



Stakeholder Advisory Group

**Board of Water Supply
City & County of Honolulu**

**Thursday, April 22, 2021
Meeting #38 - Virtual**

WATER FOR LIFE

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



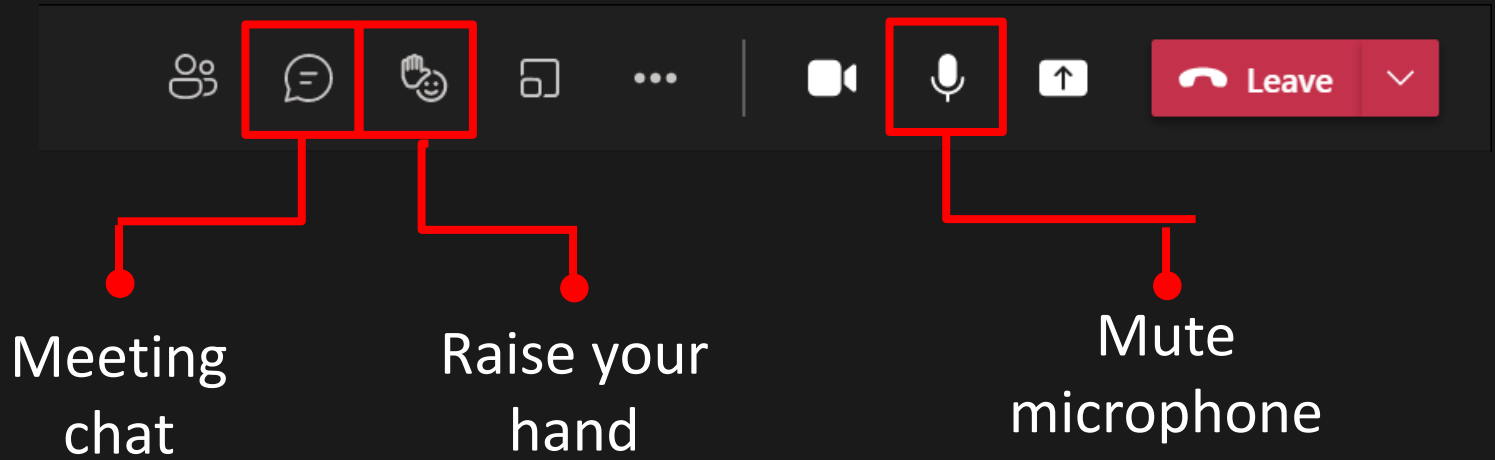
Board of Water Supply
City and County of Honolulu

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

- Accept notes from meeting #37
- Hear updates from BWS
- Learn about the WSFC adoption schedule
- Hear about Climate Ready Oahu and One Water from Matthew Gonser, Office of Climate Change Sustainability, and Resiliency
- Learn about projects in the BWS's 6-Year CIP

WATER FOR LIFE

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



Board of Water Supply
City and County of Honolulu

Public Comments on Agenda Items



Action

Review and accept notes from

- 💧 Stakeholder Advisory Group Meeting #37 held on Thursday, January 21, 2021

WATER FOR LIFE

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



Board of Water Supply
City and County of Honolulu

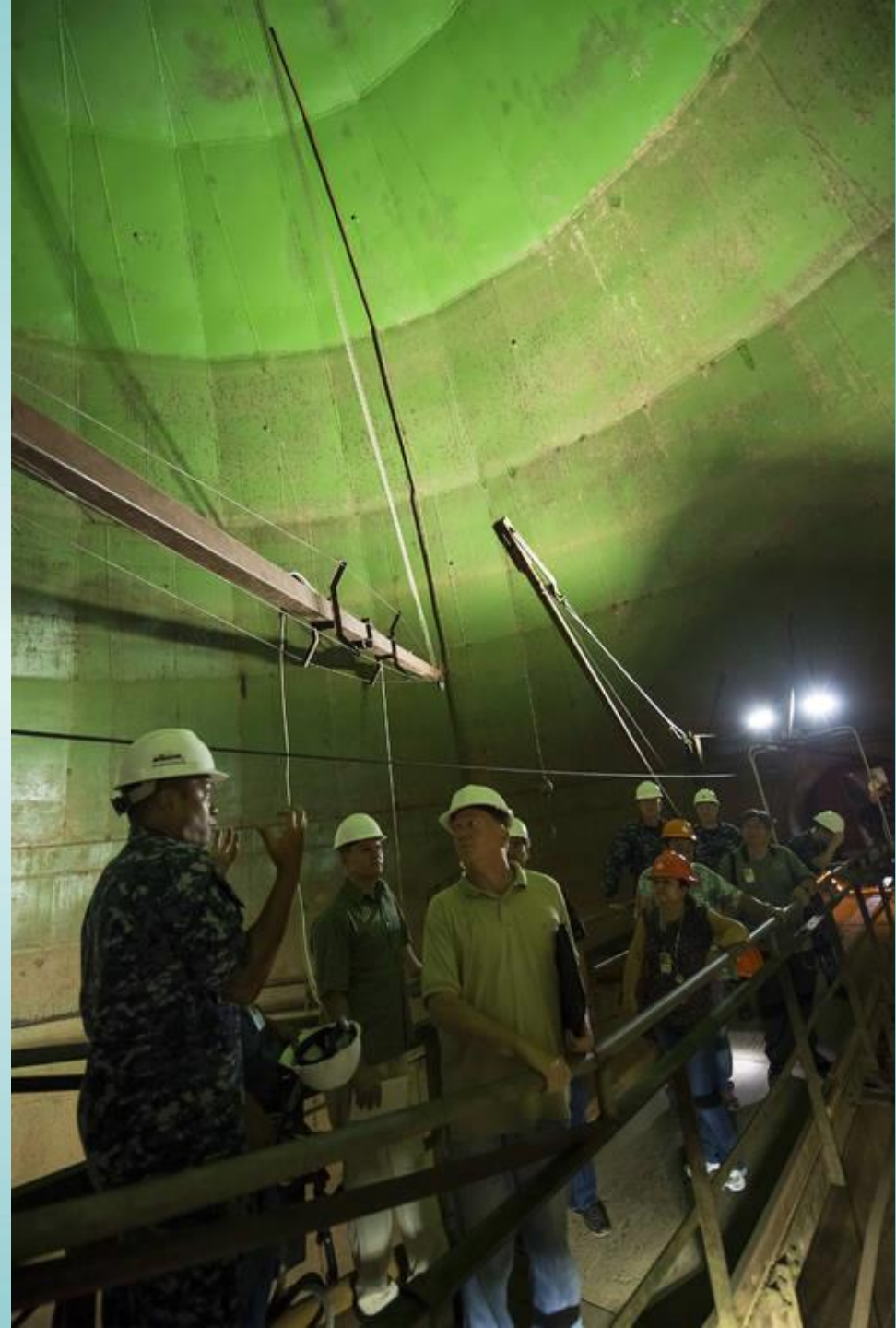
Ernest Lau

BWS Manager and Chief Engineer

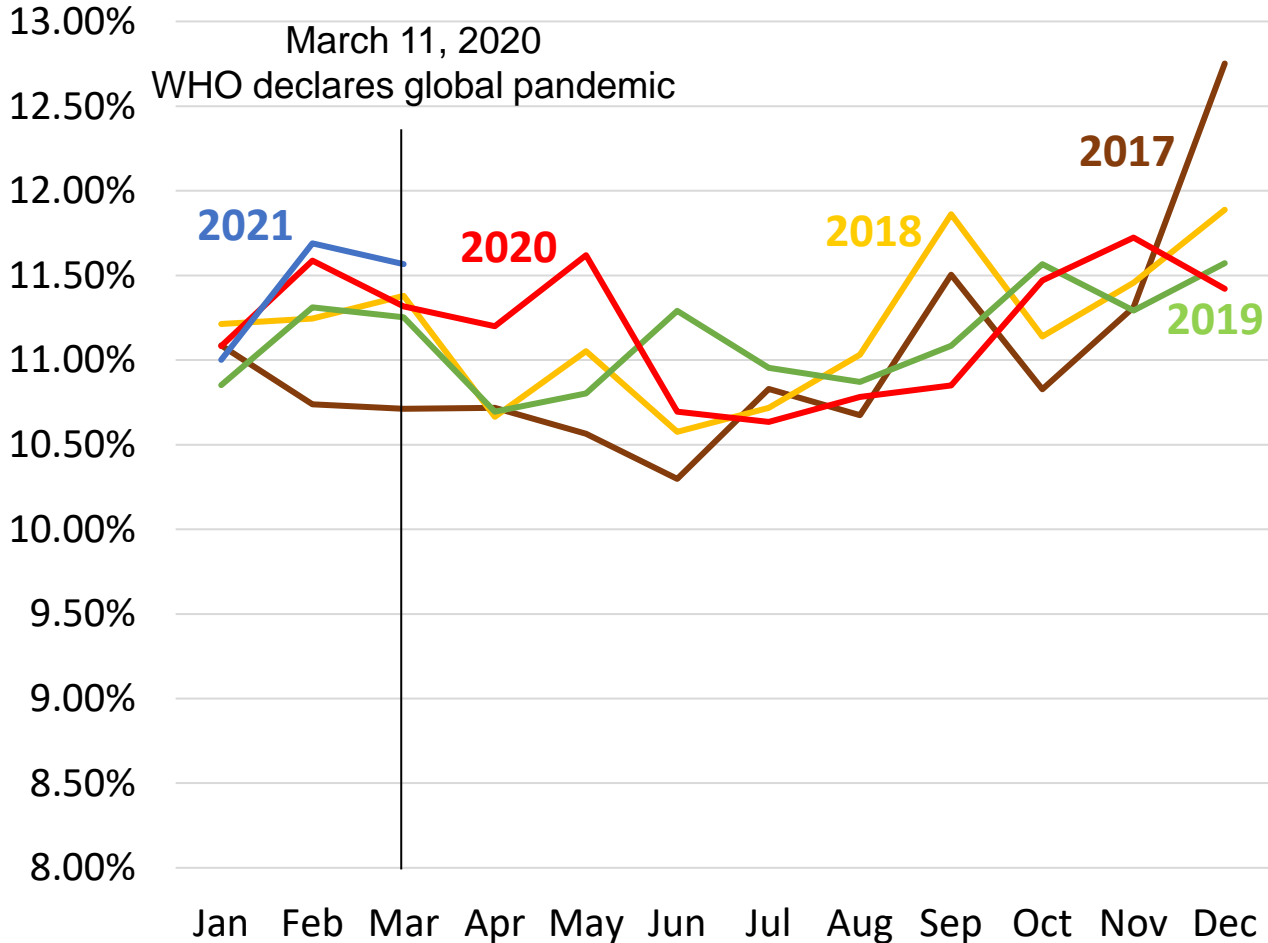
BWS UPDATES

Red Hill Contested Case Hearing

- 🔹 February 1-6, 2021
- 🔹 Summary and video clips available at <https://sierraclubhawaii.org/blog/redhill-cc-21>

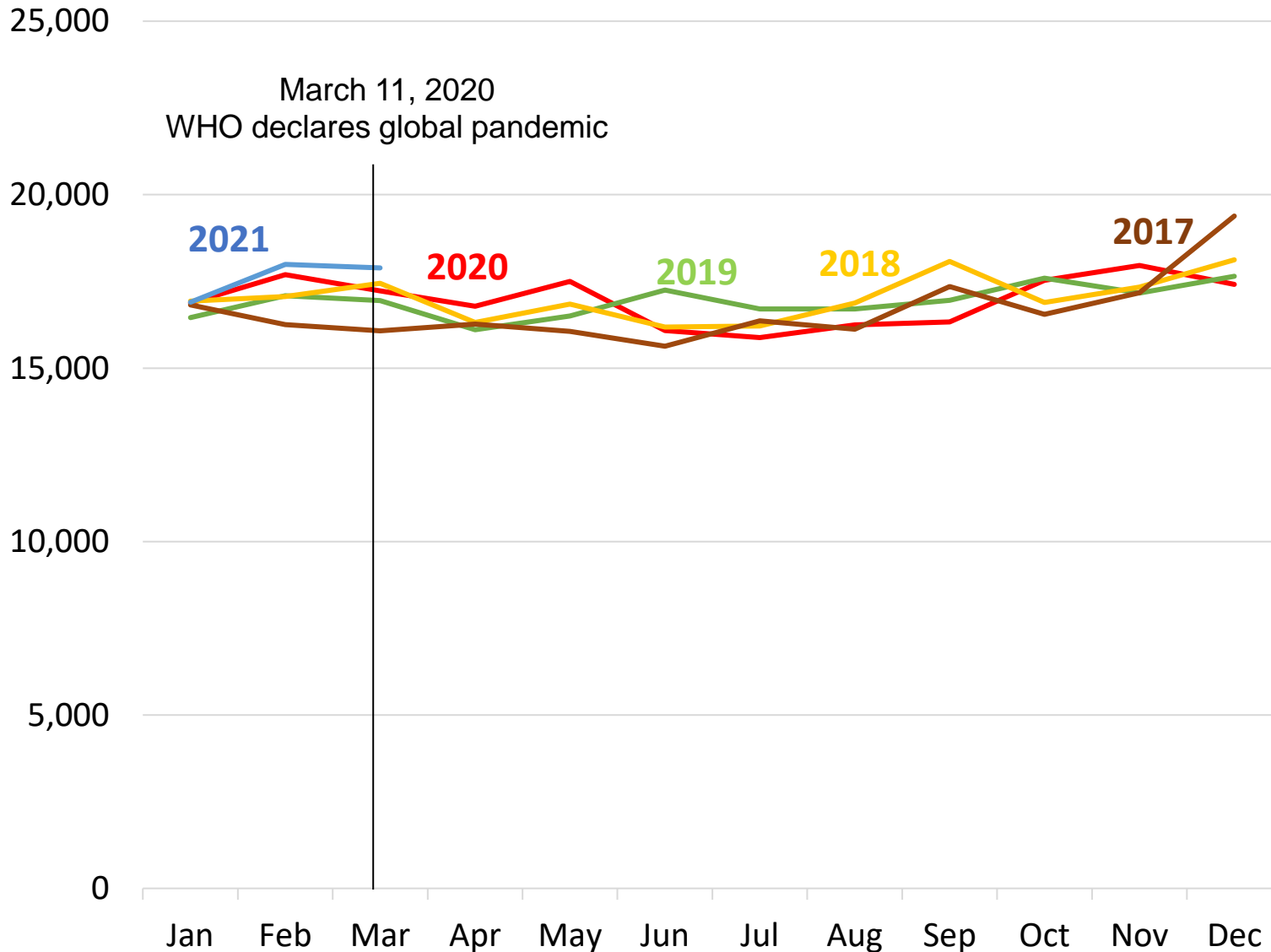


Percentage of Water Accounts 30 Days Past Due – 2017 to Present

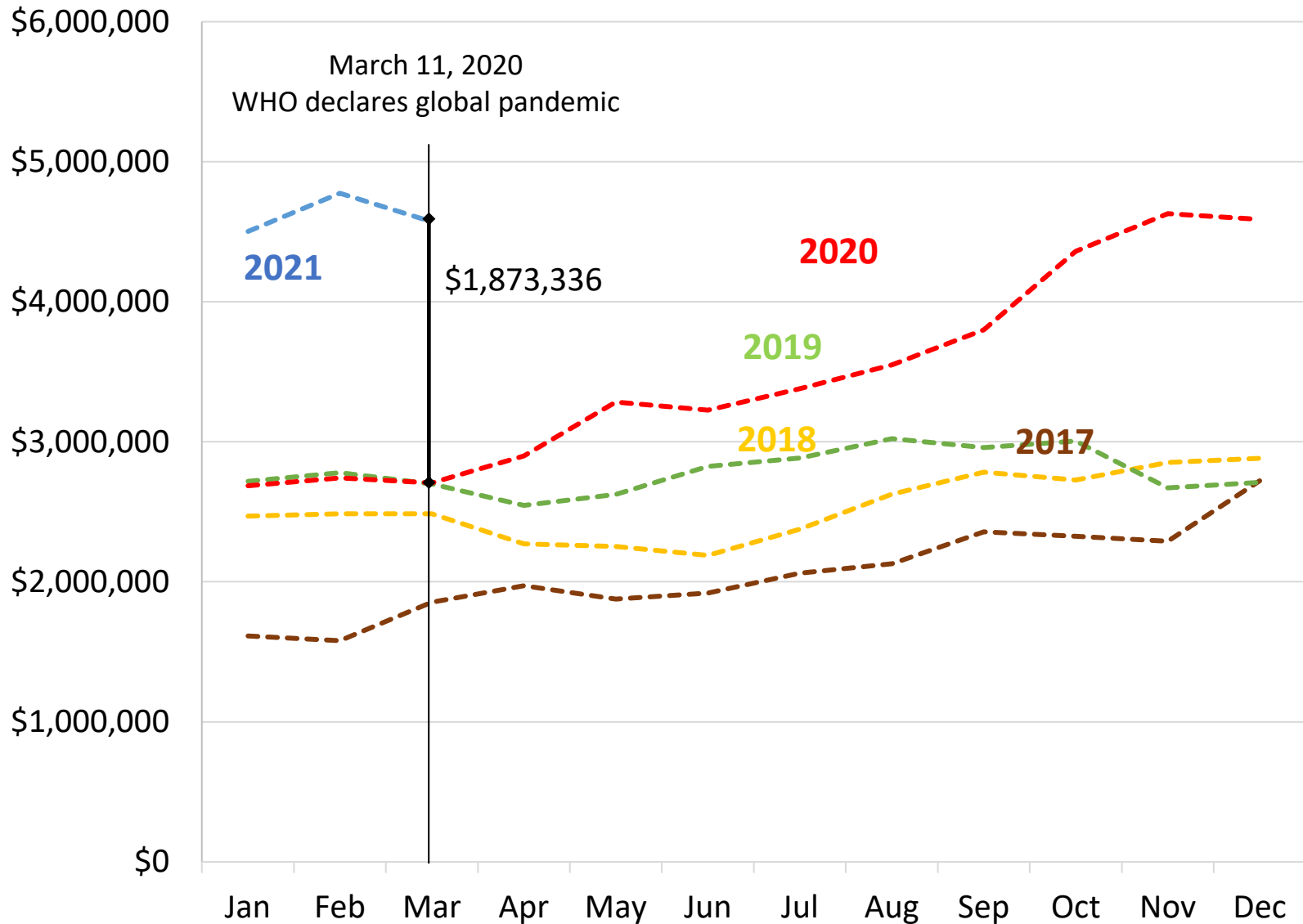


Note: BWS uncollectable accounts average 2015-2019 = 0.2% of operating revenue (\$459,490 annually)

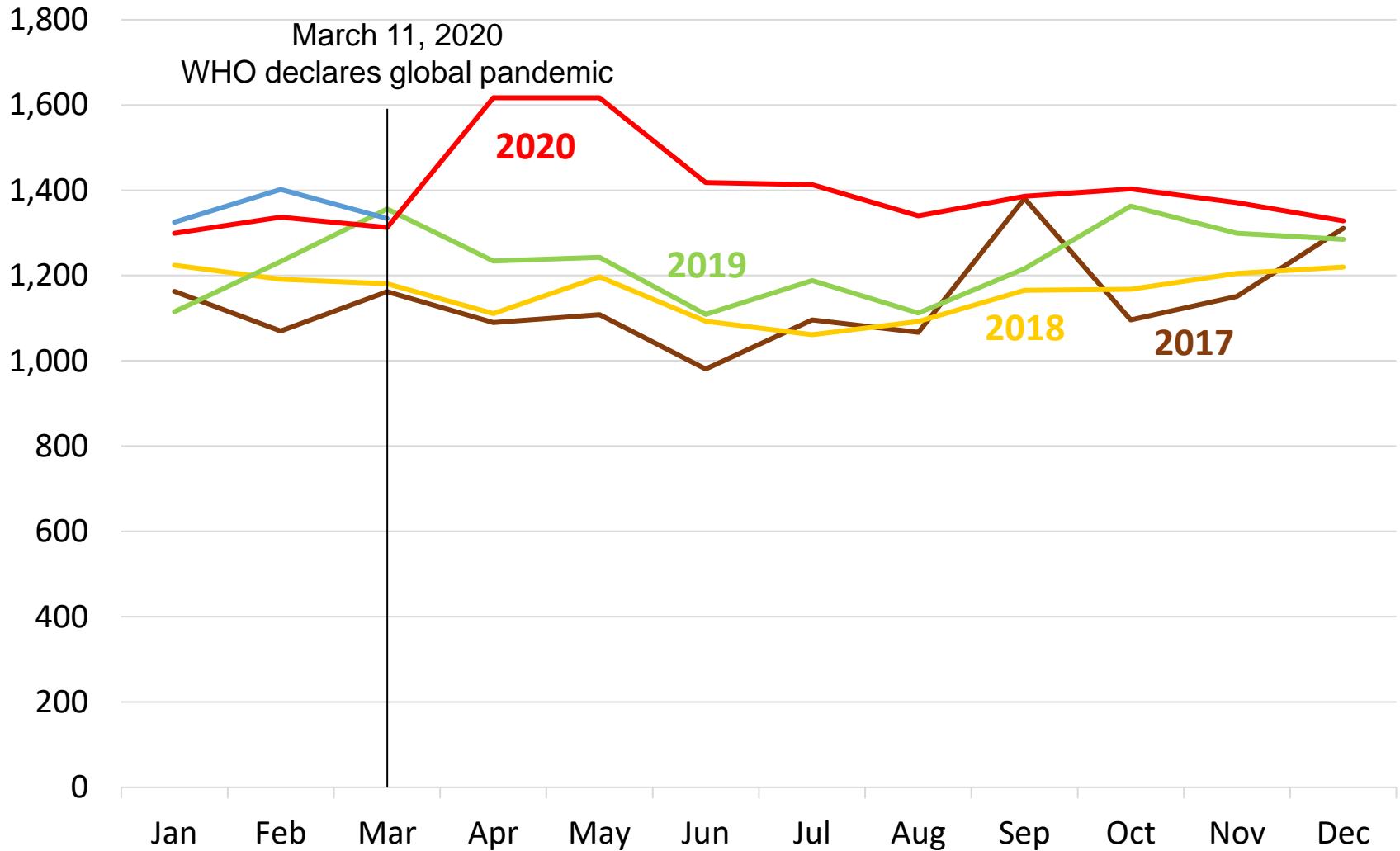
Monthly Residential Water Customer Delinquency – 2017 to Present (Number)



Monthly Residential Water Customer Delinquency – 2017 to Present (\$)



Monthly Commercial Water Customer Delinquency – 2017 to Present (Number)





Reopening Strategy (Honolulu's Tier System)
[Rental and Utility Relief Program](#) [COVID-19 Testing](#)
[Vaccine Information](#) [Masks](#) [Travel Information](#)
[City Proclamations, Orders, and Rules](#) [Calendar](#) [Contact Us](#)
[Join our team!](#)

[Frequently Asked Questions](#)

Rental & Utility Relief Program

Rental and Utility Relief Program is Currently Paused

The City and County of Honolulu's Rental and Utility Relief Program is now temporarily closed for new applications to process the first 8,000 applications. When this round of applications have been processed, the program will reopen for the next round of applicants. For additional resources, please visit <https://www.oneoahu.org/resources>.

[Frequently Asked Questions about the Rental & Utility Relief Program](#)

Please leave your name and email address if you wish to be notified when this program reopens. You will be notified from kokua@hawaiiancouncil.org. Please continue to check your email including your Spam Folder for confirmation. Mahalo!

💧 Open to households with income at or below 50% area median income or 90 days unemployed

[**www.oneoahu.org/renthelp**](http://www.oneoahu.org/renthelp)

BWS's Customer Care Outreach

- 600 accounts coded to indicate financial impact from COVID
- 9,000 calls to past due customers since June 2020
- 1,600 letters sent explaining available assistance
- Preparing to extend our customer outreach until 6 pm (outbound calls only)
- Protect customers from fraud with webpage explaining exactly what to expect when we call.
- Received 537 payments (\$116k) through the Hawaii Utilities Bill Assistance Program, Feb-Mar 2021
- No money yet from the city's new Rent and Utilities program, but we are hopeful



2021

Joe Cooper

BWS Waterworks Controller

Dave Ebersold

CDM Smith



LONG RANGE FINANCIAL PLAN UPDATE 2021

BWS Bond Ratings - 2021

- 💧 S&P Global Ratings: AAA, stable outlook
- 💧 Fitch: AA+, positive outlook
- 💧 AAA borrower pays about 20 basis points (0.20%) less than AA borrower
- 💧 On a \$61 million bond, that equals \$122,000 in annual interest savings

BWS is only agency in Hawaii to receive AAA

Bond Sale Summary, March 25, 2021

- 💧 \$93.5 million principal amount
- 💧 True interest cost 2.49%
- 💧 Net Proceeds will be used for:
 - CIP projects \$61.0 million
 - Refunding existing bonds \$45.4 million
- 💧 BWS customers will benefit from \$458,561 in annual debt service savings
- 💧 Combined NPV savings of \$3,209,930

WATER FOR LIFE

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



Board of Water Supply
City and County of Honolulu

Mahalo!

Questions & Answers





Dave Ebersold

CDM Smith

UPDATE ON THE WATER SYSTEM FACILITIES CHARGE (WSFC)

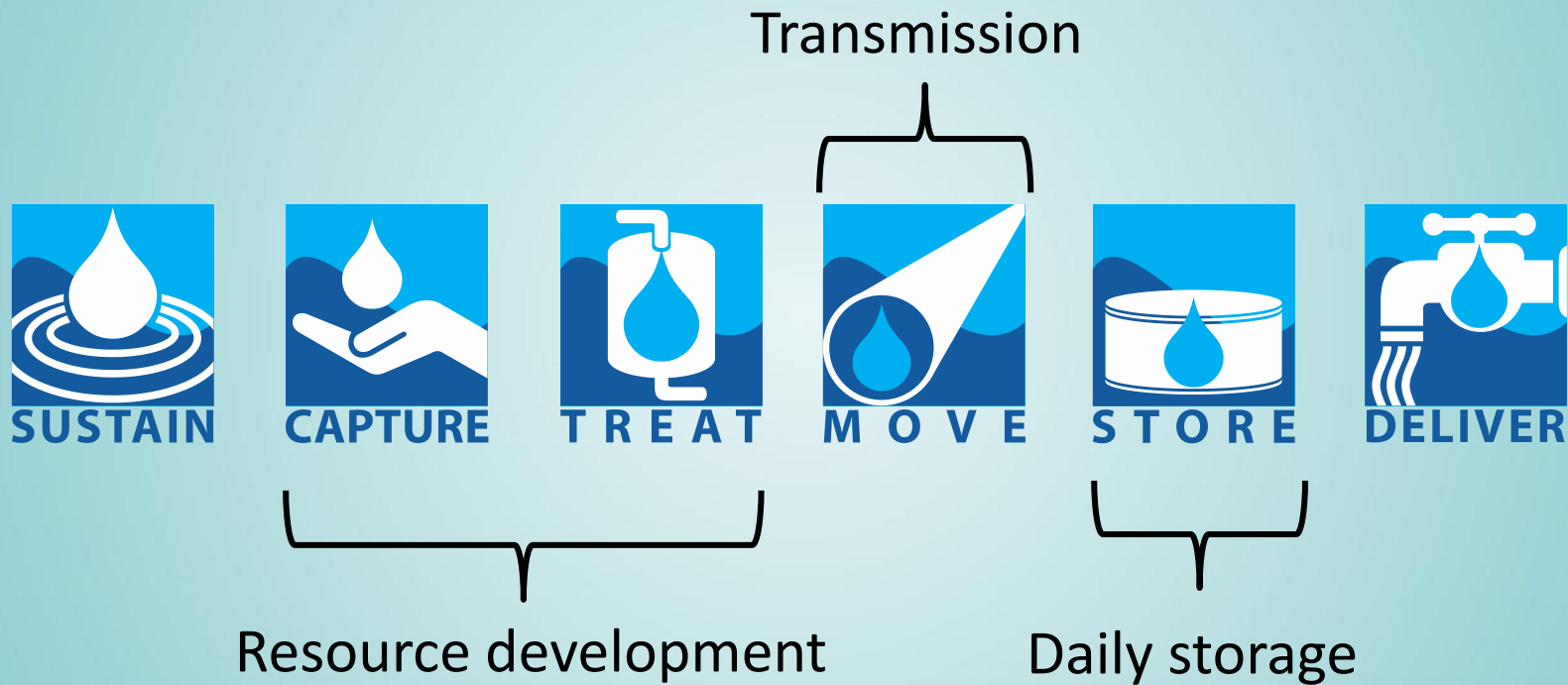
WSFC is a 1-time charge with 2 purposes

- Charged when connecting to the system for the first time, or when additional capacity is needed
- Purposes
 - Fund growth-related capacity expansions
 - Equitably recover earlier investments in oversizing infrastructure to accommodate new customers

Why update the WSFC?

- 💧 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 is for the backbone system only (general use facilities)



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 2, 2022

WATER FOR LIFE

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



Board of Water Supply
City and County of Honolulu

Mahalo!

Questions & Answers

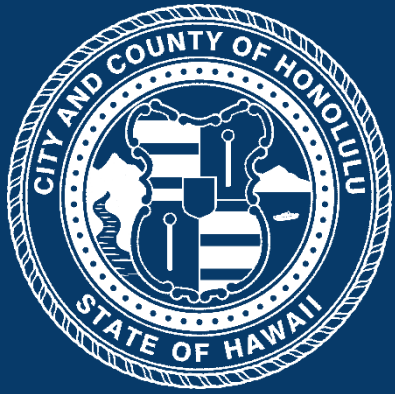




Matthew J. Gonser, AICP, CFM

Office of Climate Change, Sustainability and Resiliency,
Chief Resilience Officer & Executive Director

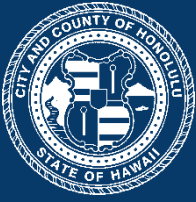
CLIMATE READY O'AHU AND ONE WATER



Resilient O'ahu

City and County of Honolulu
Office of Climate Change,
Sustainability and Resiliency





Mandate from O'ahu Voters

The Office of Climate Change, Sustainability and Resiliency is a Charter-mandated City office created to respond to climate change, resilience, and other sustainability challenges.



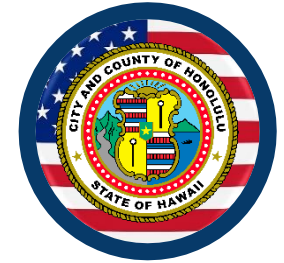
**Green
City Operations**



**Reduce Climate
Emissions & Impact**



**Promote Resilient
Communities**



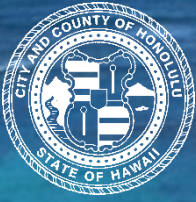
**Coordinate with
Federal & State Agencies**



**Ensure Sustainable
City Plans & Policies**

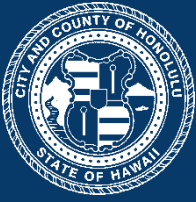


**Facilitate Climate
Change Commission**



Resilience

The capacity of individuals, communities, institutions, businesses, and systems to **survive, adapt, and thrive** no matter what kinds of chronic **stresses** and acute **shocks** they experience.



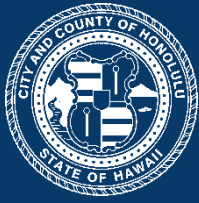
Resolution 19-233

Guiding policy document for the City

Ola

O'AHU
RESILIENCE
STRATEGY

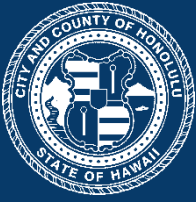




Ordinance 20-47

Resilience Office Duties & Responsibilities





Accountability & Transparency

Measuring
Tracking
Reporting

CITY & COUNTY OF HONOLULU

Annual Sustainability Report

2021





Roadmap to Decarbonization

Transportation
Electricity & Buildings
Waste

One Climate One O'ahu

Accelerating O'ahu's clean energy future for our **communities** | **ʻāina** | **economy**

CITY & COUNTY OF HONOLULU

**CLIMATE
ACTION PLAN
2020-2025**



UHERO
THE ECONOMIC RESEARCH ORGANIZATION
AT THE UNIVERSITY OF HAWAII

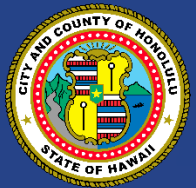
ISR
UNIVERSITY OF HAWAII AT MĀNOA





Climate Ready O'ahu

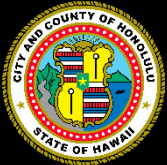
Preparing O'ahu's Communities for Climate Impacts



City and County of Honolulu
Office of Climate Change, Sustainability and Resiliency

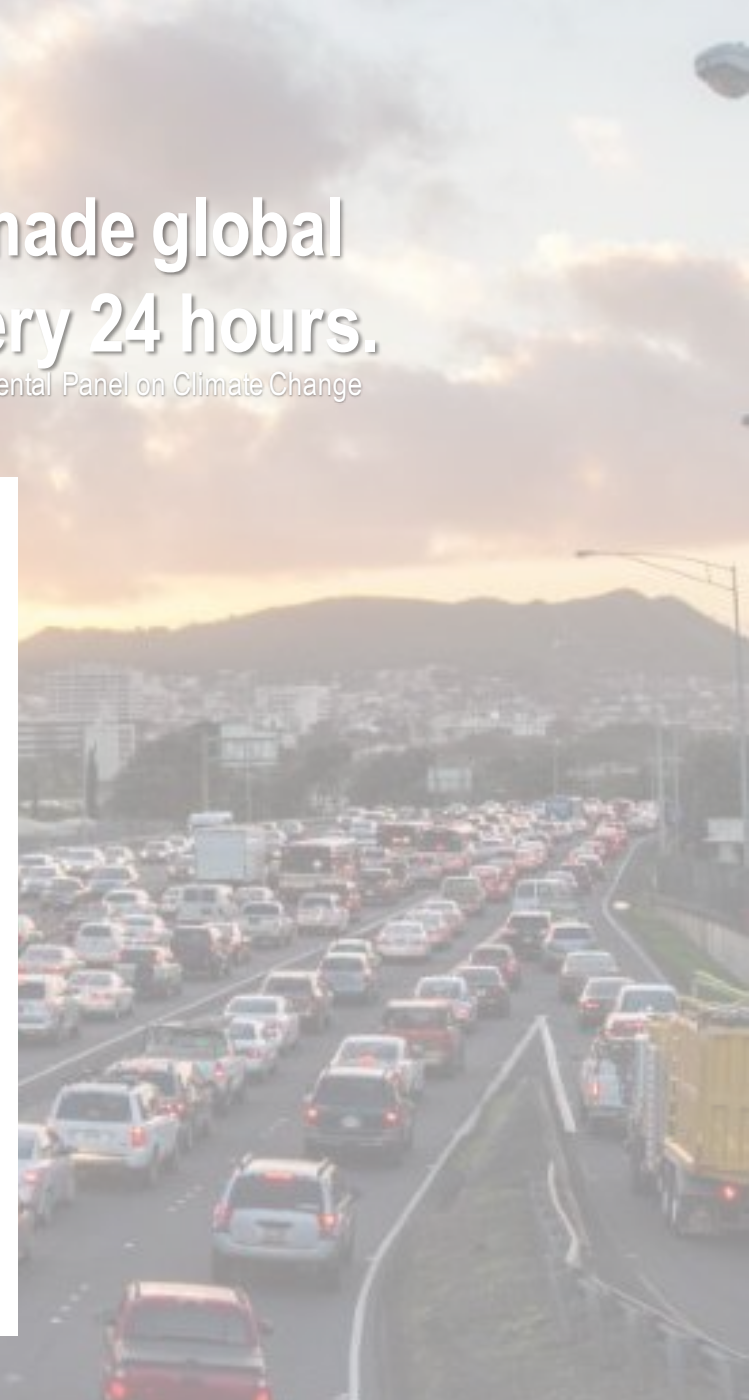
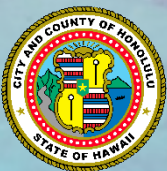
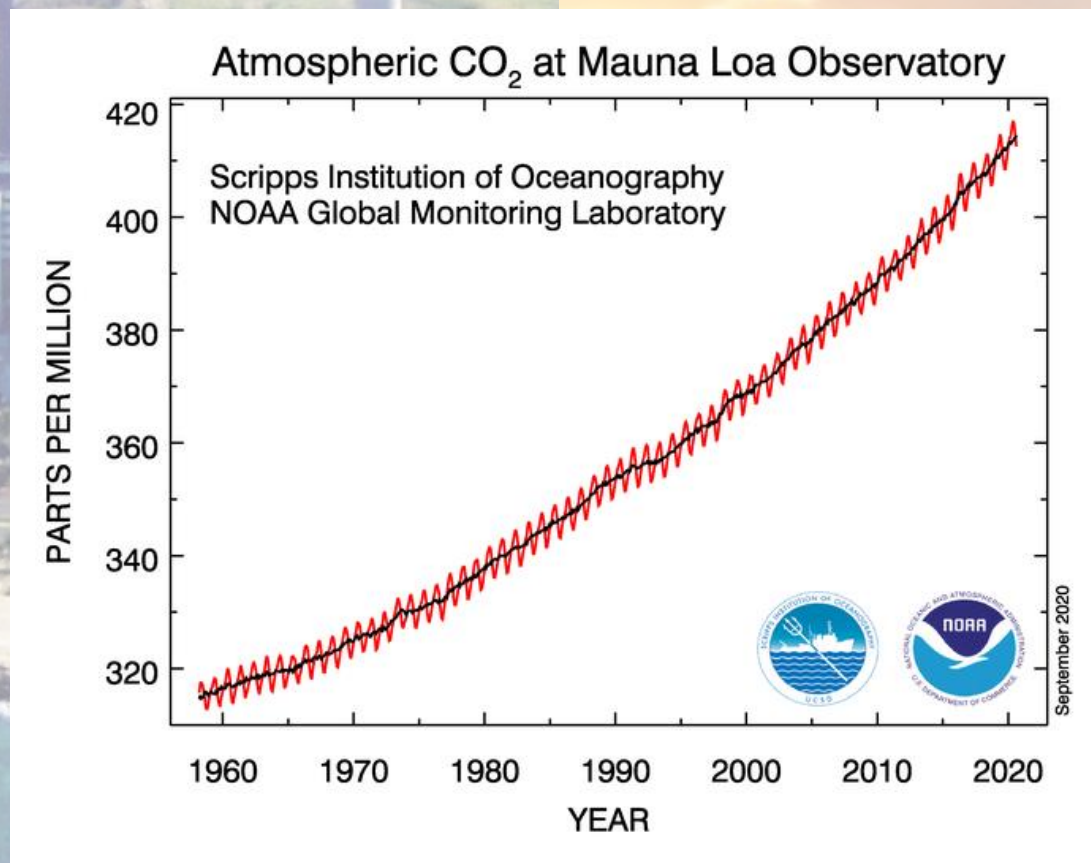


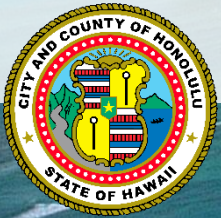
Our Climate



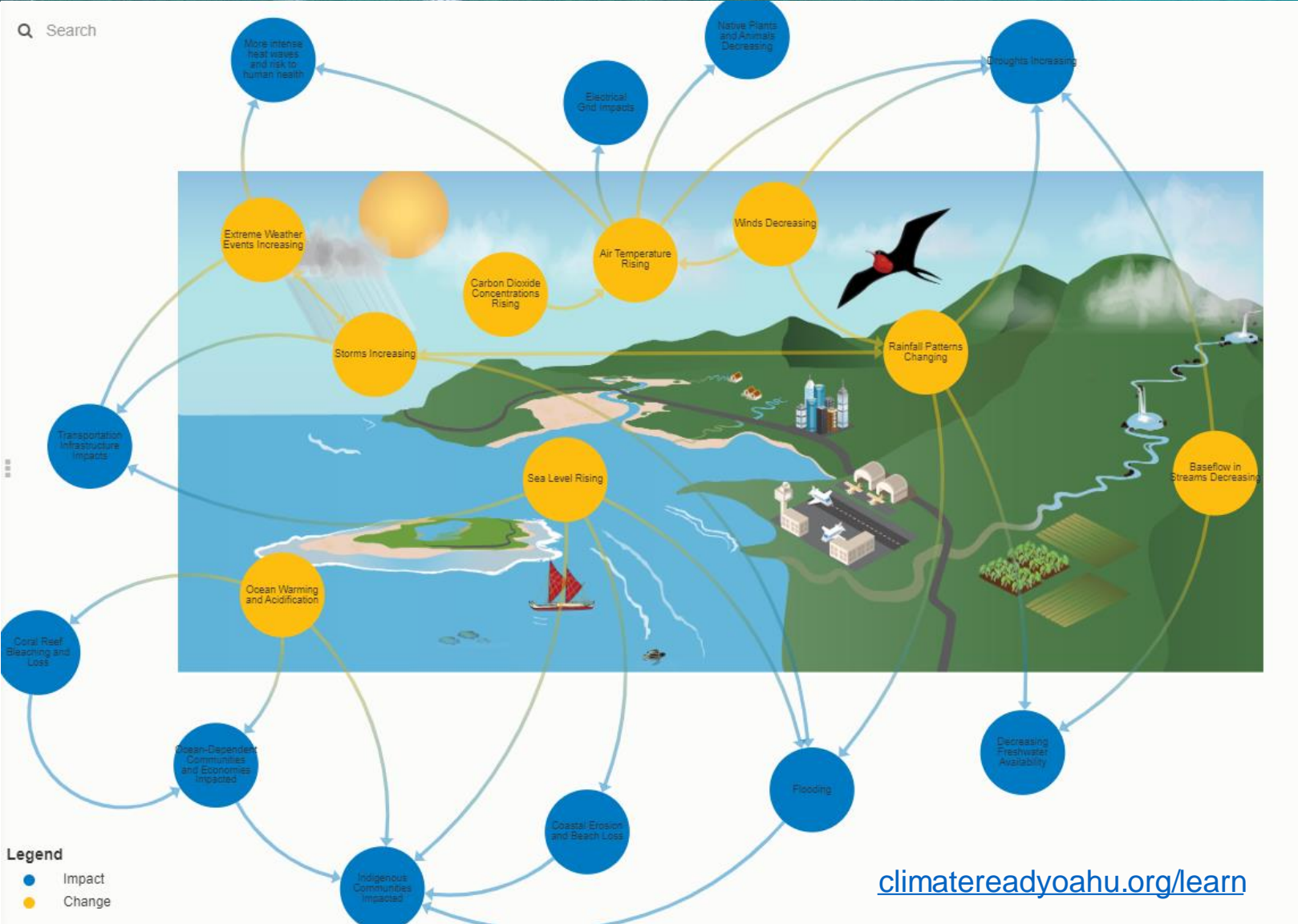
We are dumping 110 million tons of manmade global warming pollution into the atmosphere every 24 hours.

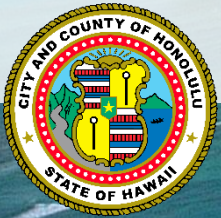
Data: Intergovernmental Panel on Climate Change





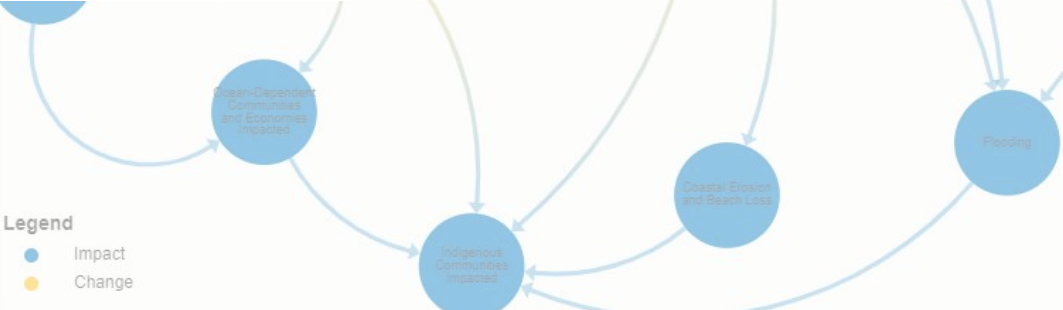
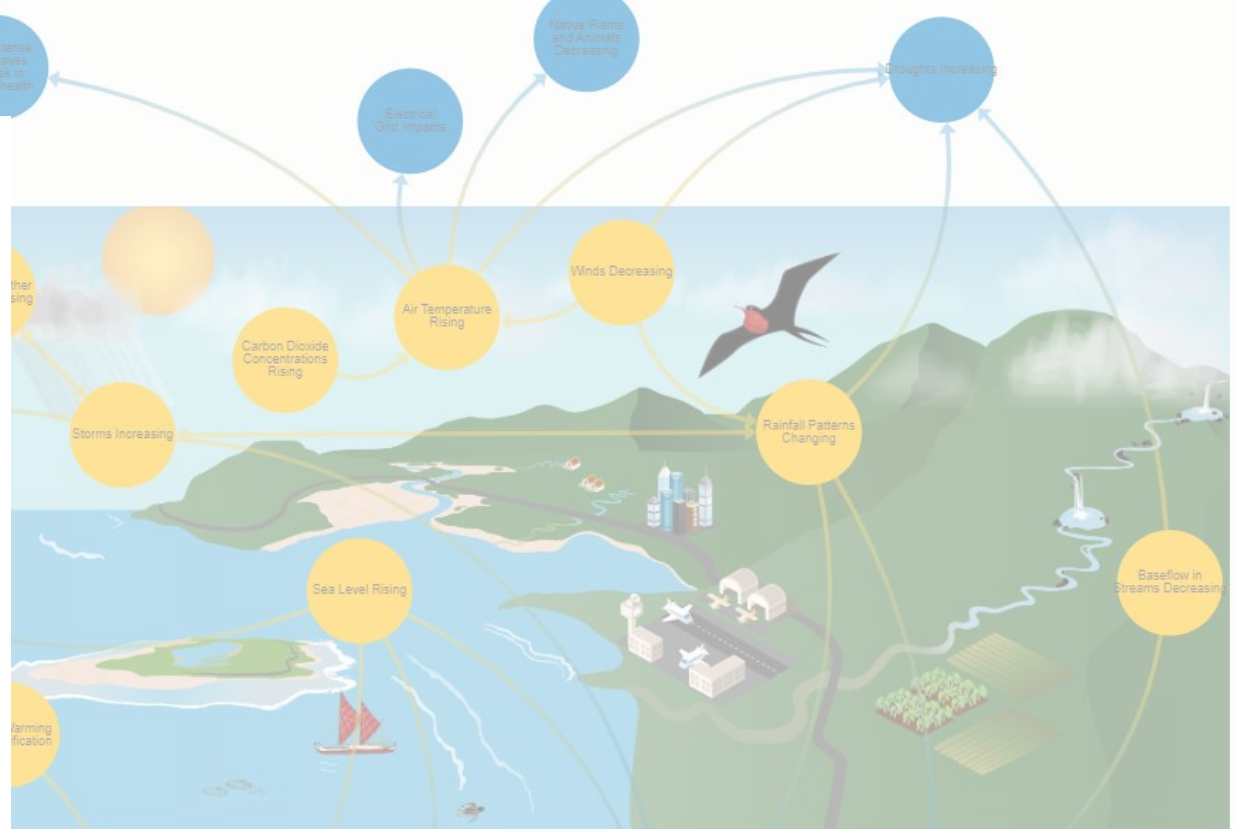
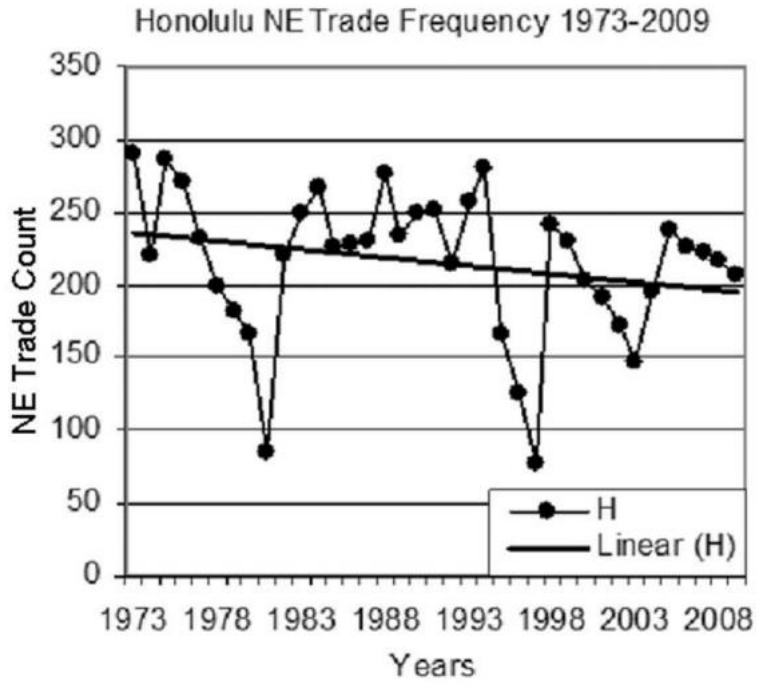
Climate Change and Impacts





Climate Change and Impacts

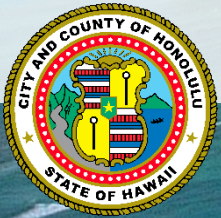
Q Search



Legend

- Impact
- Change



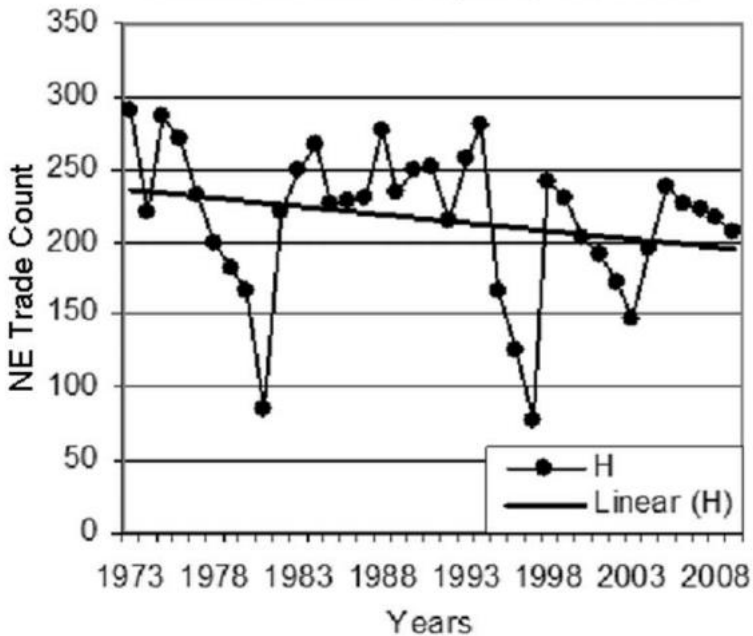


Climate Change and Impacts

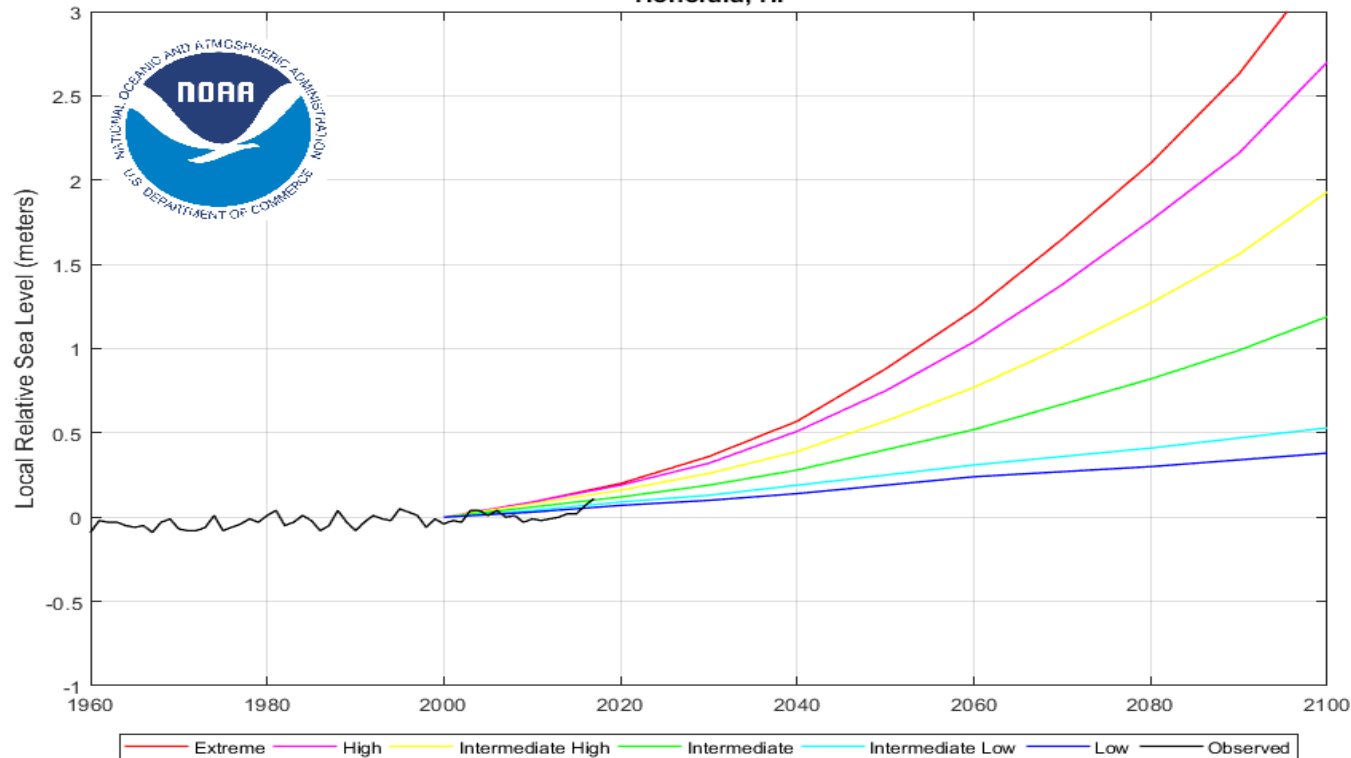
Q Search

No or intense heat waves and risk to human health

Honolulu NE Trade Frequency 1973-2009

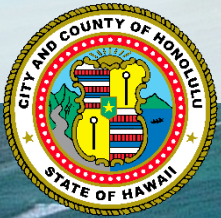


Honolulu, HI



climateredyoahu.org/learn

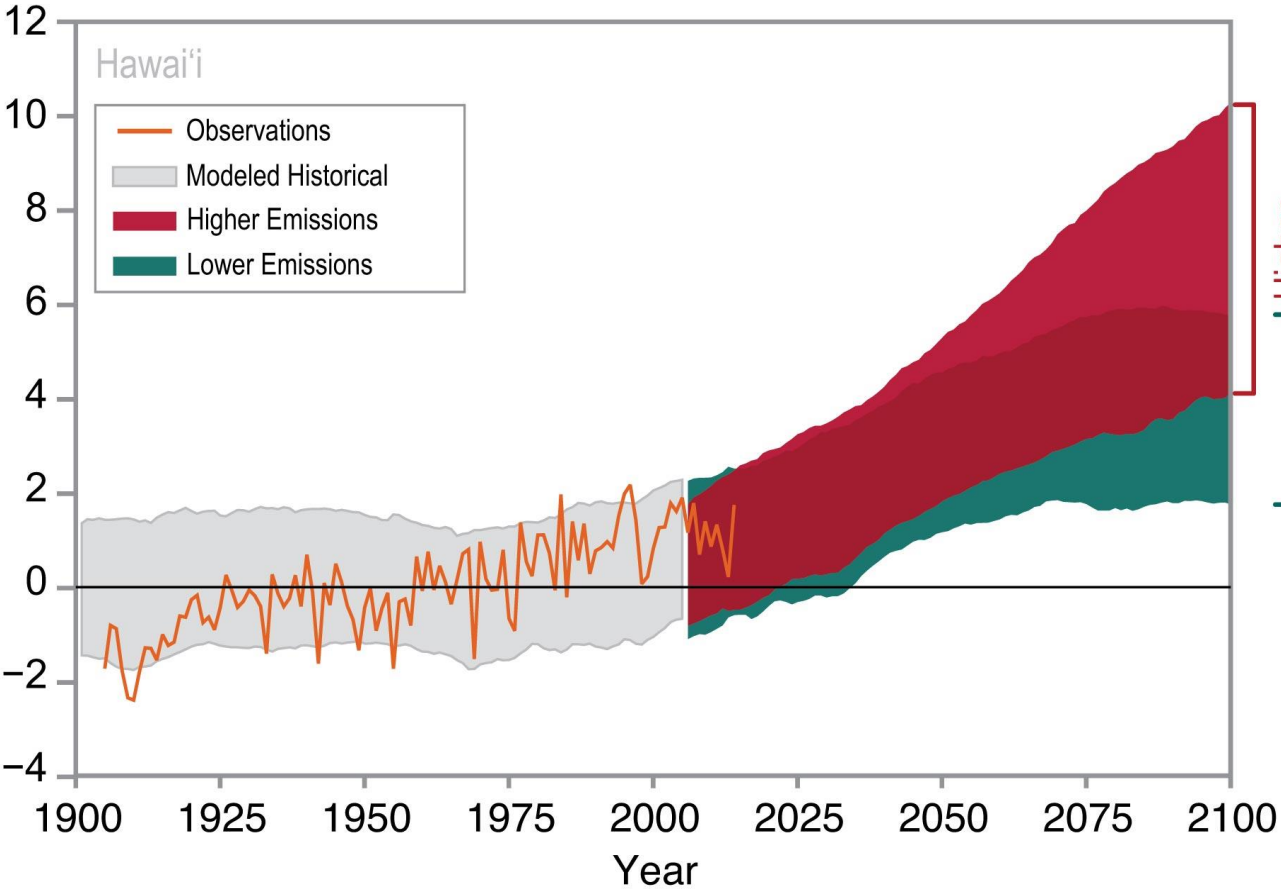
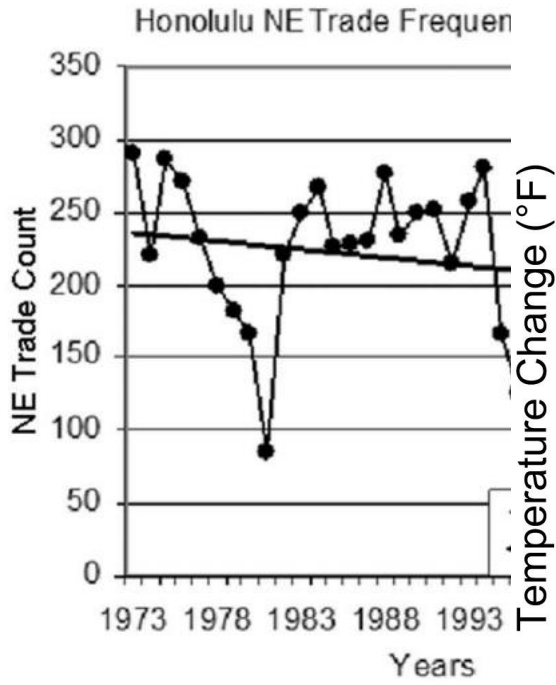




Climate Change and Impacts

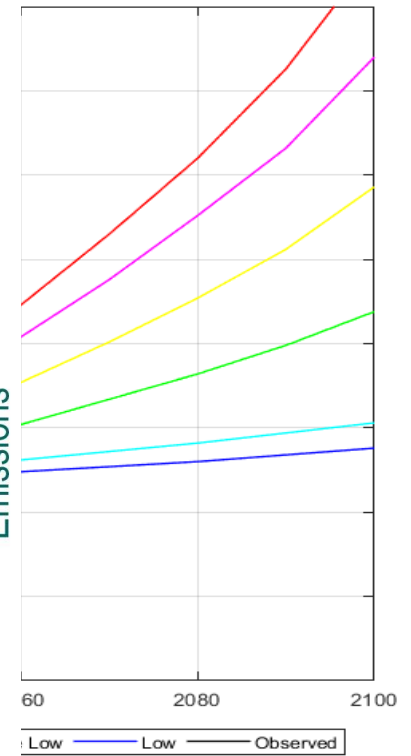
Search

Observed and Projected Temperature Change



Higher Emissions

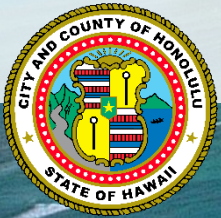
Lower Emissions



Legend

- Impact
- Change





Climate Costs



Recreation/Community Facilities

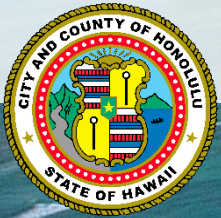


Private Residences/Public Resources



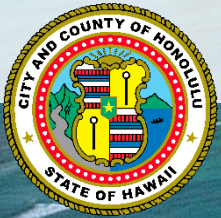
Businesses/Redevelopment





Climate Costs

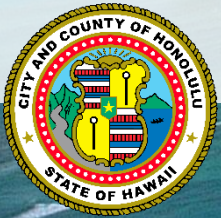




Climate Costs







Climate Change Commission

Science for Local Decisions

CLIMATE CHANGE BRIEF

Summary of measured and expected impacts to O'ahu

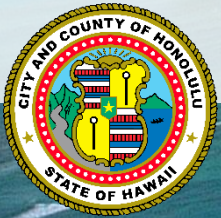
SEA LEVEL RISE GUIDANCE

3.2 feet rise by 2100 (80 years)

Periodic flooding by mid-century (30 years)

6.0 feet as planning benchmark for critical facilities





Mayor's Directive 18-2

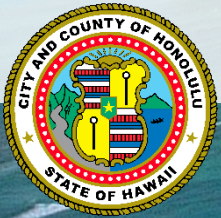


July 16, 2018 Climate Change and Sea Level Rise

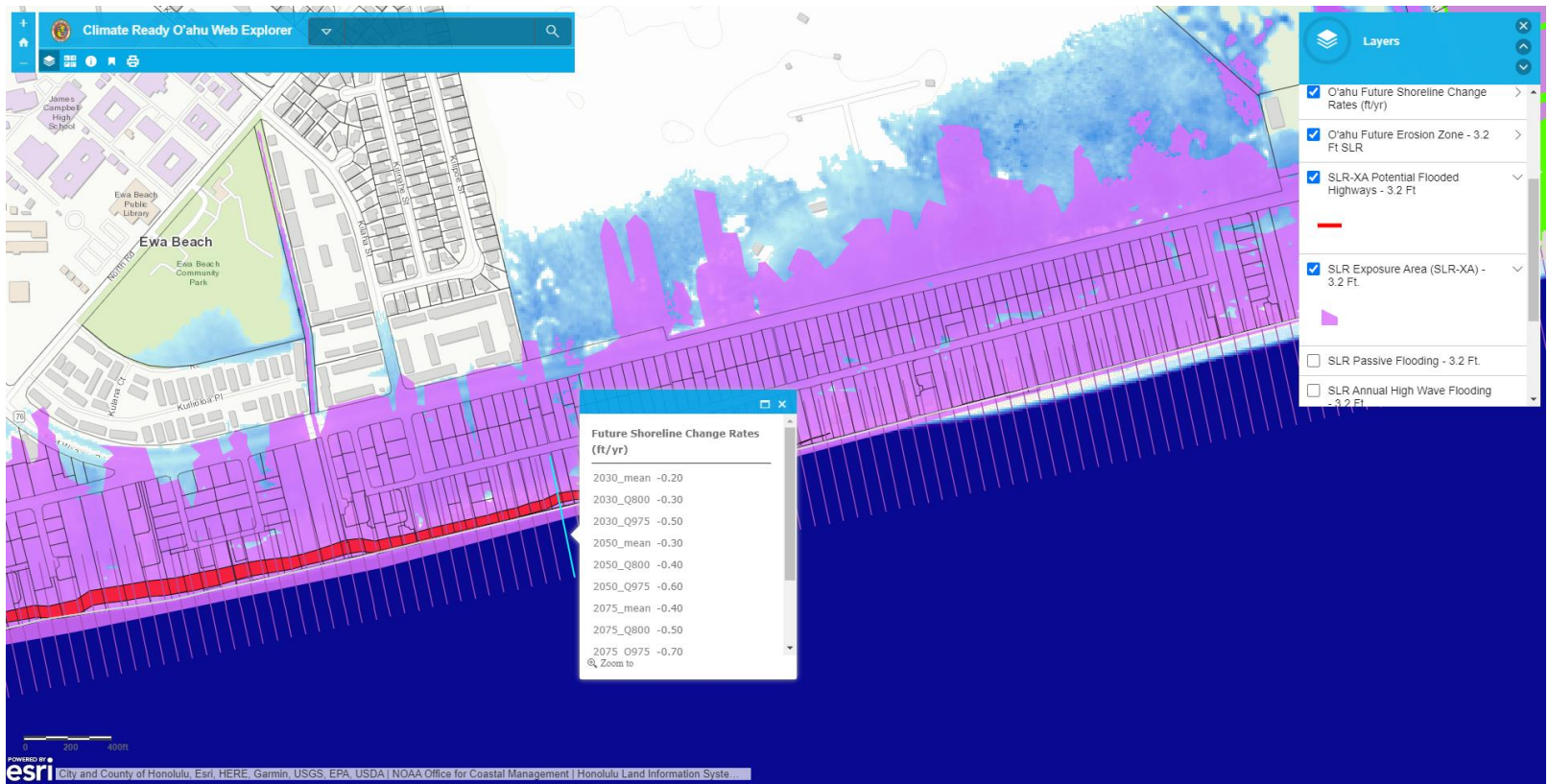
Mayor Caldwell issued an executive order in response to guidance issued by the City's Climate Change Commission.

resilientoahu.org/s/MayorsDirective18-02.pdf





Mayor's Directive 18-2 | Climate Adaptation



Climate Ready O'ahu Web Explorer

Current Layers

- SMA
- TMKs
- Community Plan Areas
- Historical and Future Shoreline Change Rates
- State 3.2' SLR-XA, component hazards, and flooded highways
- O'ahu DFIRM
- NOAA 6' SLR
- Heat Index Afternoon
- Tree Canopy – Land Cover (2010)

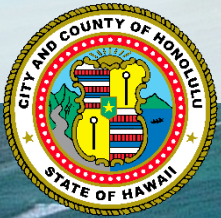
Additional Potential Layers

- Beach/dune geology
- "Future V Zone"
- Tsunami Zones
- Tree Inventory/Citizen Forester Data

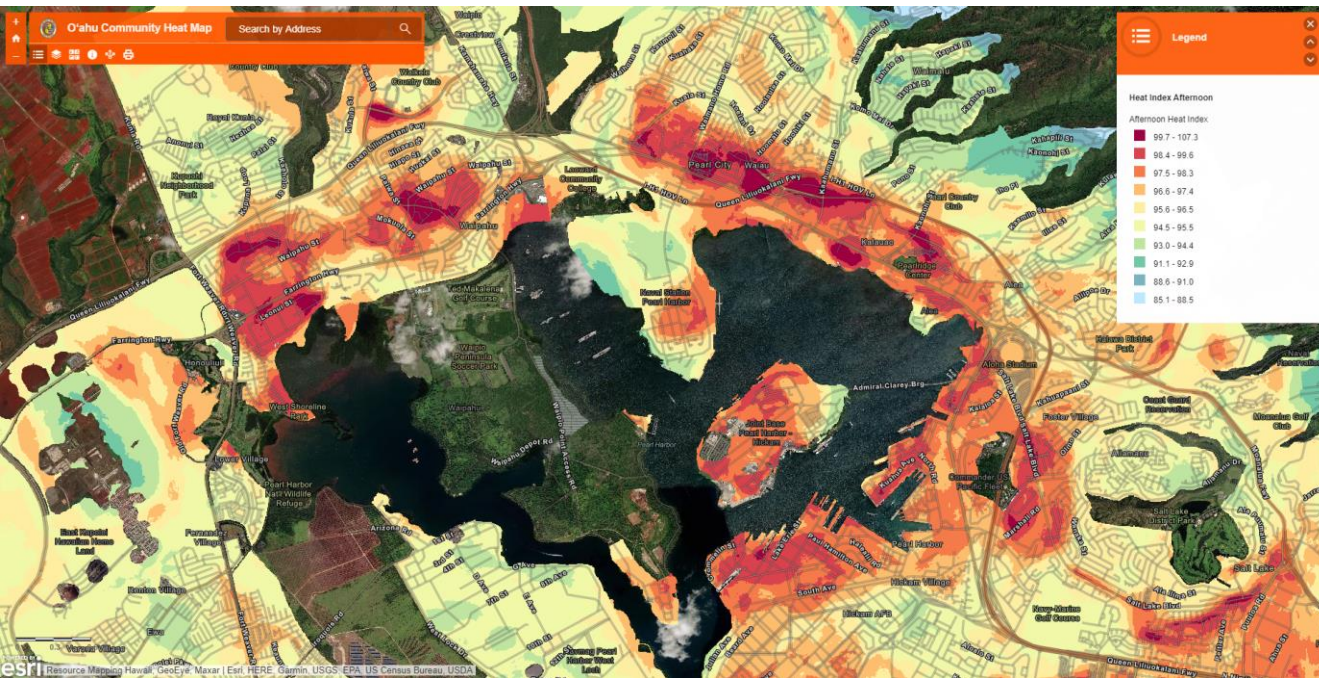
bit.ly/climateredyoahumap

resilientoahu.org/s/MayorsDirective18-02.pdf





Mayor's Directive 20-14 | Temps and Trees



bit.ly/oahuheatmap

resilientoahu.org/s/Mayors-Directive-20-14.pdf

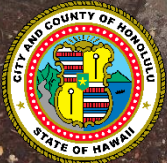


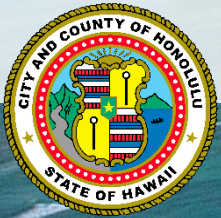


Opportunities Expectations



Obligations Risks

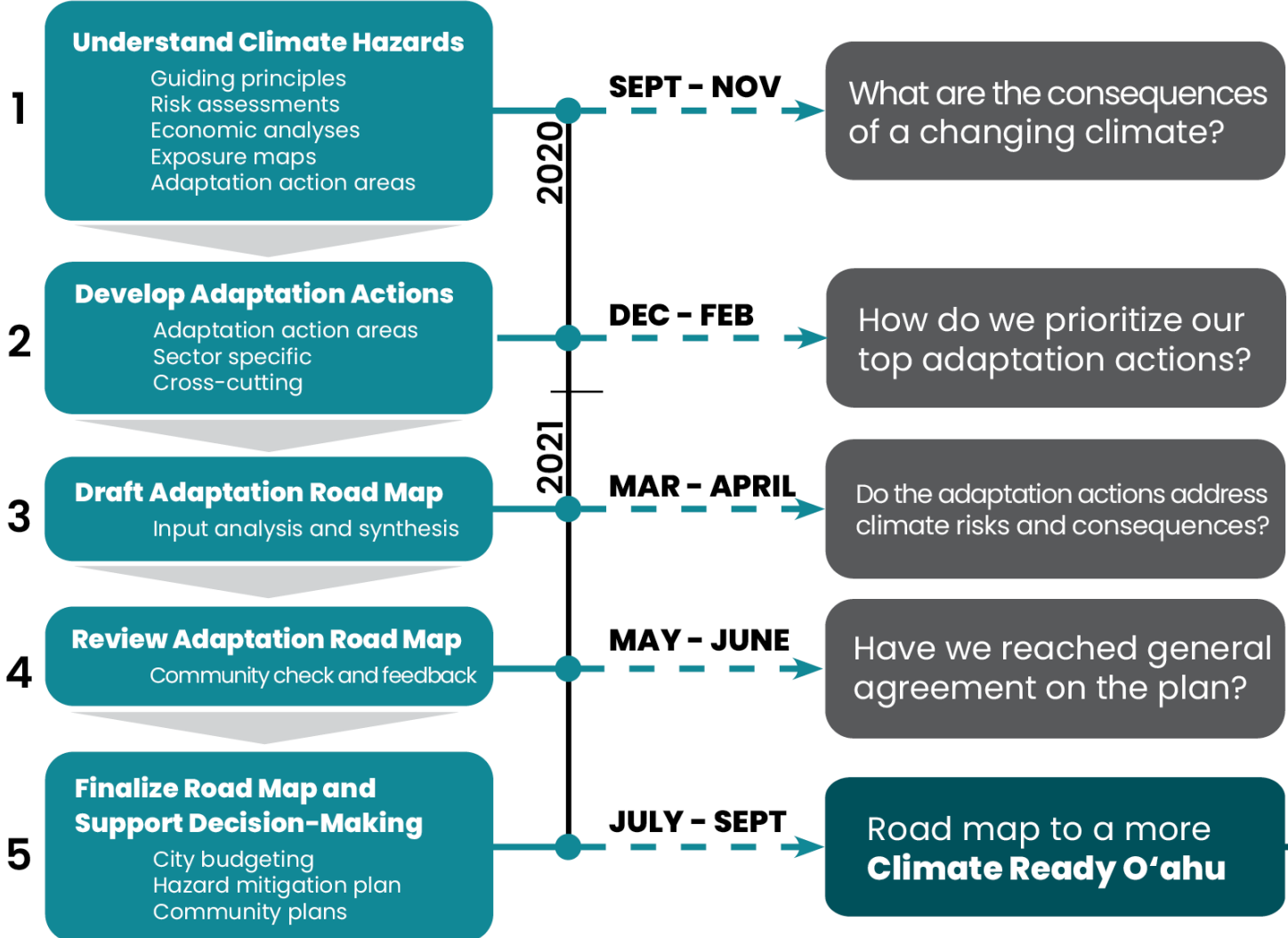




Timeline toward a Climate Ready O‘ahu

Phase and Topics

Timeframe and Key Questions

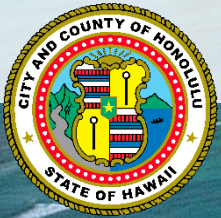


Tasks

- Climate Risk Assessment
 - Identify risks and understand exposure
 - Analyze and evaluate risks
 - Economic analysis
 - DP/SCP Climate Change Impacts Briefs
- Adaptation Action Areas
 - Sector-specific adaptation strategies
 - Cross-cutting adaptation strategies
- Recommendations for Decision-Making Alignment

Towards a *Climate Resilience and Hazard Mitigation Plan*

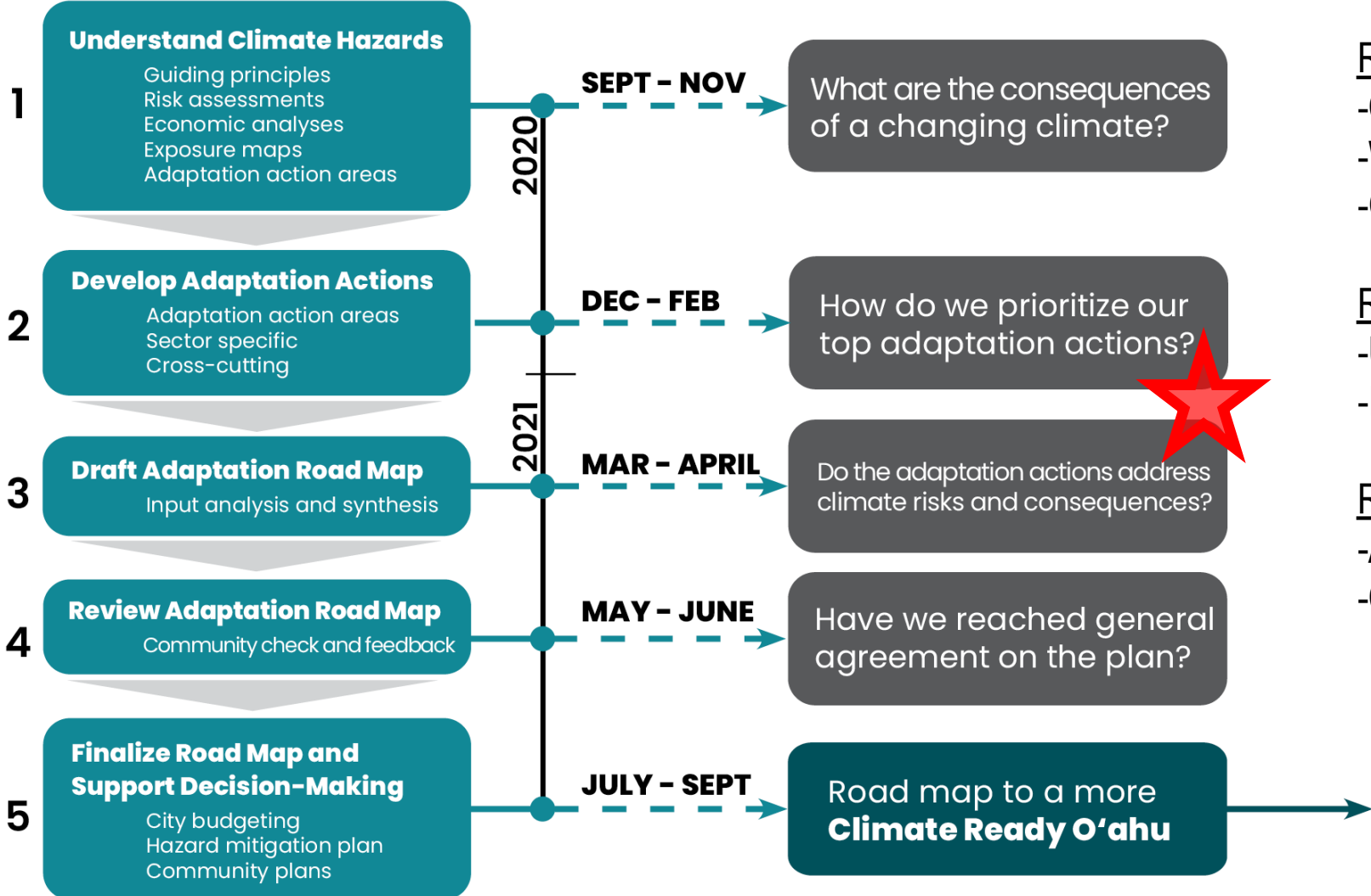




Climate Ready O'ahu Project Updates

Phase and Topics

Timeframe and Key Questions

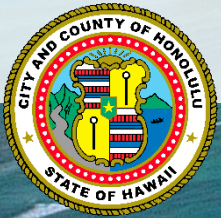


Round 1 Meetings (October)
 -Climate changes and local action
 -What's your take on climate hazard impacts
 -Guiding principles for climate change adaptation

Round 2 Meetings (November)
 -Understanding climate hazards and exposure
 -Identifying adaptation action areas

Round 3 Meetings (January)
 -Adaptation actions
 -Climate Resilience and Equity Screen

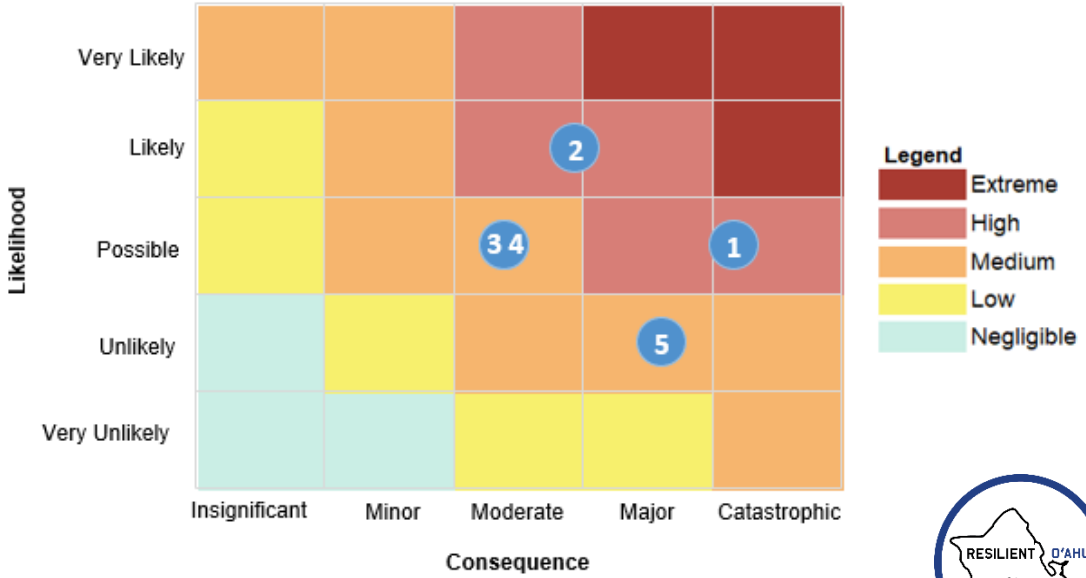
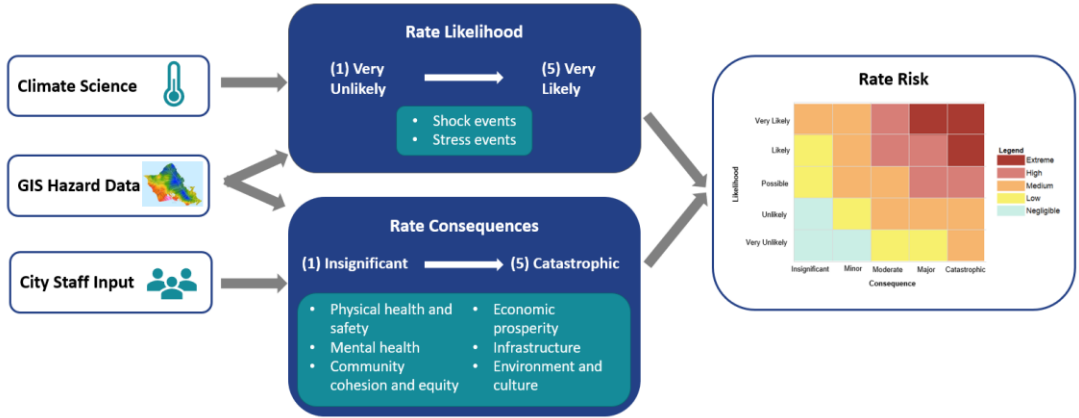


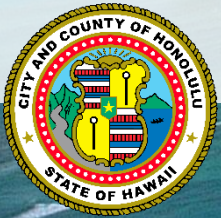


Climate Ready O'ahu Project Updates

-Final Climate Risk Assessment

Climate Hazard	Scenario	Current Rating (Score)	2050 Rating (Score)
1 Sea level rise and coastal erosion	Sea level rise and associated coastal erosion on a trajectory to 3.2 feet by 2100 with impacts due to high tides and/or coastal hazard events decades in advance	Medium (9.3)	High (14.0)
2 Increase in temperature	Increase in average annual temperature of 2.7°F to 4.5°F contributing to heat waves	Medium (6.9)	High (13.8)
3 "Rain bomb" (tie)	Significant rain event with 4 inches of rain/hour	Medium (5.8)	Medium (8.7)
4 Decrease in precipitation (tie)	Leeward side of island becomes up to 60% drier contributing to droughts	Medium (5.8)	Medium (8.7)
5 Hurricane	Landfall of a major hurricane with storm surge, rainfall, and high winds	Low (4.1)	Medium (8.2)





Climate Ready O'ahu Project Updates

-Selected adaptation action areas

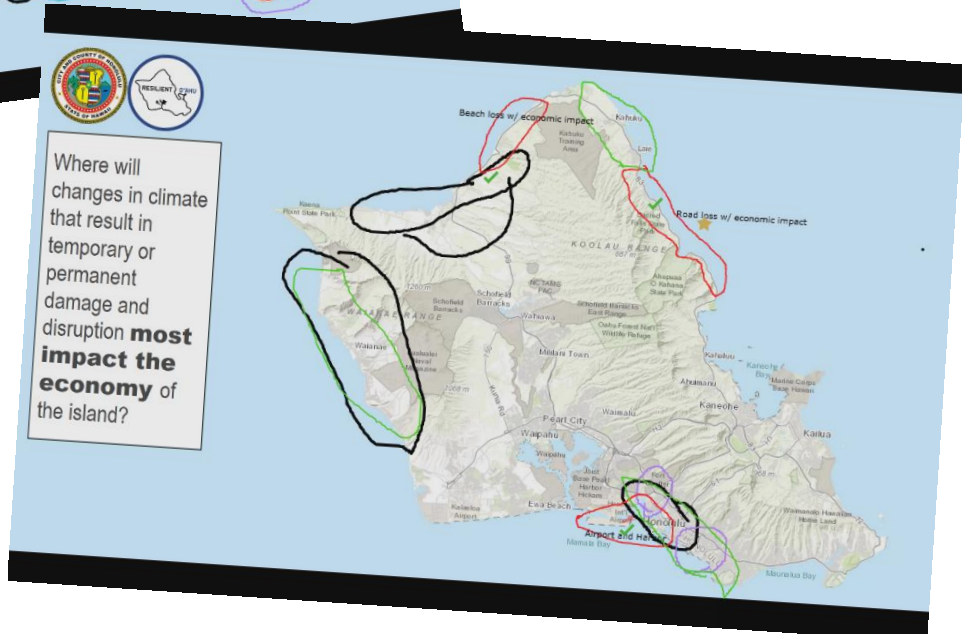
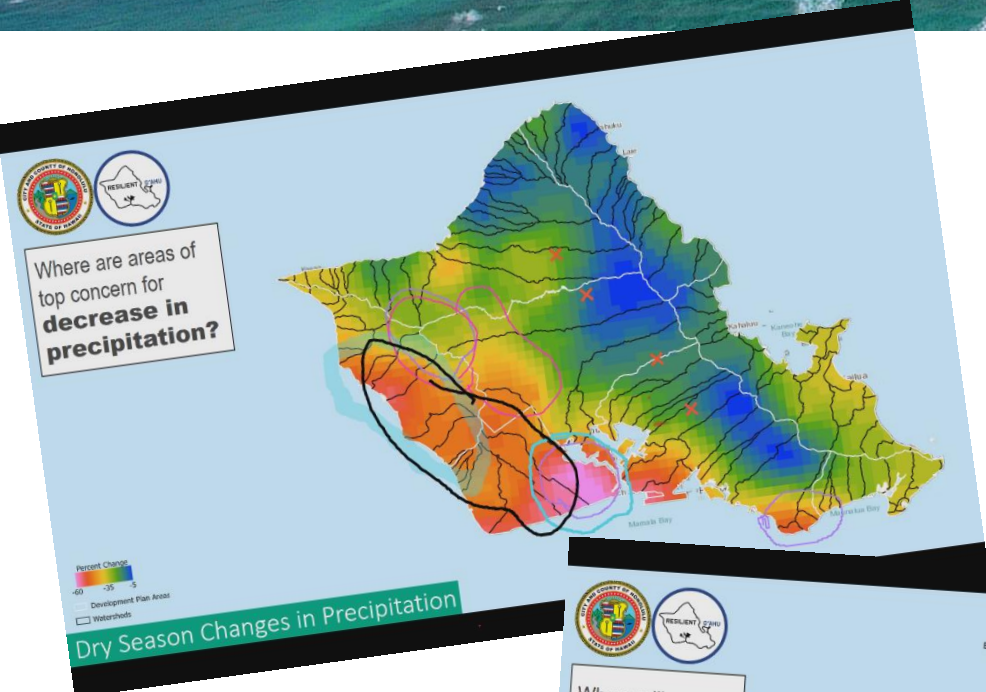
Kaka'ako/ Ala Moana/ McCully-Mō'ili'ili/ Waikīkī

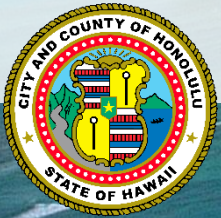
Kapolei/ Makakilo / 'Ewa

Kualoa/ Ka'a'awa/ Hau'ula/ Lā'ie / Kahuku

Mākaha/ Wai'anae / Mā'ili/ Nānākuli

Māpunapuna/ Kalihi Kai/ Sand Island/ Iwilei





Climate Change Hazards

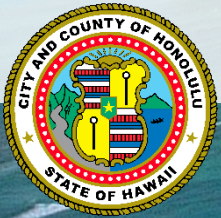


Sea Level Rise and Coastal Hazards

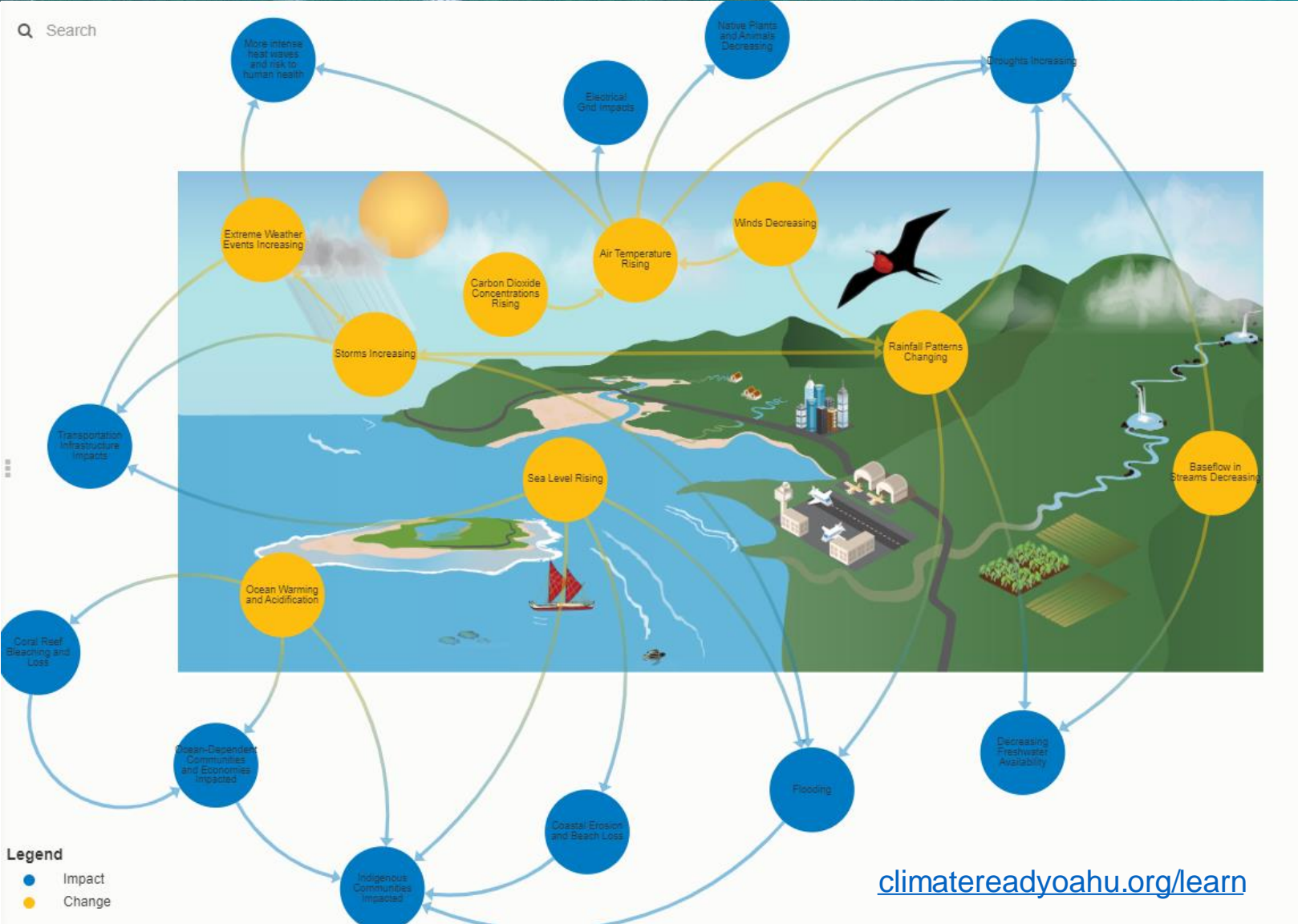
“Rain Bombs,” Hurricanes

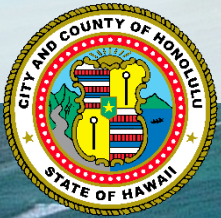
Heat, Drought, Wildfire





Climate Change and Impacts





Implementing New Climate Practices

Implementation

Implementing Resilience for O'ahu

Producing a strategy is not the end of thinking about resilience –it's the beginning.

- Functional Plans
- Stormwater Utility
- Integrated Infrastructure Planning & One Water
- Infrastructure Resilience Design Review
- Longer-term Capital and Financial Plans
- Hazard Mitigation Plan and CIP Alignment

Normalize
Organize
Operationalize

The Key Components for Action:



New Policies



Budget Alignment

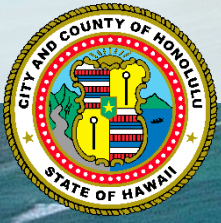


Resilient Projects



City-Community Partnerships

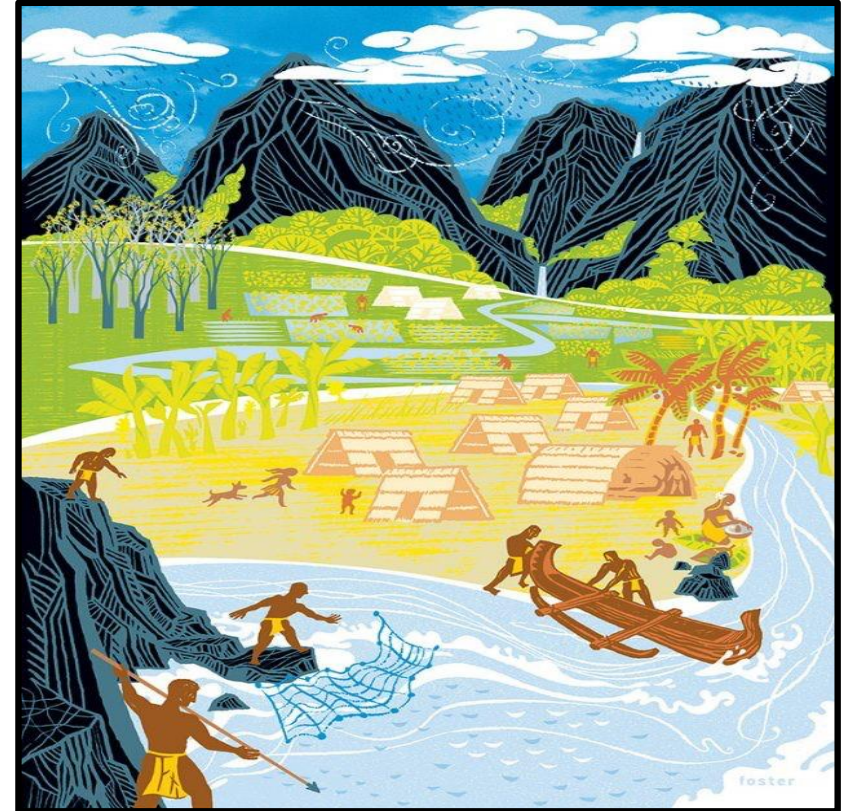




One Water Climate Adaptation Policy

One Water Ordinance

- Outlines policies, principles and procedures
 - MOU to define collaborative work
 - CCSR coordinate on regular basis
 - Focus on critical infrastructure, investment plan
 - 2050 and 2100 timeline
- Annual Reporting

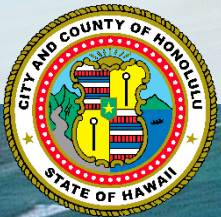


Ahupua'a- a section of mountain, valley, and sea.

*Image courtesy of Matt Foster
published by Maui Nō Ka 'Ōi*

<https://mauimagazine.net/about-us/>

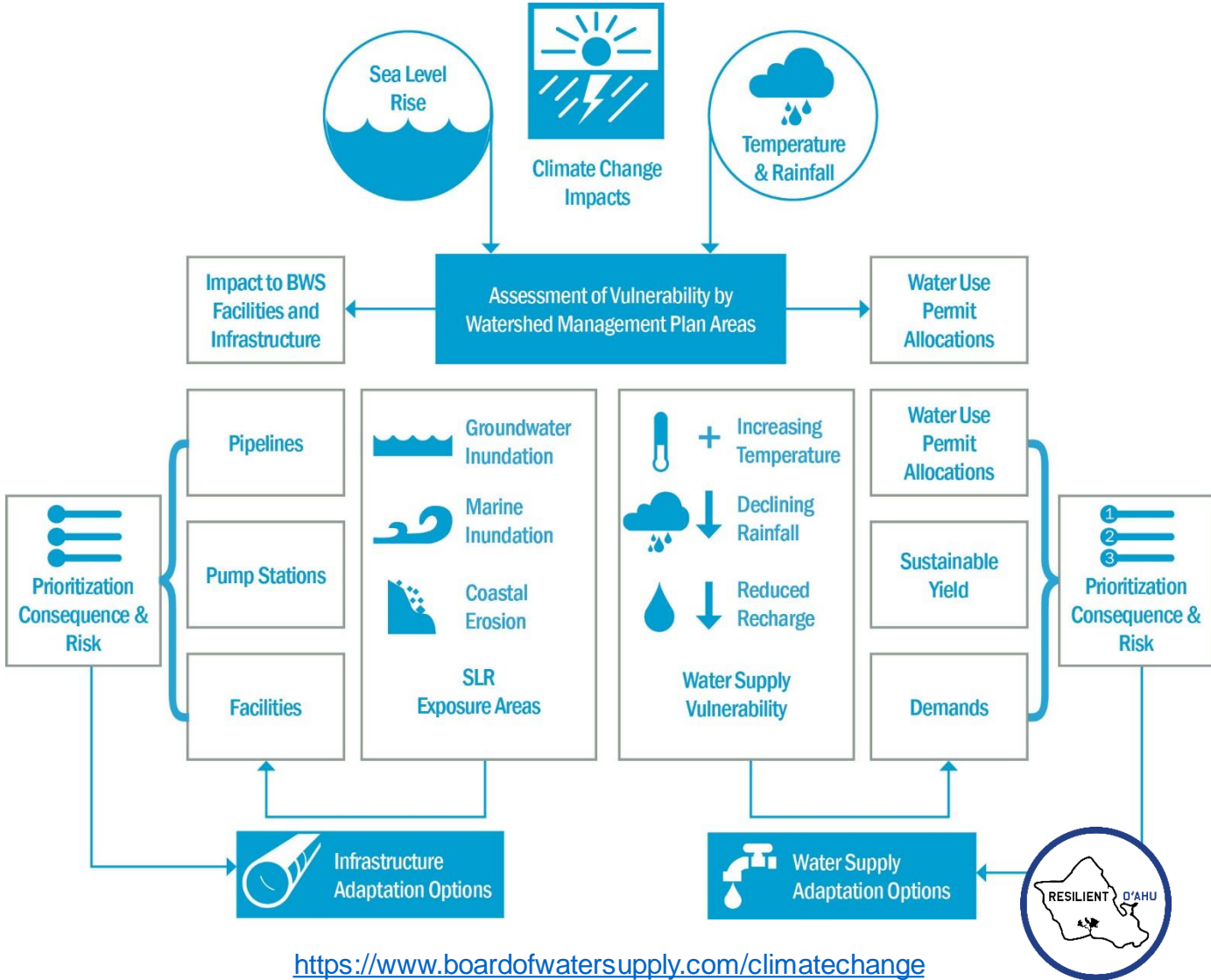


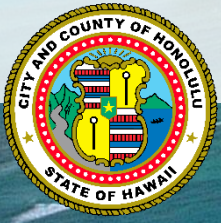


One Water Climate Adaptation Policy

One Water Ordinance

- Proactive adaptation for city infrastructure systems
- Defines One Water as
 - Integrated resource planning and implementation
 - Freshwater, wastewater and stormwater
 - Long-term resilience and reliability, meeting both community and ecosystems needs
- Calls on 8 departments
 - DPP, DDC, DTS, ENV, DPR, DFM, BWS, CCSR (but not limited to)





One Water Climate Adaptation Policy

One Water Ordinance

- Siloed for a reason
 - Not meant to have all core competencies brought to collaboration
- Not another plan
 - Integrate with existing planning frameworks
 - Integrate and inform current project and CIP programs
 - Goal is implementation of resilient infrastructure, projects
 - Shared vision for Honolulu's future resilient infrastructure



Projects



Policies

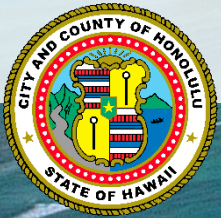


Plans



Locations

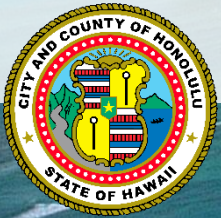




Climate Priorities

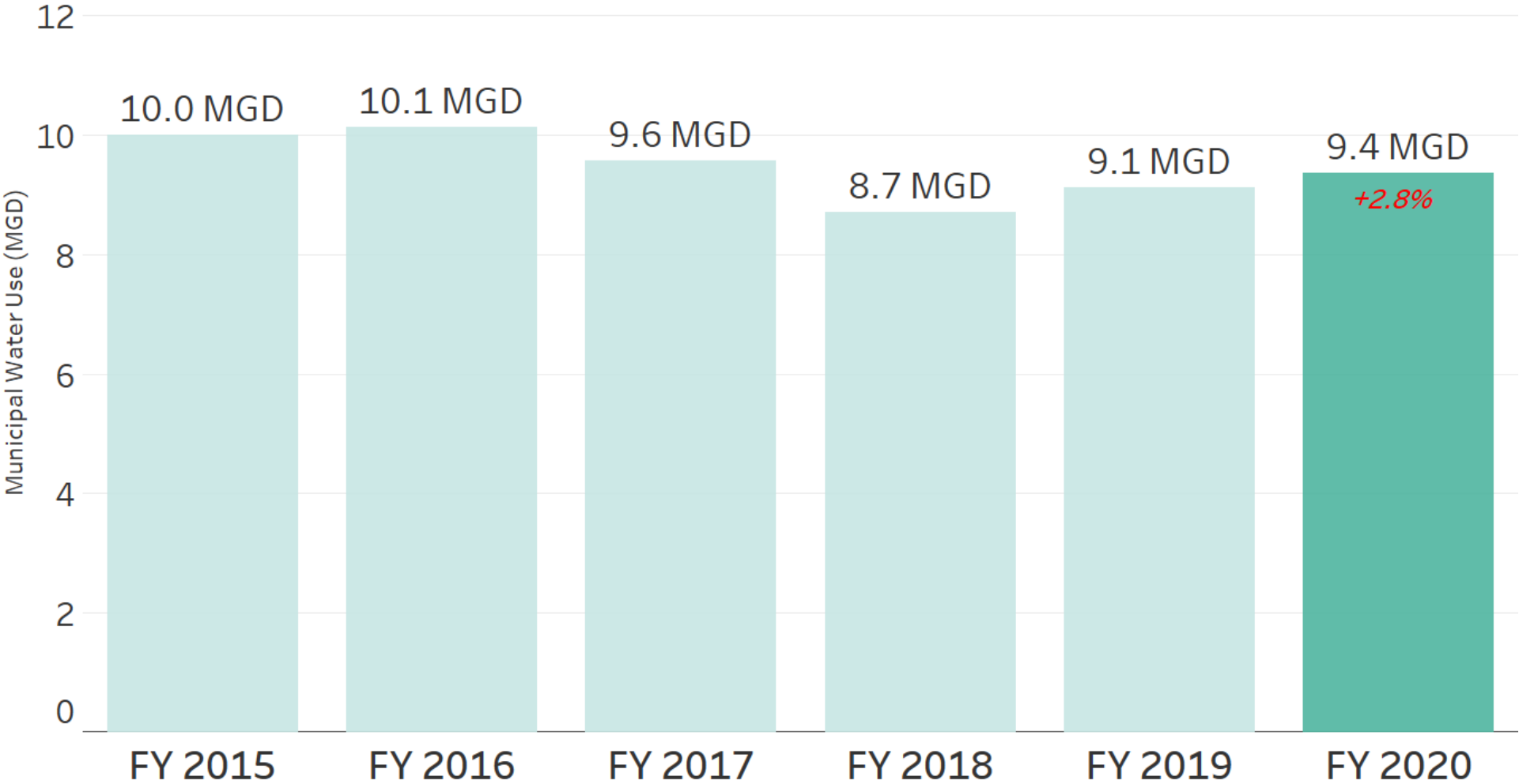
Climate change adaptation
Project development, reviews, and budget alignment
Maximize funding opportunities
Physical infrastructure and investments

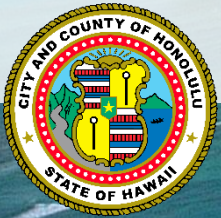




2021 Annual Sustainability Report | Water

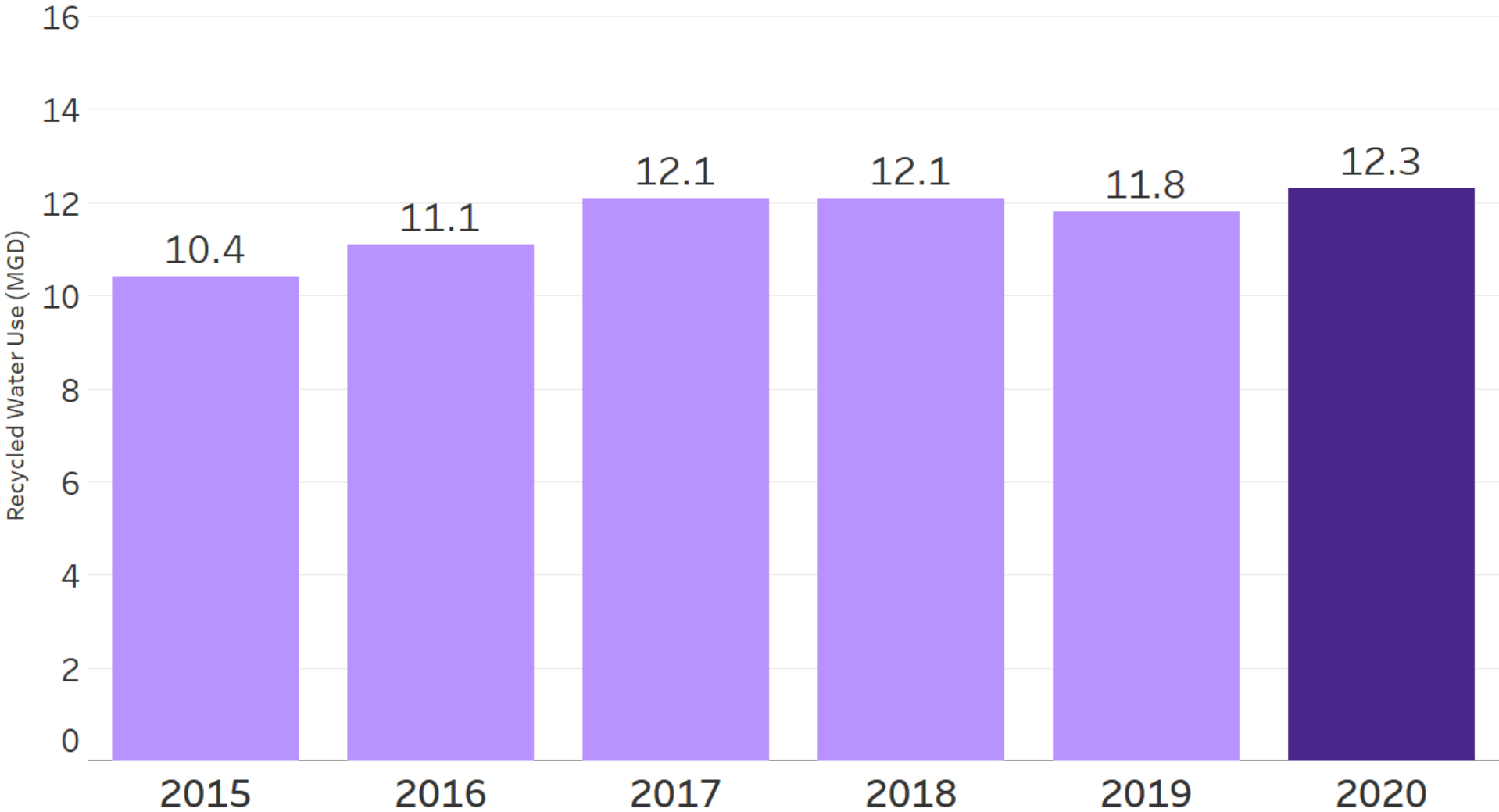
Municipal Water Usage

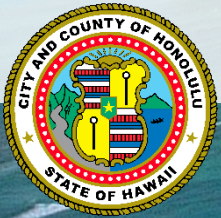




2021 Annual Sustainability Report | Water

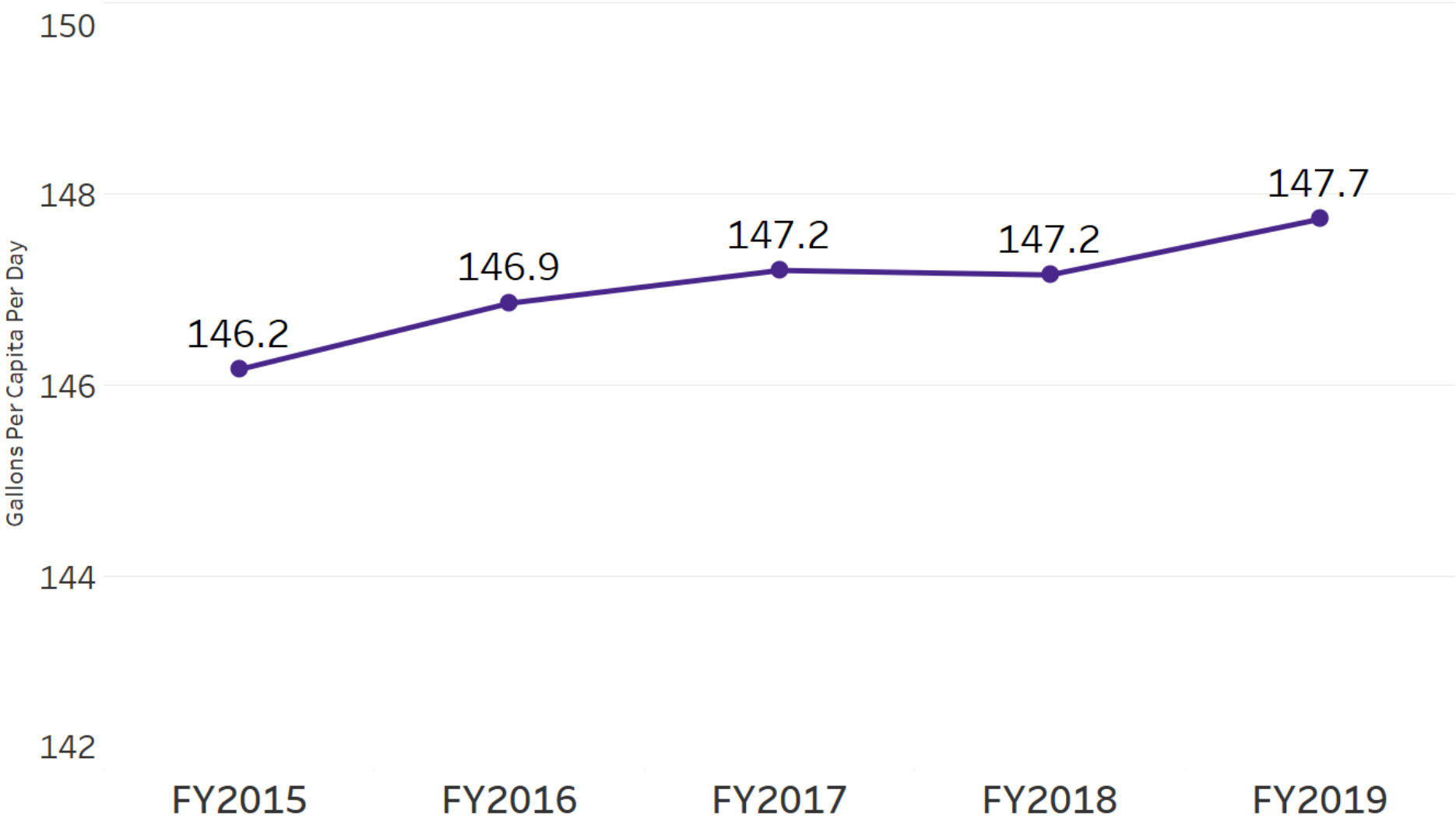
O'ahu Annual Recycled Water Use



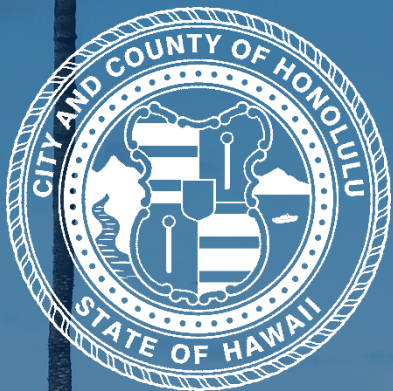


2021 Annual Sustainability Report | Water

O'ahu Per Capita Water Consumption



Mahalo!



Follow us at:



ResilientOahu.org



[@ResilientOAHU](https://www.facebook.com/ResilientOAHU)



[@ResilientOAHU](https://www.instagram.com/ResilientOAHU)



[@ResilientOAHU](https://twitter.com/ResilientOAHU)

WATER FOR LIFE

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



Board of Water Supply
City and County of Honolulu

Barry Usagawa

BWS Water Resources Program Administrator

6-YEAR CIP PROJECTS

WATER FOR LIFE

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



Board of Water Supply
City and County of Honolulu



FY 2021-2026 6-Year Capital Improvement Program



Capital Improvement Program Presentation

- City Charter Requirement
- CIP Basis
- CIP Project Highlights





Revised Charter of Honolulu

Section 7-105 (d), Powers, Duties & Functions of the BWS:
The Board of Water Supply shall:

“Determine the policy for construction, additions, extensions and improvements to the water systems of the city which shall include a long range capital improvement program covering a period of at least six years which shall be adopted after consultation with the director of planning and permitting and which may be amended or modified by the board from time to time.”



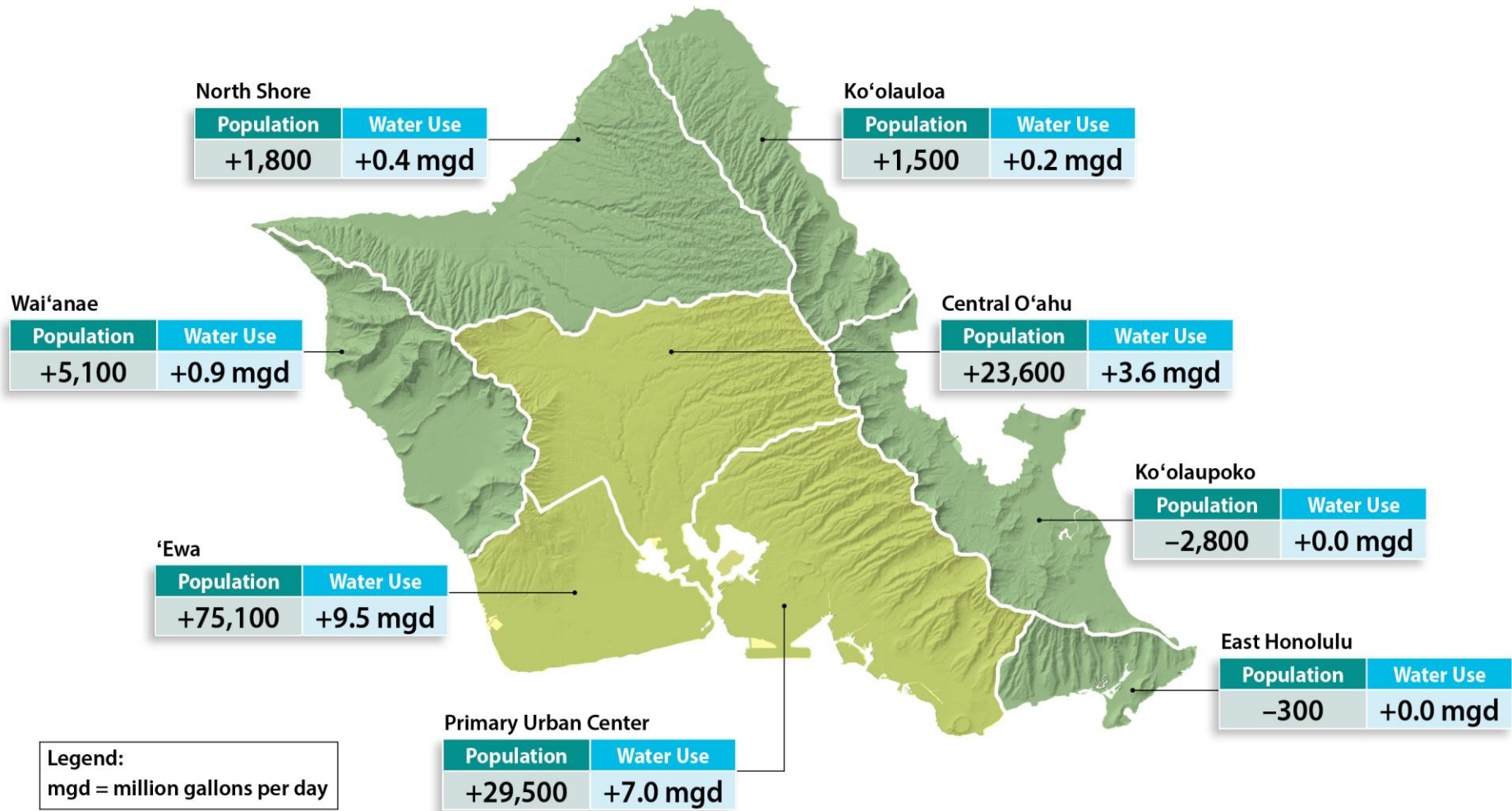
BWS Plans Center on BWS Mission of Water For Life



The BWS Water Master Plan...

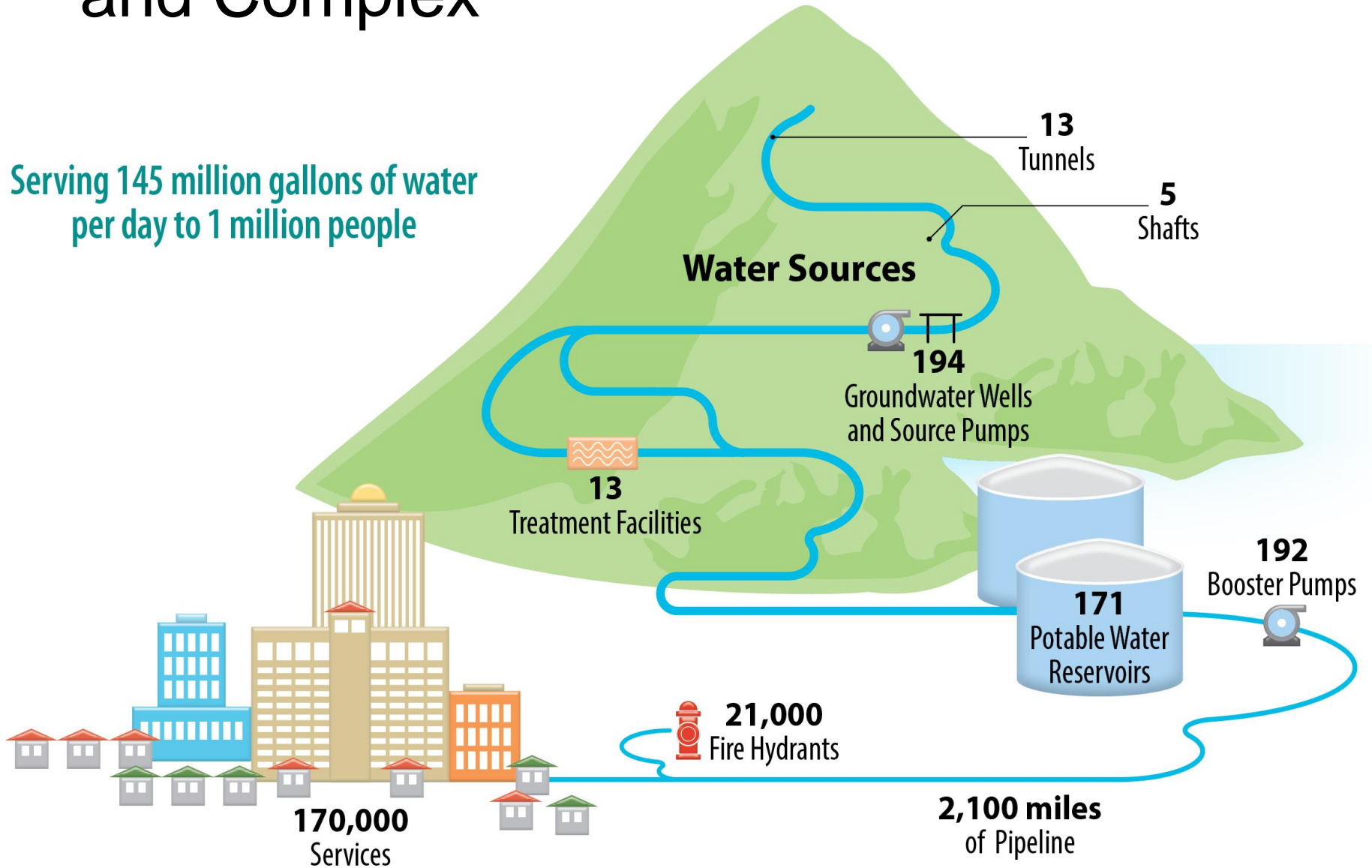
- ... **Looks ahead** 30 years
- ... **Evaluates** the entire water system
- ... **Identifies** necessary improvements
- ... **Balances needs with costs** of providing water to our customers

Changes in Population and Water Use Projections by 2040

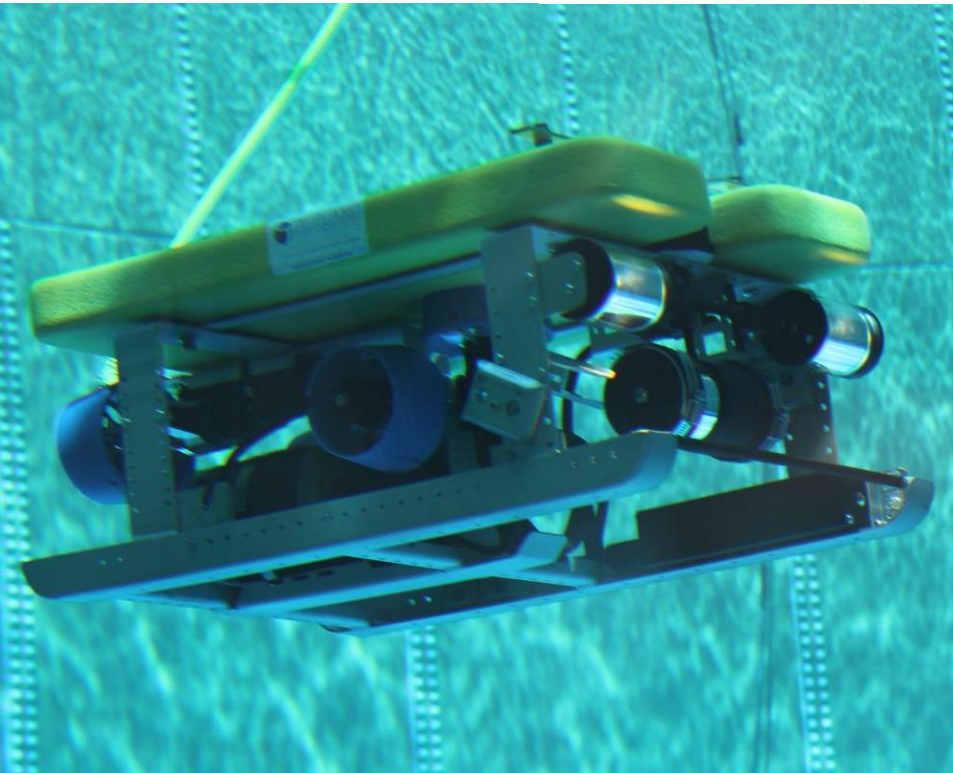


The BWS Water System is Large and Complex

Serving 145 million gallons of water per day to 1 million people



We conducted a comprehensive **condition assessment** of our water infrastructure

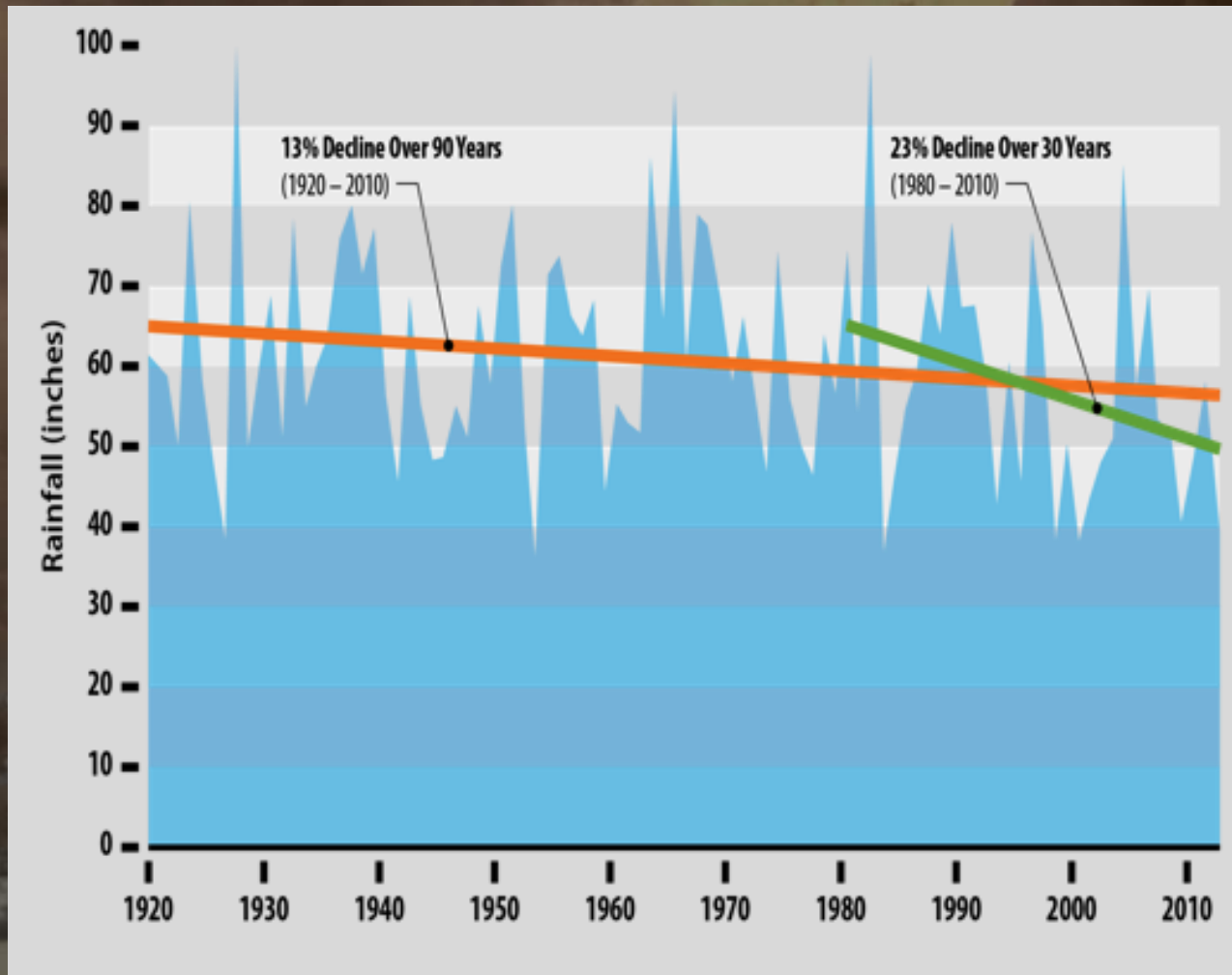




We analyzed the entire system **for its capacity** to handle the water needed for the **2040 population**

Climate change and other trends

were factored into the plan's recommendations





Major **recommendations** of
the **Water Master Plan**

Develop **new drinking water supplies** for 'Ewa-Waipahu and Honolulu

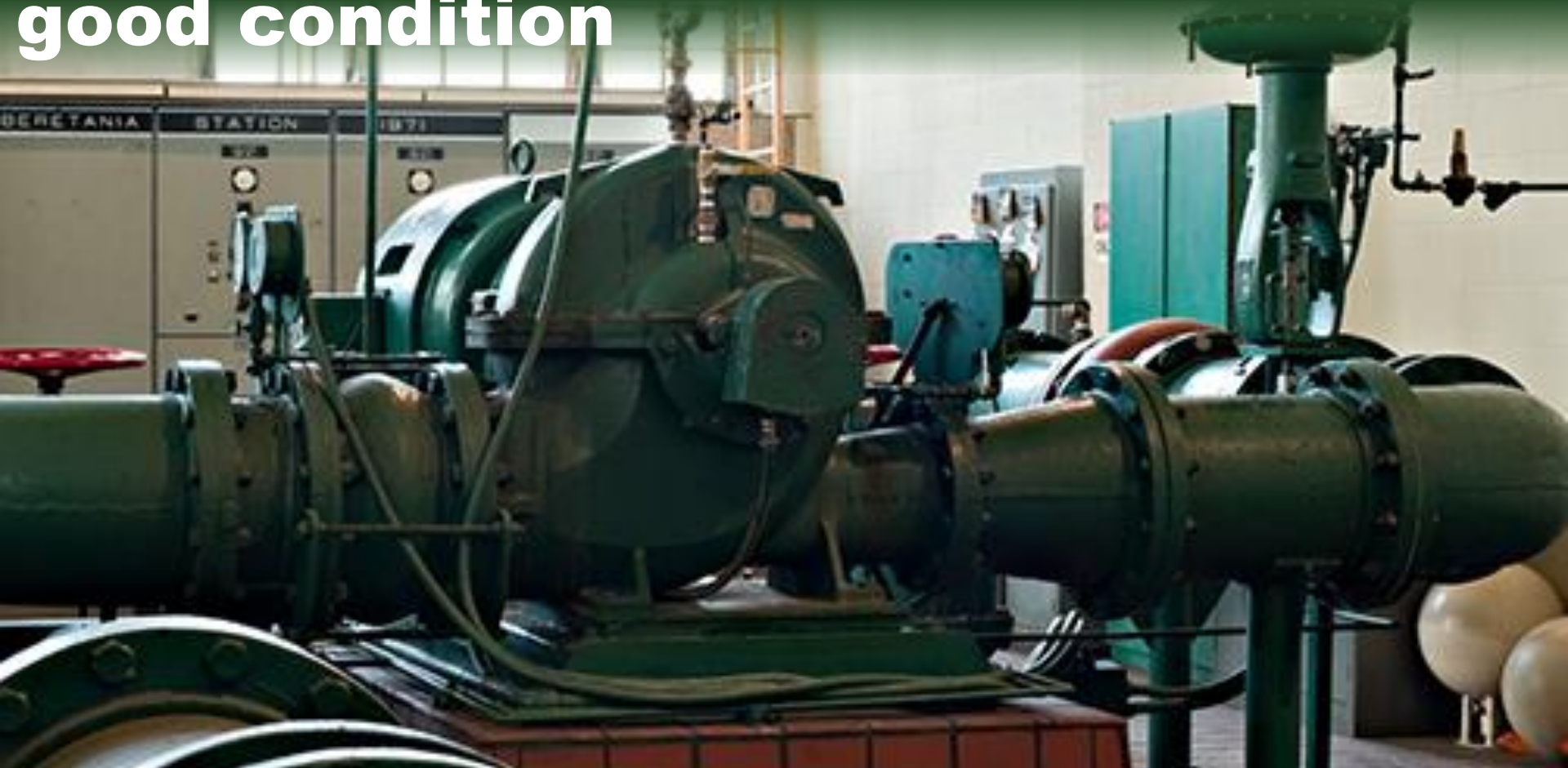


Honouliuli Water Recycling Facility



**Double the amount of non-potable
water produced today**

Most of our pumps are in
good condition



Rehabilitate some and **build new ones**
where needed

About 90 percent of our **171 reservoirs** are in good condition



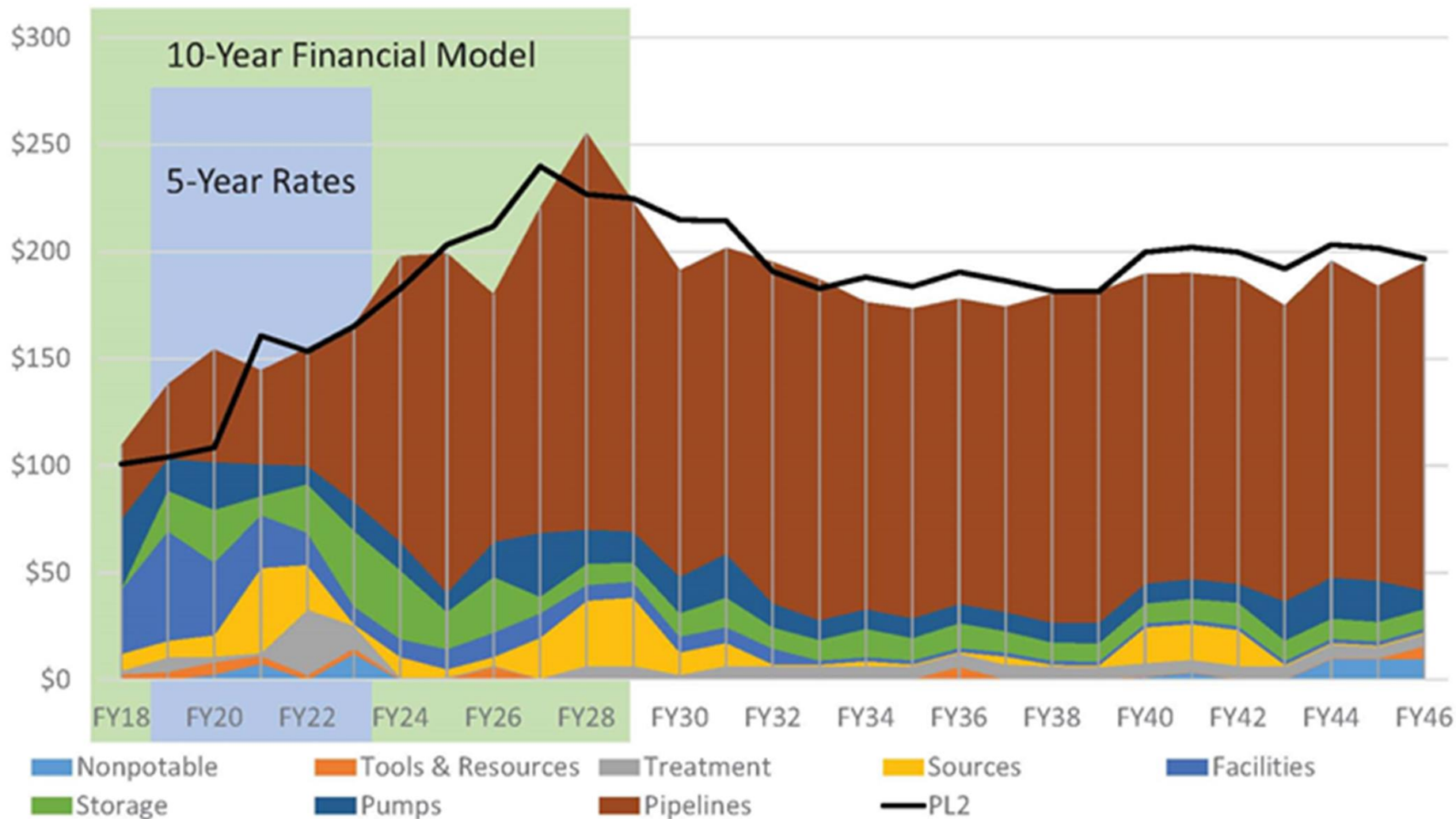
Build additional storage in **‘Ewa-Waipahu, Honolulu, and Wai‘anae** areas

Replace two reservoirs



Renew/replace **high priority pipelines** and install **new pipelines** to add capacity in areas of greatest growth

30-year Capital Improvement Program

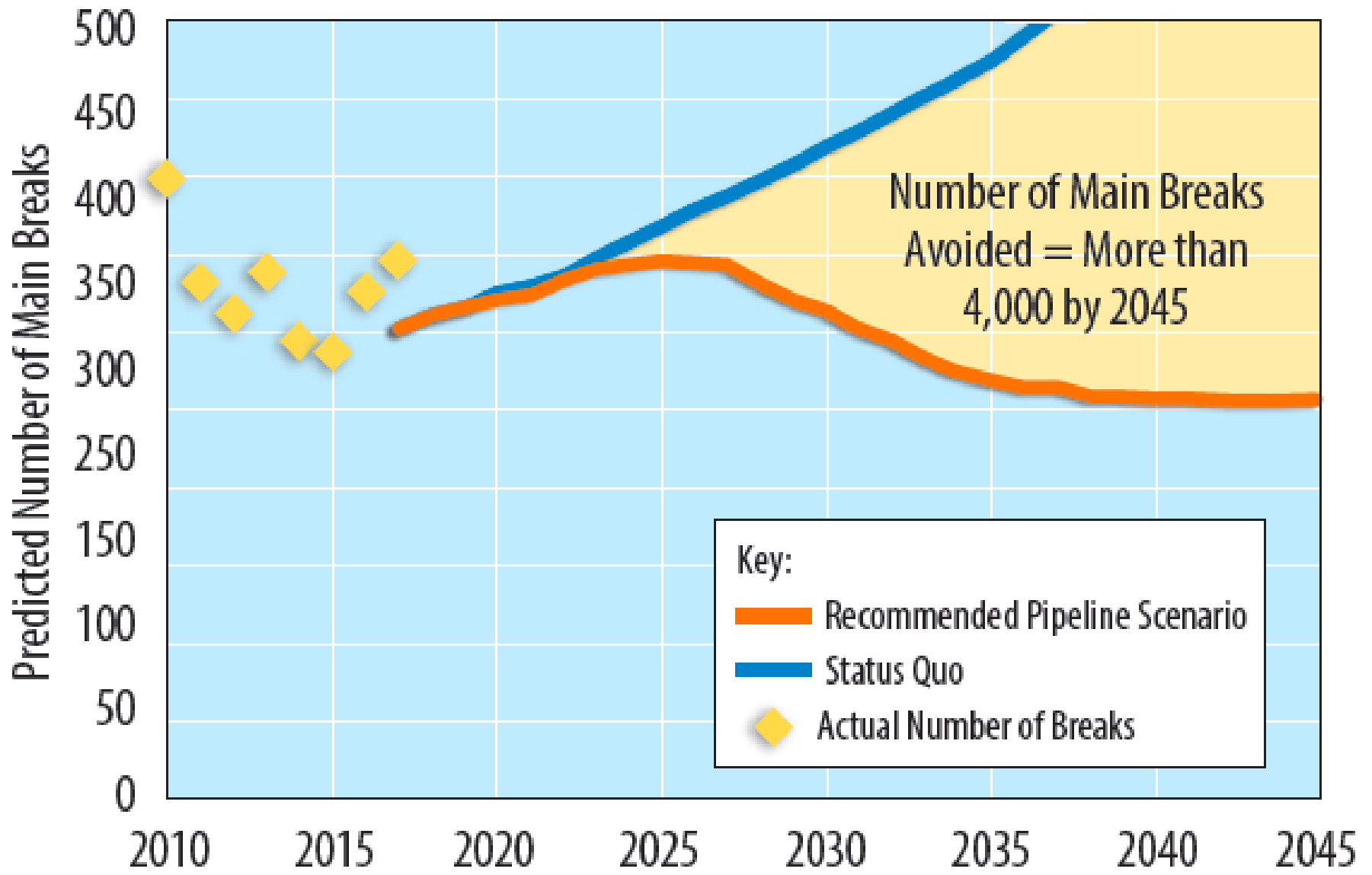




WMP Performance Metrics



- BWS Strategic 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 the water system infrastructure
- The performance metrics are used to target opportunities for improvement

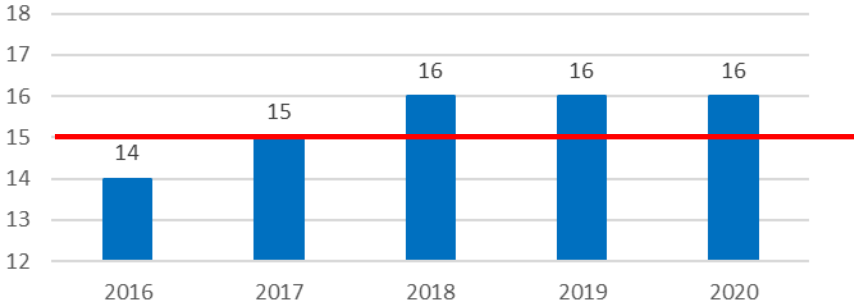


Annually replacing 21 miles of pipeline is recommended to reduce main breaks

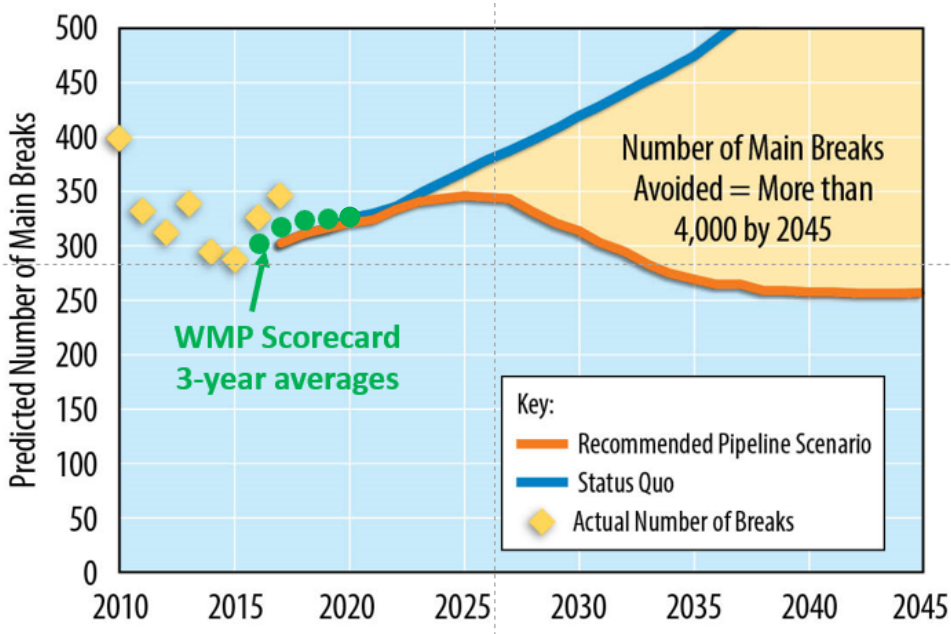
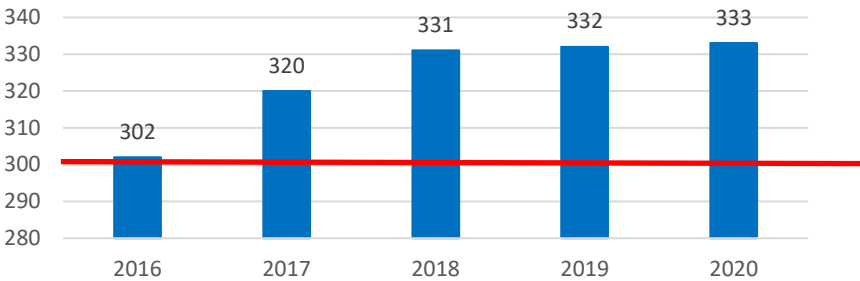
Main Breaks per 100 Miles of Pipe

Indicator	Performance Metric (SP)	Goal	FY 20	FY 19	FY 18	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 Annual Main Breaks
Main Breaks per Year

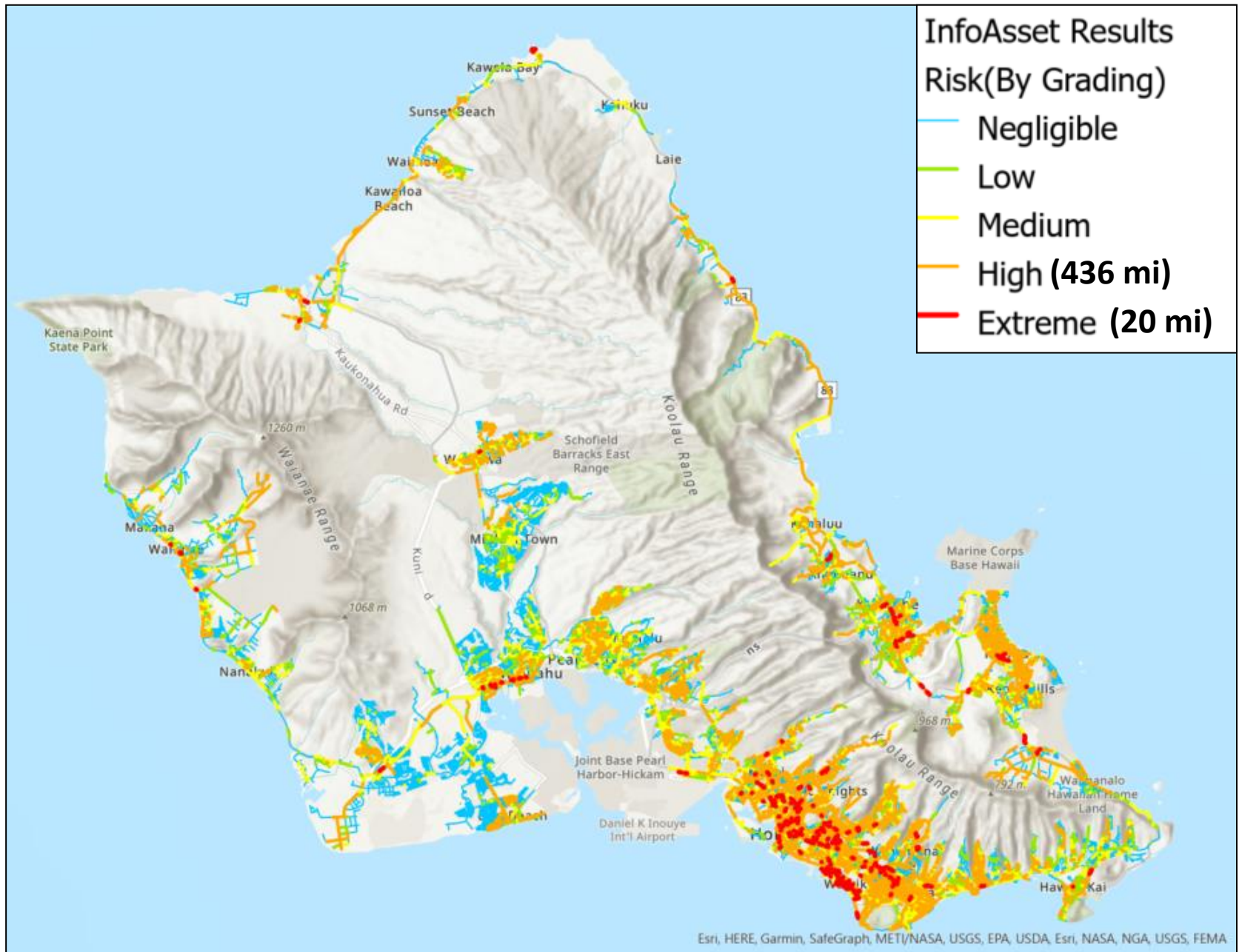


● Met/on track to meet

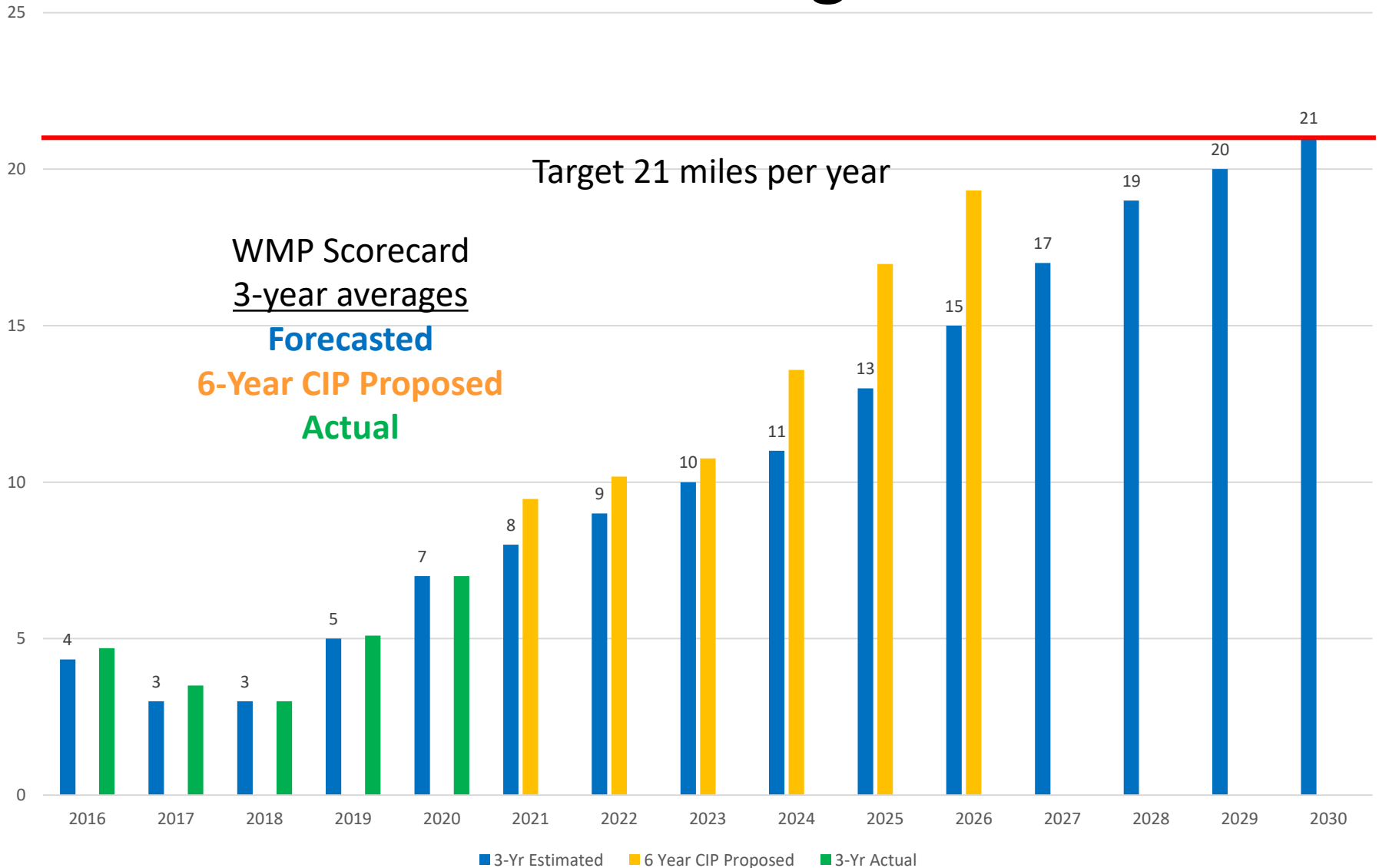
● Miss by <10% of goal

● Miss by >10% of goal

Pipeline Risk Scores Island-wide (2019)



Miles of Pipeline Replacement 3 Yr Avg





Water Master Plan Benefits

- Plans future infrastructure needs so water is available when and where its needed
- Provides an understanding of water supplies, demands and the water system
- Maintains high water quality, improves distribution systems and reduces costly emergency repairs
- Formulates and prioritizes system capacity expansion and repairs and replacement projects over 30 years based on benefits and risks
- Improves BWS long range infrastructure decisions with greater accuracy and efficiency
- Evaluates and improves water system standards so that infrastructure lasts longer providing value to rate payers
- Improves BWS ability to control costs and spread investments and rate changes over time



CIP Budget Summary

Category	FY (\$ 000)						
	Total	2021	2022	2023	2024	2025	2026
RESEARCH AND DEVELOPMENT	35,425	2,660	6,900	5,100	4,100	5,850	10,815
REPAIR AND REPLACEMENT	715,840	105,925	121,475	140,600	108,230	123,635	115,975
CAPITAL EXPANSION	249,675	53,150	23,200	41,125	53,990	34,405	43,805
SUBTOTAL:	1,000,940	161,735	151,575	186,825	166,320	163,890	170,595
CONTRACT & CONSTRUCTION COST INDEX ADJUSTMENT	161,033	31,723	28,401	25,795	24,817	24,766	25,531
TOTAL:	1,161,973	193,458	179,976	212,620	191,137	188,656	196,126



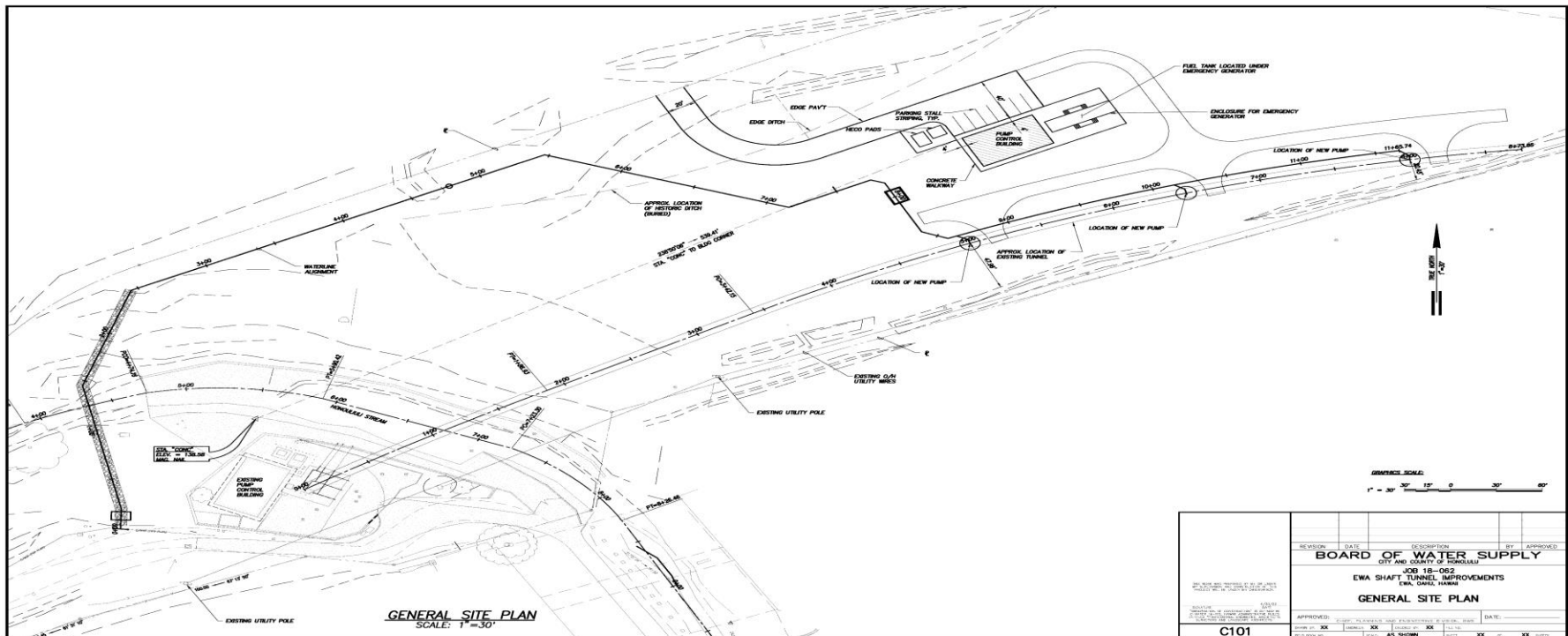
CIP Projects of Note

- The 6-Year CIP includes a diverse set of projects to fulfill and address operational needs, recommendations and metrics from the Water Master Plan, demands for future growth, goals for increased resiliency and Federal regulatory requirements and prioritized replacement of existing pipelines, reservoirs, pump stations.



Source Development

- **Ewa Shaft Tunnel Improvements**
 - 10 MGD avg. production
 - Tunnel bulkheading, pump station relocation and stream lining to address stream



Source Development

- **Kunia Wells IV**
 - Drill and test 3 exploratory Wells
 - 3 MGD avg. production
 - \$1,000,000.00 appropriated by the Hawaii State Legislature in 2019 to reduce cost of new and larger agricultural meters



Source Development & Desalination

- **Kalaehoa Seawater Desalination Facility**
 - DBOM solicitation (20-year contract)
 - 1.7 MGD capacity facility
 - Accepted for up to 25% grant funding Bureau of Reclamation's WaterSMART Title XVI grant program





Reservoirs

- **Kapaa 272' Reservoir Replacement**
 - Significant leaking at existing tank
 - Structural deficiencies noted in Water Master Plan
 - New 1.0MG reservoir, demolish existing 2.0 MG reservoir

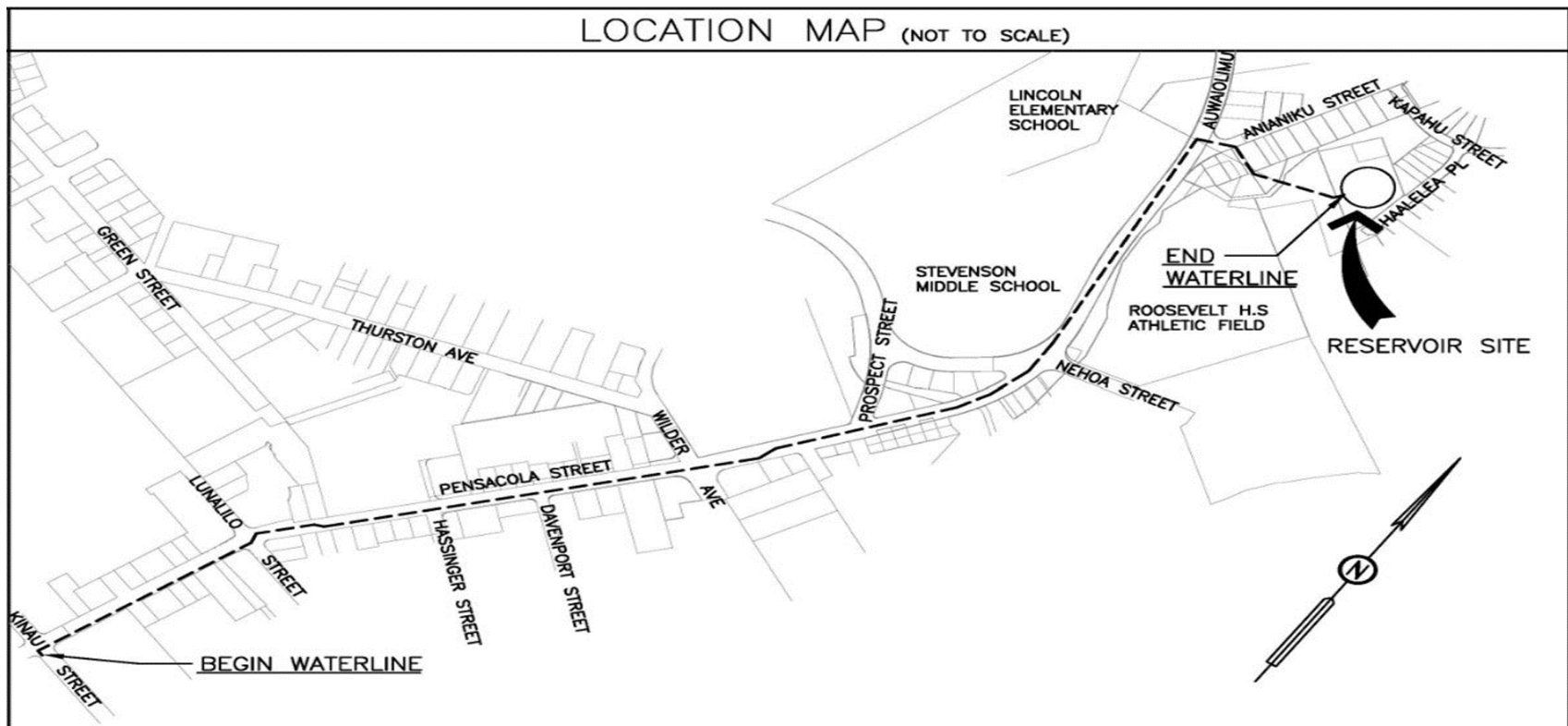
- **Kalawahine 180' 2.0MG Reservoir**
 - Provide 2.0MG of Storage in Metro 180' system which has a storage deficiency
 - Potential to provide a proposed park easement for the Kalawahine community

- **Waiawa 228 Reservoirs Environmental Assessment**
 - 8.5MG of total storage (3 Reservoirs 4.0MG, 2.5MG and 2.0MG)
 - Provide much needed storage for the Metro Low Service system



Reservoirs

- **Kalawahine 180' 2.0MG Reservoir**
 - Provide 2.0MG of Storage in Metro 180' system which has a storage deficiency





Recycled Water

- **East Kapolei 215' R-1 3.0MG Reservoir**
 - 1st Reservoir for the recycled water system
 - Increase efficiency of the R-1 system by moving from a pump system to a gravity system similar to our potable systems
 - Applying for Clean Water State Revolving Funds loan

- **Kualakai Parkway 16-Inch Recycled Water Main**
 - Connect new R-1 reservoir to existing R-1 distribution system
 - Will be combined with R-1 reservoir as single construction project
 - Applying for Clean Water State Revolving Funds loan



Transmission Mains

- **Honolulu District 42-Inch Main – Liliha to Moiliili**
 - South trunk transmission main to provide capacity, redundancy and reliability to existing transmission main





Transmission Mains

- **Farrington Highway 24-Inch Main rehabilitation**
 - Investigating new pipe rehabilitation technologies
 - Provide redundant transmission capacity to the West side of the island to mitigate impacts to customers due to main breaks
 - Increase transmission capacity as climate change decreases aquifers in Makaha & Waianae





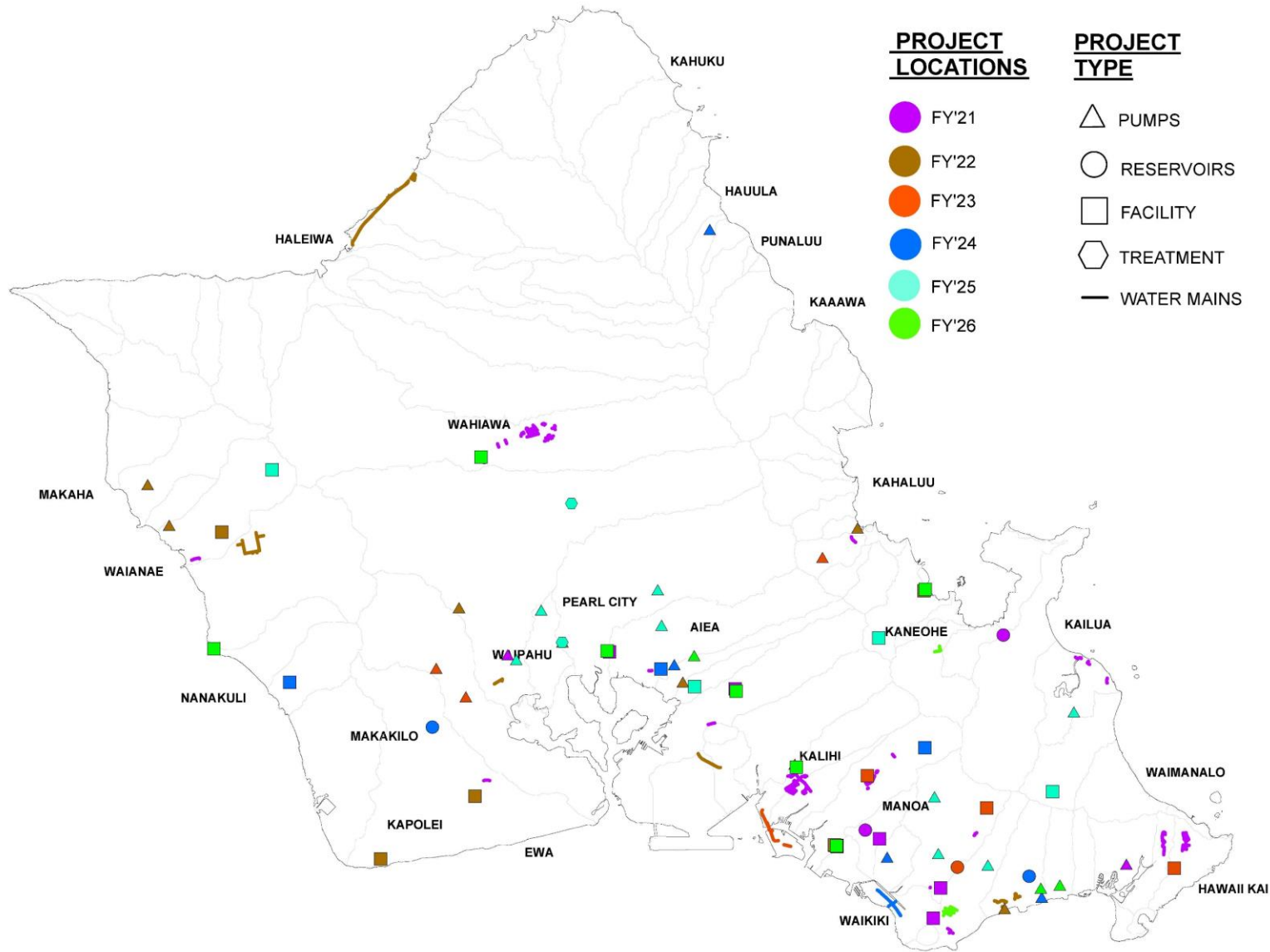
Facility Improvements

- **Beretania Data Center Renovation**
 - Improve the functionality of the data center's operations
 - Upgrade the power and HVAC systems

- **Beretania Public Service Building 4th Floor Renovation**
 - Convert the old cafeteria space into usable multipurpose rooms and meeting facilities

- **Manana Corporation Yard – Microbiology Lab and Control Center Expansion**
 - Increased capability to better handle the water resource testing needs, to ensure that the municipal drinking water system meets all State and Federal requirements
 - Back-up control center provides redundancy and resilience to ensure the continuity of operations in the event the Beretania Control Center is rendered inoperable

CIP Project Location Map



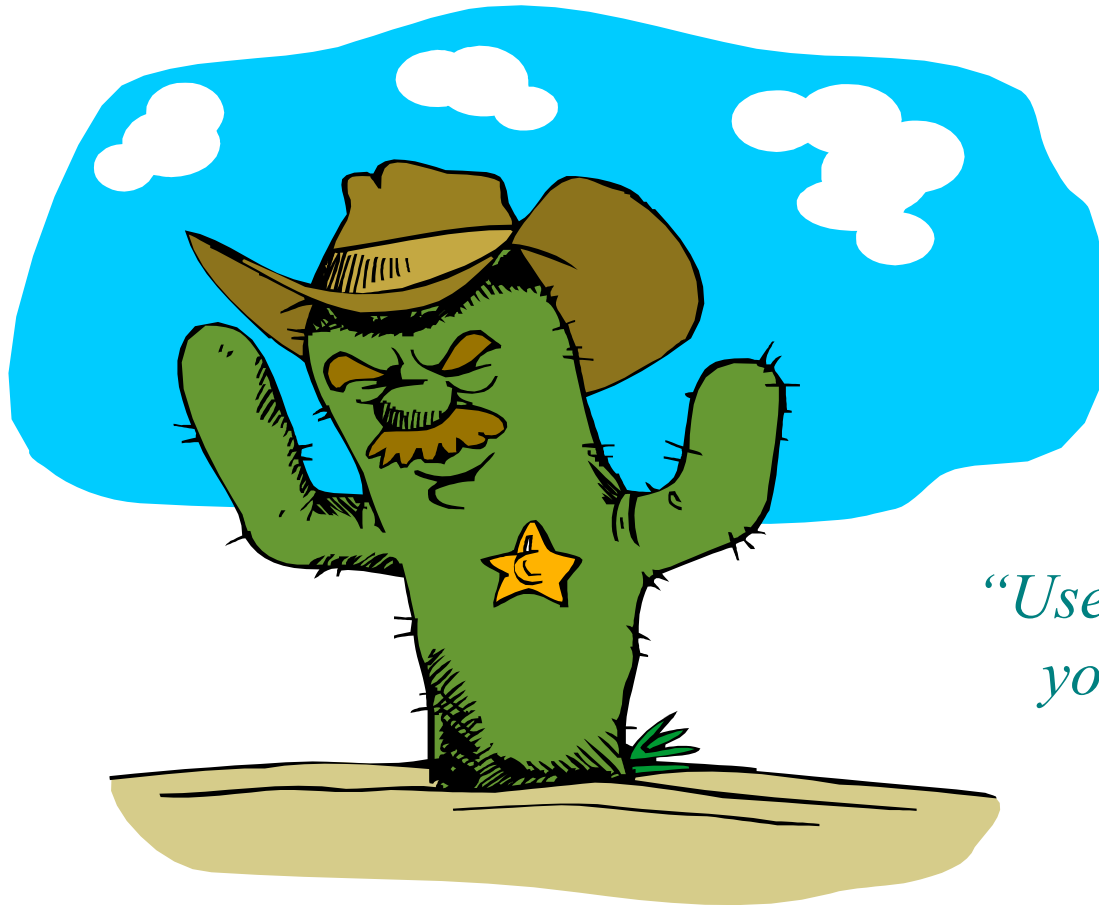


CIP Budget Summary

Category	FY (\$ 000)						
	Total	2021	2022	2023	2024	2025	2026
RESEARCH AND DEVELOPMENT	35,425	2,660	6,900	5,100	4,100	5,850	10,815
REPAIR AND REPLACEMENT	715,840	105,925	121,475	140,600	108,230	123,635	115,975
CAPITAL EXPANSION	249,675	53,150	23,200	41,125	53,990	34,405	43,805
SUBTOTAL:	1,000,940	161,735	151,575	186,825	166,320	163,890	170,595
CONTRACT & CONSTRUCTION COST INDEX ADJUSTMENT	161,033	31,723	28,401	25,795	24,817	24,766	25,531
TOTAL:	1,161,973	193,458	179,976	212,620	191,137	188,656	196,126



“Water Sheriff”



*“Use only what
you need”*

WATER FOR LIFE

Safe and dependable water now and into the future



Board of Water Supply
City and County of Honolulu

Questions?



WATER FOR LIFE

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



Board of Water Supply
City and County of Honolulu

Dave Ebersold

Facilitator

SUMMARY AND NEXT STEPS

2021 Meeting Dates

- 💧 **Thursday, July 15**
- 💧 **Thursday, October 21**

All meetings start at 4pm



WATER FOR LIFE

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



Board of Water Supply
City and County of Honolulu

Mahalo!

Questions & Answers

