



STAKEHOLDERS ADVISORY GROUP

Board of Water Supply, City & County of Honolulu
October 21, 2021
Meeting 40 - Virtual

WELCOME

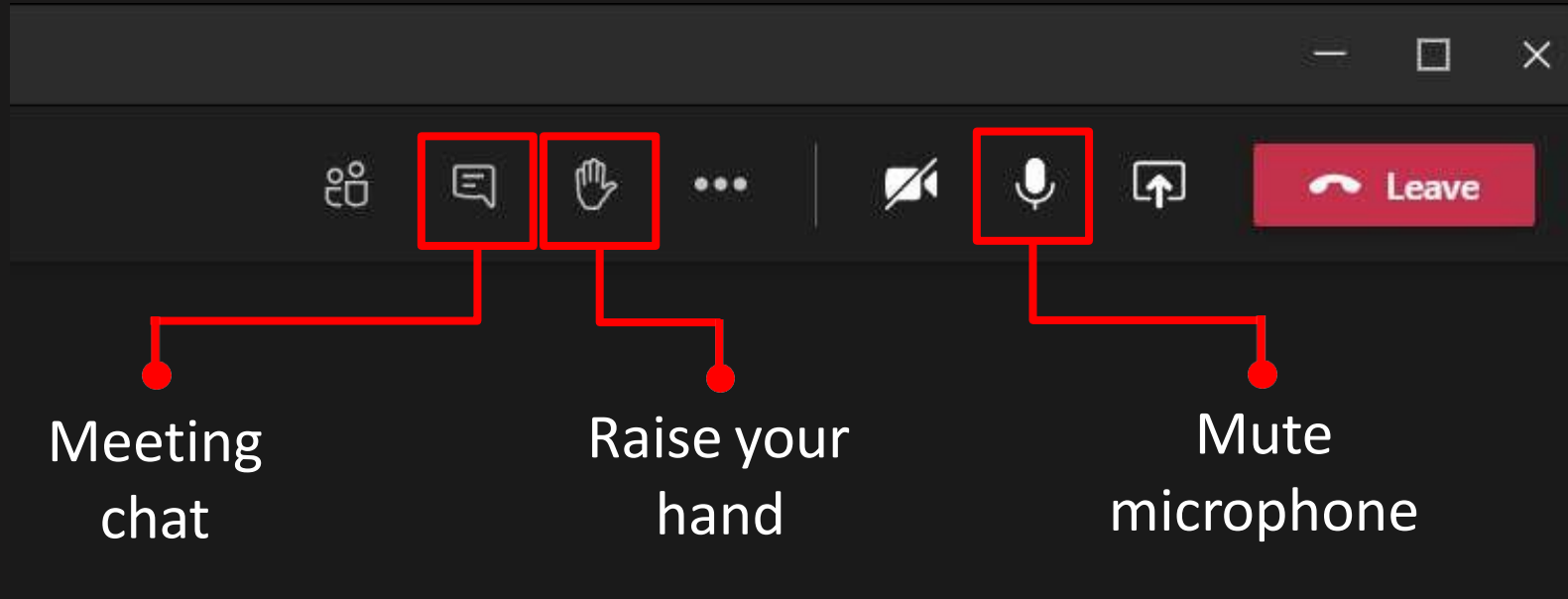
DAVE EBERSOLD, FACILITATOR

STAKEHOLDER ADVISORY GROUP MEETING 40


OCTOBER 21, 2021



3 IMPORTANT CONTROLS



VIRTUAL MEETING BEST PRACTICES

- Please stay muted unless you are speaking
- Use  or meeting chat to let us know you want to ask a question
- If you don't have the "raise hand" function or meeting chat, unmute your mic/phone and speak
- Speak one person at a time
- Expect something to go wrong
- Remember that patience is a virtue



MEETING OBJECTIVES

- Water System Facility Charge
- Accept notes from meeting #39
- Discuss Stakeholder Priorities
- Learn about Lead and Copper Rule Revisions
- Provide Update to the Water Master Plan Scorecard



PUBLIC COMMENT ON AGENDA ITEMS



BWS UPDATES

ERNEST LAU, MANAGER AND CHIEF ENGINEER
STAKEHOLDER ADVISORY GROUP MEETING 40

OCTOBER 21, 2021



RED HILL UPDATE

- Sept. 27, 2021 – BWS sends letter to DOH Director requesting to argue before the Director our exceptions to Hearings Officer’s Proposed Decision
- October 8, 2021 – Civil Beat news article
 - March 2020 – Navy detects fuel pipeline leak at Pearl Harbor Hotel Pier
 - Jan. 2021 – Navy captain writes email concerned about leak and impact to Contested Case
 - Feb. 3, 2021 – Navy testifies at Contested Case having no knowledge of any leaks other than 2014 release
- October 28, 2021 – Fuel Tank Advisory Committee (FTAC) meeting



Questions?

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ACCEPTANCE OF MEETING 39 NOTES

DAVE EBERSOLD, FACILITATOR

STAKEHOLDER ADVISORY GROUP MEETING 40

OCTOBER 21, 2021





STAKEHOLDER PRIORITIES SURVEY

Dave Ebersold
October 21, 2021
boardofwatersupply.com

17 STAKEHOLDERS PROVIDED FEEDBACK ON PRIORITIES FOR THE GROUP'S MEETINGS

1. Are previously identified priorities the same or have they changed?
2. What are your top 3 priorities?
3. What else would you like to cover at meetings?
4. Feedback on meeting format:
 - Virtual
 - In-person



Q1 – THE PRIORITIES HAVE NOT CHANGED. IN FACT, THEY ARE MORE IMPORTANT NOW

- Water Master Plan implementation
- Climate change
- Watershed protection and conservation
- Alternative sources
- Water quality and emergency preparedness



FEEDBACK: WATER MASTER PLAN IMPLEMENTATION

- All of these priorities are framed by the WMP. And they are interrelated.

- Budgets are driven by priorities.

The engine that drives everything is money.

- It takes a decade to ramp up to replacing 21 miles of pipeline per year. This group is long-sighted and understands what it takes.



FEEDBACK: WMP IMPLEMENTATION AND COORDINATING WITH OTHERS

- The WMP should be examined to confirm that it is aligned with climate adaptation plans of the State and County.
- Make sure that nobody takes away BWS's independence. It is critical for implementing the WMP.
- Consider who we're inviting to meetings so that we and others benefit from healthy discussions.
- BWS should continue to invest in research, especially that which can be used by other agencies facing similar issues. Bring in guest speakers, as we have been doing.



FEEDBACK: CLIMATE CHANGE

- Climate change is a very long-term issue. Because of Hawaii's bureaucracy, it may take a very long time to develop solutions. Keep the pressure on.
- There should be discussion of when to move the pipes inland. The lifespans of the pipes should be one factor that helps determine when.
- We are getting information from climate change research, but how will we use it and what questions should we be talking about?
- Climate change affects farming more than we realized when the group started.



FEEDBACK: EMERGENCY PREPAREDNESS AND WATER QUALITY

- Emergency preparedness is more than generators. It is many things. Keep an eye on the big, complex, and complete picture.
- Sustaining good clean water in Hawaii is a top priority.
- Clean water is more crucial than ever for food security.
- Stay on top of Red Hill issues. We will help.
- Talk about water quality in nearshore waters; connect what is happening at the shoreline to what's happening mauka.



FEEDBACK: ALTERNATIVE SOURCES

- Recycled water, as a non-potable alternative source, is meant to take strain off the potable water system.
- Non-potable vs. potable water will be increasingly important. We should be able to provide the right quality of water to the appropriate end uses.
- Could additional partnerships help BWS expand recycled water production or desalination facilities?



Q2 - WHAT ARE YOUR TOP 3 PRIORITIES?

While the top 3 varies for individuals, *overall*, all 5 are prioritized about equally and they are interrelated.



Q3 - WHAT OTHER TOPICS DO YOU WANT TO DISCUSS AT MEETINGS?

- BWS water quality testing
- Updates on BWS education and public relations activities/programs
- What mainland water utilities are doing with projects/programs/research similar to BWS's efforts; national perspectives
- Partnerships to improve the quality of recycled water, water conservation, watershed programs



Q3 - WHAT OTHER TOPICS DO YOU WANT TO DISCUSS AT MEETINGS? (CONT)

- New technologies
- Gray water plumbing
- Rising groundwater levels
- Drought
- Charter amendments
- Interactions with Hawaii's/Honolulu's elected administrations, other agencies, legislation
- Funding from American Rescue Act, etc.



Q3 - WHAT OTHER TOPICS DO YOU WANT TO DISCUSS AT MEETINGS? (CONT)

- Updates on research that BWS is funding
- Panel discussions – The more people understand about how water resources are protected or not, the better they will understand the context of BWS's recommendations/plans/actions/fees
- Guest speakers have been very popular.
- Continue to:
 - Bring information to the group as well as ...
 - Build relationships that will advance the BWS's ability to implement these priorities.



Q4 - MEETING IN PERSON IS STRONGLY DESIRED

- Even by those who have to drive long distances.
- Stakeholders want to make a difference for BWS. You want to know how you can best ...
 - pass along information that BWS provides to you
 - advocate
 - provide feedback that is valuable to BWS.
- You appreciate how BWS listens to stakeholders
- You are interested in knowing what BWS does with your input and if it is helpful.



Questions?

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LEAD AND COPPER RULE REVISIONS

Erwin Kawata

October 21, 2021

boardofwatersupply.com

BACKGROUND

- 1991, EPA published the Lead and Copper Rule (LCR) to control lead and copper in drinking water
- Requires testing at customer taps.
- Lead and/or copper levels that exceed action level of 15 ug/L or 1.3 mg/L respectively in more than 10% of customer taps sampled require control corrosion treatment
- 2014 - Flint, Michigan water crisis



BACKGROUND – CONT.

- Health Effects – Lead
 - Highly toxic
 - Behavior and learning problems in children and infants
 - Increased risks of heart disease, high blood pressure, kidney problems in adults
- Health Effects – Copper
 - Nausea, vomiting, liver toxicity from excessive exposure



LEAD AND COPPER RULE REVISIONS (LCRR)

- January 15, 2021, EPA promulgates the Lead and Copper Rule Revisions
 - Retains 15 ug/L lead and 1.3 mg/L copper action limits
 - Establishes a trigger level to jump start corrosion control treatment to reduce lead in drinking water
 - Requires water systems to identify and make public the locations of lead service lines
 - Requires lead service line replacements
 - Requires testing in schools and child-care facilities



RULE DATES AND CONTAMINANT LIMITS

- Effective date: December 16, 2021
- Compliance date: October 16, 2024
- Action Level (90th percentile value) – Rule compliance
 - Lead: 15 ug/L
 - Copper: 1.3 mg/L
- Lead Trigger Level
 - 90th percentile > 10 ug/L and ≤ 15 ug/L



RULE REQUIREMENTS

- Lead Trigger Level - 90th percentile $> 10 \text{ ug/L}$ and $\leq 15 \text{ ug/L}$
 - Additional lead and copper monitoring and corrosion control treatment (CCT). Must be reviewed during sanitary survey
 - Water quality parameter monitoring
 - **PWS $\geq 50,000$ must monitor at EPD and within distribution system**
- Find and Fix
 - Resample within 30 days any individual tap sample lead $\geq 15 \text{ ug/L}$
 - Determine cause and get state approval of recommended next steps

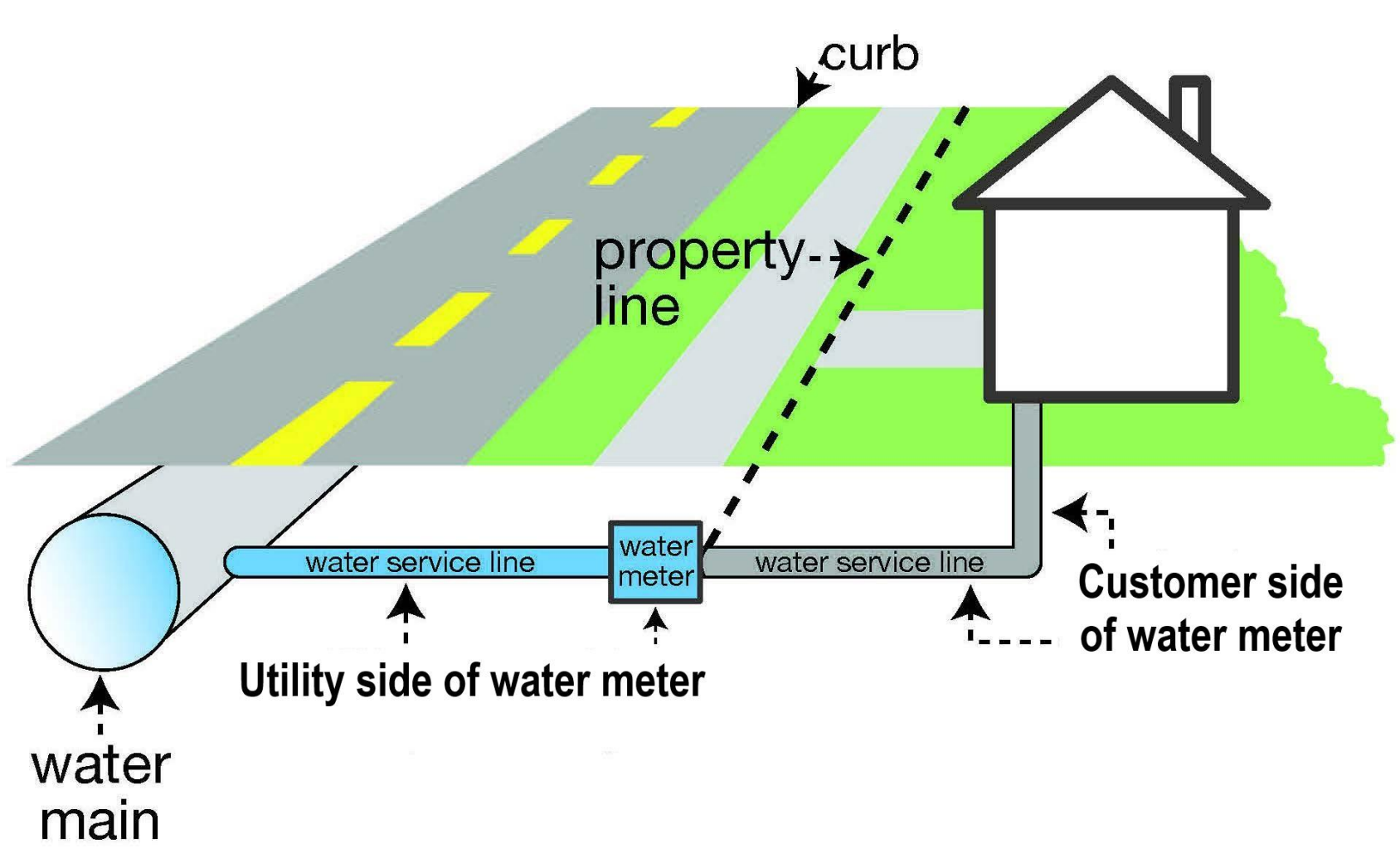


RULE REQUIREMENTS – CONT.

- Lead Service Line Inventory (update annually)
 - Identify materials of all service lines (utility and customer side of meter)
 - Categorize each service line as:
 - Lead
 - Non-lead (copper, plastic, etc. and must show evidence)
 - Galvanized line at any time connected to lead service line or lead connector
 - If cannot demonstrate galvanized line never connected to lead service line, then define as lead line and becomes a **galvanized line requiring replacement**
 - Lead status unknown (aka: unknown or unknown material type) = lead line
- Provide searchable database to give public access to inventory



UTILITY AND CUSTOMER SIDE OF THE METER



RULE REQUIREMENTS – CONT.

- Lead Service Line Replacement (LSLR) Plan
 - All systems with known or possible LSLs must prepare and submit LSLR plan to state for approval by January 24, 2024
- LSLR Plan contents
 - Strategy for determining the composition of lead status unknown lines
 - Full LSLR procedure and strategy for informing affected customers
 - A recommended LSLR goal rate
 - Procedure for customer to flush service lines and premise plumbing



RULE REQUIREMENTS – CONT.

- LSLR Plan contents – cont.
 - LSLR prioritization strategy based on factors including but not limited to targeting known lead services lines, LSLR for disadvantaged consumers and populations most sensitive to effects of lead
 - A funding strategy for conducting LSLR which considers ways to accommodate customers that are unable to pay to replace the portion they own



RULE REQUIREMENTS – CONT.

- Lead service line replacement (LSLR) required when:
 - 90th percentile lead exceeds 15 ug/L, replacement is mandatory
 - 90th percentile lead exceeds 10 ug/L (trigger level), based on replacement goals developed in consultation with the state
- Annual LSLR rate is based on number of LSLs and galvanized requiring replacement when the system first exceeds the action level plus the current number of lead status unknown service lines



RULE REQUIREMENTS – CONT.

- Lead service line replacement – cont.
 - PWS must offer to replace customer-owned LSL
 - PWS not required to bear the cost of replacements
 - PWS not required to replace if customer objects. But does not count toward compliance
 - Following each LSLR provide pitcher filters/cartridges to each customer for 6 months after replacement
 - Collect lead at tap sample at locations with LSLRs within 3 to 6 months after replacement



RULE REQUIREMENTS – CONT.

- Public Notification

- Annual notification of customers served by LSL or lead status unknown lines
- Information on lead services and opportunities for replacement
- Outreach to encourage customers with LSLs to participate in LSLR program
- When PWS fails to meet replacement goals
- Contact at risk customers including potentially affected customers (i.e. schools, child-care facilities, school boards, etc.)
- Lead service line inventory results
- Results of all tap water samples used to calculate 90th percentile values
- Report 90th percentile values in CCR



RULE REQUIREMENTS – CONT.

- Schools and Child-Care Facilities

- Compile list of schools and CCF by compliance date (October 16, 2024)
- Sample at least once in the five years following the compliance date
- Must sample 20% of schools and 20% of CCF per year
- Sample locations for schools (water motionless in piping for 8 – 18 hrs.)
 - 2 drinking water fountains
 - 1 kitchen faucet used for food or drink preparation
 - 1 classroom faucet and 1 nurse's office as available



RULE REQUIREMENTS – CONT.

- Schools and Child-Care Facilities – cont.
 - Sample locations for CCF
 - 1 drinking water fountain
 - 1 kitchen faucet used for food or drink preparation
 - 1 classroom faucet or other outlet used for drinking
 - PWS must provide information annually to all schools and CCF
 - Health risks from lead in drinking water
 - EPA information for reducing lead in drinking water
 - Sample and test upon request



HAWAII DEPARTMENT OF HEALTH – LEAD IN SCHOOL AND CHILD CARE FACILITIES TAP WATER TESTING

- Water Infrastructure Improvements for the Nation (WIIN) Act of 2016 project to test the drinking water for lead at Hawaii schools and child-care facilities
- Project period: February 2021 – April 2022
- Main Webpage: <https://health.hawaii.gov/heer/environmental-health/highlighted-projects/wiin/>
- Results Page: <https://health.hawaii.gov/heer/environmental-health/highlighted-projects/wiin/results/>



SUMMARY

- Lead service line inventory determines tap water monitoring locations and service laterals that need replacement
- LSLR will be required based on inventory (galvanized requiring replacement and unknown material laterals) or exceed 90th percentile
- PWS should expect to fund and implement LSL replacement on customer side of meter including schools and CCF
- Dedicated program and staff needed to oversee compliance and track LSLR



Questions?

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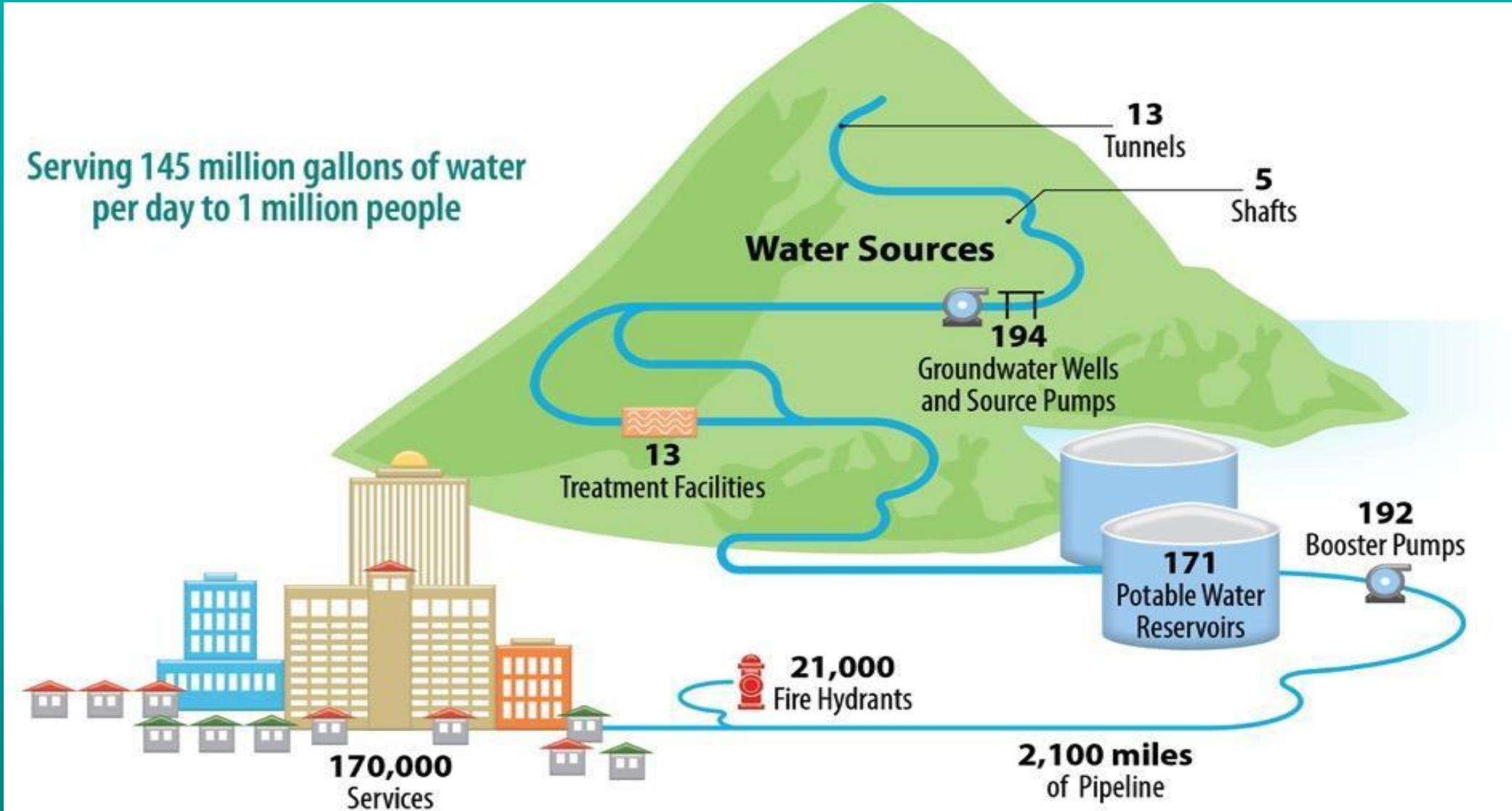


DRAFT WATER SYSTEM FACILITIES CHARGE UPDATES

Dave Ebersold

October 21, 2021
boardofwatersupply.com

DELIVERING WATER FROM UNDERGROUND WATER SOURCES TO YOUR HOME REQUIRES A LARGE AND COMPLEX SYSTEM



THE BWS WATER MASTER PLAN ...

- Looked ahead 30 years
 - ... Evaluated the entire water system
 - ... Identified necessary improvements
 - ... Balanced needs with costs of providing water to our customers



Over the next 30 years, BWS will invest in 800+ infrastructure projects island-wide, with total costs above \$5.3 billion.



WATER SYSTEM FACILITIES CHARGE IS:

- A one-time charge based on water use capacity
- Applies to:
 - All new development requiring water from the BWS's system
 - Additional capacity needed for an existing water service
- Excludes:
 - Developments that have paid for and installed all of a water system
 - Portion of the system installed by developers, e.g., source, transmission and/or storage



WHY UPDATE THE WSFC NOW?

- Current charges adopted in 1993
- Water use patterns have changed
- Growth needs have changed
- Available capacities in existing system have changed
- Costs have increased
- WSFC revenues do not cover costs of growth-related projects



WSFC SHORTFALL: ABOUT \$30 MILLION PER YEAR



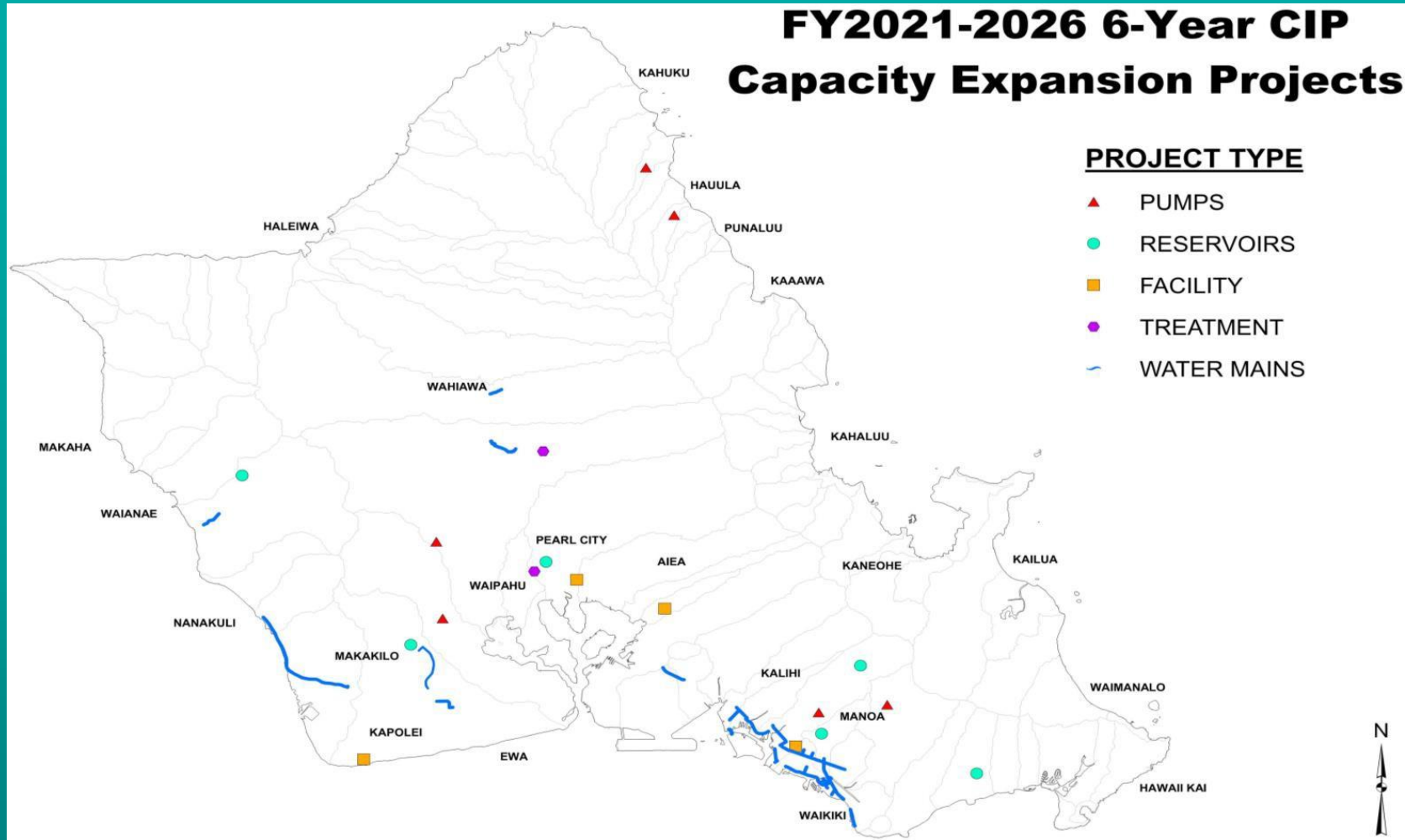
\$10.3 million/year
WSFC monies collected
2015 – 2020 (average)

\$41.8 million/year
Projected annual cost of
growth-related improvements
2021 – 2026 (average)



BENEFITS OF UPDATING THE WSFC:

PAYS FOR CRITICALLY IMPORTANT GROWTH-RELATED PROJECTS LIKE THESE, SCHEDULED FOR CONSTRUCTION IN THE NEXT 6 YEARS.



PROPOSED UPDATED WSFC FOR SINGLE-FAMILY RESIDENTIAL DEVELOPMENT

Residential (Minimum 20 Fixture Units)	Current	Proposed
<u>Single-Family Residential</u>		
Resource Development	\$80.04	\$64.43
Transmission	\$37.87	\$96.02
Daily Storage	\$67.42	\$59.00
Total charge per fixture unit	\$185.33	\$219.45

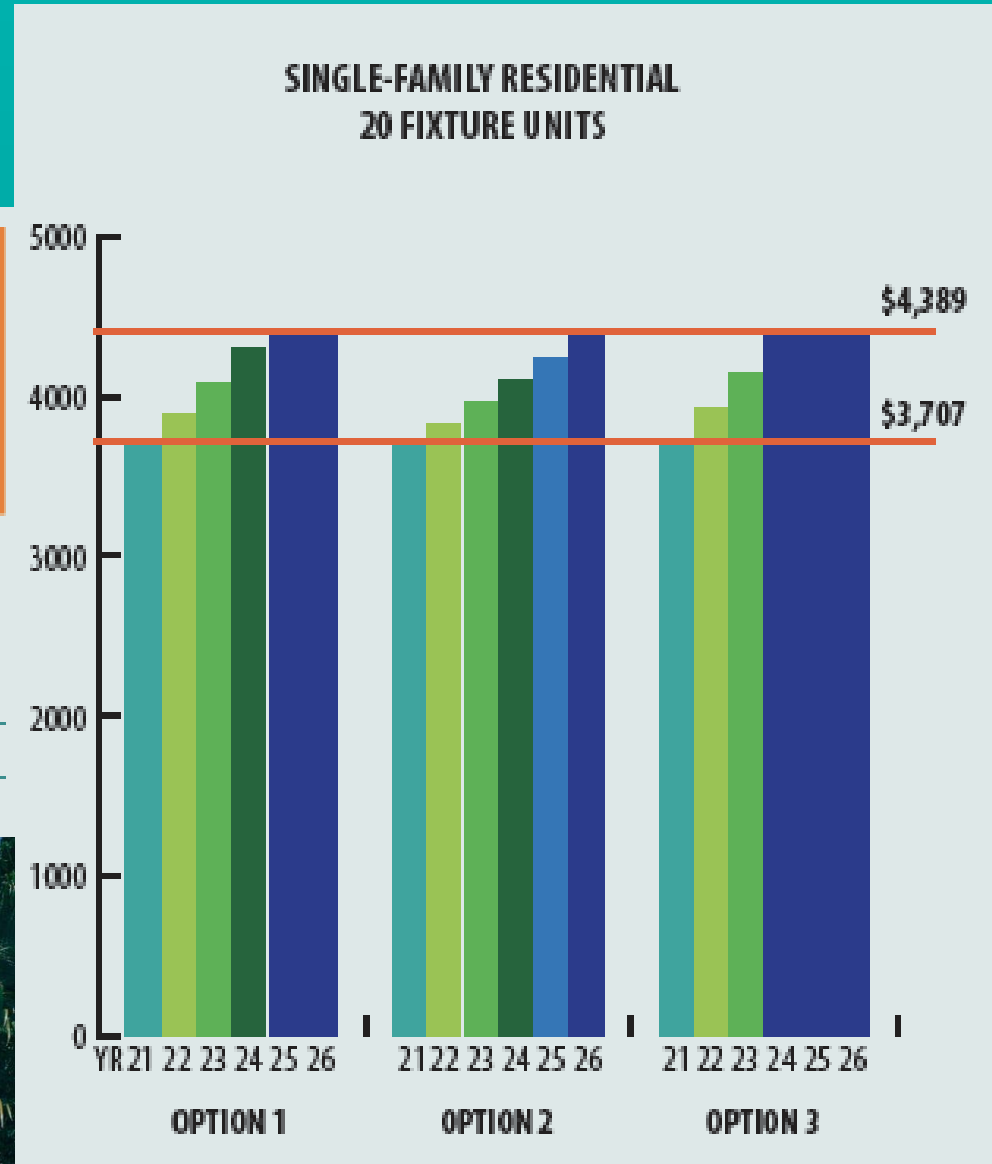


WHAT THAT LOOKS LIKE, YEAR BY YEAR

CHANGE FOR SINGLE-FAMILY RESIDENTIAL:
+18%

Options for implementing the WSFC for Single Family Residential

- OPTION 1** Phase in 5% maximum increase annually
- OPTION 2** Phase in evenly over 5 years
- OPTION 3** Phase in over 3 years



PROPOSED UPDATED WSFC FOR MULTI-UNIT RESIDENTIAL DEVELOPMENT

Residential (Minimum 20 Fixture Units)	Current	Proposed
<u>Multi-Family – Low-Rise</u>		
Resource Development	\$117.14	\$98.17
Transmission	\$55.46	\$118.17
Daily Storage	\$98.67	\$72.62
Total charge per fixture unit	\$271.27	\$288.96
<u>Multi-Family – High-Rise</u>		
Resource Development	\$88.14	\$74.73
Transmission	\$41.73	\$89.96
Daily Storage	\$74.25	\$55.28
Total charge per fixture unit	\$204.12	\$219.97

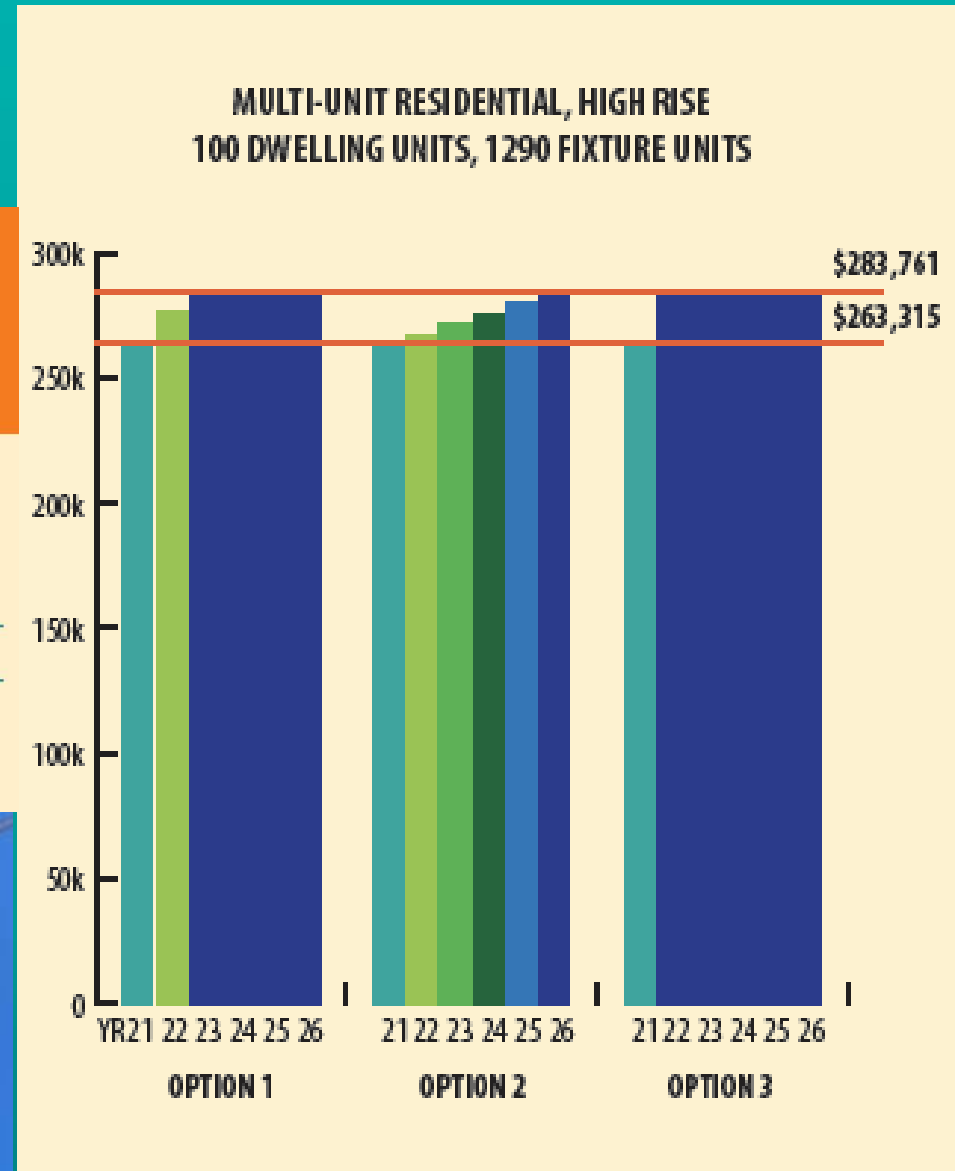


WHAT THAT LOOKS LIKE, YEAR BY YEAR

**CHANGE FOR MULTI-UNIT RESIDENTIAL:
HIGH-RISE +7.8%**

Options for implementing the WSFC for Multi-Unit Residential

- OPTION 1** Phase in 5% maximum increase annually
- OPTION 2** Phase in evenly over 5 years
- OPTION 3** Implement immediately, no phase in



PROPOSED UPDATED WSFC FOR NON-RESIDENTIAL DEVELOPMENT

Non-Residential (Commercial, Industrial, Hotel, Parks and Schools)	Current 50 Fixture Units or Less	Current Additional Fixture Units >50	Proposed All (Minimum of 20 fixture units)
Resource Development	\$274.74	\$95.15	\$111.88
Transmission	\$130.65	\$45.04	\$160.33
Daily Storage	\$232.46	\$80.10	\$98.53
Total charge per fixture unit	\$620.85	\$220.29	\$370.74

The updated WSFC for non-residential developments will have one rate per fixture unit, unlike current fee structure. Smaller developments, which often have small businesses as tenants, will see a significant decrease in the WSFC fees. The “break-even” for whether the WSFC will increase vs. decrease is 133 fixture units.



WHAT THAT LOOKS LIKE, YEAR BY YEAR

CHANGE FOR NON-RESIDENTIAL/COMMERCIAL:

< 50 FIXTURE UNITS: - 40%

> 50 FIXTURE UNITS: INCREASES
WITH FIXTURE UNIT NUMBERS

Options for implementing the WSFC for Non-Residential/Commercial

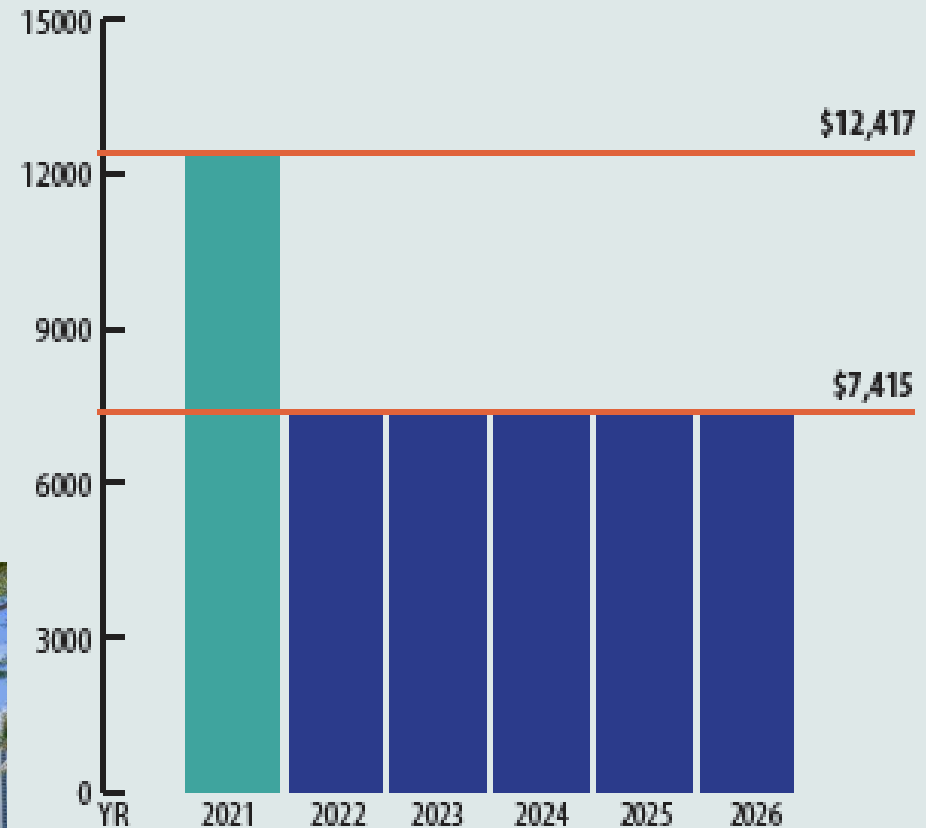
OPTION 1 Phase in 5% maximum increase annually

OPTION 2 Phase in evenly over 5 years

OPTION 3 Implement immediately, no phase in



NON-RESIDENTIAL (FAST FOOD RESTAURANT) 20 FIXTURE UNITS



WHAT THAT LOOKS LIKE, YEAR BY YEAR

CHANGE FOR NON-RESIDENTIAL/COMMERCIAL:

< 50 FIXTURE UNITS: - 40%

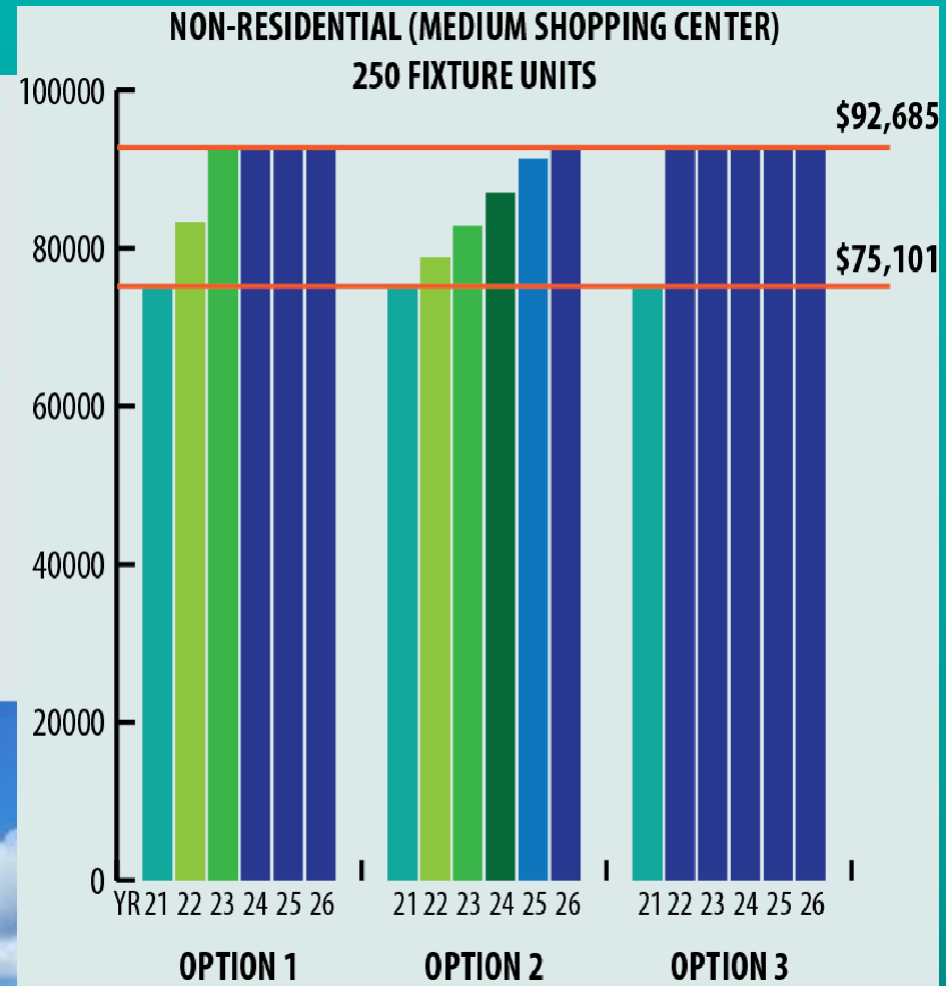
> 50 FIXTURE UNITS: INCREASES
WITH FIXTURE UNIT NUMBERS

Options for implementing the WSFC for Non-Residential/Commercial

OPTION 1 Phase in 5% maximum increase annually

OPTION 2 Phase in evenly over 5 years

OPTION 3 Implement immediately, no phase in



WAIVERS FOR AFFORDABLE HOUSING AND HOMELESS SHELTERS ARE AVAILABLE

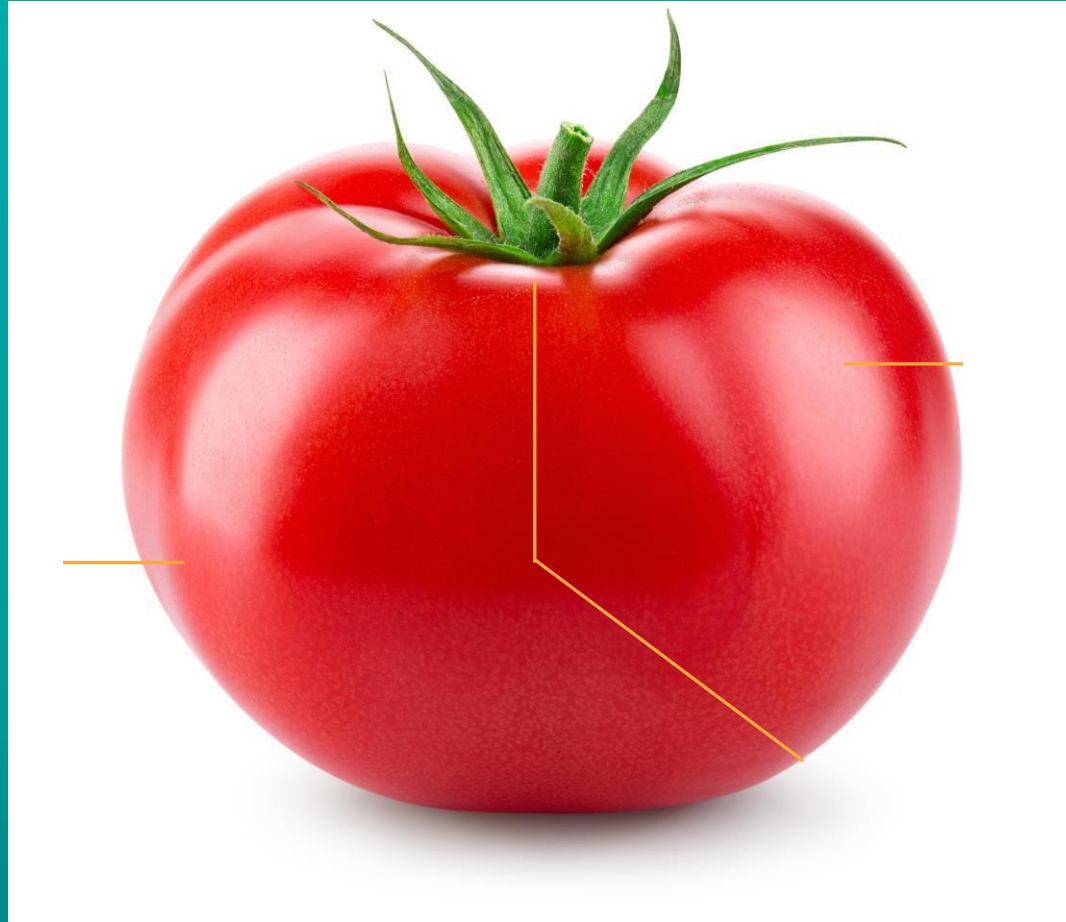
- Currently offered for up to 500 units per year.
- Contact the Honolulu Board of Water Supply for more information.

Fiscal Year	# Affordable Dwelling Units	# Homeless Dwelling Units	# Total Qualified Units	\$ Waived WFSC
FY 2018 – 2019	76	102	178	\$103,432.03
FY 2019 – 2020	302	0	302	\$489,770.41
FY 2020 – 2021	578	0	578	\$789,665.47
TOTALS to date	956	102	1,058	\$1,382,867.91



PROPOSED UPDATED AG WSFC WILL COVER 60% OF THE COST, SIMILAR TO THE BWS AGRICULTURAL WATER RATES SUBSIDY

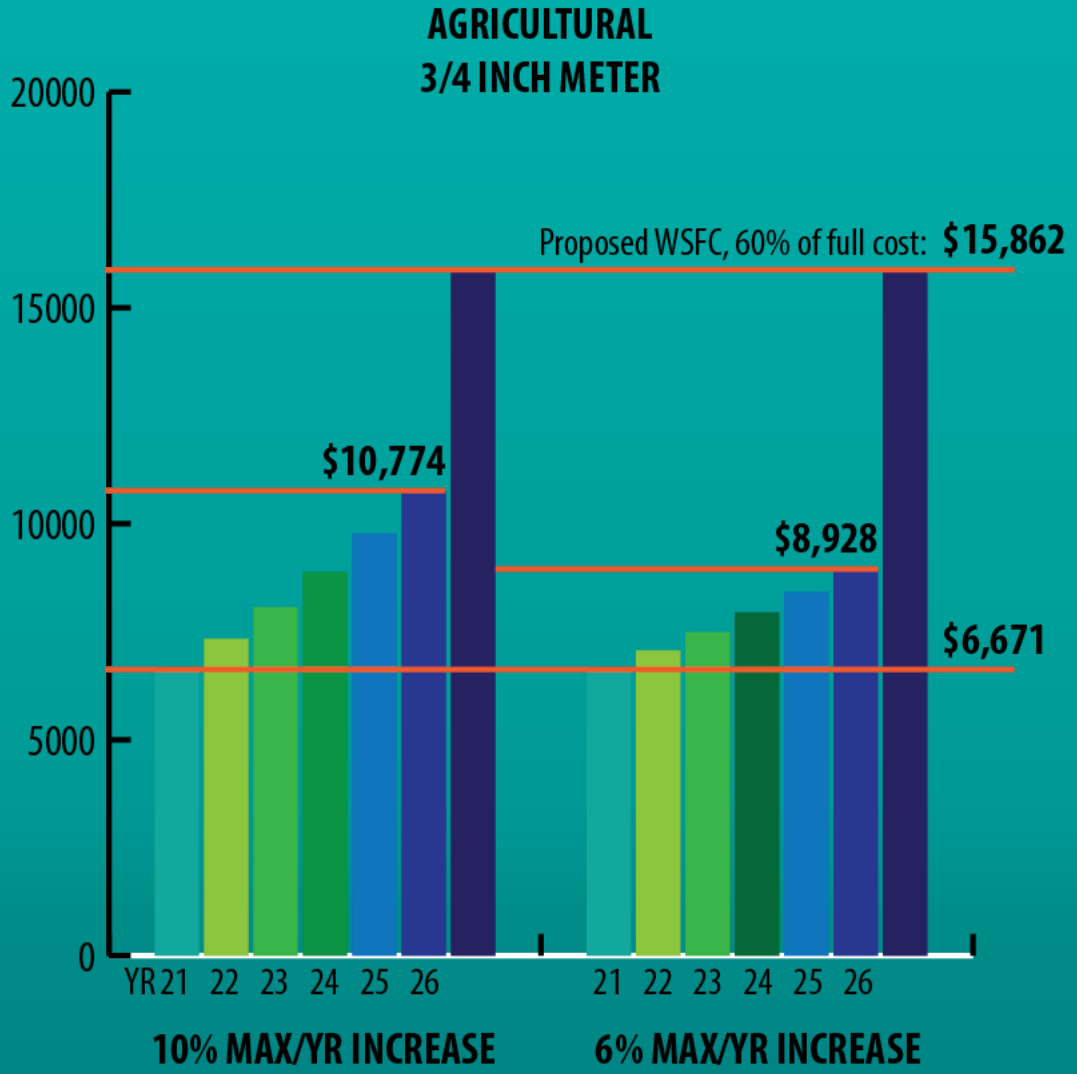
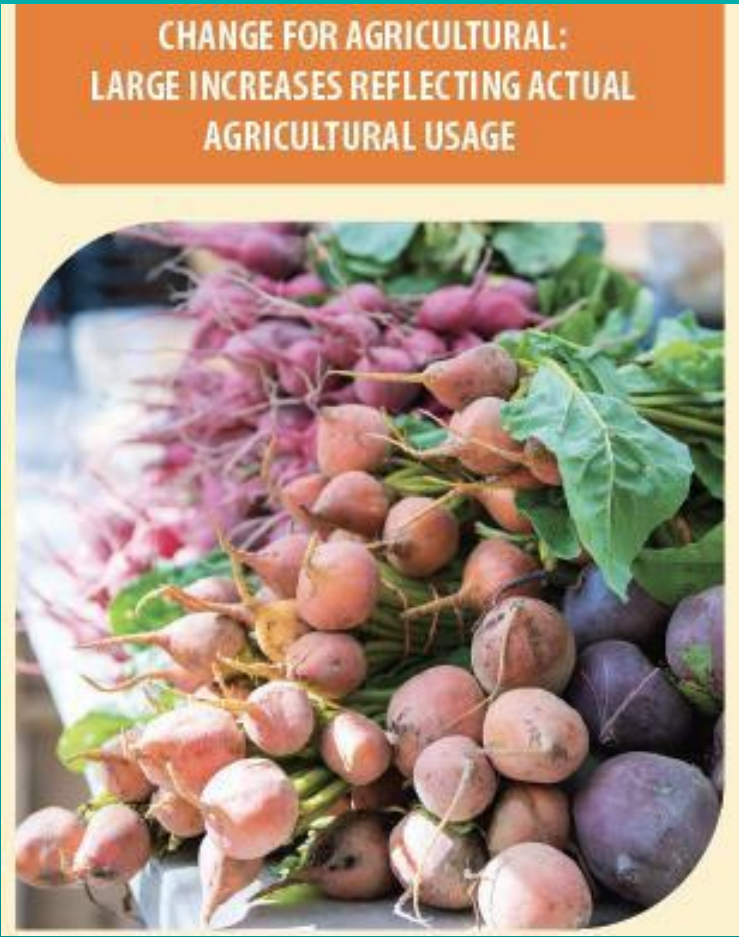
Ag WSFC fee covers 60% of actual costs



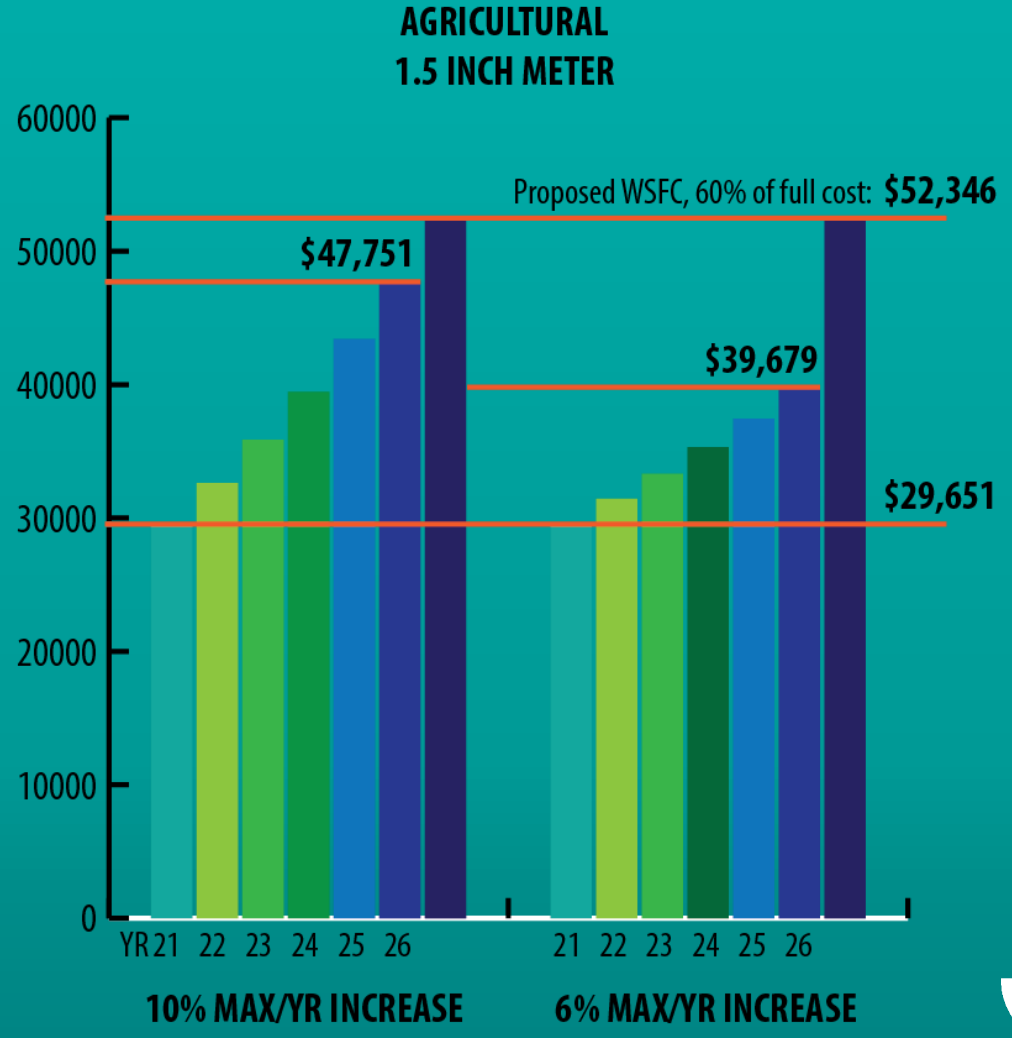
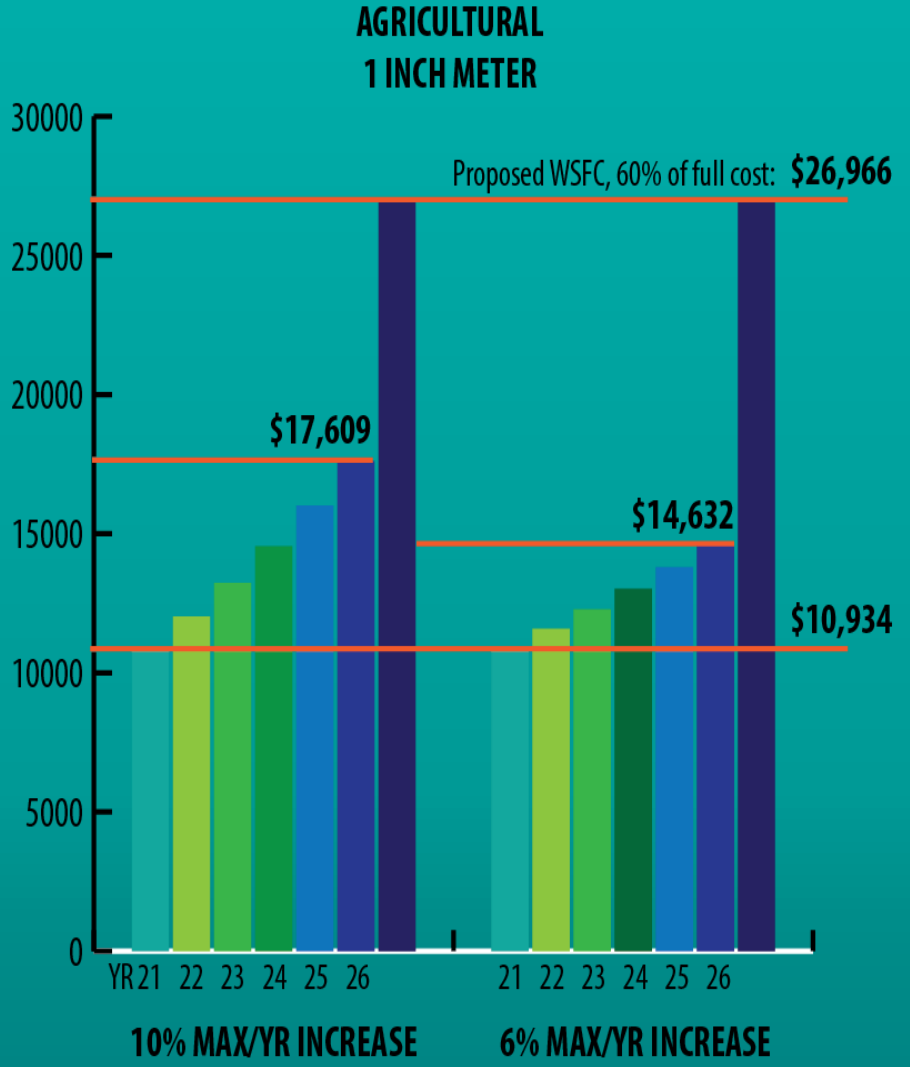
BWS customers subsidize the 40% balance by paying a little extra in every water bill



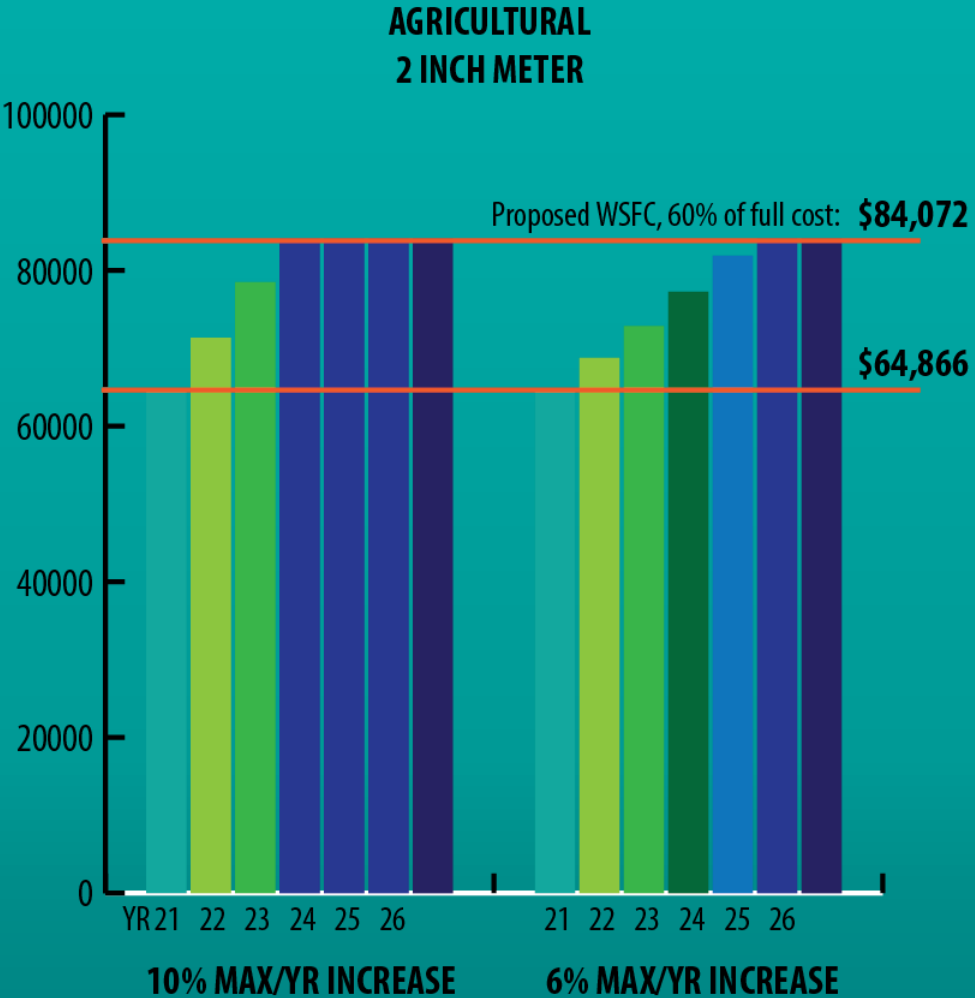
WHAT THAT LOOKS LIKE, YEAR BY YEAR



WHAT THAT LOOKS LIKE, YEAR BY YEAR



WHAT THAT LOOKS LIKE, YEAR BY YEAR



Proposed updated Ag WSFC could take between 6 and 19 years to reach full proposed rate.

This depends on the annual increases (e.g., 10% vs. 6% maximum annual increase) and meter size.



ADDITIONAL REQUIREMENTS AND ACTIONS

- Agriculture water use plan required for new Ag water customers
 - Helps right-size the water meter
- Encourage water conservation for all BWS ag customers
- Supplemental funding from other sources to offset revenue impacts



SUMMARY OF WSFC OPTIONS AS DIRECTED BY BOARD

Customer Type	Option 1	Option 2	Option 3
Single-Family Residential	5% maximum annual phase in	Even phase in over 5 years	Phase in over 3 years
Multi-Unit Residential Low Rise	5% maximum annual phase in	Even phase in over 5 years	No phase in
Multi-Unit Residential High Rise	5% maximum annual phase in	Even phase in over 5 years	No phase in
Non-Residential	5% maximum annual phase in*	Even phase in over 5 years	No phase in
Agricultural	10% maximum annual increase**	6% maximum annual increase***	10% maximum annual increase**

* 11 years to full charge for largest non-residential customers

**Years to full charge for Ag
 ¾-inch: 9 years
 1 inch: 10 years
 1.5-inch: 6 years
 2 inch: 3 years

***Years to full charge for Ag
 ¾-inch: 18 years
 1 inch: 19 years
 1.5-inch: 13 years
 2 inch: 6 years



WE'VE BEEN ASKING THE PUBLIC FOR INPUT

At this time, BWS water customers pay for a portion of the costs of growth- related capacity projects. Recognizing that this cost burden will shift from our customers to the developers of new or expanded projects once the updated WSFCs are implemented, what is your opinion about how quickly to phase them in?

- Do you recommend taking more time, up to five years (more for the largest non-residential developments and Ag) to phase in?
- Or do you prefer to implement them more quickly?



Questions?

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WATER MASTER PLAN PERFORMANCE METRICS UPDATE

Barry Usagawa

October 21, 2021
boardofwatersupply.com



WMP Performance Metrics



- BWS Water Master Plan identified 6 primary steps to provide water from source to tap.
- BWS Water Master Plan determined performance metrics in each of these steps to monitor and maintain the health of water system infrastructure and are used to target opportunities for improvement.



Overall Summary for FY 2021

PLAN	Total Number of Metrics	Met/on track to meet 	Miss by <10% of goal 	Miss by > 10% of Goal 
Water Master Plan	33	19	4	10





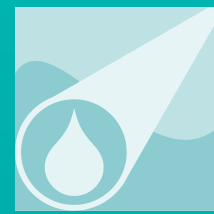
SUSTAIN



CAPTURE



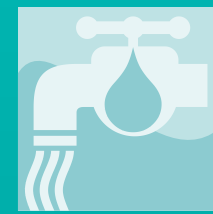
TREAT



MOVE



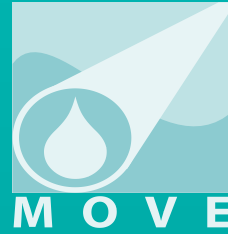
STORE



DELIVER

Indicator	Metric	Goal	Baseline	FY 2019	FY 2020	FY 2021
Supply from nonpotable sources	% of total supply served from nonpotable water system	> 12%	6% ●	7.80% ●	6.85% ●	7.11% ●
Annual water resource yield	% of available water resource yield used	< 90%	80% ●	71% ●	73% ●	71% ●
Watershed management	\$ budgeted for watershed management	4% of CIP \$6.65M	\$1.4M ●	\$1.5M ●	\$1.0M ●	\$1.2M ●
	Acres of watershed surveyed for invasive plant species removal per year	5,200 acres	1,691 acres ●	112,402 acres ●	92,529 acres ●	88,091 acres ●
	Watershed area protected by fencing	20% of watershed funding	14% ●	0% ●	0% ●	0% ●
Conservation	\$ budgeted for conservation	4% of CIP \$6.65M	\$0.89M ●	\$1.47M ●	\$2.07M ●	\$2.10M ●
	Per capita consumption	< 145 gpcd (by 2040, starting at 155 gpcd in 2016)	155 gpcd ●	155 gpcd ●	155 gpcd ●	155 gpcd ●





Indicator	Metric	Goal	Baseline	FY 2019	FY 2020	FY 2021
Standby source capacity	% of source capacity used at Maximum Day Demand (MDD)	< 50%	44% ●	41% ●	41% ●	40% ●
Water level at index wells	% of wells with stable water levels as determined by BWS	100%	100% ●	100% ●	100% ●	93% ●
Permitted or assessed sustainable yield	Number of sources exceeding source permitted use or assessed sustainable yield (12-month moving avg)	0	0 ●	0 ●	4 ●	4 ●





SUSTAIN



CAPTURE



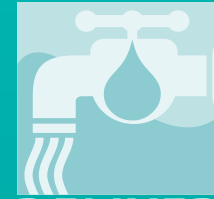
TREAT



MOVE



STORE



DELIVER

Indicator	Metric	Goal	Baseline	FY 2019	FY 2020	FY 2021
Water quality regulatory compliance	Number of water quality regulatory violations	0	0 ●	0 ●	0 ●	0 ●
Treatment on-line	% of chlorination systems on-line	100%	100% ●	100% ●	100% ●	100% ●
Comprehensive treatment system condition assessment	Perform comprehensive condition assessment of all potable and nonpotable treatment systems	Update every 5 years	On schedule (last 2019) ●	Done ●	On schedule ●	75% complete ●





SUSTAIN



CAPTURE



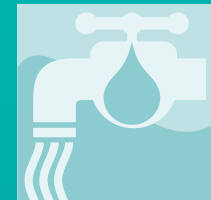
TREAT



MOVE



STORE



DELIVER

Indicator	Metric	Goal	Baseline	FY 2019	FY 2020	FY 2021
Sufficient pump capacity	% of pressure zones where firm capacity (not counting largest pumping unit at each station) < MDD	< 5%	2.6% ●	2% ●	1% ●	1% ●
Pumps available for use	% of pumps that are available to be put in-service	> 90%	82% ●	83% ●	81% ●	83% ●
Emergency power	% of population served indoor demand (85gpcd) in the event of loss of power	> 85%, distributed geographically	71% ●	71% ●	77% ●	93% ●
Pump station condition assessment	Perform regularly scheduled condition assessment	Update every 5 years	On schedule (last 2019) ●	Done ●	On schedule ●	On schedule ●





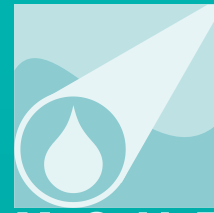
SUSTAIN



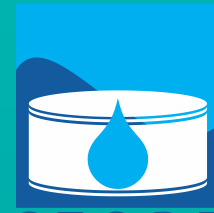
CAPTURE



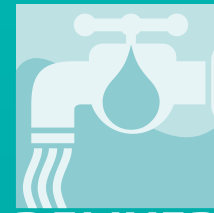
TREAT



MOVE



STORE



DELIVER

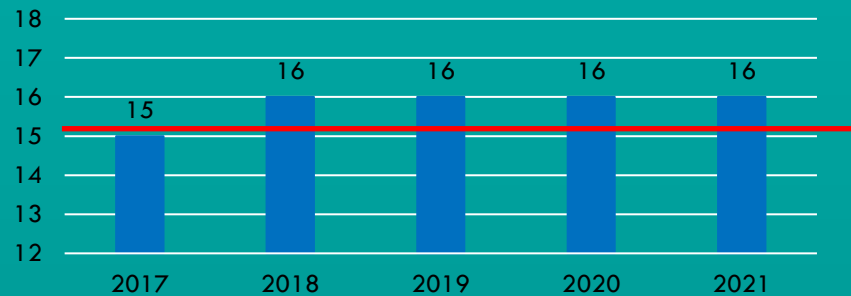
Indicator	Metric	Goal	Baseline	FY 2019	FY 2020	FY 2021
Reservoir restrictions	Number of reservoirs with use restrictions	< 2%	1% ●	0.58% ●	0.58% ●	0.58% ●
Storage deficient pressure zones	Pressure zones with less than Standard storage and without pumping or transmission equivalency to meet operating, emergency, and fire needs	0%	6% ●	5% ●	5% ●	5% ●
Reservoir condition assessment	Perform regularly scheduled condition assessment	Update every 10 years	On schedule (last 2015) ●	On schedule ●	On schedule ●	On schedule ●



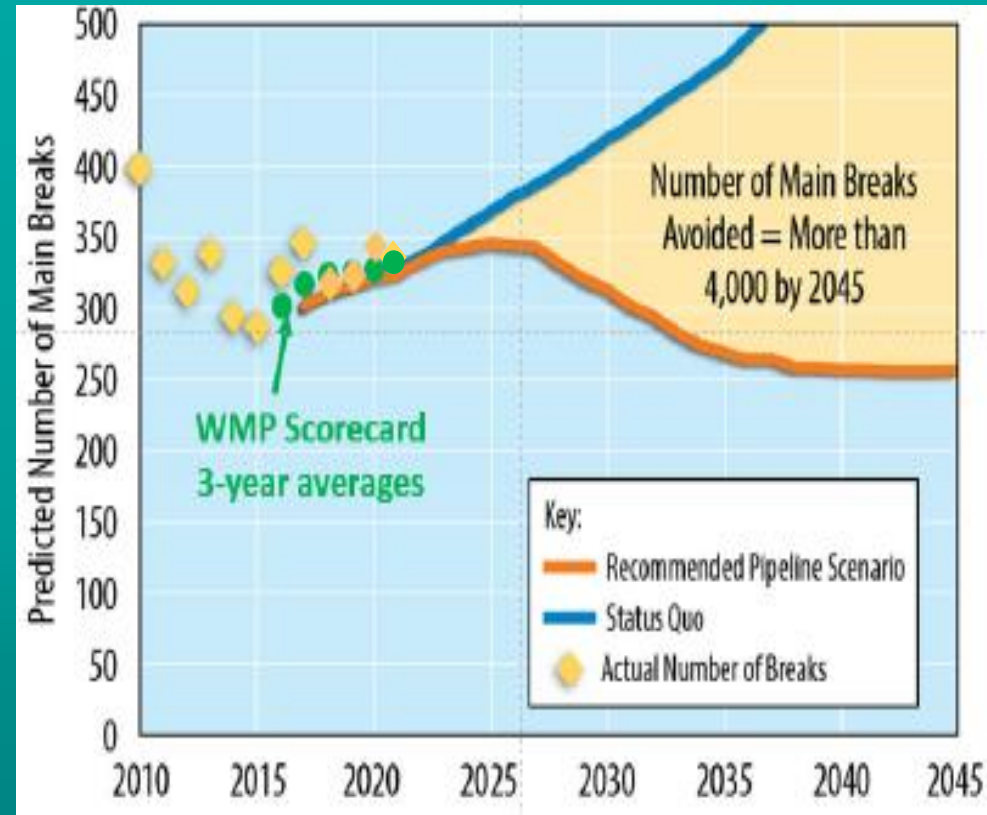
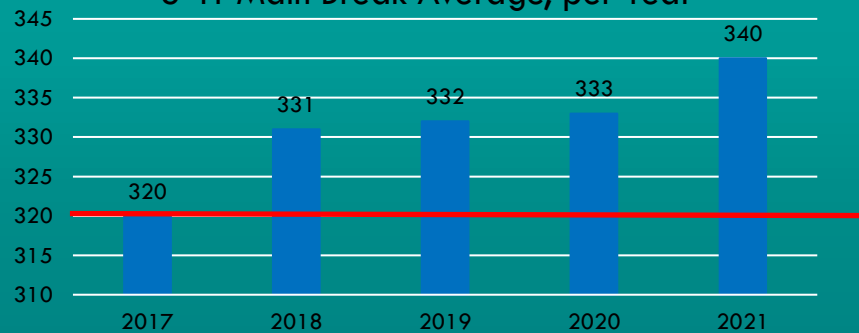
MAIN BREAKS PER 100 MILES OF PIPE

Indicator	Performance Metric (SP)	Goal	FY 21	FY 20	FY 19	Status	Lead
Main Breaks	Main breaks per 100 miles of pipe	< 15 (3-yr avg)	16	16	16	●	FO

3-Yr Main Break Average 100 Miles of Pipe



3-Yr Main Break Average, per Year



● Met/on track to meet

● Miss by <10% of goal

● Miss by >10% of goal





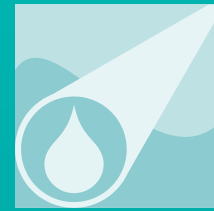
SUSTAIN



CAPTURE



TREAT



MOVE



STORE

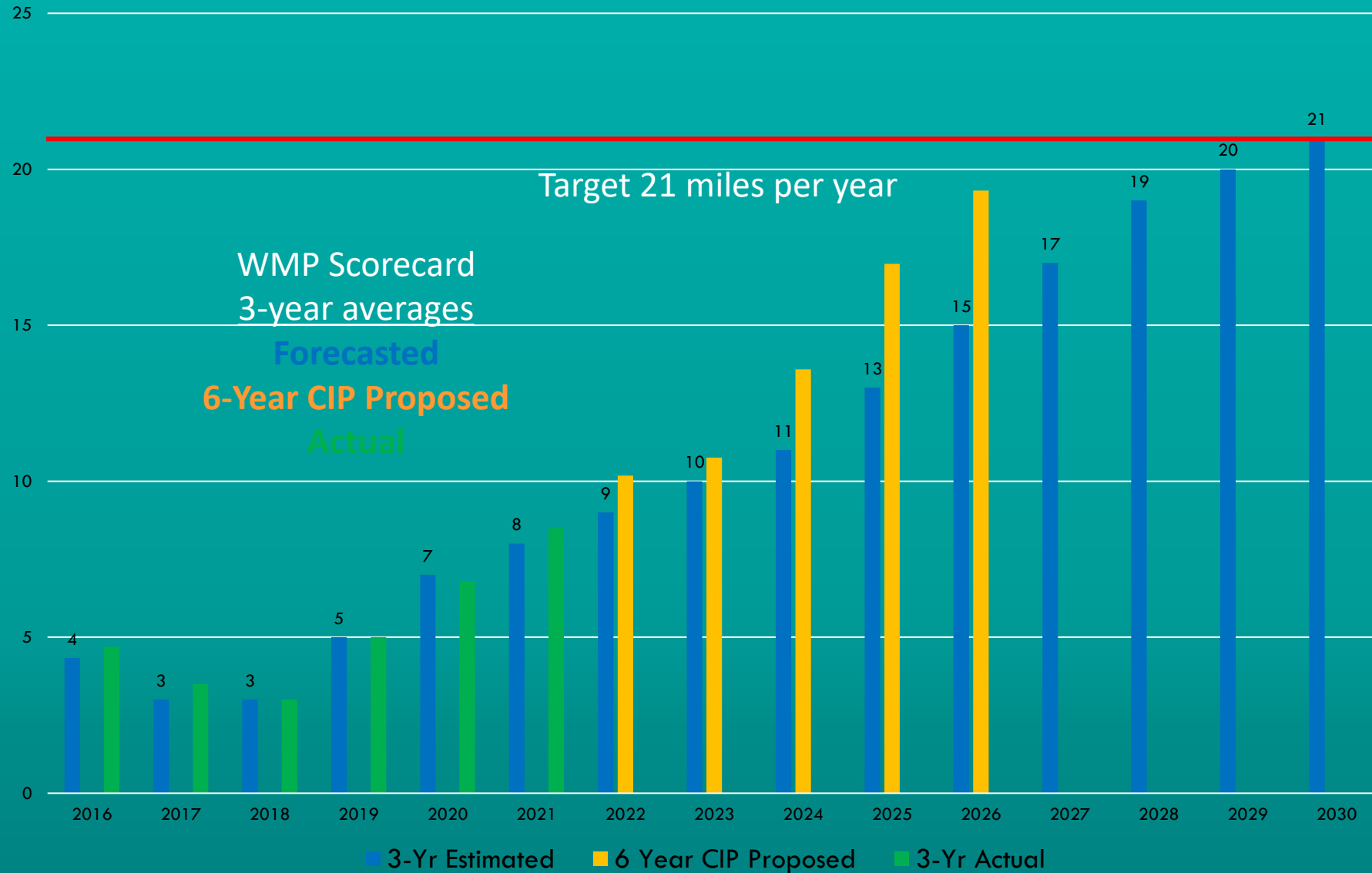


DELIVER

Indicator	Metric	Goal	Baseline	FY 2019	FY 2020	FY 2021
Pipeline breaks	Pipeline breaks and leaks repaired per 100 miles per year (3-year average)	< 15	14 ●	16 ●	16 ●	16 ●
	Pipeline breaks and leaks repaired per year (3-year average)	< 300	302 ●	332 ●	333 ●	340 ●
Transmission pipeline breaks	Number of pipeline breaks for ≥ 16 inches in diameter (3-year average)	< 14	10 ●	12 ●	11 ●	13 ●
Non-revenue water	% of water produced but not sold	< 8.1%	7.8% (5-year ave.) ●	13.79% ●	14.00% ●	14.47% ●
High risk pipelines	Portion of pipelines with risk score	< 5%	12% ●	14% ●	23% ●	23% ●



MILES OF PIPELINE REPLACEMENT 3 YEAR AVG





SUSTAIN



CAPTURE



TREAT



MOVE



STORE



DELIVER

Indicator	Metric	Goal	Baseline	FY 2019	FY 2020	FY 2021
Pipeline R&R	Miles of system pipeline renewed (3-year average)	21 miles	4.7 miles ●	5.0 miles ●	6.8 miles ●	8.5 miles ●
Fire hydrant supply	Hydrants that meet fire flow standards	> 99%	98% ●	98% ●	99% ●	99% ●
Pipeline leak detection	% of pipes checked for leaks per year	25%	14% ●	18% ●	14% ●	9% ●
PWA pipeline condition assessment	Miles of pipelines recommended for PWA by CapPlan framework (currently 6.3 miles), miles assessed per year	6.3 miles (10%)	12 miles (19%) ●	0 miles ●	4 miles ●	0 miles ●



TOOLS



Indicator	Metric	Goal	Baseline	FY 2019	FY 2020	FY 2021
Water Master Plan update		Update every 10 years	On schedule (target 2026) ●	On schedule ●	On schedule ●	On schedule ●
Hydraulic models and CapPlan updated		Update every 5 years	On schedule (target 2021) ●	On schedule ●	On schedule ●	Done ●
GIS update		Annually	On schedule ●	On schedule ●	On schedule ●	On schedule ●
SCADA reliability	% of sources, pump stations, water treatment plants, and reservoirs utilizing microwave backbone for control data	100% (by 2023)	13% (on track) ●	23% ●	25% ●	33% ●



Questions?

WWW.BOARDOFWATERSUPPLY.COM



STAKEHOLDER ADVISORY MEETINGS FOR 2022

Dates for the 2022 Calendar Year

- Thursday, January 20, 2022
- Thursday, April 21, 2022
- Thursday, July 21, 2022
- Thursday, October 20, 2022





Mahalo!

BOARD OF WATER SUPPLY

Stakeholder Advisory Group
Meeting 40
October 21, 2021

Providing safe, dependable, and affordable
drinking water, now and into the future.