Stakeholder Advisory Group

Board of Water Supply
City & County of Honolulu

Thursday, July 15, 2021

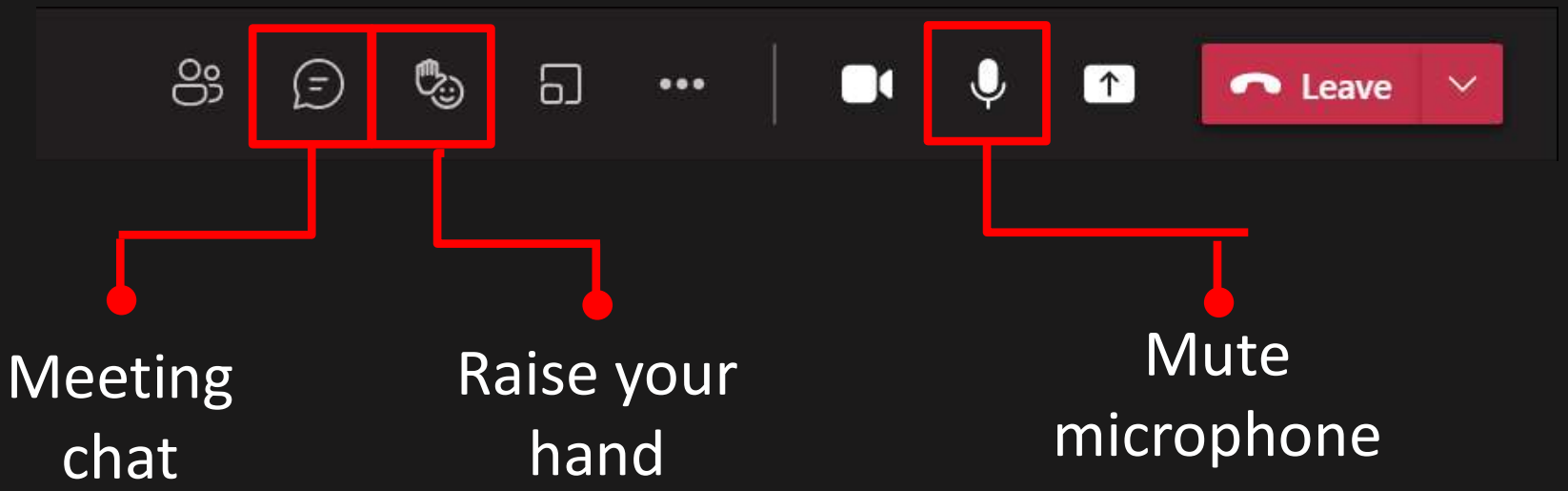
Meeting #39 - Virtual

Dave Ebersold

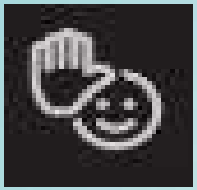
Facilitator

WELCOME

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

- Meet new stakeholder
- Accept notes from meeting #38
- Hear updates from BWS
- Discuss BWS' annual budget for FY 2021-22
- Meet guest speaker Hirokazu Toiya, Director of the Honolulu Department of Emergency Management and hear about plans for this year's hurricane season
- Give feedback on the survey of Stakeholders' priorities for upcoming meetings

Public Comments on Agenda Items

New Stakeholder

- Cheryl Walthall

  Executive Vice President

  General Contractors Association, Hawaii

Action

Review and accept notes from

- Stakeholder Advisory Group Meeting #38 held on Thursday, April 22, 2021

Ernest Lau
BWS Manager and Chief Engineer

BWS UPDATES

Summary of WSFC Options
BWS Board Meeting - June 28, 2021

Customer Type	Option 1	Option 2 (PIG)	Option 3 (SAG)
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*

* Reaches 60% target WSFC for 2” meter size
** Does not reach 60% target WSFC for any meter size

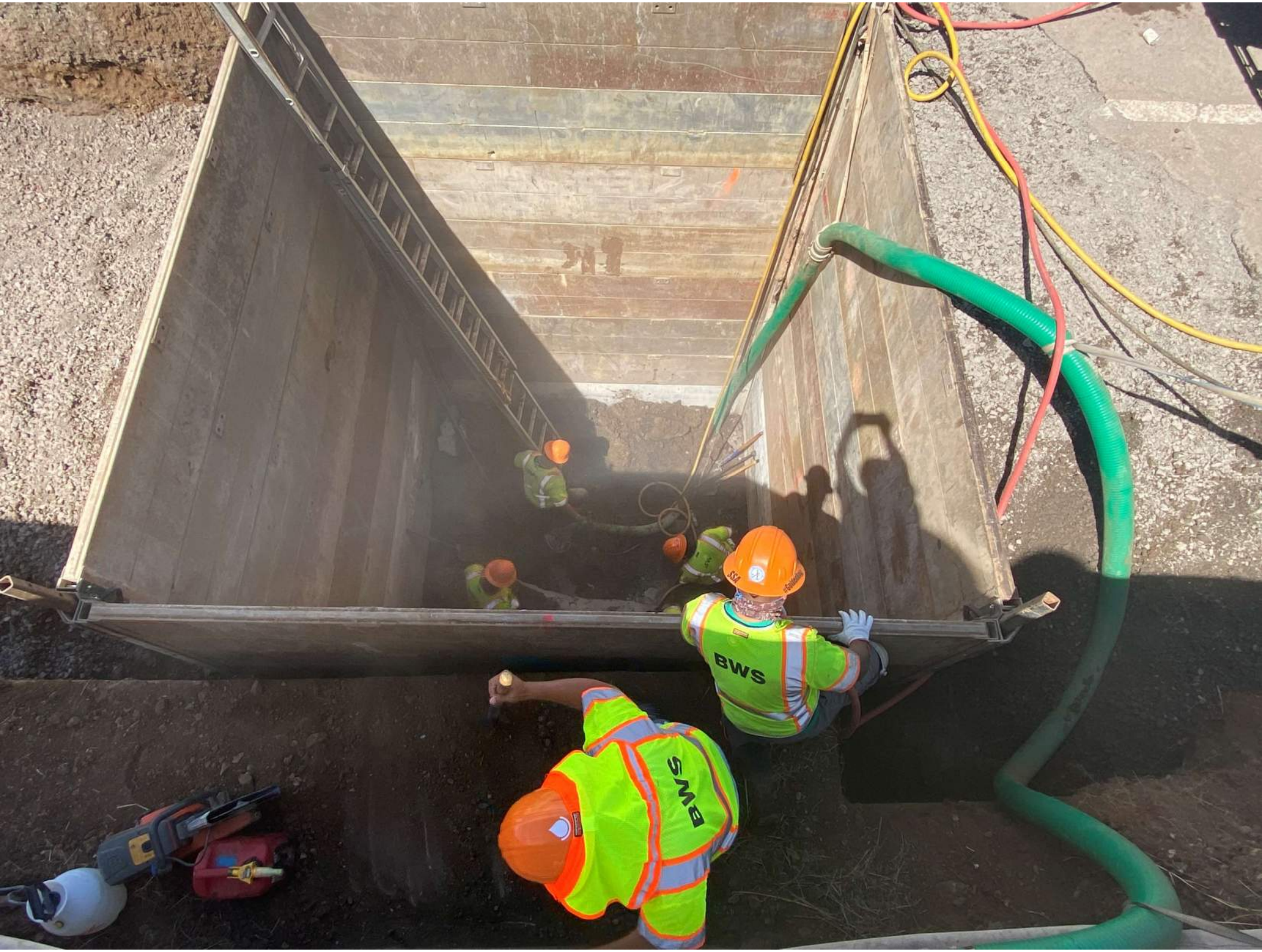
Water System Facilities Charge (WSFC) Process Timeline

WSFC Approval Process Schedule	2021									2022						
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Permitted Interaction Group Input																
BWS Board Update and Outreach Authorization																
Final draft WSFC report to BWS																
Customer Outreach																
SBRRB Meeting																
BWS Public Hearing/Board Consideration																
Submit Post-Hearing Small Business Impact Statement																
Submit final WSFC Report to BWS																
Staff training to implement with customers																
New WSFC Effective																

Effective July 1, 2022

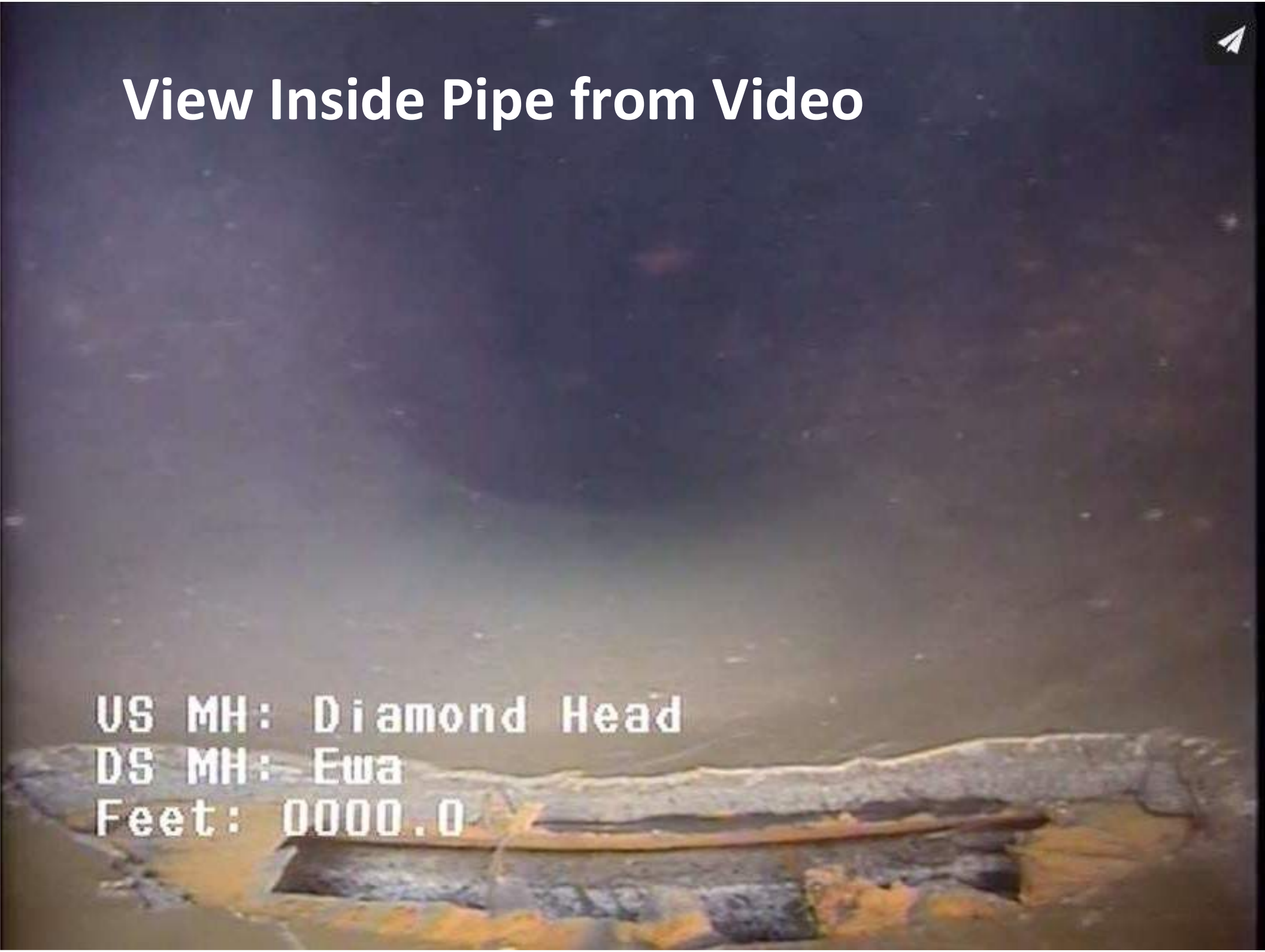
June 18, 2021
42-inch Main Break


BWS


BWS
BWS


US MH: Diamond Head
DS MH: Ewa
Feet: -0000.6

View Inside Pipe from Video



Mahalo!

Questions & Answers

Raelynn Nakabayashi
Executive Assistant, Executive Support Office
Jason Takaki, P.E.
Program Administrator, Capital Projects Division

BOARD OF WATER SUPPLY BUDGET FOR FISCAL YEAR 2021-22

FY 2022 OPERATING BUDGET AND CAPITAL IMPROVEMENT PROGRAM BUDGET

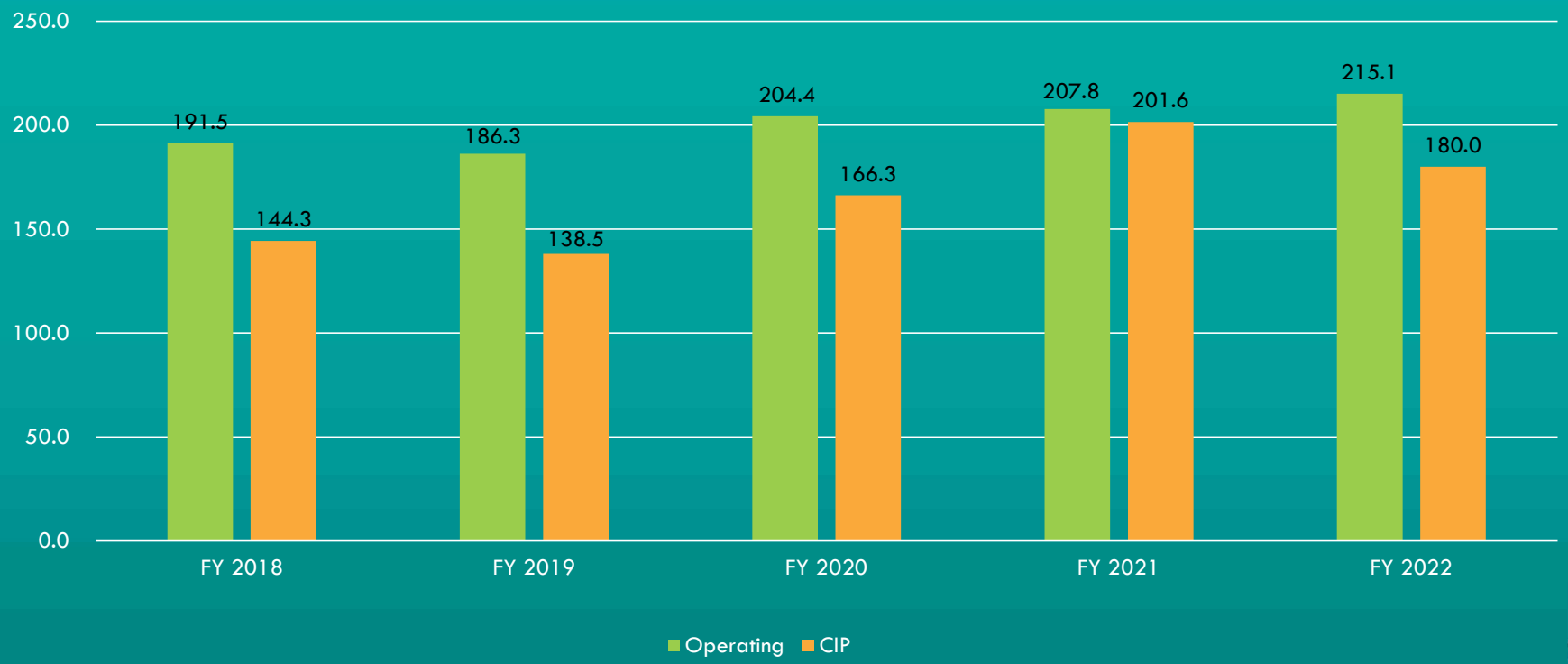
RAELYNN NAKABAYASHI, EXECUTIVE SUPPORT OFFICE

JULY 15, 2021

FY 2022 BUDGET SUMMARY

	FY 2021 – Adopted	FY 2022 – Proposed	$ Change	% Change
Operating Budget	$207,848,937	$215,140,447	$7,291,510	3.5%
Capital Improvement Program Budget	$201,587,500	$179,976,000	($21,611,500)	(10.7%)
Total	$409,436,437	$395,116,447	($14,319,990)	(3.5%)

OPERATING & CIP BUDGETS FY 2018 – FY 2022
(MILLIONS OF DOLLARS)



OPERATING FUND REVENUE & EXPENDITURE SUMMARY
(MILLIONS OF DOLLARS)

	FY 2021	FY 2022	Change	
	Adopted	**Proposed**	**$ Mil.**	%
Revenues	$245.1	$248.8	$3.8	1.5%
Total Operating Expenditures	$207.8	$215.1	$7.3	3.5%

UPDATED LONG RANGE FINANCIAL PLAN

REFERENCES FROM LRFP

Table 2-7. Operations and Maintenance Forecast through FY 2027, $M

Fiscal Year	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Personnel Services	$51.1	$52.8	$53.4	$53.9	$54.4	$55.5	$56.6
Materials & Supplies	$72.1	$72.8	$73.5	$74.3	$75.8	$78.0	$80.8
Equipment	$6.6	$6.6	[illegible]	$6.8	$6.9	$7.1	$7.4
Fixed Costs	$53.9	$54.4	[illegible]	$56.2	$57.2	$58.4	$59.6
Total	$183.6	$186.7	$188.9	$191.2	$194.3	$199.1	$204.4
Annual Increase		1.7%	1.2%	1.2%	1.6%	2.4%	2.7%
Revised Baseline	$168.9	$171.8	$173.8	$175.9	$178.8	$183.1	$188.1

Table 2-12. Revised Cashflow, FY 2021-FY 2031, $M

	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031
Debt Service											
Existing Debt - Bonds	$19	$20	$21	$21	$21	$21	$21	$21	$21	$21	$21
Existing Debt - SRF & JABSOM	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6
SRF Fees - Existing Loans	$1	$1	$1	[illegible]	$1	$1	$1	$1	$1	$0	$0
Proposed Debt - Bonds	$0	$4	$7	[illegible]	$17	$24	$31	$39	$49	$58	$65
Proposed Debt - SRF	$0	$1	[illegible]	$2	$3	$4	$4	$5	$5	$6	$6
SRF Fees - Proposed Loans	$0	$0	[illegible]	$1	$1	$1	$1	$1	$1	$1	$1
Subtotal Debt Service	$26	$32	$36	$42	$49	$56	$63	$73	$83	$93	$100

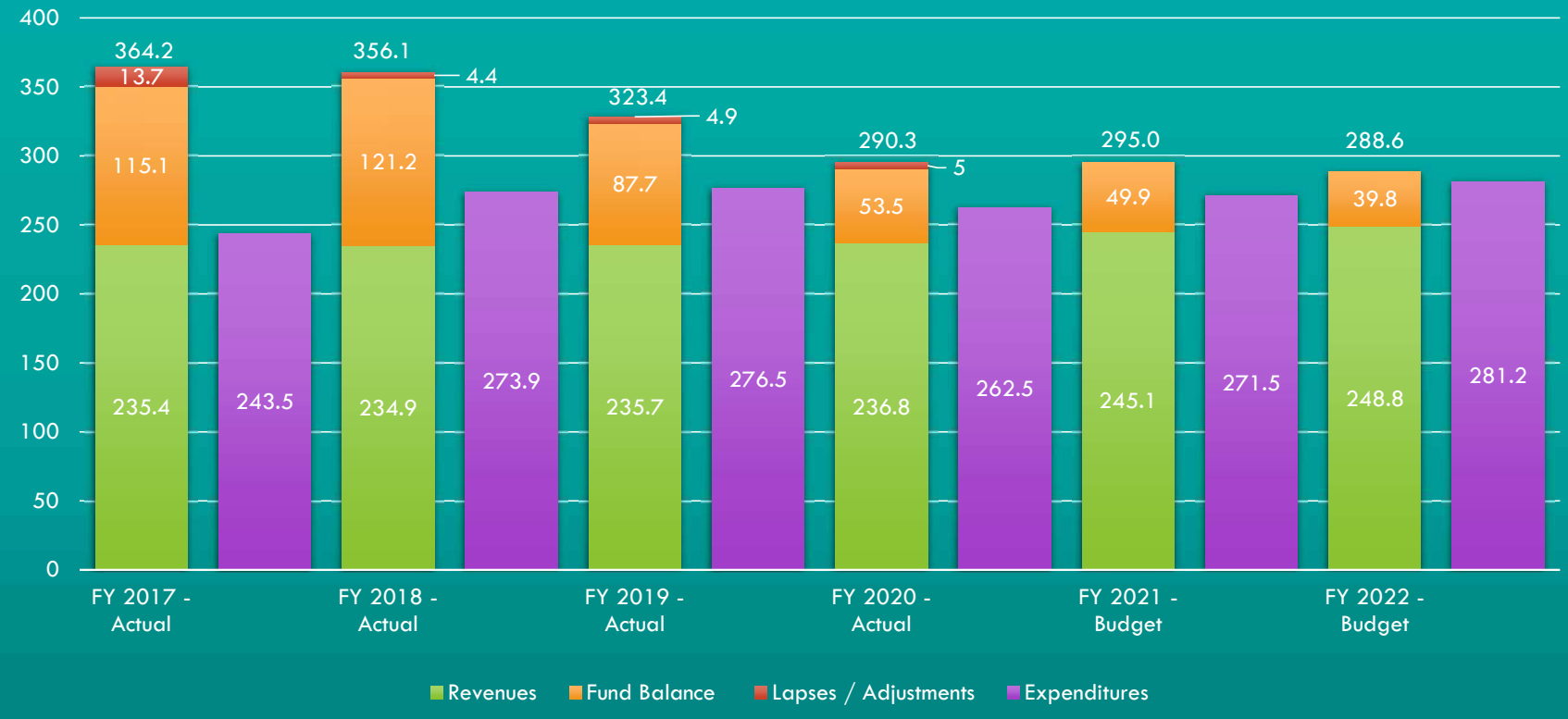
FY2022 BUDGET COMPARISON TO UPDATED LONG RANGE FINANCIAL PLAN

(MILLIONS OF DOLLARS)

Account - Subtotal	LRFP FY2022	FY2022 Budget	Variance $	Variance %
Departmental Fixed Charges	54.4	53.7	(0.7)	-1.3%
Debt Service	32.0	29.6	(2.4)	-7.5%
Equipment	6.6	4.6	(2.0)	-30.3%
Materials, Supplies and Services	72.8	75.8	3.0	4.1%
Personnel Services	52.8	51.5	(1.3)	-2.5%
Total:	**$218.6**	**$215.2**	**(3.4)**	**-1.6%**

TOTAL RESOURCES VS. TOTAL EXPENDITURES

(MILLIONS OF DOLLARS)



BOARD ADOPTED FINANCIAL POLICIES
(FY20 AUDITED FINANCIAL STATEMENTS)

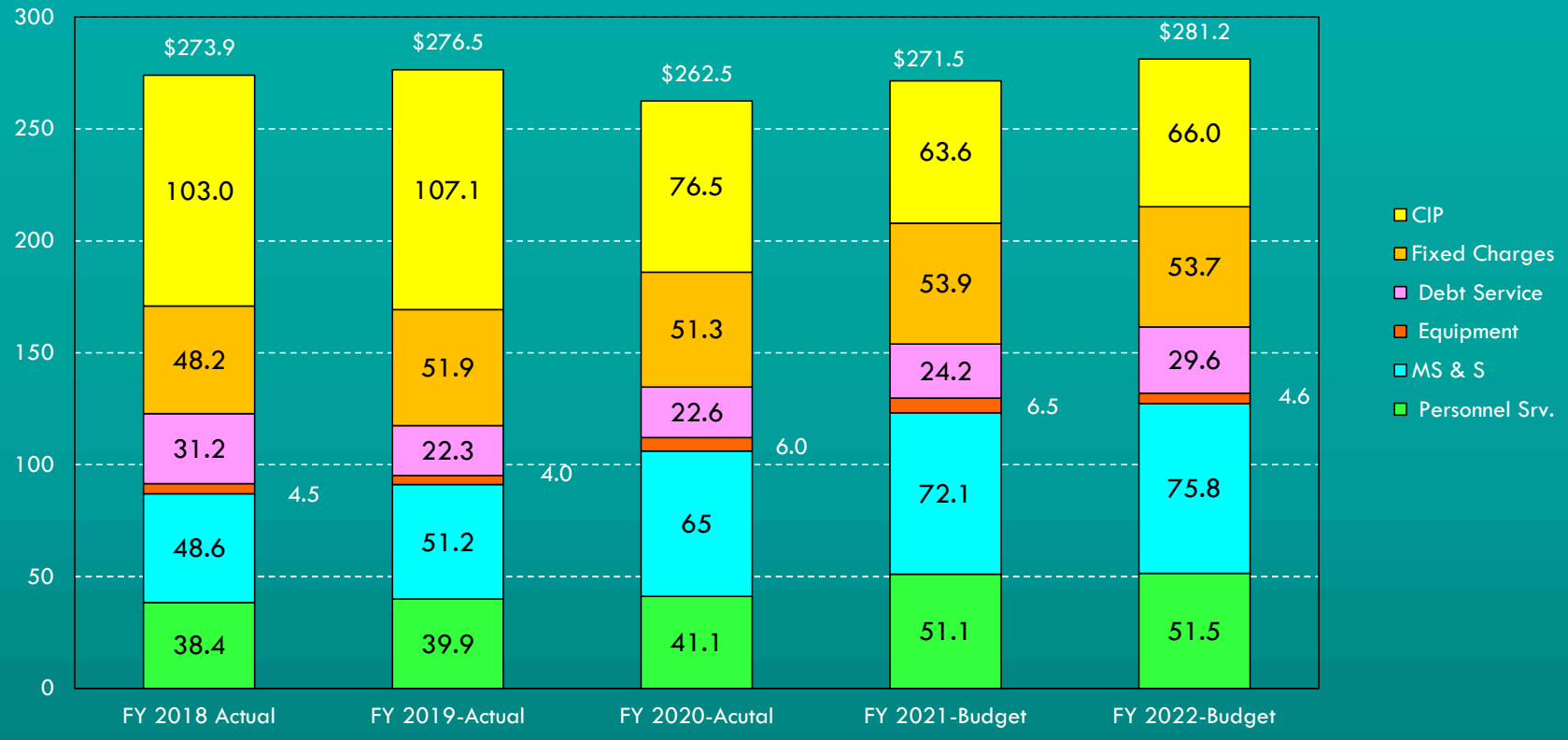
4.4.2 Debt Service Coverage – FY 20 **4.05x (Senior) & 3.17x (All-In)**

Per Board Resolution No. 873, 2017, the financial plan supports the BWS maintaining a minimum of 1.6x debt service coverage on total debt.

4.4.3 Working Capital – FY20 **103 Days**

Revenue requirements include targeting 180 days of unencumbered working capital while never having less than 60 days.

OPERATING FUND EXPENDITURES
(MILLIONS OF DOLLARS)



HIGHLIGHTS OF THE OPERATING BUDGET

Salaries

- No net increase in FTE
  - Department Staffing remains below the Authorized 741 FTE
- $424 thousand increase in salaries or +0.8%
- Human Resources Initiatives
  - Optimize and expand operational capacity through reorganizations of functions and the leveraging of technology
  - Recruitment and Advertisement of positions through additional venues

HIGHLIGHTS OF THE OPERATING BUDGET

Materials, Services & Supplies (MS & S)

- $3.7 million increase in MS&S or +5.2% increase
  - Professional Services +$1.4 million
  - Road Repairs +$1.2 million
  - Contractual Services +$535 thousand
  - PV System Maintenance +$480 thousand
  - Refuse Collection & Disposal +$360 thousand
  - Recycled Water Plant Repair & Maintenance -$898 thousand

HIGHLIGHTS OF THE OPERATING BUDGET

Equipment

- $1.9 million or -30.1% for new and replacement vehicles

Debt Service

- $5.4 million increase or +22.2% increase
  - $4.6 million increase in principal and interest payments on bonds payable
  - $600 thousand increase in SRF payments

HIGHLIGHTS OF THE OPERATING BUDGET

Fixed Charges

- $258 thousand decrease or -0.5% decrease
  - -$3.2 million decrease in electricity costs
  - -$962 thousand decrease in EUTF OPEB
  - $3.8 million increase in ERS and Health Benefits (Employees and Retirees)

REVENUE HIGHLIGHTS

- Total revenues are projected to increase by about $3.8 million or +1.5%
  - Metered water revenues are projected to slightly increase by $3.3 million or +1.4% due to the rate adjustment scheduled in FY2022
  - Other revenues are projected to increase by $410 thousand or +4.7% due to an increase in interest income

REVENUE PROJECTIONS FY 2022

Revenue Sources	FY 2020 Actual	FY 2021 Budget	FY 2022 Budget	% Change
Metered Sales				
Potable & Non-Potable Water	$221,369,849	$230,000,000	$233,300,000	1.4%
Recycled Water	$6,078,065	$6,361,000	$6,408,000	0.7%
Other Revenues	$9,305,753	$8,730,300	$9,140,000	4.7%
TOTAL REVENUES	**$236,753,667**	**$245,091,300**	**$248,848,000**	**1.5%**

OPERATING FUND BUDGET SUMMARY

- (DECREASED RESOURCES)

- The projected carryforward/beginning fund balance continues to decline
- Revenues are projected to increase slightly by $3.7 million or 1.5%

+ INCREASED TOTAL EXPENDITURES

- Annual operating expenditures increase by 3.5%, in alignment with the Updated LRFP
- Increased Operating Funded CIP. We continue to implement the WMP Capital Program; increasing the CIP Budget and funding it with both Bonds and Cash

= EQUALS REDUCED FUND BALANCE

- As we prepare to enter our next rate setting study, we have right-sized our Operating Budget to align with our Updated LRFP

FY 2022 CAPITAL IMPROVEMENT PROGRAM BUDGET

JASON TAKAKI, P.E. – CAPITAL PROJECTS DIVISION

JULY 15, 2021

FY 2022 CIP

- Supports the BWS vision and mission - **Water for Life: Safe, dependable and affordable water now and into the future**
- Aligned with the BWS Water Master Plan, Strategic Plan 2018-2022, Division Goals and Objectives, and the Six-Year Capital Improvement Program

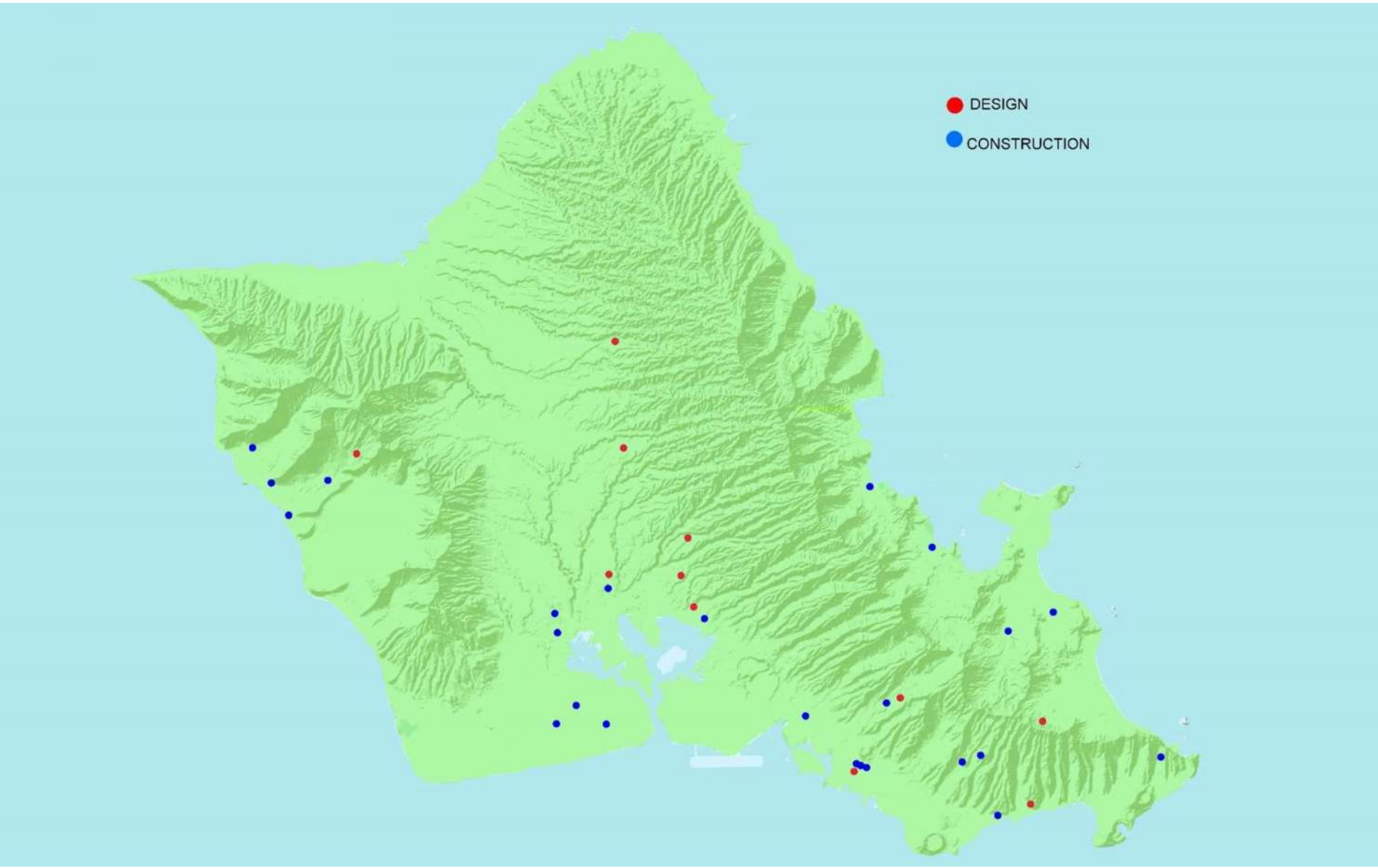

Water Service
Adequacy & Dependability
Infrastructure Costs
Rate Affordability

PROJECT CATEGORIES

- Research and Development
- Renewal and Replacement
- Capacity Expansion

CAPITAL IMPROVEMENT PROGRAM BUDGET FY 2022

	Categories	Operating Fund	Operating Fund (SRF Eligible)	Special Expendable Fund	Improvement Fund	Total
I.	Research & Development	$ 6,900,000	---	---	---	$ 6,900,000
II.	Renewal & Replacement	25,375,000	10,000,000	---	86,100,000	121,475,000
III.	Capacity Expansion	---	4,300,000	18,900,000	---	23,200,000
	Subtotal	32,275,000	14,300,000	18,900,000	86,100,000	151,575,000
	Construction Cost Index	2,421,000	1,430,000	1,700,000	7,250,000	12,801,000
	Contract Adjustment	15,600,000	---	---	---	15,600,000
	Total	$ 50,296,000	$ 15,730,000	$ 20,600,000	93,350,000	$ 179,976,000


DESIGN
CONSTRUCTION

PROJECT CATEGORY HIGHLIGHTS

Research and Development ($6.9 million)

- Kunia Wells IV Exploratory Wells
- Construction Management for Various BWS Construction Projects
- Newtown Ridge and Royal Summit Reliability Improvements

PROJECT CATEGORY HIGHLIGHTS

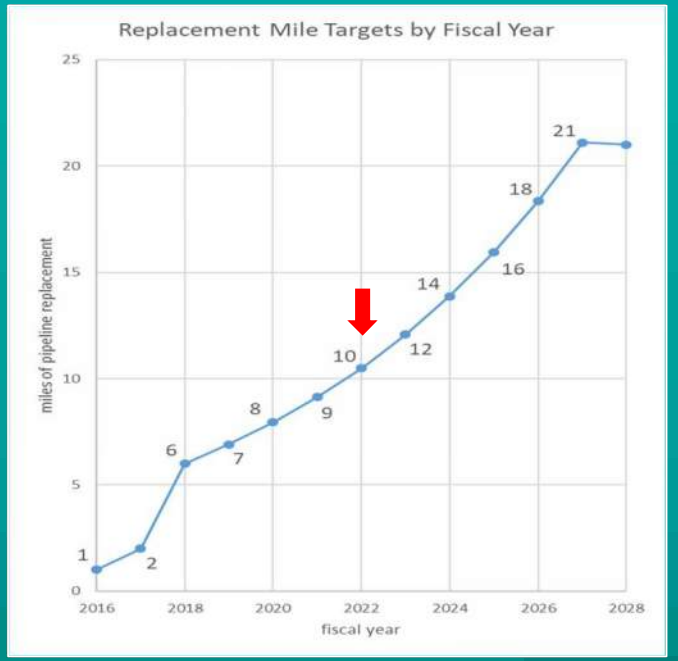
Renewal and Replacement ($121.5 million)

- Waialae Iki Booster No. 1 Relocation
- Waihee Line Booster: Replace Pumping Units
- Kaamilo Booster and Kaamilo Wells Renovation
- Waipio Heights Wells and Wells I renovation
- Kamaile Wells Renovation, Drainage Improvements and Well Sealing
- Makaha Shaft Tunnel Rehabilitation

PROJECT CATEGORY HIGHLIGHTS

Renewal and Replacement (continued)

- Main replacement construction in Kailua, Kalihi, Nuuanu, Palolo and Hawaii Kai – **10 miles**
- Main replacement design in various locations – **10 miles**



PROJECT CATEGORY HIGHLIGHTS

Renewal and Replacement (continued)

- Granular Activated Carbon (GAC) water treatment facility corrosion control
- New Service Lateral Installations
- Beretania IT Data Center Renovation

PROJECT CATEGORY HIGHLIGHTS

Renewal and Replacement (continued)

- Facility Reroofing, Repair and Renovations
- Security Improvements at Various Locations

PROJECT CATEGORY HIGHLIGHTS

Capacity Expansion ($23.2 million)

- Honouliuli Wastewater Treatment Plant Expansion
  16-Inch Main
- Mililani Wells II GAC Installation
- Kalaeloa Seawater Desalination Facility

Mahalo!

Questions & Answers

Hirokazu Toiya
Director of the Department of Emergency Management
Raelynn Nakabayashi
Executive Assistant, Executive Support Office

EMERGENCY PREPAREDNESS 2021
HURRICANE SEASON

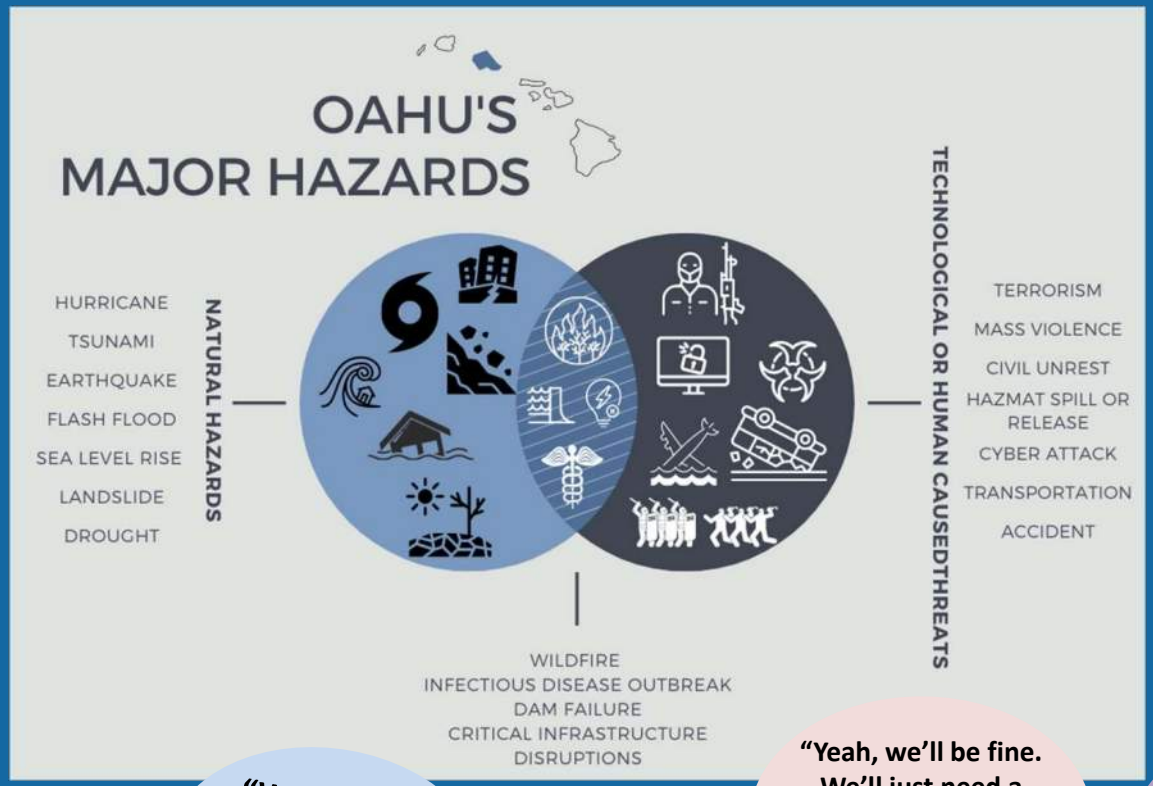
DEPARTMENT OF EMERGENCY MANAGEMENT
CITY & COUNTY OF HONOLULU

Emergency Management Briefing

BWS Stakeholder Advisory Group

July 15, 2021

"Emergency management is like an insurance policy. You hope that you will never have to use but when you do, you want the assurance that it will be there."



"Emergency management? Isn't that DEM's job?"

"We don't have a position for that."

"We can help out but we can't be the *lead*."

"We have the military here and they have supplies and equipment so we don't have to worry so much."

"Yeah, if the power is out they can hook up a nuclear sub to the grid like they did after Iniki"

"When FEMA takes over they'll just fly everything in."

"Yeah, we'll be fine. We'll just need a generator. We're going to need to be a priority."

"We've been through hurricanes before. We know what to do."

UNIQUE CHALLENGES: ISOLATION & LOGISTICS CHAIN

- 980,080 residents
- Avg 110,860 daily visitors census (2018)
- 2,400 miles to continental US
- Highly dependent on imported goods

ALL PETROLEUM PRODUCTS ARE IMPORTED

MOST FUEL SUPPLY FACILITIES IN INUNDATION ZONES

STATEWIDE ESTIMATE 7-25 DAYS AT NORMAL OPS DEPENDING ON FUEL TYPE

60% PRIMARY PLANTS LOCATED IN OR ON TSUNAMI EVAC ZONES

LARGE WOOD POLE INVENTORY

FEMA GENERATORS:
90 (VARIOUS KW) – 2% OF DAILY GENERATION

MARKET FOOD SUPPLY IS REPLENISHED EVERY 5-8 DAYS.

MOST FAMILIES MAINTAIN 2-4 DAYS OF FOOD ON-HAND.

HOTELS MAINTAIN 2-3 DAYS OF FOOD SUPPLIES.

ALL PORTS ARE IN INUNDATIONS ZONES

PORTS BEGIN PROTECTIVE MEASURES 72 HOURS PRIOR TO FORECASTED IMPACT

IMPORTS STOP 48HRS PRIOR

UNIQUE CHALLENGES: ISOLATION & LOGISTICS CHAIN

- 980,080 residents
- Avg 110,860 daily visitors census (2018)
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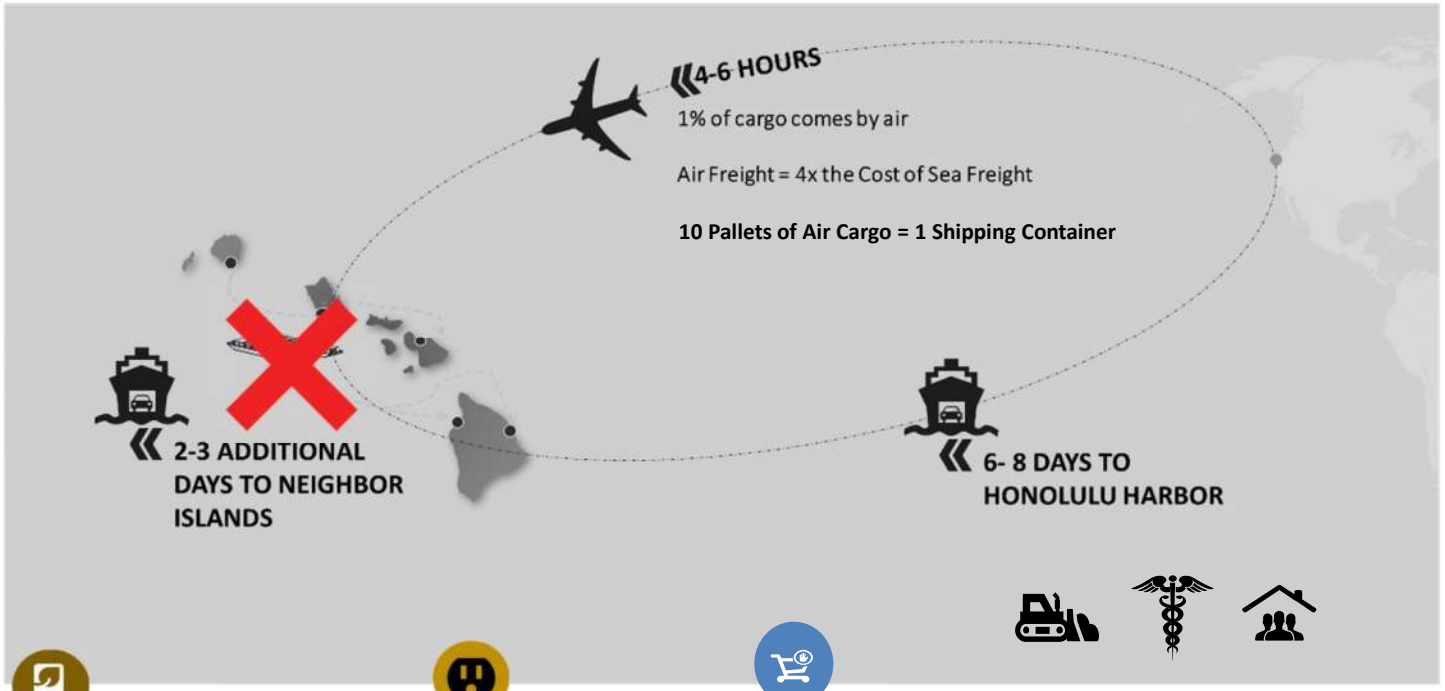


LOSS OF REFINERY, PETROL PORT, JET FUEL MOVEMENT

LIKELY SOME LOSS OF HARBOR FUEL STORAGE, RESULTING IN CONTAMINATION/

RETAIL GAS STATIONS WITH GENERATORS = ~5

ESTIMATED LOSS OF 50% OF GENERATION & 50% DAMAGE TO T&D SYSTEMS

INITIAL NEEDS
POLES: +20,000
CREWS: +600
TRUCKS: +900
TRANSFORMERS: +15,000

5-6 MONTHS UNTIL FULL RESTORATION

5 DAYS OF FOOD ON HAND AFTER PORT CLOSES

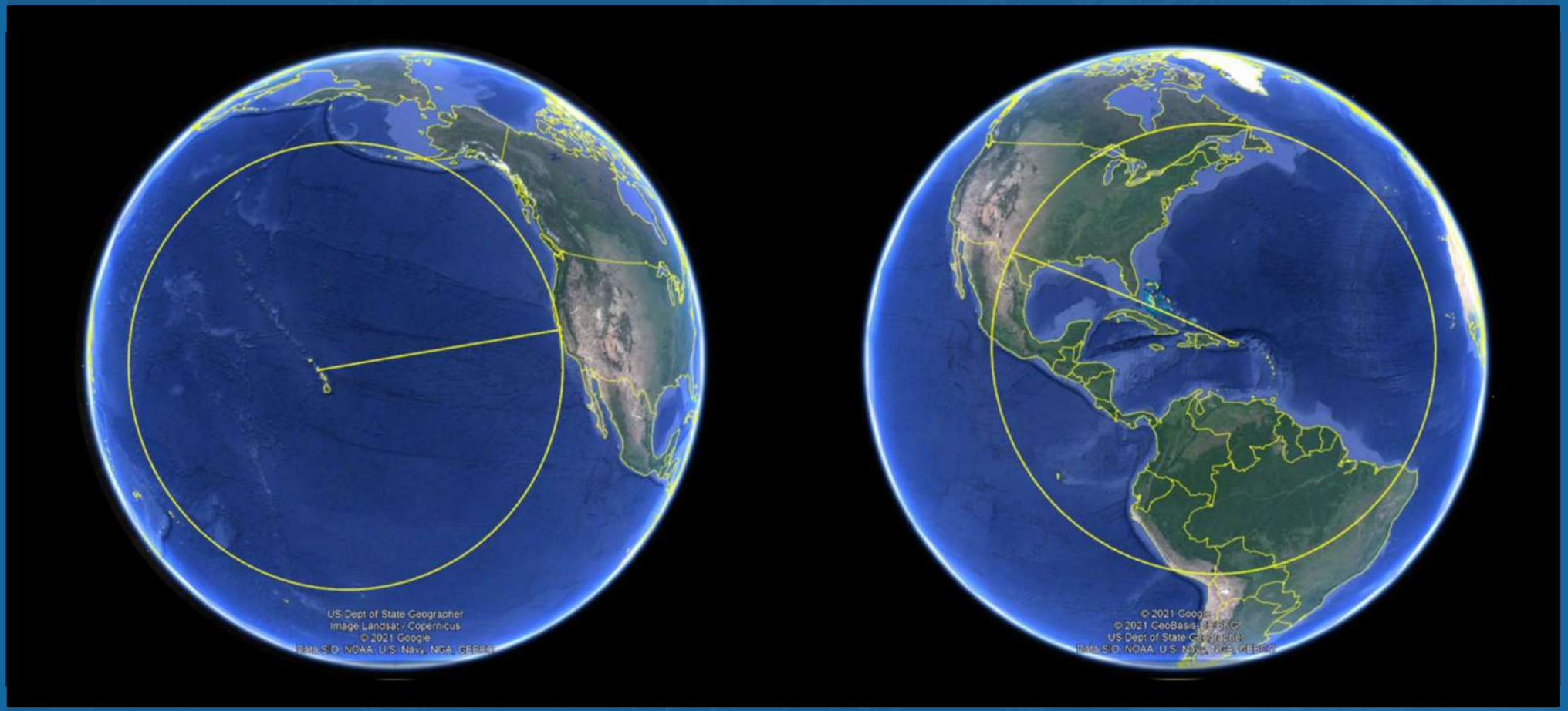
14 DAYS OF HDR'S
1 MEAL A DAY FOR 1M PEOPLE=
445 FLIGHTS @ $500 MILLION

48-72 HOURS TO ASSESS PORT

CHANNEL LIKELY BLOCKED
NO LARGE SCALE DREDGING & SALVAGE EQUIPMENT IN STATE - 7 – 10 DAYS AWAY

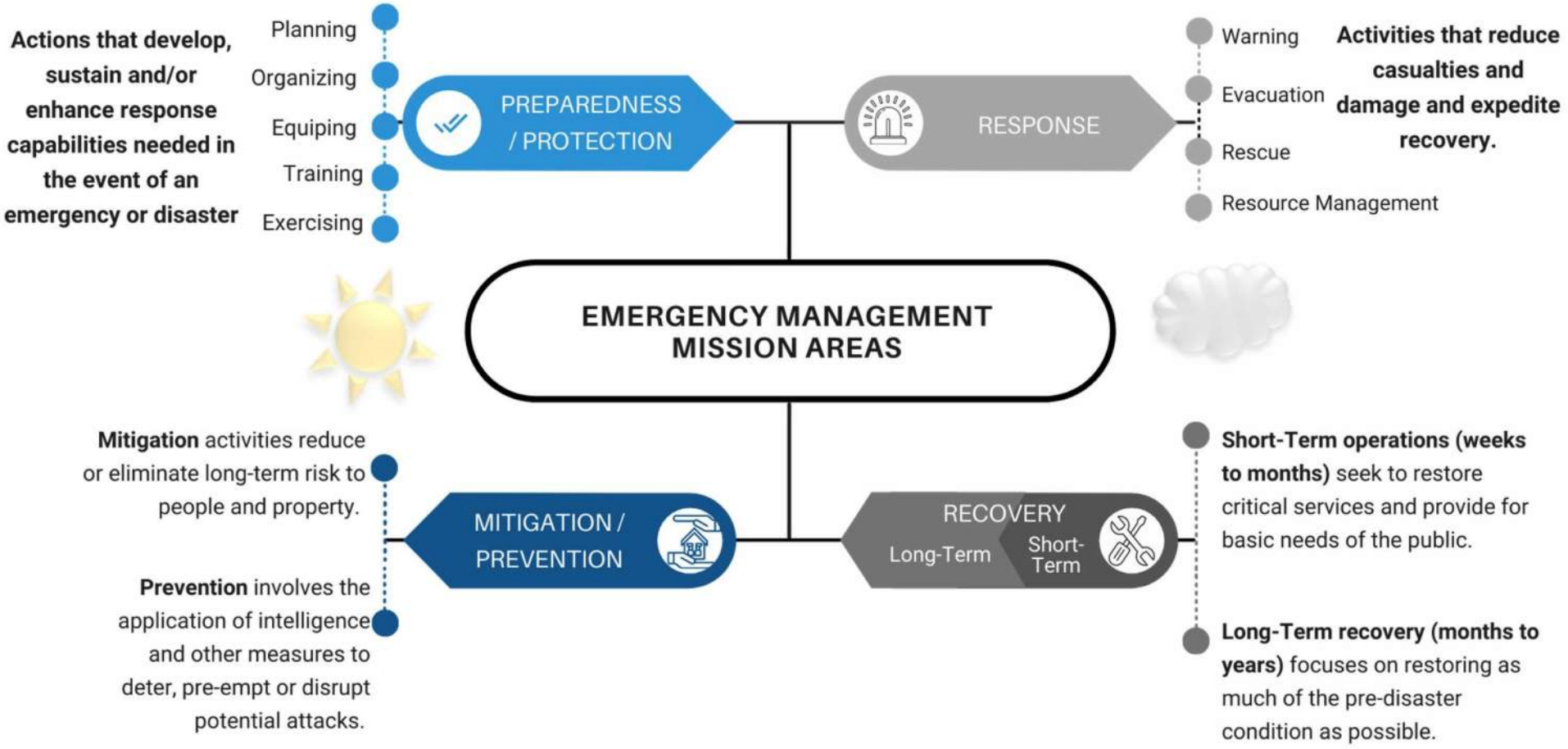
PORT OF HNL COULD BE DOWN FROM 19 DAYS POST EVENT TO LONGER & MONTHS BEFORE FULL CAPACITY

PROXIMITY TO ASSISTANCE



More Than Just Disaster Response:

EMERGENCY MANAGEMENT MISSION AREAS



Department Roles and Responsibilities

RESPONSE AND RECOVERY

1. SUSTAIN ESSENTIAL AGENCY FUNCTIONS

Established by statute and/or defined in continuity plans

Regular Activities on Steroids:

Things similar to what you do on a daily basis, only more of it. May involve irregular procedures and an irregular operating environment.

HFD ➔ Search and Rescue

ENV ➔ Debris Management

BFS ➔ Procurement

BWS ➔ Provide drinking water

2. SUPPORT RESPONSE AND RECOVERY OPRATIONS COORDINATED BY THE EOC

Defined in City emergency plans and reinforced in Admin Directive 220

"But We Don't Do That" Activities

Not part of regular operations but your agency is the best fit based on staff subject matter expertise or skillset, similarity to other functions or availability of resources.

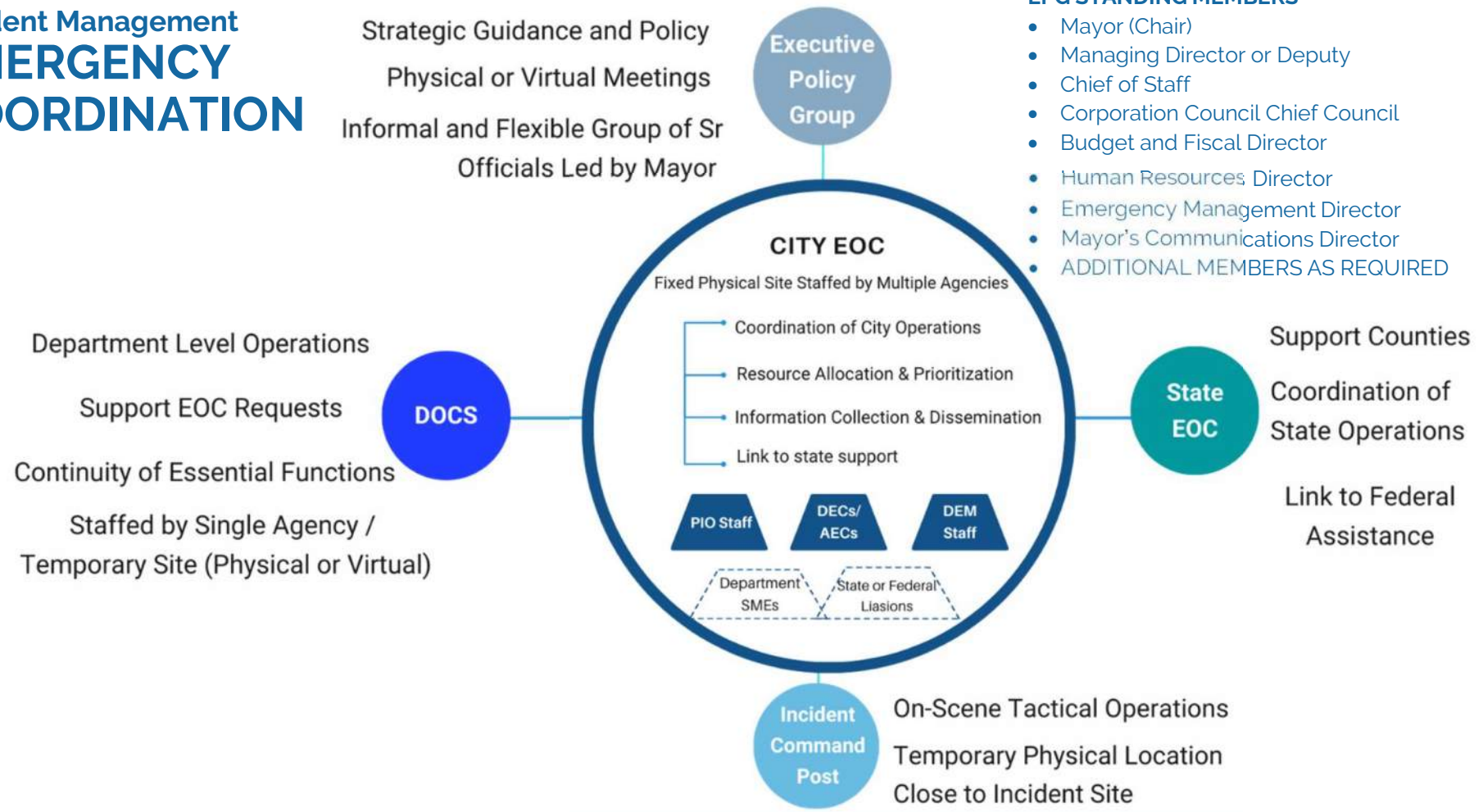
DPR ➔ Shelter Coordination

DPP ➔ Residential Damage Assessment

DLM ➔ Lease of Isolation/Quarantine Property

DCS ➔ Food and Transport Services for Iso/Q

Incident Management
EMERGENCY COORDINATION



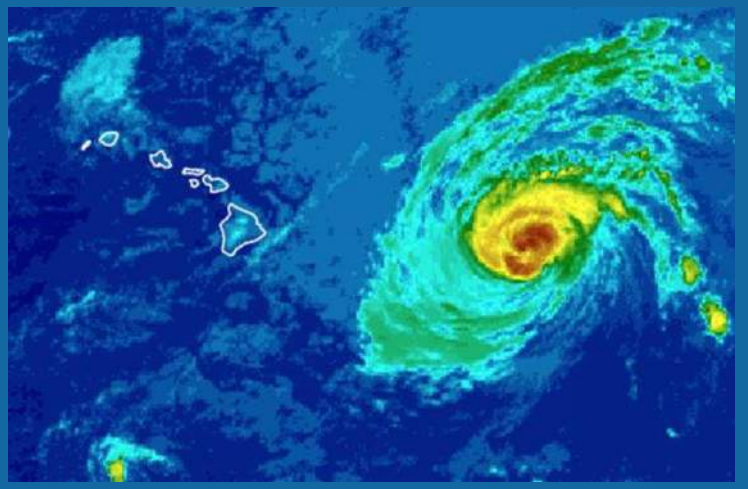
EPG STANDING MEMBERS

- Mayor (Chair)
- Managing Director or Deputy
- Chief of Staff
- Corporation Council Chief Council
- Budget and Fiscal Director
- Human Resources Director
- Emergency Management Director
- Mayor's Communications Director
- ADDITIONAL MEMBERS AS REQUIRED

2021 HURRICANE SEASON FORECAST (June 1 to Nov. 30)

NOAA Central Pacific Hurricane Center predicts:

- The 2021 hurricane season will have an **80%** chance of a near to below normal season.
- **2 to 5 Tropical Cyclones** - Tropical depressions, tropical storms, and hurricanes in the Central Pacific basin.
- A normal season has 4-5 Tropical Cyclones.
- Regardless of the number of tropical cyclones predicted, this outlook serves as a reminder to everyone in the State of Hawaii to plan and prepare now.



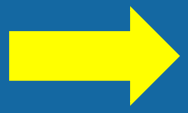
Hurricane Douglas passing 30-miles north of Oahu on July 27, 2020.

PREPAREDNESS: BEFORE A HURRICANE FORMS

Determine Your Risks - Before a storm, it's imperative to know your specific risks:

- **Do you live in a flood zone or near a ridge line?**
- **When was your home built?**
- **Has it been retrofitted?**

These and other factors can increase your risk during a hurricane. Understanding them will help you make important decisions like whether to evacuate or shelter-in-place.



And Then!

- **Create** a family disaster plan
- **Build** a 14-Day disaster supply kit
- **Consider** hardening Your Home
- **Check** your insurance
- **Decide** whether you should shelter-in-place or evacuate

PREPAREDNESS: SHELTER-IN-PLACE OR EVACUATE?

A **key step** in Hurricane Preparedness is knowing well in advance if you and your family can **shelter-in-place** at home or if you should plan to **evacuate**:

Is it okay for me to stay at home through the storm?

No, definitely evacuate if:
You live in an older single wall wood framed home built before 1995 that has not been retrofitted to withstand hurricane-force winds.

PREPAREDNESS: SHELTER-IN-PLACE OR EVACUATE?

Is it okay for me to stay at home through the storm?

Possibly, have a plan ready and be prepared to evacuate if:

- **Authorities advise evacuation** in your area.
- Destructive **storm surge is forecast** for your area.
- You live on an **exposed ridgeline.**
- You live in **a flood zone or an area at risk of flooding**, particularly in a dam evacuation zone or near a stream.

PREPAREDNESS: SHELTER-IN-PLACE OR EVACUATE?

Is it okay for me to stay at home through the storm?

Probably, plan to shelter-in-place if your home meets all of these conditions:

- **Built after 1994** or retrofitted to withstand hurricane-force winds.
- **Has protected windows** and/or access to an interior room with no windows, no exterior walls, and enough space for all family members, pets, and emergency supplies.
- **Located outside** of a storm surge hazard area.
- **If located in a storm surge hazard area**, you live in a condo or apartment on the 4th floor or higher in a building 10 stories or taller. Or, if your unit is below the 4th floor, you are able to temporarily shelter-in-place in on a higher floor in an interior hallway, stairwell, or in another unit.

WHAT CAN YOU DO NOW?

Make a Plan

Build a Kit

Stay Informed

Emergency Management Current Activities

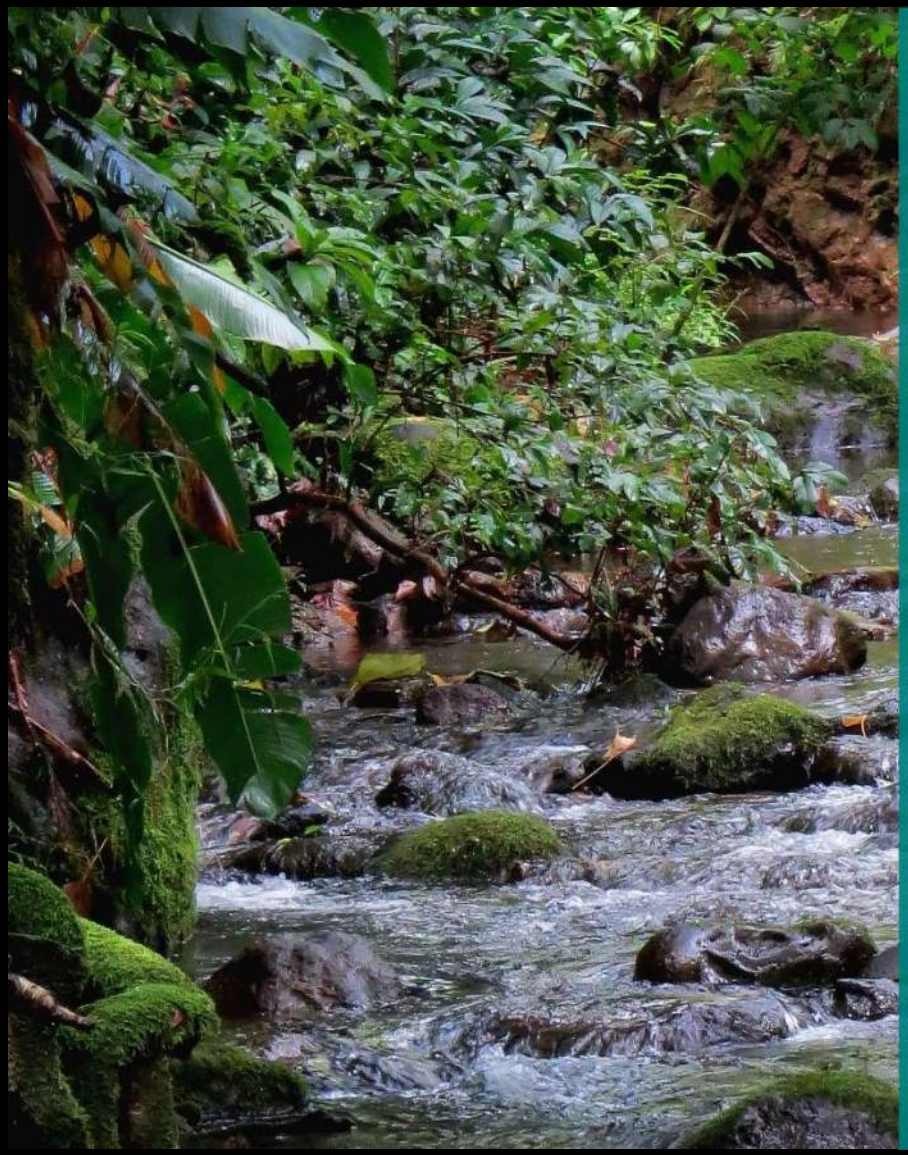
- **Ongoing COVID-19 response**
- **Emergency operations plan update**
- **Mass care services**
  - Best Available Refuge Area (BARA) assessments
  - Staffing coordination & training
  - Storage / staging supplies
- **Information management & sharing system upgrades**
- **Commodity distribution management planning**
- **Design of new Emergency Operations Center**

DISASTER PREPAREDNESS RESOURCES

Department of Emergency Management
www.honolulu.gov/dem

Hawaii Emergency Management Agency
https://dod.hawaii.gov/hiema/

One Oahu – COVID-19 Information
www.oneoahu.org



HONOLULU BOARD OF WATER SUPPLY

2021 DISASTER PREPAREDNESS

Raelynn Nakabayashi

July 15, 2021

boardofwatersupply.com

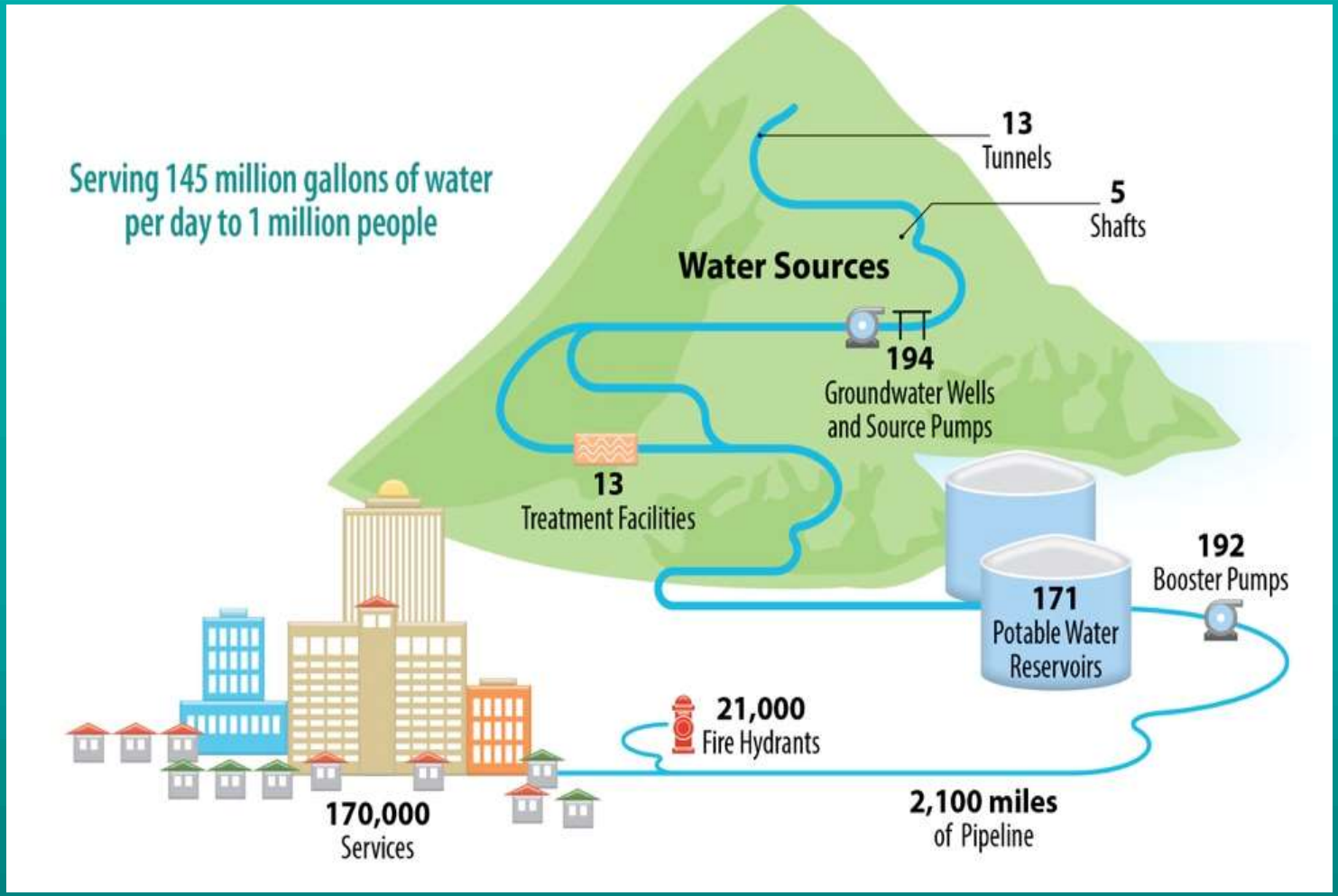
PLANNING FOR THE WORST-CASE SCENARIO

Clean & Safe Water for Drinking and Sanitation is a Public Health and Safety requirement.

AFP Contributor / Contributor / Getty Images

When Hurricane Maria hit Puerto Rico in 2017 the island was without power and water for an extended period; **the island still hasn't recovered**.

BWS WATER INFRASTRUCTURE



EMERGENCY MANAGEMENT MISSION STATEMENT

In the event of an emergency event, the mission of the BWS is to restore water service as quickly and safely as possible.

- Emergency Response (Goals)
- Mission Essential Functions
- Resiliency (Goals)

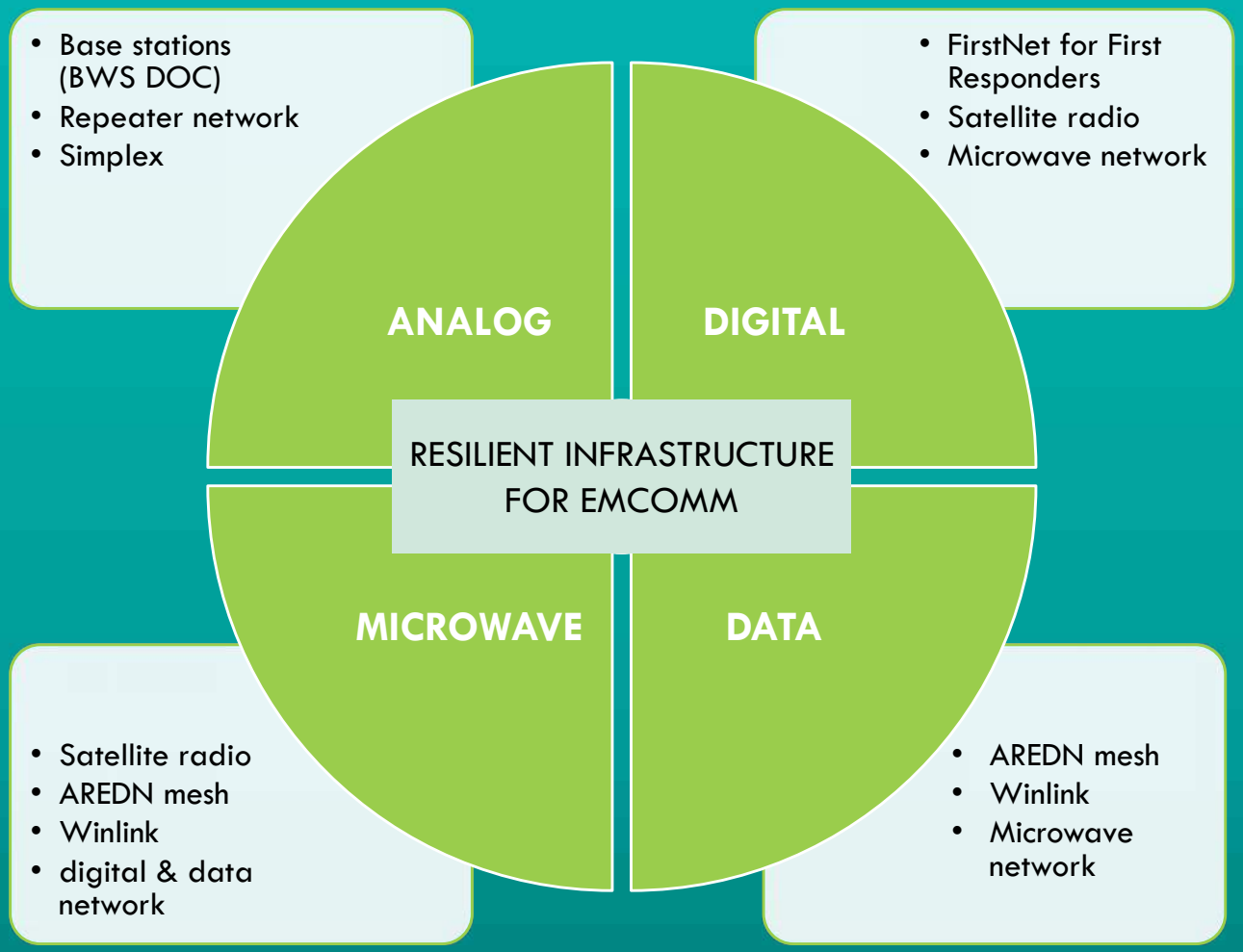
MISSION ESSENTIAL FUNCTION – COMMUNICATIONS

Communication redundancies: analog, digital, data transmission (Winlink, AREDN Mesh), satellite.

- KH6BWS (BWS Amateur Radio Club)
  - 29 employees across 8 BWS divisions/offices.
  - Exploring MOU/Served Agency agreements.

M.O.U.

Board of Water Supply *and* ***ARRL Hawaii Section's ARES®*** *are discussing a mutually beneficial Memorandum of Understanding to support strengthening emergency communications during times of disaster, emergency, or other public service-related situations.*



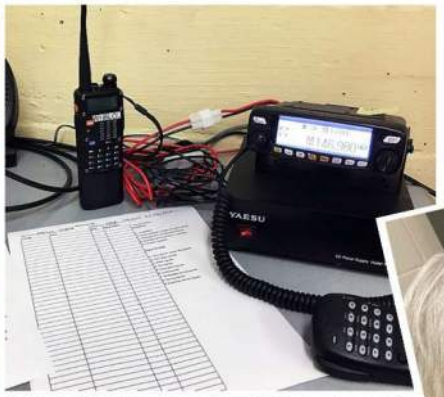
> *"Participating in simulated emergency exercises and supporting a resilient amateur radio infrastructure in Hawaii are important parts of our commitment to emergency readiness."*
>
> *-- Ernest Lau, BWS Manager & Chief Engineer*

WATER MATTERS

Safe, dependable, and affordable water, now and into the future

Volume 8 – Issue 1 Spring 2021

BWS employees took part in a voluntary HAM Radio Operator license training class in Jan. 2020. BWS currently has about 30 licensed operators.



During the SET emergency training, BWS operators practice relaying messages from station-to-station, across the island.

Simulated Emergency Tests BWS Amateur Radio Readiness

Throughout the year, thousands of licensed amateur radio operators across the United States participate in emergency communications (EMCOM) training in their local and state communities. Each October, the Amateur Radio Relay League (ARRL) encourages affiliated clubs and communities across the nation to conduct simulated emergency exercises and to ensure their readiness for a disaster situation. The Honolulu Board of Water Supply (BWS) is no exception.

BWS began participating in annual Simulated Emergency Training (SET) exercises in 2019 after it hosted a voluntary class for employees to prepare for an amateur radio license exam through the Federal Communications Commission (FCC).

"I began exploring ham radio as a personal hobby almost two years ago," said Ernest Lau, BWS Manager and Chief Engineer, and a General amateur radio license holder. "As I learned more about it, I realized just how important amateur radio could be for EMCOM, not only on a personal level for my family, but also for secondary or redundant communications for the agency and our community if, in the worst of disasters, all primary communications went down. Once we had a group of newly licensed operators, we knew we had to keep the momentum going by offering opportunities to practice and hone their skills."

For the 2020 SET at the BWS, licensed amateur radio operators participated in simulated exercises over a two-day period to practice basic operator skills in simplex and data transmission modes using handheld, mobile, or home-based radio equipment. More than half of the agency's 30 licensed operators volunteered to participate in the SET, which simulated the aftermath of a simulated hurricane. For some first-time participants, the experience was an eye-opening one.

"(It) helped me see the big picture of what could happen when a disaster strikes and showed me the importance of radio communications in sharing information during a chaotic situation," said Steven Norstrom, an Information Specialist II in the BWS Communications Office.

Norstrom earned his Technician license in February 2020 as part of the second BWS training class. The Technician license is the entry-level license for amateur radio operators in the United States.

In an emergency, communications will usually follow a "hub-and-spoke" approach, where information is relayed from operators in the field to designated base stations that then

Continued...

Amateur operator Blaine Fergerstrom relayed messages from the BWS Manana Yard to Beretania St. during Hurricane Douglas last July.


WH6GDR WH6GHQ WH6GHU WH6FFR WH6LOL WH6GHR
WH6GDV WH6AOK WH6GHZ WH6HAM WH6GLE WH6GHW
KH6WR WH6GAJ WH6GDN
KH6BWS
WH6GDO WH6GHY
WH6GDK KH6TAS WH6GIA WH6GDM WH6GHT WH6GDL
WH6GAK KH6ME KH6KO WH6GHX WH6GHS WH6GDQ
29
FCC licensed operators (07/01/21)
Technician
General
Amateur Extra
BOLD LETTERING
Certified ARRL Volunteer Examiner

RESILIENCY GOALS – POWER LOSS

- Average Daily Pumped – 145 MGD
- Number of Pressure Zone Systems – 102
- Emergency Operations Goal
  - 85 gallons per person each day
  - 85% of service area

Table 5.1 Service level and quantity of water collected

Service level	Distance/time	Likely volumes of water collected	Public health risk from poor hygiene	Intervention priority and actions
No access	More than 1 km / more than 30 min round-trip	Very low: 5 litres per capita per day	**Very high** Hygiene practice compromised Basic consumption may be compromised	**Very high** Provision of basic level of service Hygiene education Household water treatment and safe storage as interim measure
Basic access	Within 1 km / within 30 min round-trip	Approximately 20 litres per capita per day on average	**High** Hygiene may be compromised Laundry may occur off-plot	**High** Provision of improved level of service Hygiene education Household water treatment and safe storage as interim measure
Intermediate access	Water provided on-plot through at least one tap (yard level)	Approximately 50 litres per capita per day on average	**Low** Hygiene should not be compromised Laundry likely to occur on-plot	**Low** Hygiene promotion still yields health gains Encourage optimal access
Optimal access	Supply of water through multiple taps within the house	100–200 litres per capita per day on average	**Very low** Hygiene should not be compromised Laundry will occur on-plot	**Very low** Hygiene promotion still yields health gains

Source: *Domestic water quantity, service level and health (supporting document in Annex 1)*

EMERGENCY RESPONSE – GENERATOR PLAN

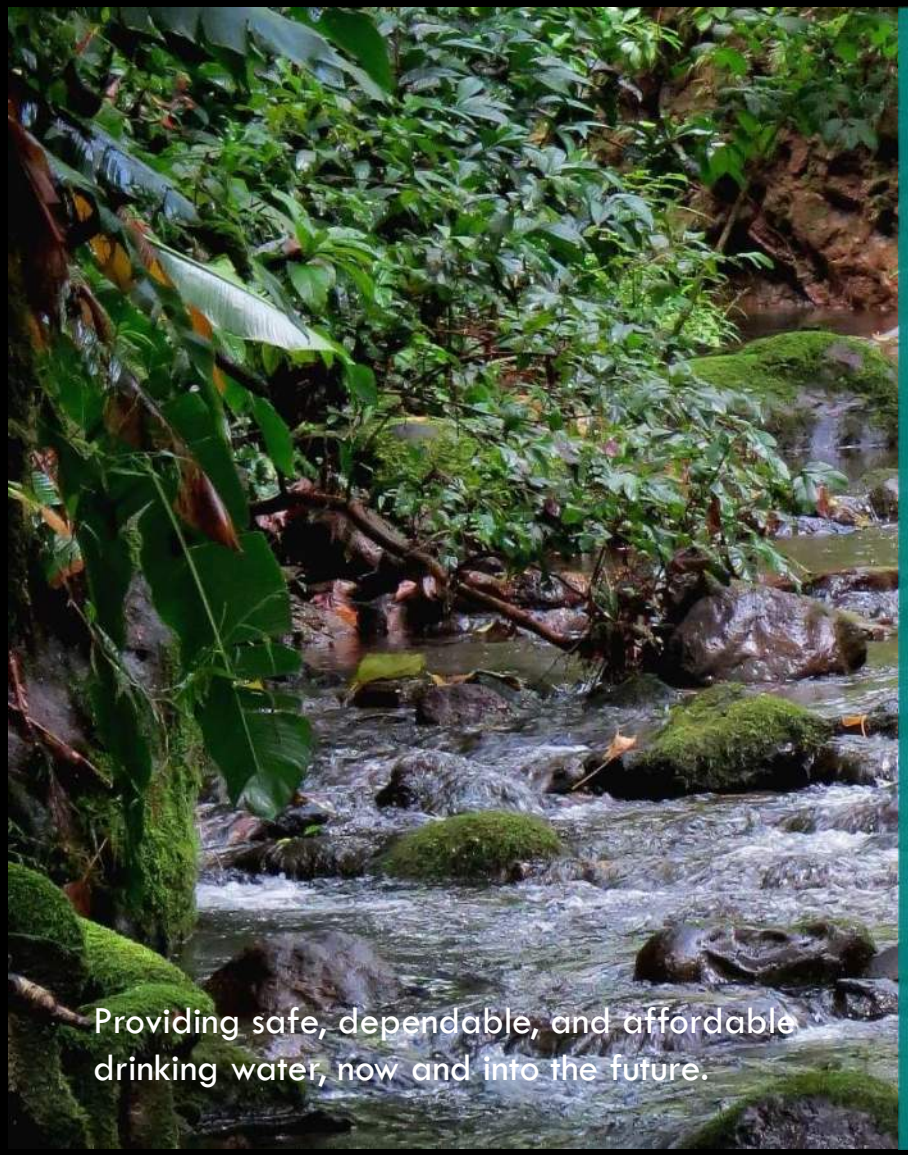
- Fixed Generators
- Portable Generators
- Two (2) tractor rigs to transport generators
- Fuel Storage (diesel – 12 kgal, gas – 6 kgal)


103

		CRITICAL FACILITIES			
SYSTEMS	CAPACITY (MGD)	HOSPITALS	CLINICS	CARE HOMES	EMERGENCY SHELTERS
Metro 180	35.1	Queens Medical Center	Queens Hawaii Kai	Lunalilo Home	Hawaii Convention Center
		Straub Clinic and Hospital			Kaiser High
		Kuakini Medical Center			Kalihi Waena Elementary
		Kapiolani Medical Center			Kaimuki Middle
		Shriners Hospital			Radford High
					Kaahumanu Elementary
					Niu Valley Middle
					Fern Elementary
					Kauluwela Elementary
					Salt Lake District Park
Metro 405	8.6	Leahi Hospital			Dole Middle
		Maluhia Hospital			Roosevelt High
		St. Francis			Jarrett Middle
Moanalua 405		Kaiser Moanalua			Moanalua High
Metro 705	0.2				
Pearl Harbor 277	2.1	Pali Momi			Aiea High
					Highlands Intermediate
Leeward 228/215	8.1	Kahi Mohala	Kaiser Punawai		Campbell High
		Queens West	Queens Kapolei		Kapolei High
			Kapolei Fam Med Cntr		Waipahu Intermediate
					Waipahu High
					Honowai Elementary
					Ilima Intermediate
					Holomua Elementary
					Keoneula Elementary
Kahuku 228	1.0	Kahuku Medical Center	Kaiser Kahuku		Kahuku Elementary
Mililani 865	2.0		Straub Mililani		Mililani High
			Kaiser Mililani		Mililani Waena Elementary
			Queens Mililani		
Wahiawa 1075	3.4	Wahiawa General			
North Shore 225/228	2.1				
Palolo 605	0.2				
Waianae 390/242	5.6	Waianae Comprehensive			Kamaile Academy PCS
Waimanalo 364	0.2				
Kahana 315	4.0			ELC Foundation Group	
Windward 272	4.3	Castle Medical Center	Kaiser Kailua	Kaneohe Comm Senior Ctr	Castle High
				Windward Care Home	King Intermediate
Windward 500	2.9	Hawaii State Hospital			Kaneohe District Park
TOTAL	79.8				

Kaonohi Wells & Mililani Wells – HMGP Grants Pending

GENERATOR PLACEMENT



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

Mahalo!

BOARD OF WATER SUPPLY

2021 Disaster Preparedness

Raelynn Nakabayashi
(808) 748-5177, rnakabayashi@hbws.org

boardofwatersupply.com for more information

June 15, 2021

Mahalo!

Questions & Answers

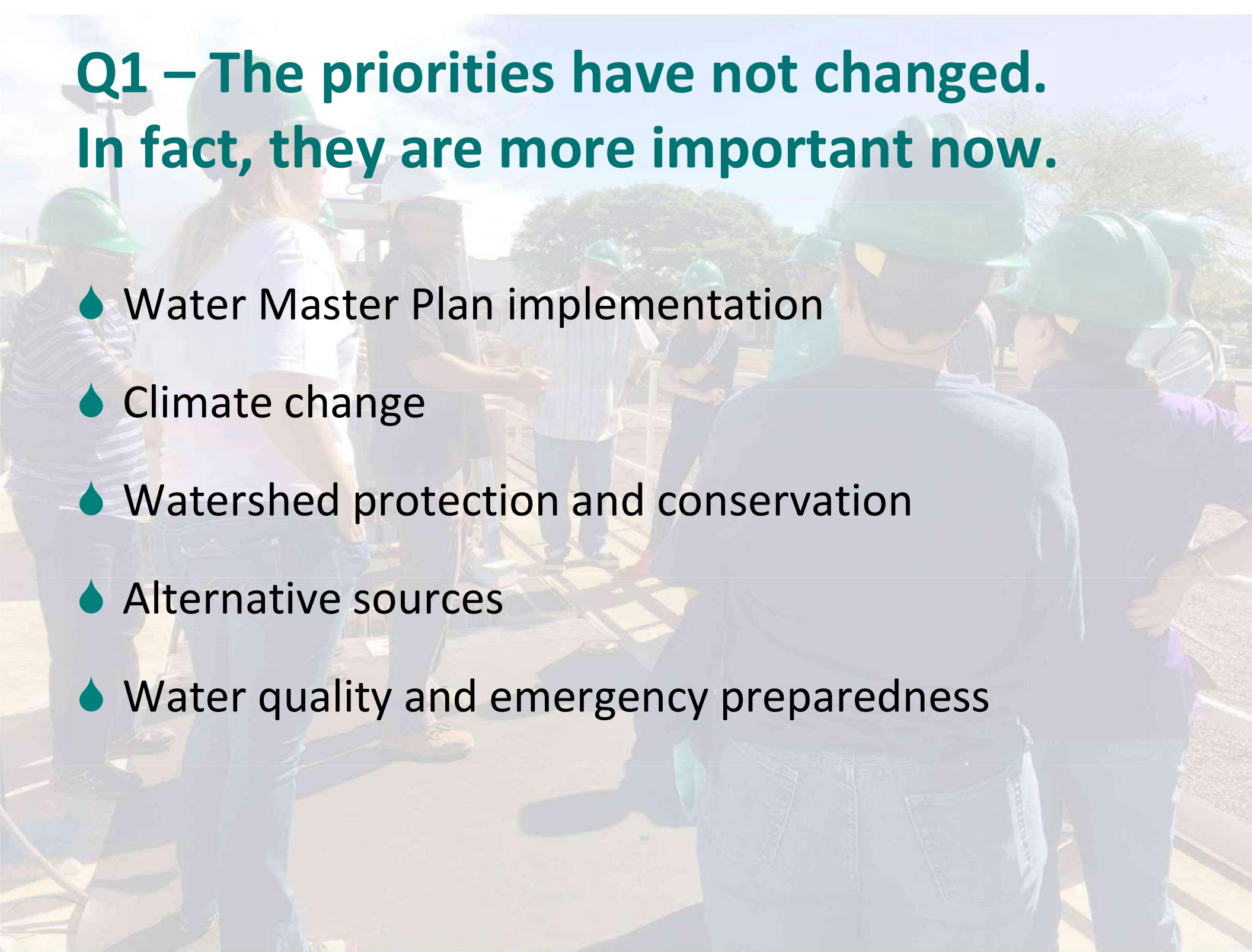
Dave Ebersold
Facilitator

2021 STAKEHOLDER ADVISORY GROUP INTERVIEWS ON PRIORITIES

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.

Dave Ebersold
Facilitator

SUMMARY AND NEXT STEPS

2021 Meeting Dates

- **Thursday, October 21**

All meetings start at 4pm

Mahalo!

Questions & Answers