.17	-$45.00	-10%
4-in	**$707.89**	$738.62	-$30.73	-4%
6-in	**$1,734.73**	$1,477.21	$257.52	17%
8-in	**$2,921.95**	$3,398.51	-$476.56	-14%
10-in	**$4,371.23**	$4,195.23	$176.00	4%

Option 1B

Inside Commodity Rates

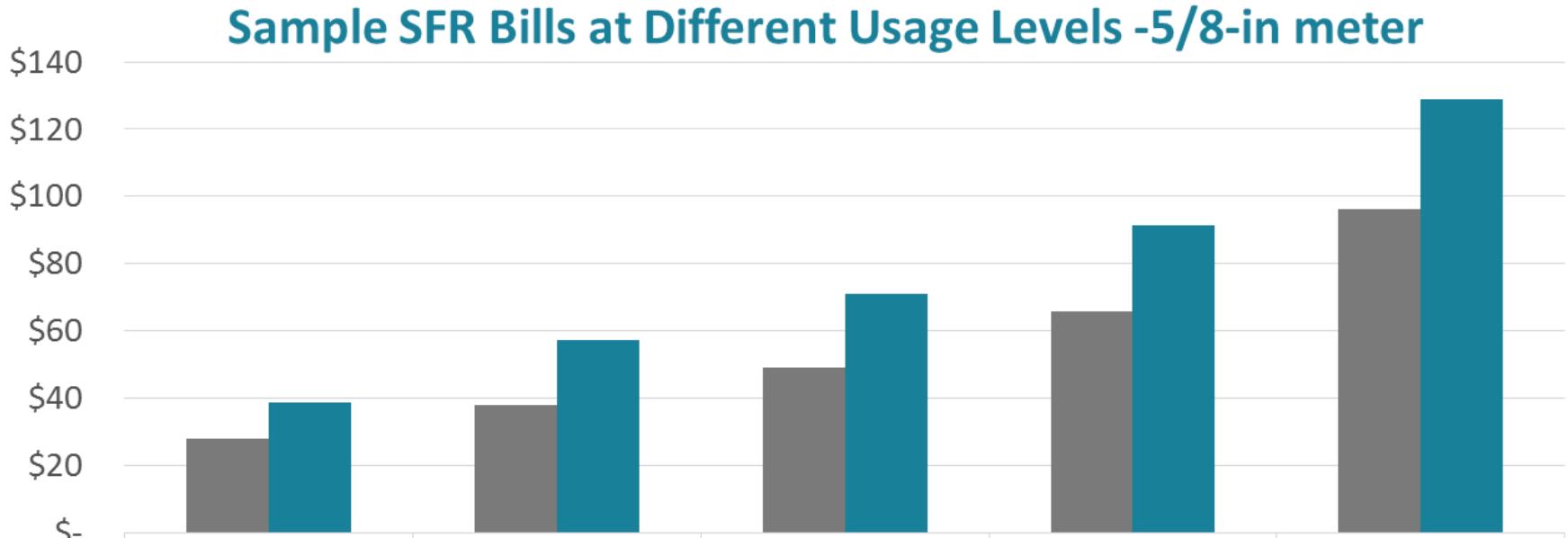
Commodity	Proposed Tier	Proposed Commodity Rate	Current Commodity Rate
SFR			
Tier 1	0-5	$5.76	$2.11
Tier 2	6-7	$6.44	$5.33
Tier 3	8-9	$7.43	$6.86
Tier 4	& Above	$8.81	$9.40
Tier 5			$11.71
MFR			
Tier 1	0-5	$5.76	$5.33
Tier 2	6-7	$6.44	$5.33
Tier 3	8-9	$7.43	$5.33
Tier 4	& Above	$8.81	$5.33
Tier 5			$5.33
COM			
Uniform	Uniform	$6.59	$5.33
UCSC			
Uniform	Uniform	$6.72	$5.33
North Coast AG			
Uniform	Uniform	$2.28	$1.70
Landscape			
Tier 1	100% of TWB	$6.87	$5.33
Tier 2	150% of TWB	$9.17	$5.33
Tier 3	& Above	$10.28	$5.33
Elevation Surcharge			
Elevation Surcharge		$0.42	$0.20

Option 1B

Outside Commodity Rates

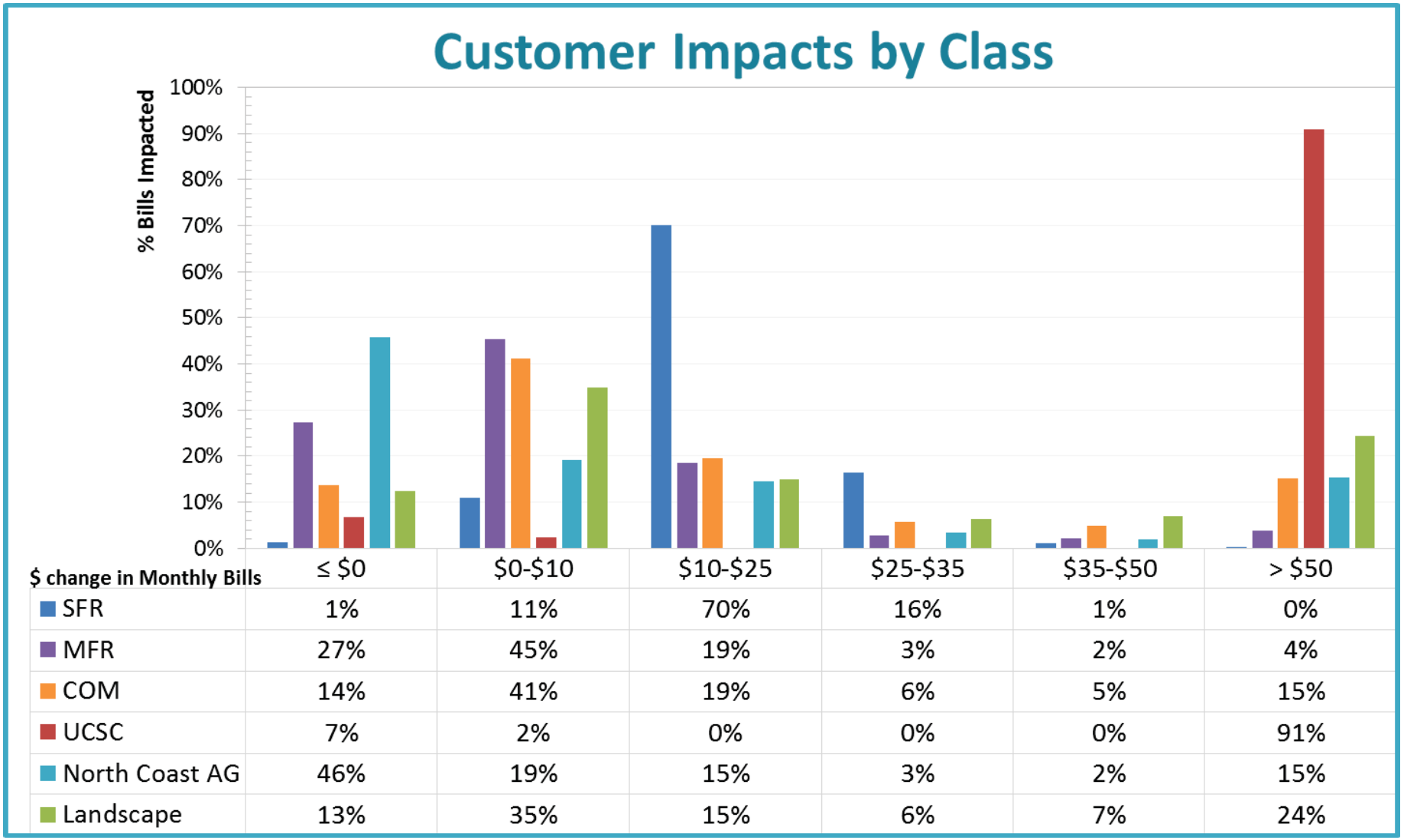
Commodity	Proposed Tier	Proposed Commodity Rate	Current Commodity Rate
SFR			
Tier 1	0-5	$6.61	$2.67
Tier 2	6-7	$7.39	$6.80
Tier 3	8-9	$8.56	$8.74
Tier 4	& Above	$10.17	$11.96
Tier 5			$14.94
MFR			
Tier 1	0-5	$6.61	$6.80
Tier 2	6-7	$7.39	$6.80
Tier 3	8-9	$8.56	$6.80
Tier 4	& Above	$10.17	$6.80
Tier 5			$6.80
COM			
Uniform	Uniform	$7.54	$6.80
UCSC			
Uniform	Uniform	N/A	$6.80
North Coast AG			
Uniform	Uniform	N/A	$1.70
Landscape			
Tier 1	100% of TWB	$7.87	$6.80
Tier 2	150% of TWB	$10.50	$6.80
Tier 3	& Above	$11.78	$6.80
Elevation Surcharge			
Elevation Surcharge		$0.48	$0.20

Option 1B – 90% Variable / 10% Fixed SFR Sample Impacts



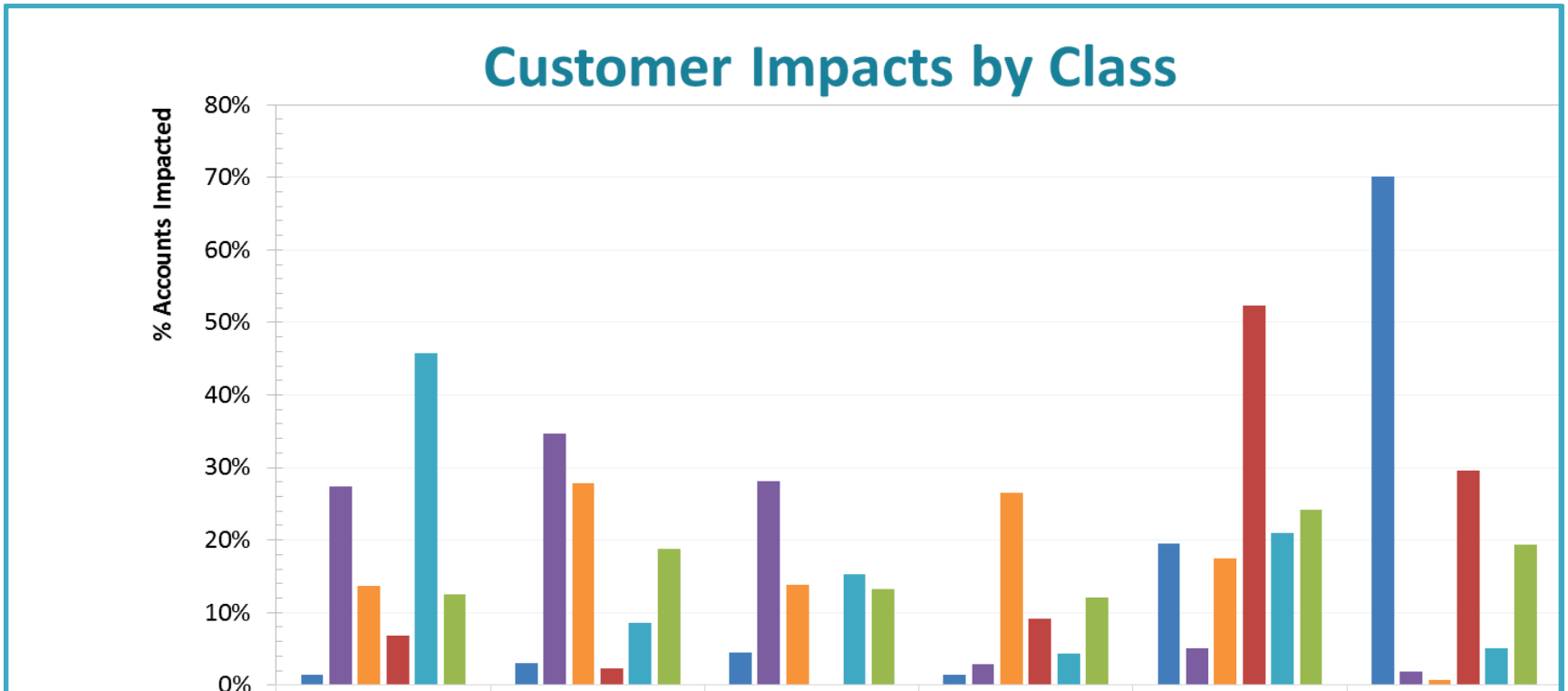
	2 ccf	5 ccf	7 ccf	10 ccf	15 ccf
Current Bill	$27.81	$37.96	$49.02	$65.61	$96.32
Proposed Bill	$38.65	$57.19	$70.91	$91.49	$128.76
Impact $	$10.84	$19.23	$21.89	$25.88	$32.44
% of Bills	15%	31%	18%	17%	19%

Option 1B - 90% Variable / 10% Fixed Customer Impacts by Class ($)



$ change in Monthly Bills	≤ $0	$0-$10	$10-$25	$25-$35	$35-$50	> $50
SFR	1%	11%	70%	16%	1%	0%
MFR	27%	45%	19%	3%	2%	4%
COM	14%	41%	19%	6%	5%	15%
UCSC	7%	2%	0%	0%	0%	91%
North Coast AG	46%	19%	15%	3%	2%	15%
Landscape	13%	35%	15%	6%	7%	24%

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



% change in Monthly Bills	≤ %0	%0-%10	%10-%15	%15-%20	%20-%30	> %30
SFR	1%	3%	4%	1%	20%	70%
MFR	27%	35%	28%	3%	5%	2%
COM	14%	28%	14%	26%	17%	1%
UCSC	7%	2%	0%	9%	52%	30%
North Coast AG	46%	9%	15%	4%	21%	5%
Landscape	13%	19%	13%	12%	24%	19%

Scenario 2

BASE RATE: ~60% VARIABLE / ~40% FIXED

Scenario 2 Options

Option 2A

- Base Rates - 60% Variable / 40% Fixed
- IRF – 100% Commodity

Option 2B

- Base Rates – 60% Variable / 40% Fixed
- IRF – 100% Fixed based on AWWA Meter Ratio

Option 2A

60% VARIABLE / 40% FIXED

IRF – 100% COMMODITY

Option 2A – 60% Variable / 40% Fixed Inside Fixed Charge

Meter Size	Proposed Inside Ready-to-Serve ($/Meter)	Current Inside	Difference ($)	Difference (%)
5/8-in	**$25.76**	$23.19	$2.57	11%
3/4-in	**$34.71**	$23.19	$11.52	50%
1-in	**$52.71**	$57.94	-$5.23	-9%
1 1/2-in	**$100.77**	$115.88	-$15.11	-13%
2-in	**$161.52**	$185.38	-$23.86	-13%
3-in	**$338.41**	$347.59	-$9.18	-3%
4-in	**$601.44**	$579.32	$22.12	4%
6-in	**$1,472.39**	$1,158.60	$313.79	27%
8-in	**$2,477.32**	$2,664.74	-$187.42	-7%
10-in	**$3,705.76**	$3,290.36	$415.40	13%

Option 2A – 60% Variable / 40% Fixed Outside Fixed Charge

Meter Size	Proposed Outside Ready-to-Serve ($/Meter)	Current Outside	Difference ($)	Difference (%)
5/8-in	**$29.50**	$29.56	-$0.06	0%
3/4-in	**$39.76**	$29.56	$10.20	35%
1-in	**$60.38**	$73.88	-$13.50	-18%
1 1/2-in	**$115.43**	$147.72	-$32.29	-22%
2-in	**$185.02**	$236.35	-$51.33	-22%
3-in	**$387.64**	$443.17	-$55.53	-13%
4-in	**$688.94**	$738.62	-$49.68	-7%
6-in	**$1,686.60**	$1,477.21	$209.39	14%
8-in	**$2,837.74**	$3,398.51	-$560.77	-17%
10-in	**$4,244.91**	$4,195.23	$49.68	1%

Option 2A

Inside Commodity Rates

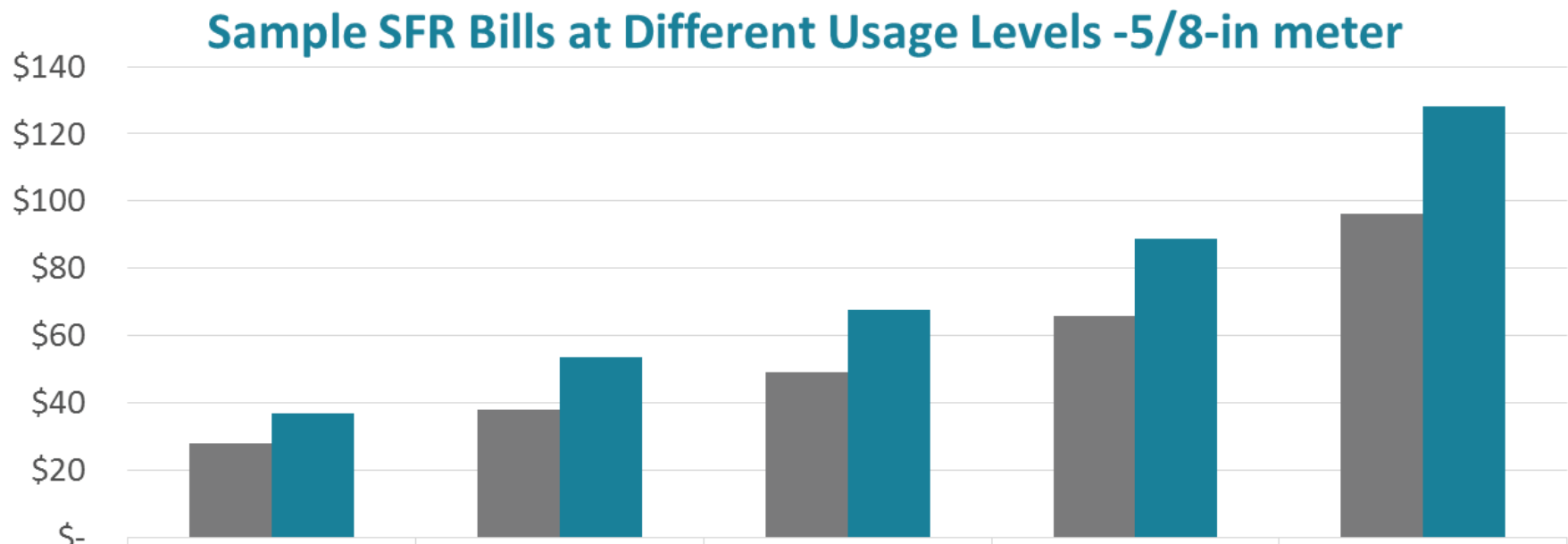
Commodity	Proposed Tier	Proposed Commodity Rate	Current Commodity Rate
SFR			
Tier 1	0-5	$5.15	$2.11
Tier 2	6-7	$6.59	$5.33
Tier 3	8-9	$8.13	$6.86
Tier 4	& Above	$10.50	$9.40
Tier 5			$11.71
MFR			
Tier 1	0-5	$5.15	$5.33
Tier 2	6-7	$6.59	$5.33
Tier 3	8-9	$8.13	$5.33
Tier 4	& Above	$10.50	$5.33
Tier 5			$5.33
COM			
Uniform	Uniform	$6.69	$5.33
UCSC			
Uniform	Uniform	$6.95	$5.33
North Coast AG			
Uniform	Uniform	$5.33	$1.70
Landscape			
Tier 1	100% of TWB	$7.53	$5.33
Tier 2	150% of TWB	$11.22	$5.33
Tier 3	& Above	$12.39	$5.33
Elevation Surcharge			
Elevation Surcharge		$0.42	$0.20

Option 2A

Outside Commodity Rates

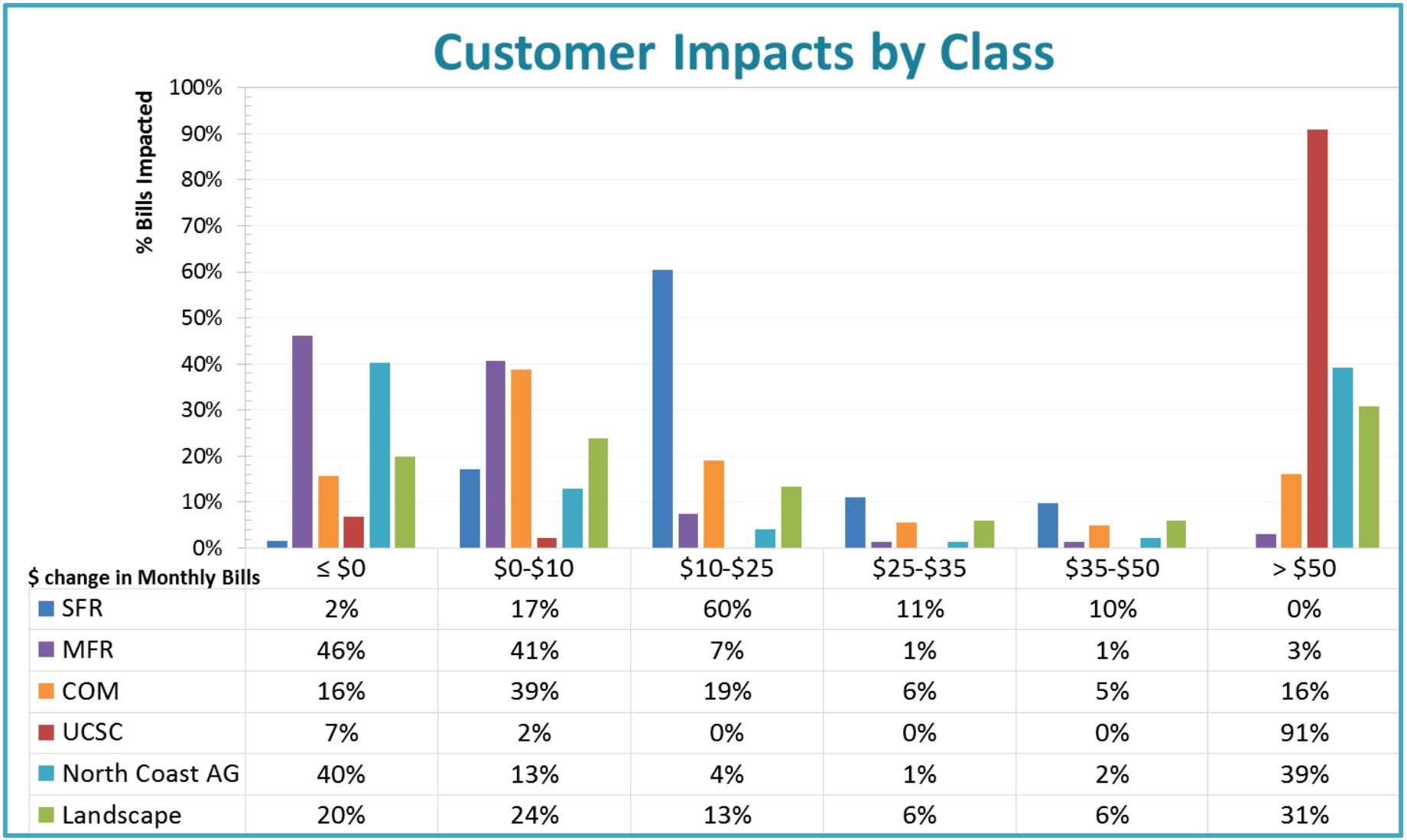
Commodity	Proposed Tier	Proposed Commodity Rate	Current Commodity Rate
SFR			
Tier 1	0-5	$5.92	$2.67
Tier 2	6-7	$7.59	$6.80
Tier 3	8-9	$9.38	$8.74
Tier 4	& Above	$12.14	$11.96
Tier 5			$14.94
MFR			
Tier 1	0-5	$5.92	$6.80
Tier 2	6-7	$7.59	$6.80
Tier 3	8-9	$9.38	$6.80
Tier 4	& Above	$12.14	$6.80
Tier 5			$6.80
COM			
Uniform	Uniform	$7.66	$6.80
UCSC			
Uniform	Uniform	N/A	$6.80
North Coast AG			
Uniform	Uniform	N/A	$1.70
Landscape			
Tier 1	100% of TWB	$8.62	$6.80
Tier 2	150% of TWB	$12.86	$6.80
Tier 3	& Above	$14.20	$6.80
Elevation Surcharge			
Elevation Surcharge		$0.48	$0.20

Option 2A – 60% Variable / 40% Fixed SFR Sample Impact



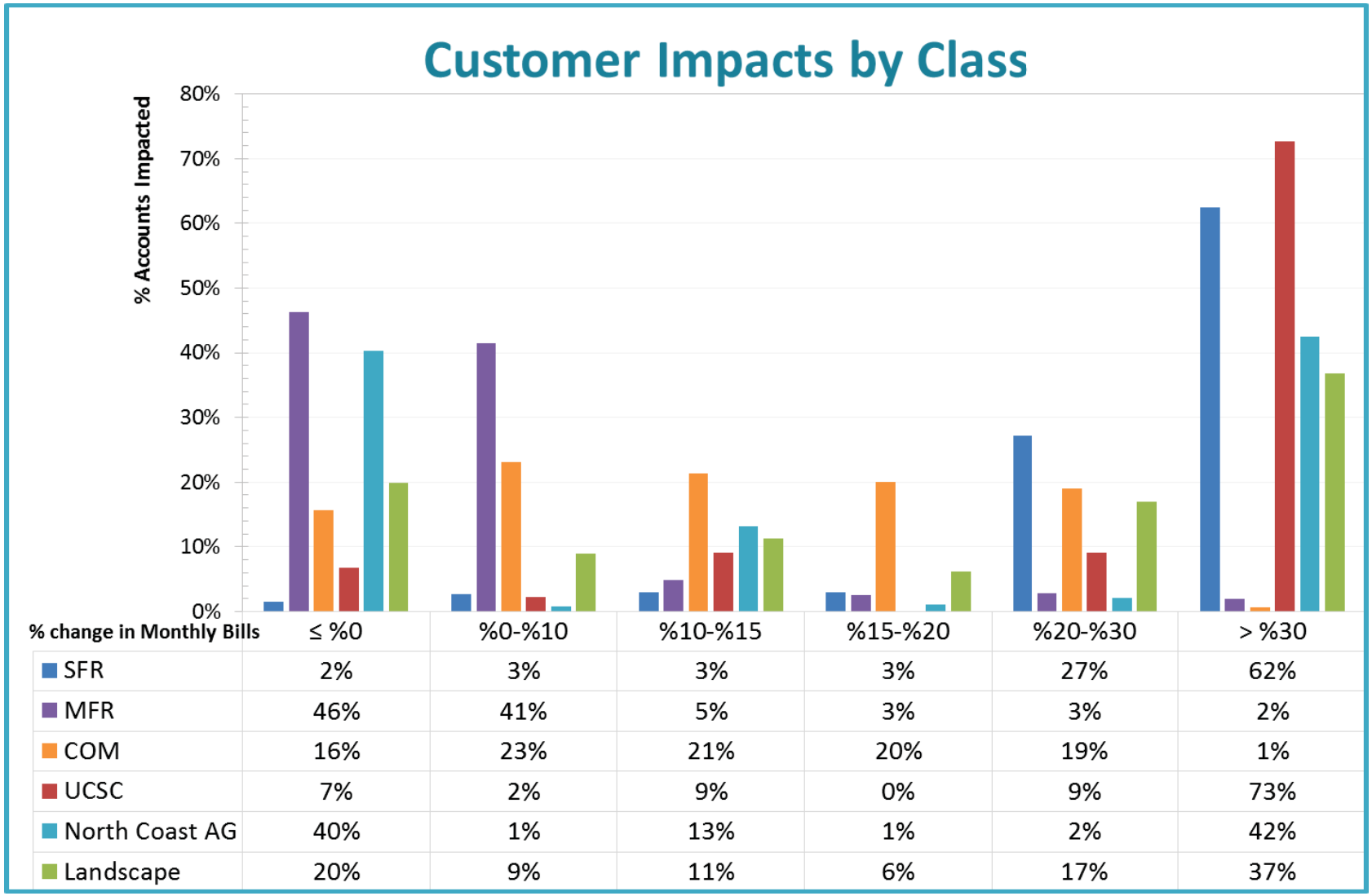
	2 ccf	5 ccf	7 ccf	10 ccf	15 ccf
Current Bill	$27.81	$37.96	$49.02	$65.61	$96.32
Proposed Bill	$36.90	$53.61	$67.63	$88.66	$128.33
Impact $	$9.09	$15.65	$18.61	$23.05	$32.01
% of Bills	15%	31%	18%	17%	19%

Option 2A – 60% Variable / 40% Fixed Customer Impacts by Class ($)



$ change in Monthly Bills	≤ $0	$0-$10	$10-$25	$25-$35	$35-$50	> $50
SFR	2%	17%	60%	11%	10%	0%
MFR	46%	41%	7%	1%	1%	3%
COM	16%	39%	19%	6%	5%	16%
UCSC	7%	2%	0%	0%	0%	91%
North Coast AG	40%	13%	4%	1%	2%	39%
Landscape	20%	24%	13%	6%	6%	31%

Option 2A – 60% Variable / 40% Fixed Customer Impacts (%)



% change in Monthly Bills	≤ %0	%0-%10	%10-%15	%15-%20	%20-%30	> %30
SFR	2%	3%	3%	3%	27%	62%
MFR	46%	41%	5%	3%	3%	2%
COM	16%	23%	21%	20%	19%	1%
UCSC	7%	2%	9%	0%	9%	73%
North Coast AG	40%	1%	13%	1%	2%	42%
Landscape	20%	9%	11%	6%	17%	37%

Option 2B

60% VARIABLE / 40% FIXED

IRF – 100% FIXED – AWWA RATIOS

Option 2B – 60% Variable / 40% Fixed Inside Fixed Charge

Meter Size	Proposed Inside Fixed Charge ($/Meter)	Current Inside	Difference ($)	Difference (%)
5/8-in	**$43.57**	$23.19	$20.38	88%
3/4-in	**$61.42**	$23.19	$38.23	165%
1-in	**$97.23**	$57.94	$39.29	68%
1 1/2-in	**$189.80**	$115.88	$73.92	64%
2-in	**$303.96**	$185.38	$118.58	64%
3-in	**$649.99**	$347.59	$302.40	87%
4-in	**$1,162.27**	$579.32	$582.95	101%
6-in	**$2,896.72**	$1,158.60	$1,738.12	150%
8-in	**$4,969.90**	$2,664.74	$2,305.16	87%
10-in	**$7,444.63**	$3,290.36	$4,154.27	126%

Option 2B – 60% Variable / 40% Fixed Outside Fixed Charge

Meter Size	Proposed Outside Fixed Charge ($/Meter)	Current Outside	Difference ($)	Difference (%)
5/8-in	**$49.90**	$29.56	$20.34	69%
3/4-in	**$70.36**	$29.56	$40.80	138%
1-in	**$111.37**	$73.88	$37.49	51%
1 1/2-in	**$217.41**	$147.72	$69.69	47%
2-in	**$348.18**	$236.35	$111.83	47%
3-in	**$744.55**	$443.17	$301.38	68%
4-in	**$1,331.37**	$738.62	$592.75	80%
6-in	**$3,318.16**	$1,477.21	$1,840.95	125%
8-in	**$5,692.96**	$3,398.51	$2,294.45	68%
10-in	**$8,527.74**	$4,195.23	$4,332.51	103%

Option 2B

Inside Commodity Rates

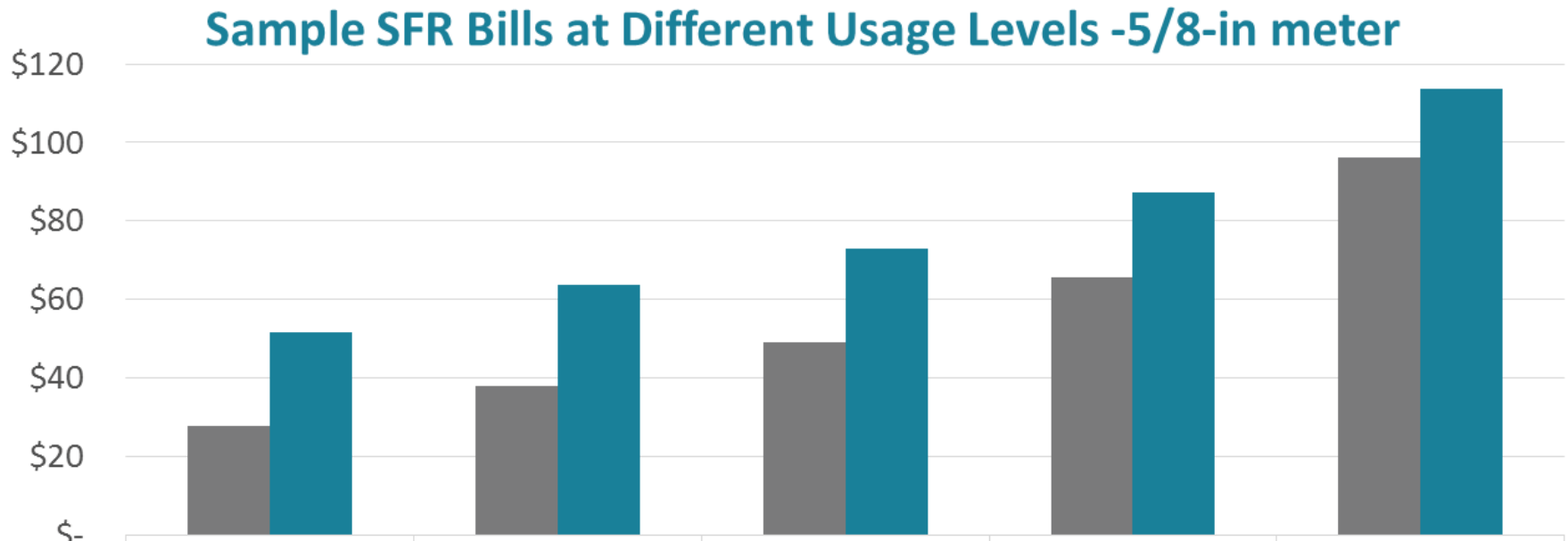
Commodity	Proposed Tier	Proposed Commodity Rate	Current Commodity Rate
SFR			
Tier 1	0-5	$3.60	$2.11
Tier 2	6-7	$4.27	$5.33
Tier 3	8-9	$5.26	$6.86
Tier 4	& Above	$6.64	$9.40
Tier 5			$11.71
MFR			
Tier 1	0-5	$3.60	$5.33
Tier 2	6-7	$4.27	$5.33
Tier 3	8-9	$5.26	$5.33
Tier 4	& Above	$6.64	$5.33
Tier 5			$5.33
COM			
Uniform	Uniform	$4.42	$5.33
UCSC			
Uniform	Uniform	$4.55	$5.33
North Coast AG			
Uniform	Uniform	$2.28	$1.70
Landscape			
Tier 1	100% of TWB	$4.71	$5.33
Tier 2	150% of TWB	$7.00	$5.33
Tier 3	& Above	$8.12	$5.33
Elevation Surcharge			
Elevation Surcharge		$0.42	$0.20

Option 2B

Outside Commodity Rates

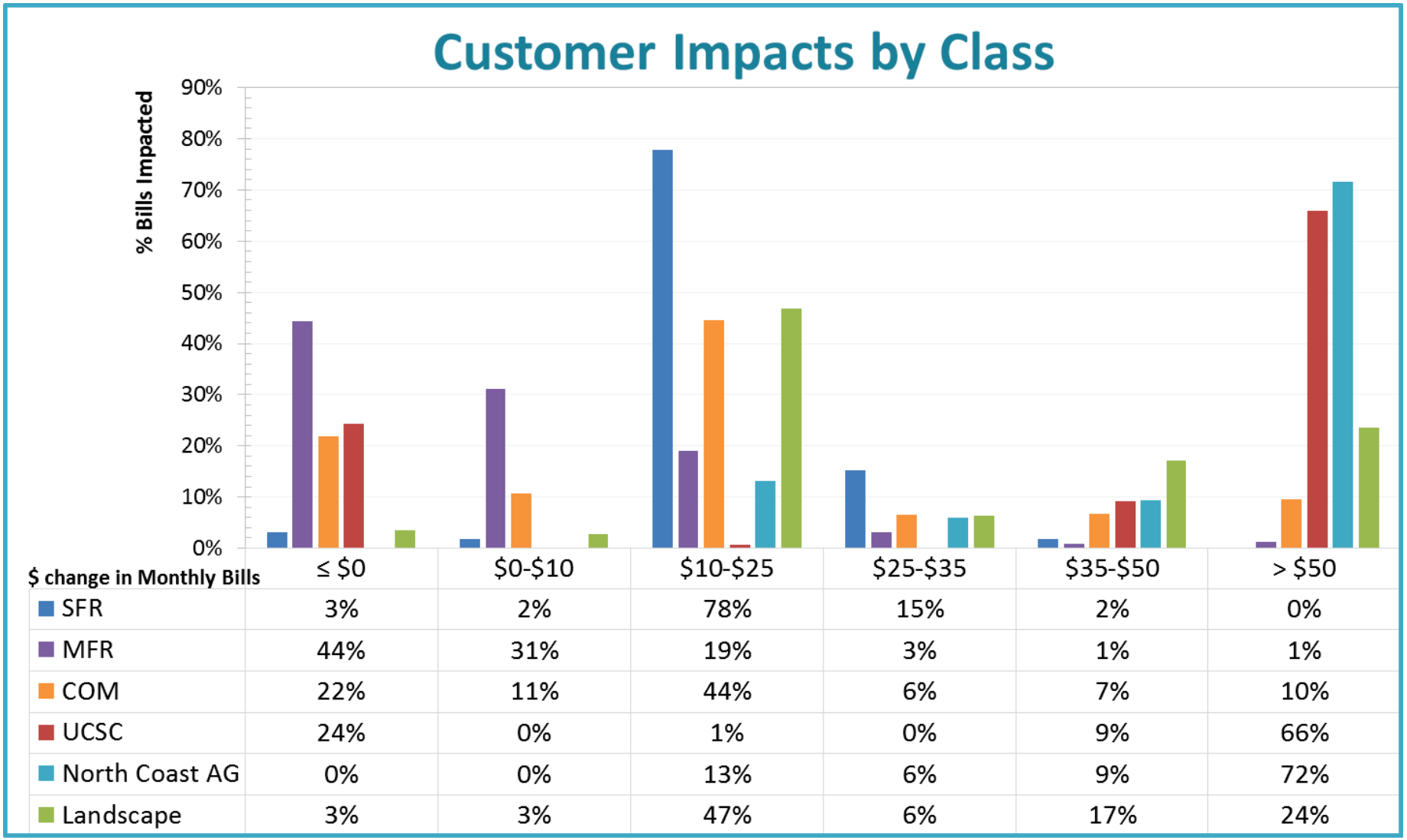
Commodity	Proposed Tier	Proposed Commodity Rate	Current Commodity Rate
SFR			
Tier 1	0-5	$4.13	$2.67
Tier 2	6-7	$4.91	$6.80
Tier 3	8-9	$6.07	$8.74
Tier 4	& Above	$7.69	$11.96
Tier 5			$14.94
MFR			
Tier 1	0-5	$4.13	$6.80
Tier 2	6-7	$4.91	$6.80
Tier 3	8-9	$6.07	$6.80
Tier 4	& Above	$7.69	$6.80
Tier 5			$6.80
COM			
Uniform	Uniform	$5.06	$6.80
UCSC			
Uniform	Uniform	N/A	$6.80
North Coast AG			
Uniform	Uniform	N/A	$1.70
Landscape			
Tier 1	100% of TWB	$5.39	$6.80
Tier 2	150% of TWB	$8.02	$6.80
Tier 3	& Above	$9.30	$6.80
Elevation Surcharge			
Elevation Surcharge		$0.48	$0.20

Option 2B – 60% Variable / 40% Fixed SFR Sample Impact



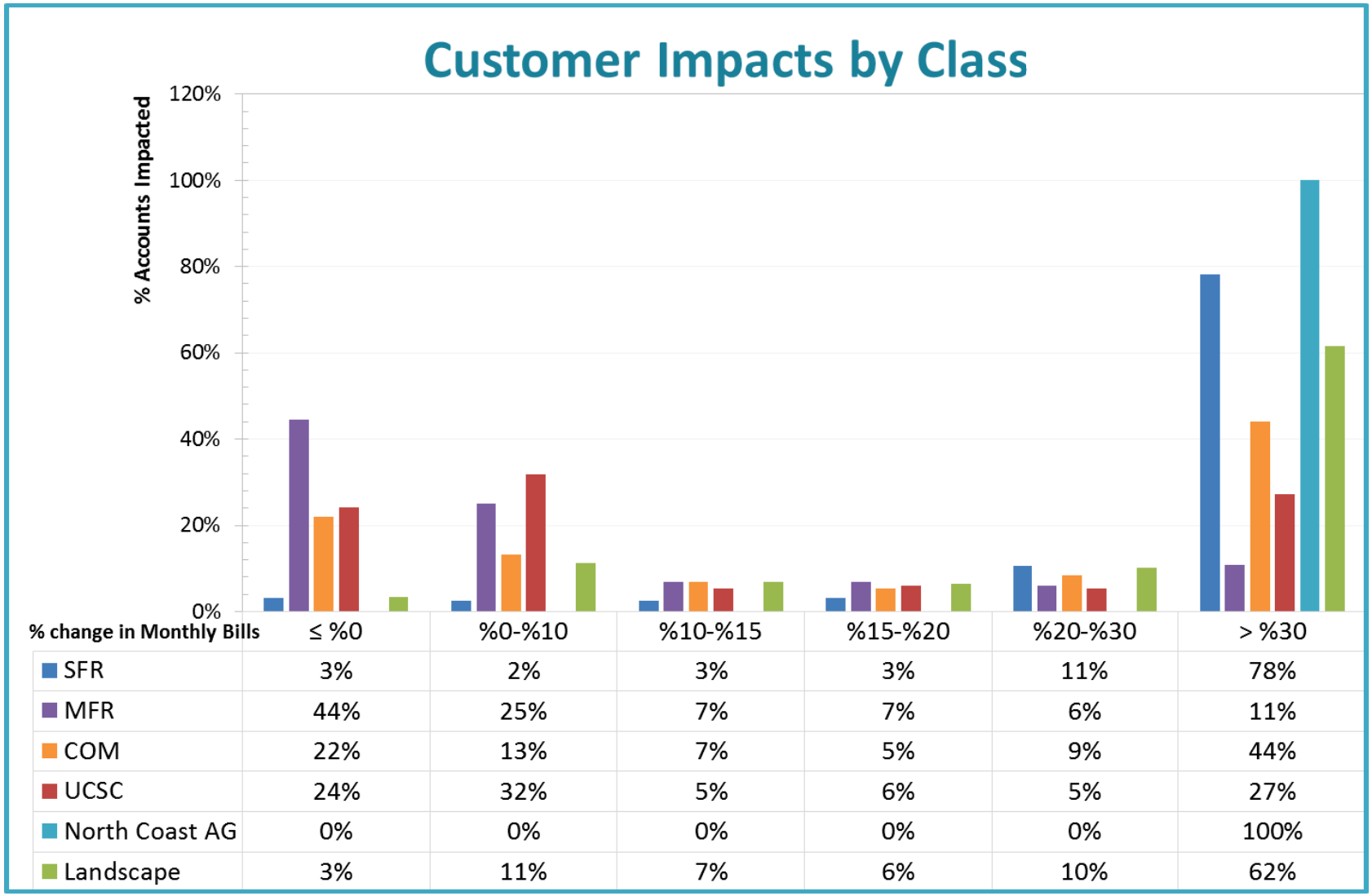
	2 ccf	5 ccf	7 ccf	10 ccf	15 ccf
Current Bill	$27.81	$37.96	$49.02	$65.61	$96.32
Proposed Bill	$51.61	$63.67	$73.05	$87.12	$113.54
Impact $	$23.80	$25.71	$24.03	$21.51	$17.22
% of Bills	15%	31%	18%	17%	19%

Option 2B – 60% Variable / 40% Fixed Customer Impacts by Class ($)



$ change in Monthly Bills	≤ $0	$0-$10	$10-$25	$25-$35	$35-$50	> $50
SFR	3%	2%	78%	15%	2%	0%
MFR	44%	31%	19%	3%	1%	1%
COM	22%	11%	44%	6%	7%	10%
UCSC	24%	0%	1%	0%	9%	66%
North Coast AG	0%	0%	13%	6%	9%	72%
Landscape	3%	3%	47%	6%	17%	24%

Option 2B – 60% Variable / 40% Fixed Customer Impacts (%)

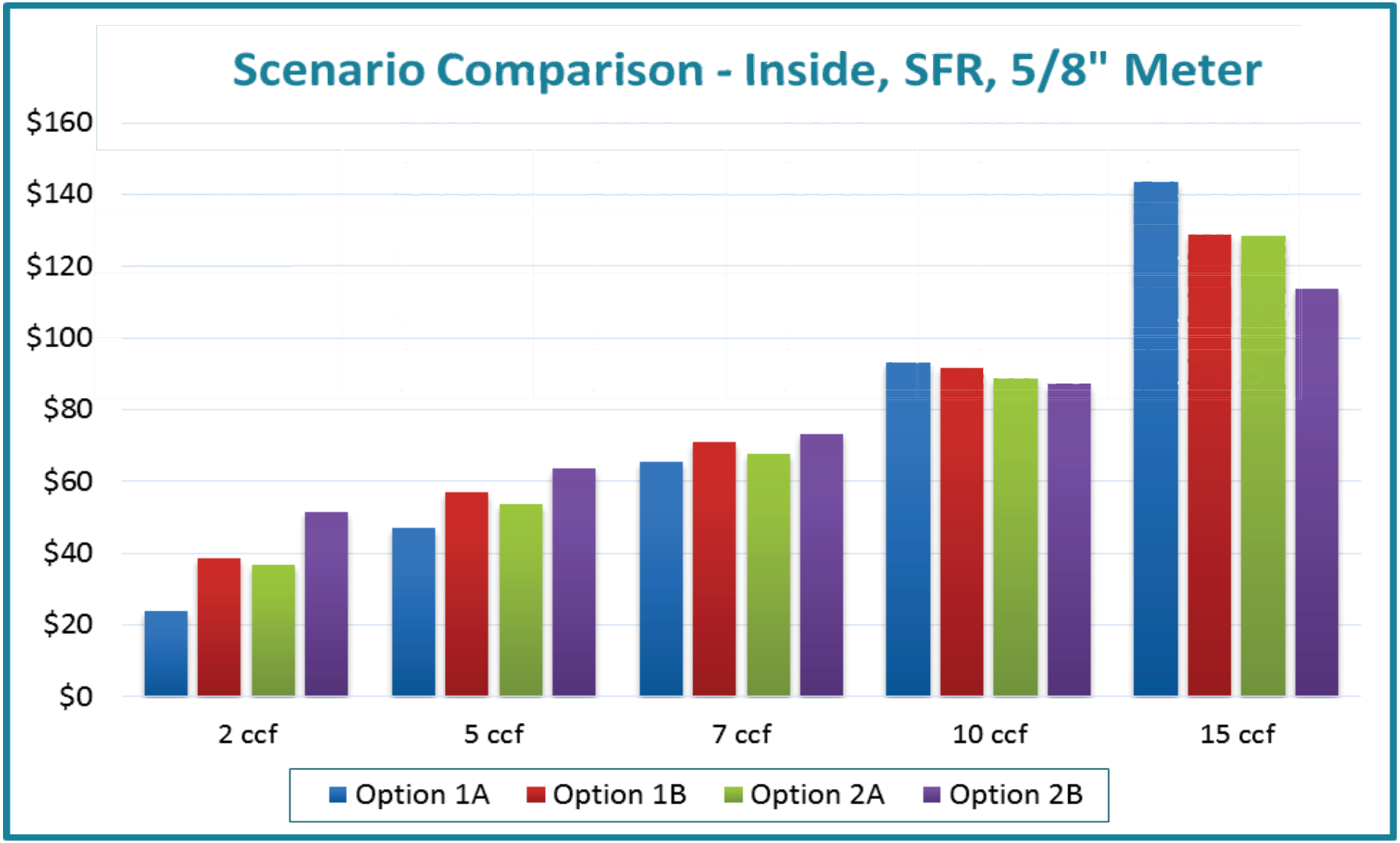


% change in Monthly Bills	≤ %0	%0-%10	%10-%15	%15-%20	%20-%30	> %30
SFR	3%	2%	3%	3%	11%	78%
MFR	44%	25%	7%	7%	6%	11%
COM	22%	13%	7%	5%	9%	44%
UCSC	24%	32%	5%	6%	5%	27%
North Coast AG	0%	0%	0%	0%	0%	100%
Landscape	3%	11%	7%	6%	10%	62%

Summary of Rate Scenario Impact

	Proposed SFR Bills - Inside, 5/8" Meter				
	2 ccf	5 ccf	7 ccf	10 ccf	15 ccf
Option 1A	$23.94	$47.13	$65.49	$93.03	$143.55
Option 1B	$38.65	$57.19	$70.91	$91.49	$128.76
Option 2A	$36.90	$53.61	$67.63	$88.66	$128.33
Option 2B	$51.61	$63.67	$73.05	$87.12	$113.54

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	33%	26%	23%	16%
Tier 2	15%	10%	11%	7%
Tier 3	6%	4%	5%	3%
Tier 4	12%	9%	10%	7%
Uniform	26%	20%	20%	14%
Total	100%	100%	100%	100%

Pricing Objectives

Conservation Pricing Objectives

Administration	Equity	Appropriate Funding Mechanisms	Rate Stability & Affordability	Promotes Efficiency / Conservation
• Customer Understanding • Easy to Implement • Easy to Administer	• Equitable in Allocating CIP Cost • Perceived to be Fair to the Public • Align Supply & Demand	• Revenue Stability • Revenue Sufficiency • Potential Funding Mechanism for Alt. Water Supply & Conservation Programs	• Rate Stability • Mitigate Customer Impact • Affordability for Essential Use	• Promotes Conservation • Tool for Drought Management Action Plan • Promotes Efficiency • Rewards Past Conservation Effort • Economic Development • Based on Individual Needs • Scientific Method

Pricing Objective Exercise

Most Important / Critical = 1; Very Important = 2; Important = 3; Least Important = 4

Importance Rankings	Pricing Objectives	Average
Most Important	Revenue Sufficiency	1.1
Very Important	Promotes Efficiency	1.6
	Revenue Stability	1.7
	Perceived to be Fair to the Public	1.8
	Affordability for Essential Use	1.8
	Customer Understanding	1.9
	Promotes Conservation	2.0
	Rate Stability	2.0
Important	Tool for Drought Management Action Plan	2.3
	Equitable in Allocating CIP Cost	2.4
	Potential Funding Mechanism for Alt. Water Supply & Conservation Programs	2.4
	Scientific Method	2.4
	Align Supply & Demand	2.6
	Mitigate Customer Impact	2.7
Least Important	Economic Development	2.9
	Easy to Administer	2.9
	Rewards Past Conservation Effort	3.1
	Easy to Implement	3.1
	Based on Individual Needs	3.2

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	★	★★	★★	★★★

Boils down to

Do we want a rate structure that achieves affordability / promotes conservation?

Or do we want to achieve revenue / rate stability?

What is the main purpose of the water rate structure?

Discussion