Water has no substitute……. Conserve it

BOARD OF WATER SUPPLY

Department of Water
County of Kaua'i

JOSEPH E. TAIT
MANAGER AND CHIEF ENGINEER

BOARD WORKSHOP

NOTICE AND AGENDA

Tuesday, April 22, 2025

10:00 a.m. or shortly thereafter

Meetings of the Board of Water Supply, County of Kaua'i will be conducted in-person at the Department of Water Board Room, 2nd Floor located at 4398 Pua Loke Street, Līhu'e, Kaua'i, Hawai'i, and remotely in accordance with Act 220, Session Laws of Hawai'i 2021 via interactive conference technology as follows:

Click on the link below to join on your computer or mobile app by VIDEO:
https://us06web.zoom.us/j/81833968719
Passcode: 255108
OR
Dial phone number and enter conference ID to call in and join by AUDIO:
Phone: 888 788 0099 US Toll-free
Phone Conference ID: 818 3396 8719

Please Note: If you do not provide a name, unique identifier, or alias when joining the meeting, you will be renamed to allow staff to address and manage individual guests.
In the event of a lost connection the Board will recess for up to 30 minutes to restore the connection. If the connection cannot be restored within 30 minutes, the Board will continue the meeting to 12:00 p.m. or shortly thereafter. If the visual link cannot be restored, the Board may reconvene with an audio-only link using the above dial-in phone number and conference ID. A lost connection only applies to remote connections provided as part of the remote meeting but does not apply to a public member being unable to access the meeting due to a connectivity issue on their end.

CALL TO ORDER

ROLL CALL

APPROVAL OF AGENDA

PUBLIC TESTIMONY

INFORMATIONAL BRIEFING ***(For Board feedback only, non-action item)***

1. Water Systems Investment Plan (WSIP) Draft Facilities Reserve Charge (FRC) and Preliminary Rate Discussion presentation:
   - Manager's Perspective
   - History of Department of Water Capital Planning and Funding

- Current Financial Overview
- Long-Range Capital Planning and Water Systems Investment Plan (WSIP)
- Capital Improvement Project (CIP) Development and Prioritization
- WSIP Financial Plan: FRC Overview and Draft Analysis, FRC and Rate Study Alignment
- Next Steps

ADJOURNMENT

WRITTEN TESTIMONY

The Board is required to afford all interested persons an opportunity to present testimony on any agenda item. The Board encourages written testimony at least two (2) business days prior to a scheduled Board meeting. At each Board meeting, the Board will accept oral and written testimony on any agenda item during the Public Testimony portion.

Please include:

1. Your name and if applicable, your position/title and organization you are representing
2. The agenda item that you are providing comments on; and
3. Whether you are a registered lobbyist and, if so, on whose behalf you are appearing.

Send written testimony to:

Board of Water Supply, County of Kaua'i
C/O Administration
4398 Pua Loke Street
Līhu'e, Hawai'i 96766

E-Mail: board@kauaiwater.org
Phone: (808) 245-5406
Fax: (808) 245-5813

Public Testimony

You do not need to register to provide oral testimony on the day of the meeting. Please note that public testimony is taken after the approval of the meeting agenda to ensure public testimony is received before any action is taken on an agenda item. The length of time allocated to present oral testimony may be limited at the discretion of the chairperson.

SPECIAL ASSISTANCE

If you need an auxiliary aid/service or other accommodation due to a disability, or an interpreter for non-English speaking persons, please call (808) 245-5406 or email board@Kaua'iwater.org as soon as possible. Requests made as early as possible will allow adequate time to fulfil your request. Upon request, this notice is available in alternate formats such as large print, Braille, or electronic copy.

Water Systems Investment Plan (WSIP)
Draft FRC Data and Preliminary Rate Discussion

Board Workshop

April 22, 2025

Harris & Associates

Department of Water
County of Kaua'i

The Manager's Perspective:

Growth since 2001, gaps between DOW's nine water systems, the advent of the Surface Water Treatment Plant (2004), and considerable development over those 24 years drove the need for an all-inclusive assessment of Kauai's water system capabilities. Related considerations include the uncertain status of the former plantation-managed open-air reservoirs and impoundments and the impact of continuing drought conditions drives the need for discussion to identify and develop an economic restoration strategy.

This WSIP, along with our recently adopted Water Use and Development Plan, are necessary tools to identify required funding needs to adequately implement our mission statement – " Together, we provide safe, affordable, sufficient drinking water through wise management of our resources and with excellent customer service for the people of Kauai"

Our team's focus in this new plan includes age of the infrastructure – below and above ground, required fire protection and suppression readiness, and the ability to provide sustained, redundant, and technology-driven system capabilities that enables our Operations staff the ability to make well-informed decisions prior to addressing callouts and emergency responses.

Agenda

Public Testimony 10:00-10:15	Manager's Introduction 10:15-10:30	History of DOW Capital Planning and Funding 10:30-10:45
Current Financial Overview 10:45-11:00	Long-Range Capital Planning and WSIP 11:00-11:15	CIP Development and Prioritization 11:15-12:15
LUNCH/BREAK 12:15-12:45	WSIP Financial Plan - FRC overview and draft analysis - FRC and Rate Study alignment 12:45-1:45	Discussion and Next Steps 1:45-2:00

Workshop Framework

- Provide background of DOW capital planning and funding over the years
- Detailed discussion of Water System Improvement Plan (WSIP) and Facilities Reserve Charge (FRC) development
- Provide time for Q&A and Board feedback throughout
- Talk about next steps

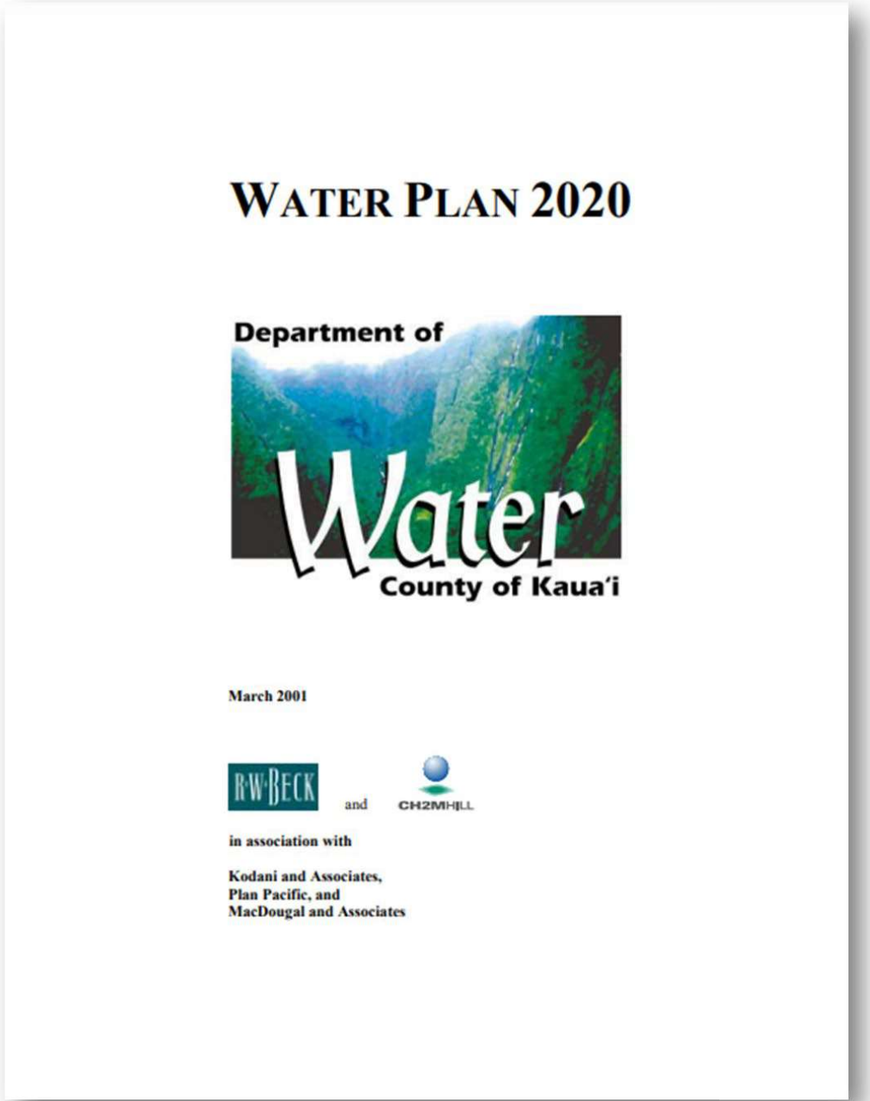
Next Steps

- Receive Board feedback today, April 22nd
- Staff and Brown & Caldwell/Harris team finalize FRC analyses
- Brief Board on water rate analysis
- Submit Draft FRC and water rate options to Board for consideration
- Staff receives Board direction for FRC and water rates
- Schedule Public Hearings including SBA for Implementation of new FRC and water rates
- Complete Board rule making process for implementation of new FRC and water rates

Capital Planning and Funding History (1999-2025)

Water Plan 2020 - Key Elements

- Completed 1999-2001
- Capital plan
- Funding plan
- Public outreach
- Strategic plan
- Implementation plan



Water Plan 2020 - Capital Plan

- In 2006, DOW explored taking a program management approach to implementing Water Plan 2020

Table 2-2
Distribution of CIP Projects by Water System and Project Type

System	Supply	Storage	Booster Pumps	Distribution	Other	Total
Kekaha-Waimea	11	4	2	12	0	29
Hanapepe-Eleele	4	3	0	5	1	13
Kalaheo	3	2	2	6	0	13
Lawai-Omao	3	2	0	11	0	16
Koloa-Poipu	3	6	0	12	0	21
Puhi-Lihue-Hanamaulu	8	5	0	19	3	35
Wailua-Kapaa	11	11	1	18	0	41
Anahola	1	1	0	6	0	8
Moloaa	0	0	0	1	1	2
Waipake-Kilauea-Kalihiwai	2	3	1	10	1	17
Anini	0	0	0	2	1	3
Hanalei	2	3	0	4	1	10
Haena-Wainiha	3	3	1	5	1	13
Total	51	43	7	111	9	221

DOW PM plan draft report.doc 12/7/06

R. W. Beck 2-3

Water Plan 2020 - Capital Plan

- At the time, the focus was on distribution system improvements

Figure 2-2 shows the distribution of Program CIP costs by project type. Over half of the CIP cost is for distribution projects.

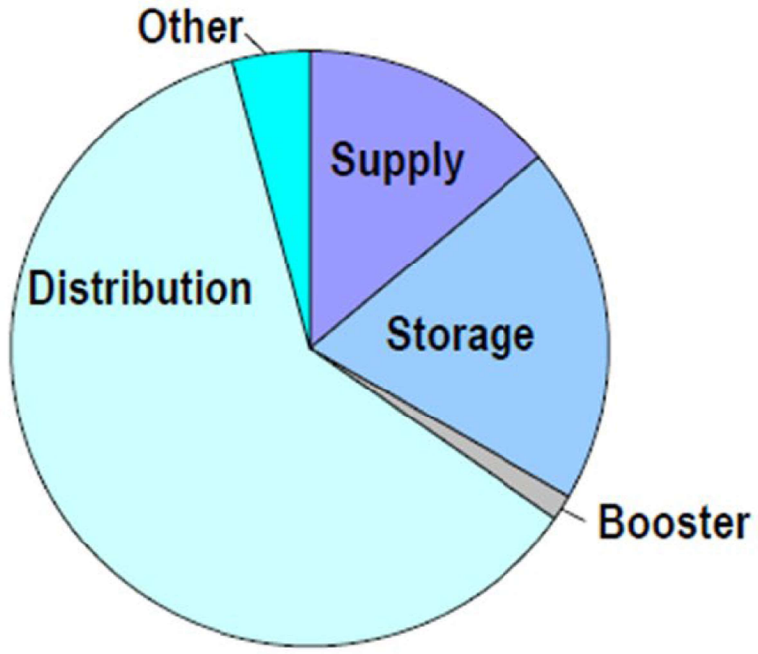


Figure 2-2. Distribution of Program Costs by Project Type

Water Plan 2020 - Funding Overview

- Water Plan 2020 included a Financial Plan and Water Rate Study.
- Annual capital expenditures estimated at ~$10 million per year (2001 $) over 6 years.
- Financial assurance assumptions included projections for debt service coverage and operating reserves.
- First rate adjustment was implemented.
- A 20-year Financial Plan was also prepared showing rate increases of about 3% per year over FY 2002-FY 2021.

Projected Rate Increases in FY 2001 and FY 2003 = 32% each year

TABLE 8.5

COUNTY OF KAUAI -- DEPARTMENT OF WATER

Historical and Projected Operating Revenues and Revenue Requirements (Cash Basis)
Fiscal Years Ending June 30

		Historical	Estimate	Budget	Projected				
		1999	2000	2001	2002	2003	2004	2005	2006
	REVENUES								
1	Beginning Balance	$17,155,125	$18,251,722	$16,009,891	$8,564,918	$4,705,459	$689,583	$722,779	$782,634
	Revenue Under Existing Rates:								
2	Operating Revenues (1)								
3	Water Sales	$7,380,000	$7,641,033	$7,648,000	$7,743,600	$7,840,395	$7,938,400	$8,037,630	$8,138,100
4	Service Charge	1,428,878	1,497,307	1,480,000	1,494,800	1,509,748	1,524,845	1,540,094	1,555,495
5	Total Operating Revenues	$8,808,878	$9,138,340	$9,128,000	$9,238,400	$9,350,143	$9,463,245	$9,577,724	$9,693,595
	Other Income (2)								
6	Miscellaneous Receipts	$80,182	$69,431	$90,000	$0	$0	$0	$0	$0
7	Interest Earned	1,102,637	1,127,197	1,045,000	0	0	0	0	0
8	Fire Hydrant Svc. Charge	142,086	145,419	145,000	0	0	0	0	0
9	Other	793,157	0	0	0	0	0	0	0
10	Total Other Income	$2,118,062	$1,342,047	$1,280,000	$1,300,000	$1,300,000	$1,300,000	$1,300,000	$1,300,000
11	Total Revenue	$10,926,940	$10,480,387	$10,408,000	$10,538,400	$10,650,143	$10,763,245	$10,877,724	$10,993,595
	Additional Revenue Required								
	Year / % of Water Sales Revenue								
12	July 2001 32.0%				$2,956,290	$2,992,050	$3,028,240	$3,064,870	$3,101,950
13	July 2002 0.0%					0	0	0	0
14	July 2003 32.0%						3,997,280	4,045,630	4,094,570
15	July 2004 0.0%							0	0
16	July 2005 0.0%								0
17	Total Additional Revenue Required	$0	$0	$0	$2,956,290	$2,992,050	$7,025,520	$7,110,500	$7,196,520
18	Total Revenue	$10,926,940	$10,480,387	$10,408,000	$13,494,690	$13,642,193	$17,788,765	$17,988,224	$18,190,115

Notes:
(1) Projections assumes 1.00% customer growth; 1.25% water sales growth.
(2) Projections assume $1,300,000 each year through 2006.

Water Plan 2020 - Funding Overview (Water Rates)

- In FY 2005 an updated water rate study was prepared that projected a smoother rate increase, but projected significant rate increases every year.
- These water rate increases were projected to increase a typical monthly bill to $45 per month based on 10,000 gallons of monthly use.
- For comparison, a current typical bill using 10,000 gallons per month for a 5/8" meter is about $68.
- This Rate Plan was not fully implemented

Assuming a January 1 effective date for future rate adjustments, the projection of revenue requirements indicates that future rate and revenue increases will be needed as follows:

Fiscal Year	Adopted Rate Increase
2006	8.5 percent on January 1, 2006
2007	8.5 percent on January 1, 2007
2008	8.5 percent on January 1, 2008
2009	8.5 percent on January 1, 2009
2010	8.5 percent on January 1, 2010

Water Plan 2020 - Funding Overview (Water Rates)

Oct. 2010

SAIC, Inc. was retained by DOW to conduct a water rate analysis for FY 2012 through FY 2016

Nov. and Dec. 2011

Additional public review and public hearing related to the proposed water rates were conducted

January 2012

The first of five adopted annual rate schedule changes became effective on January 1, 2012

Rate changes presented to the DOW board

Nov. 2011

The DOW Board adopted the final schedule of rates presented in a meeting held on December 15

Dec. 2011

Last rate increase went into effect July 1, 2014

July 2014

Water Plan 2020 - Funding Overview (Water Rates)

Rates adjusted in 2011 are the current rates in place today:

Fiscal Year	Adopted Rate Increase
2012	11.2 percent on January 1, 2012
2013	11.2 percent on July 1, 2012
2014	11.2 percent on July 1, 2013
2015	11.2 percent on July 1, 2014
2016	0 percent on July 1, 2015

Source: Department of Water, County of Kauai, Rules and Regulations, Part IV – Fixing Rates for the Furnishing of Water Service

Meter Size	Effective 1/1/12	Effective 7/1/12	Effective 7/1/13	Effective 7/1/14
5/8″	$12.00	$14.40	$16.00	$17.75
3/4″	$16.75	$20.00	$22.25	$24.75
1″	$24.25	$29.50	$32.75	$36.50
1-1/2″	$46.00	$53.00	$59.00	$65.50
2″	$70.00	$81.00	$90.00	$100.00
3″	$132.00	$146.75	$163.00	$181.00
4″	$216.00	$240.00	$267.00	$297.00
6″	$420.00	$475.00	$528.00	$587.00
8″	$680.00	$755.00	$840.00	$934.00

Water Plan 2020 - Funding Overview (FRC)

Updated FRC Calculations

Table ES-1 summarizes the calculation of the updated FRCs for a 5/8-inch water meter.

Table ES-1:
Updated FRCs for a 5/8-Inch Water Meter

Component	Unit Cost	Per 5/8" Meter
Source	$4.62 / gpd	$3,465
Storage	$8.78 / gpd	6,585
Transmission	$8.06 / gpd	6,045
Subtotal	$21.46 / gpd	16,095
Credit	($2.64)/ gpd	(1,980)
Total	$18.82 / gpd	$14,115

The FRC for water meters larger than 5/8-inch is calculated based on the ratio of meter capacity relative to a 5/8-inch meter capacity, as stated in the American Water Works Association (AWWA) Manual M22 – Sizing Water Service Lines and Meters.

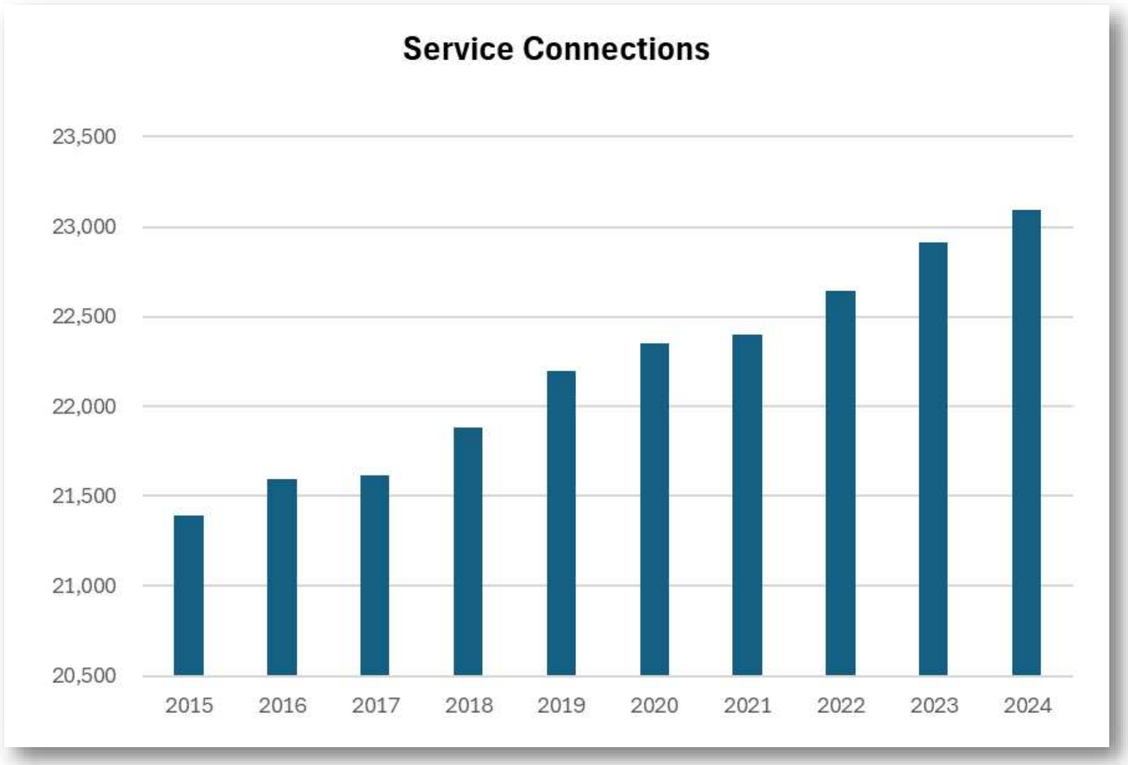
For Multi-Family, Hotel, and Resort meters, the existing FRC calculation approach of charging the greater of a meter size-based charge or a charge based on a per-unit amount is retained. The per-unit amount is calculated based on a maximum day demand of 525 gpd, per Water System Standards, and is equal to $9,880, per unit.

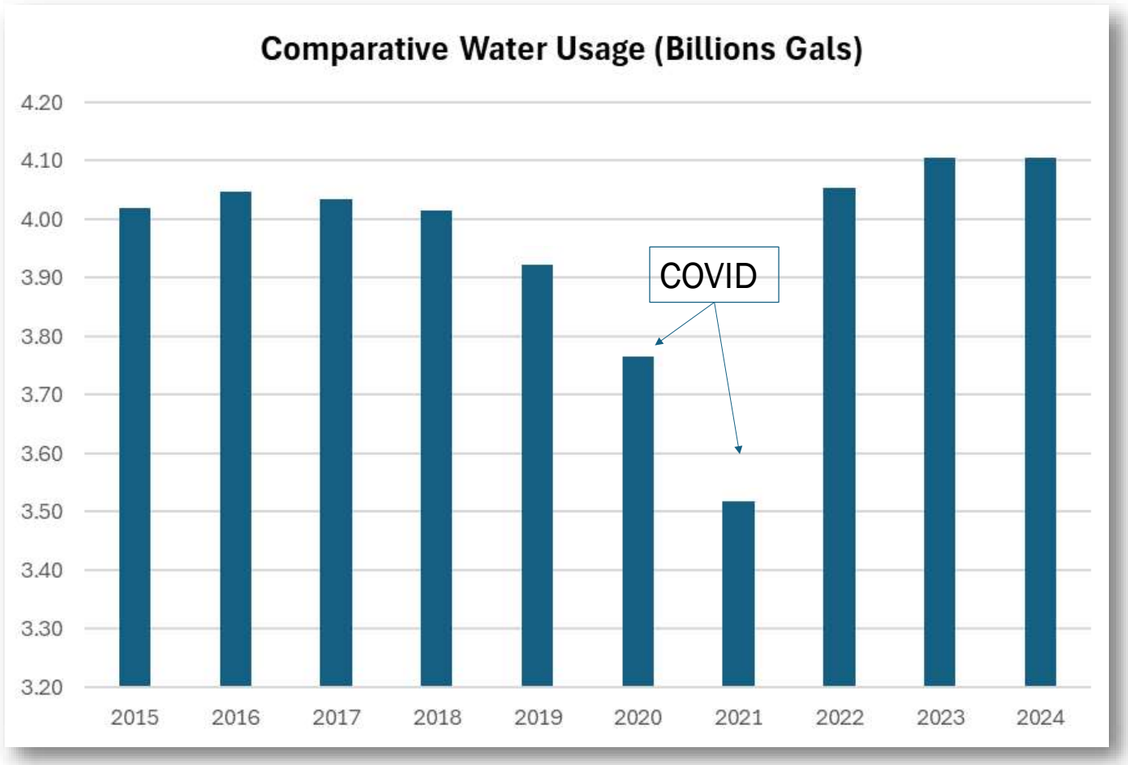
Table ES-2 shows the updated FRC calculations.

- Facilities Reserve Charge (FRC) is a one-time capacity related fee charged to new customers to help recover the costs of backbone facilities (source, storage, transmission).
- FRC was last updated in 2015.
- Based on Water Plan 2020 capital assumptions.

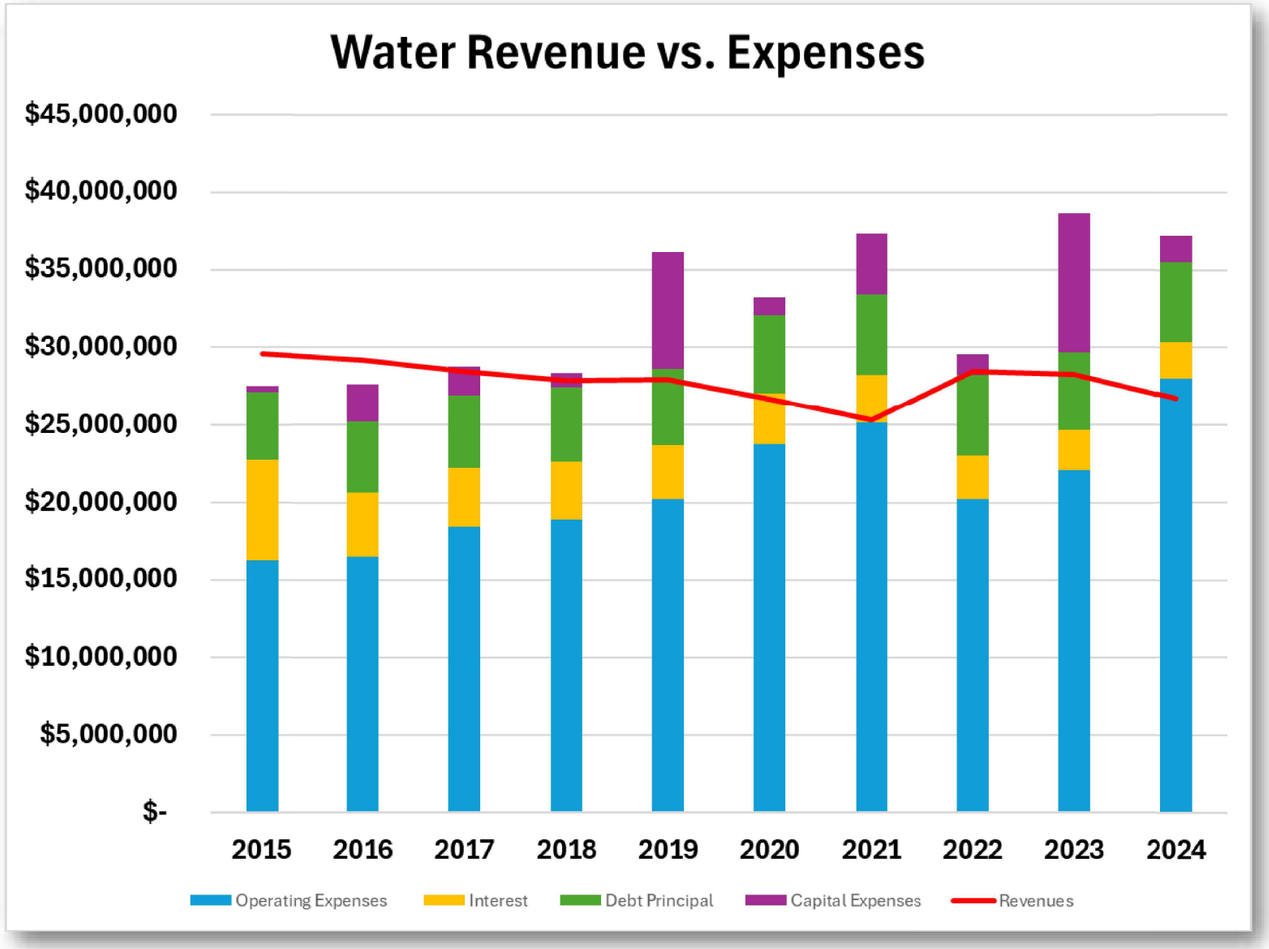
Current (2025) DOW Financial Overview

Current Financial Overview





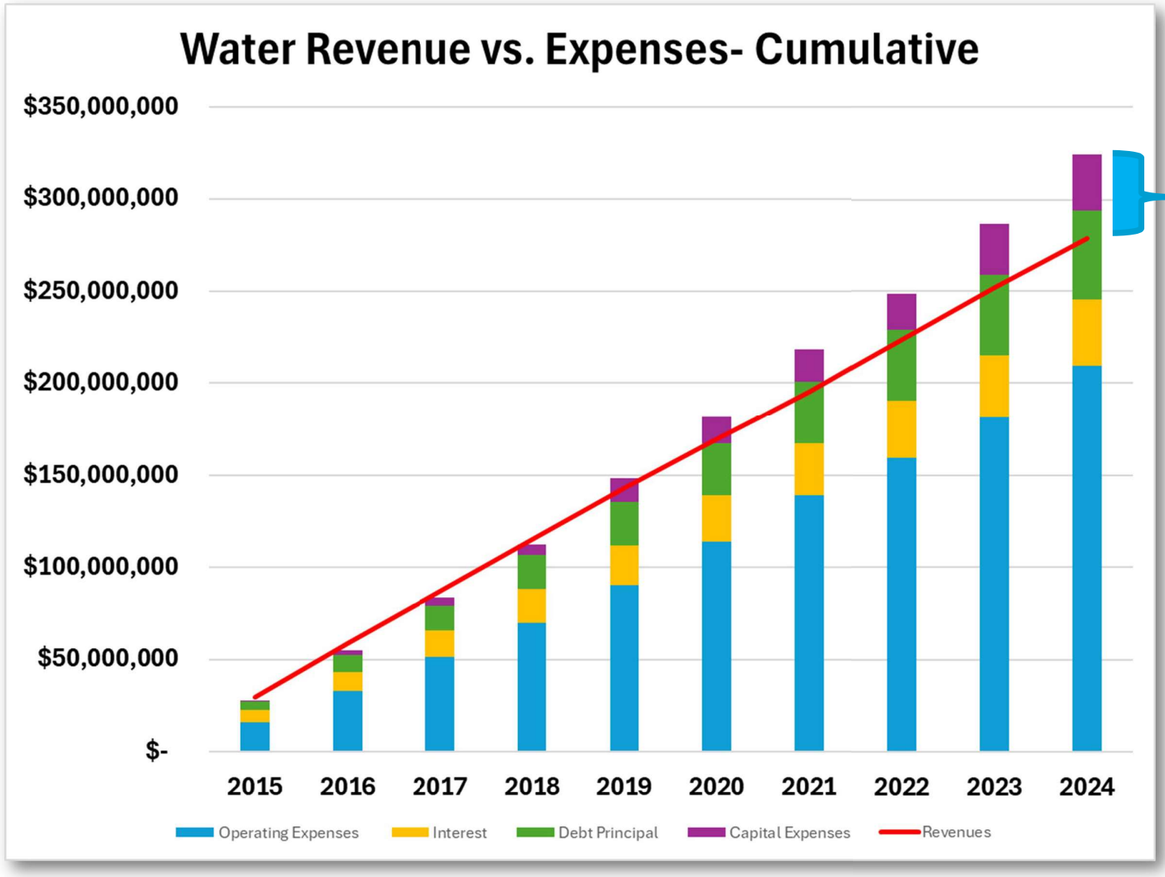
Current Financial Overview – Revenues and Expenses



- Revenues are less than Expenses starting in FY 2017
- The last water rate increase was effective FY 2015
- Expenses include O&M, debt service and rate funded capital
- Depreciation is not included in Expenses for purposes of this graph

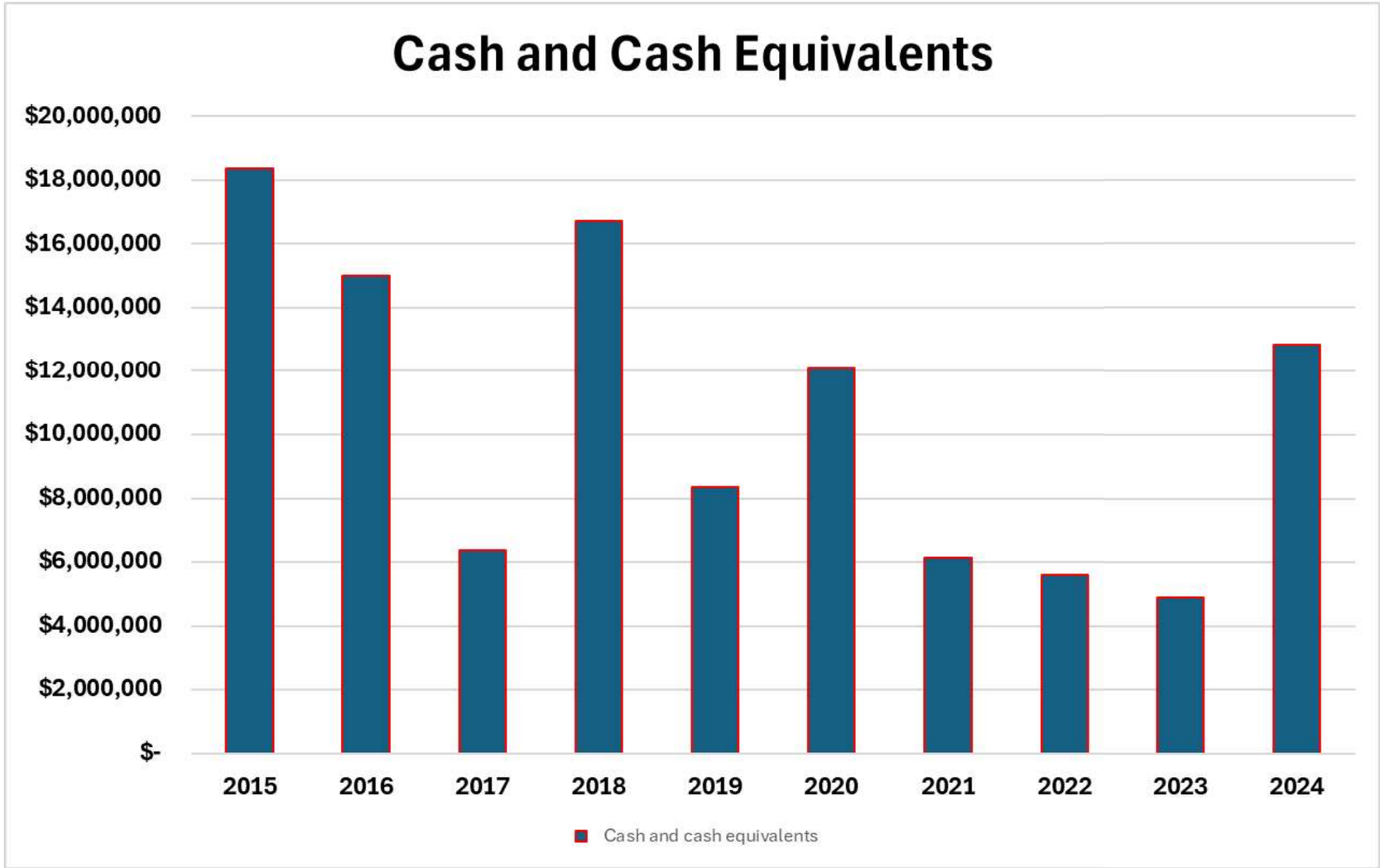
Current Financial Overview – Revenues and Expenses

- Revenues are less than Expenses by about $45.7 million over a 10-year time period.
- Delta funded by drawdown of cash reserves.
- Over the 10-year period an average annual rate increase of 5% per year implemented every year may have closed/reduced the deficit.
- Cumulative rate increase needed was approximately 55% over 10 years.



Current Financial Overview – Revenues and Expenses

- Ending balance of Cash and Cash Equivalents
- Shows declining trend over time
- 2018, 2020, and 2024 included grants which accounts for the spikes
- The last rate increase was in FY 2015



Current Financial Overview – “Current Ratio”

- **What it is:**
  - The current ratio is a liquidity ratio that measures a company’s ability to pay off its short-term liabilities (those due within a year) with its short-term assets.
- **How it’s calculated:**
  - Current Ratio = Current Assets / Current Liabilities
- **Why it’s important for water utilities:**
  - Water utilities, like any business, need to ensure they can meet their obligations, such as paying for supplies, salaries, and other short-term debts.
- **What a “good” ratio means:**
  - A current ratio between 1.5 and 3 suggests that the utility has enough liquid assets to cover its short-term debts, providing a cushion for unexpected expenses or delays in revenue.

Current Financial Overview – Current Ratio

For the fiscal year ended June 30, 2024:

– Department of Water	Kauai	Maui	Honolulu
Current Assets	$27,875,157	$117,328,388	$537,044,268
Current Liabilities	$21,750,622	$25,018,038	$135,277,261
Working Capital	$6,124,535	$92,310,350	$401,767,007
Current Ratio	1.28	4.69	3.97

The Department of Water, County of Hawaii audited financial statements as of June 30, 2024 has not been issued at this time. However, For the fiscal year ended June 30, 2023:

– Department of Water	Hawaii
Current Assets	$65,697,475
Current Liabilities	$14,913,849
Working Capital	$50,783,626
Current Ratio	4.41

Current Financial Overview – Current Ratio

Department of Water, Kauai (past 10 fiscal years ended June 30)

	2015	2016	2017	2018	2019
Current Assets	$31,218,775	$34,167,182	$28,682,725	$40,264,662	$39,629,448
Current Liabilities	$9,785,182	$10,281,862	$10,030,581	$10,290,202	$11,425,374
Working Capital	$21,433,593	$23,885,320	$18,652,144	$29,974,460	$28,204,074
Current Ratio	**3.19**	**3.32**	**2.86**	**3.91**	**3.47**

	2020	2021	2022	2023	2024
Current Assets	$27,041,226	$17,471,791	$17,500,410	$16,194,257	$27,875,157
Current Liabilities	$10,049,880	$9,748,687	$9,748,687	$12,747,085	$21,750,622
Working Capital	$16,991,346	$7,723,104	$7,723,104	$3,447,172	$6,124,535
Current Ratio	**2.69**	**1.79**	**1.42**	**1.27**	**1.28**

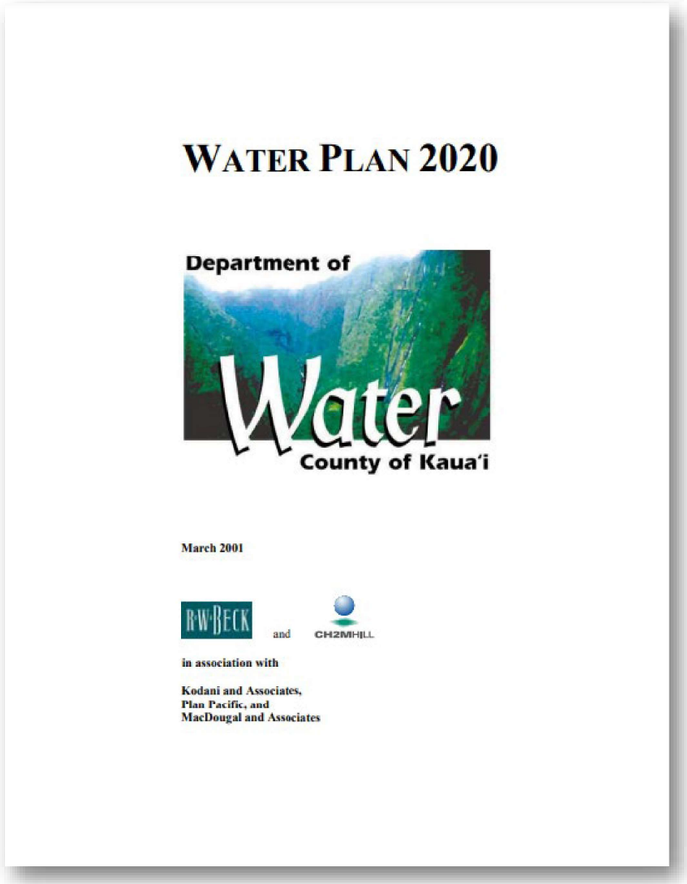
Board Discussion

Long-Range Capital Planning and WSIP Overview

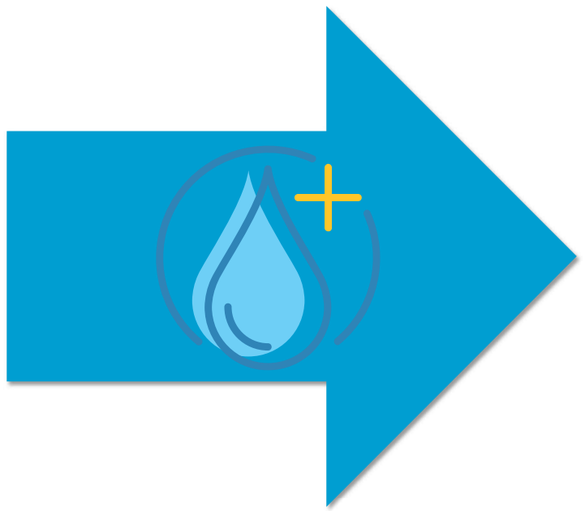
Why a Long-Range Plan?

- Department roadmap
- Comprehensive evaluation of water system
- Plan to maintain and expand the utility
- Supporting financial structure
- Framework for decision making

The Water Systems Investment Plan is an update to Water Plan 2020



Water Plan 2020



WSIP

WSIP - Key Outcomes

Develop robust **GIS** and **hydraulic modeling** tools that support utility planning and system operations.

Provide in-person and virtual **training** sessions so that DOW staff are prepared to leverage tools.

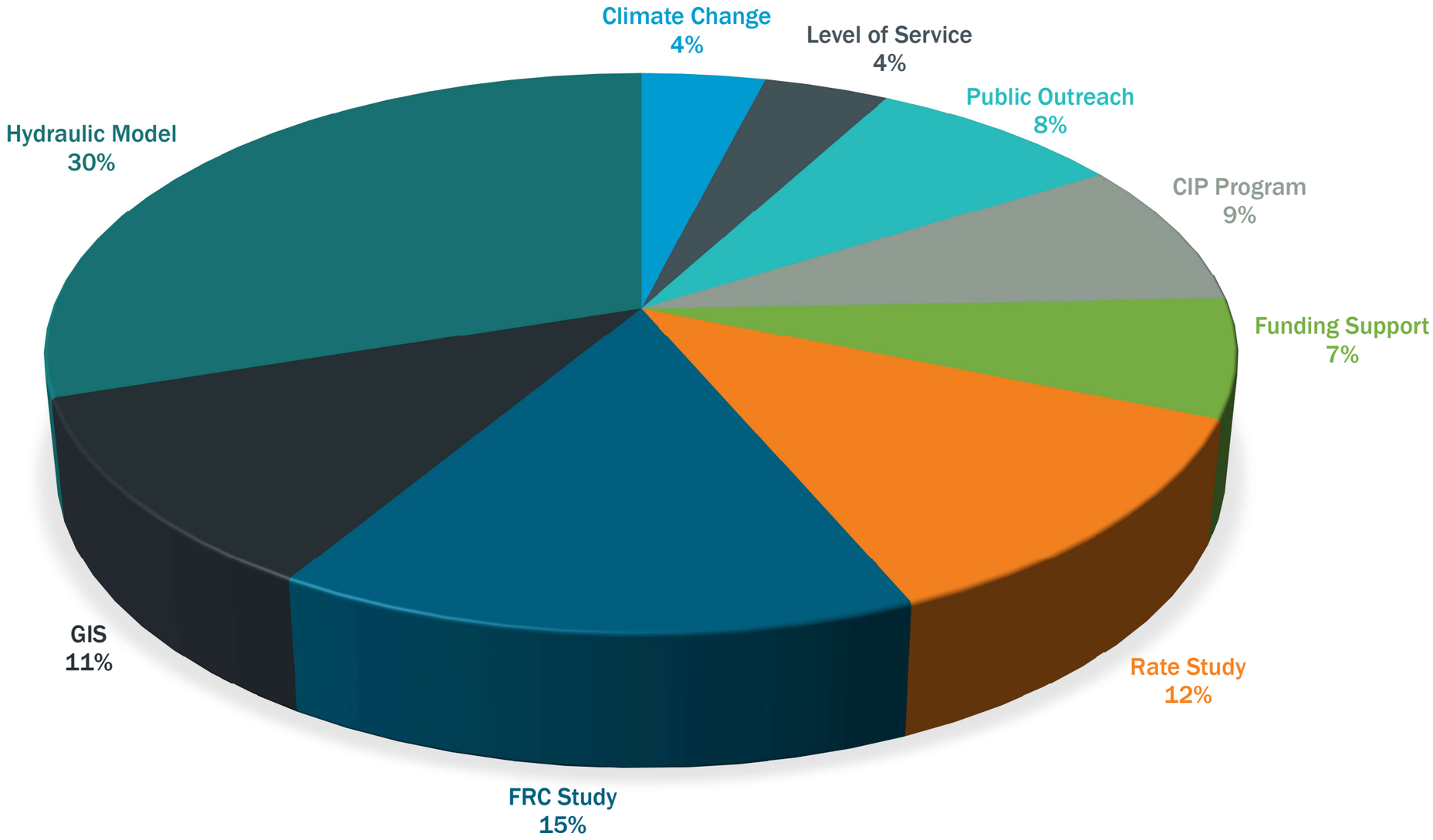
Use tools to develop a **20-year CIP**, as an update to **Water Plan 2020**, supporting DOW and the Board of Water Supply goals and objectives.

Establish justifiable **Rates and Facility Reserve Charge** aligned with the WSIP CIP.

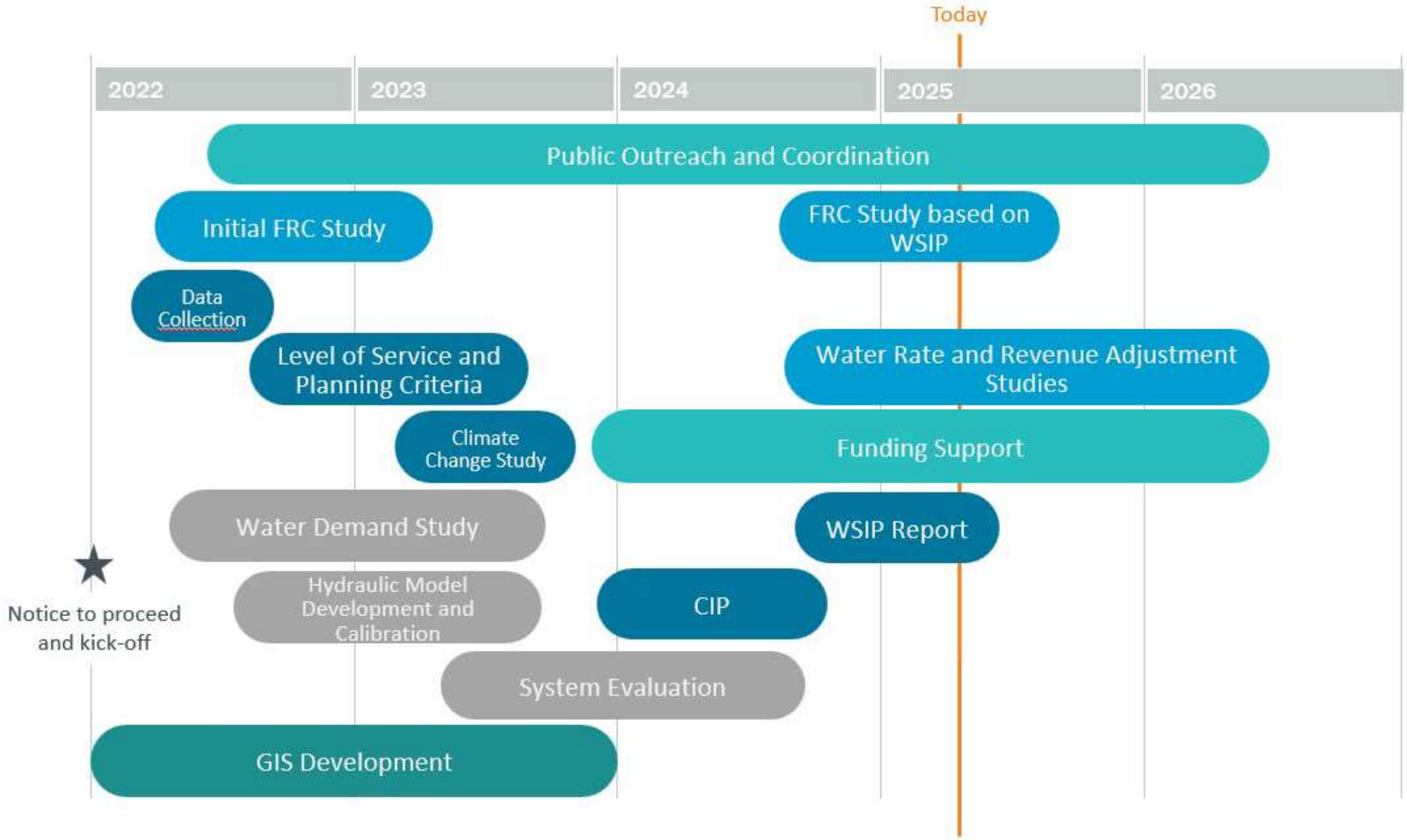
Identify alternative **funding opportunities** to support implementation of the CIP.

Coordinate with stakeholders and **communicate** with the people of Kauaʻi.

WSIP – Budget and Tasks



WSIP - Schedule



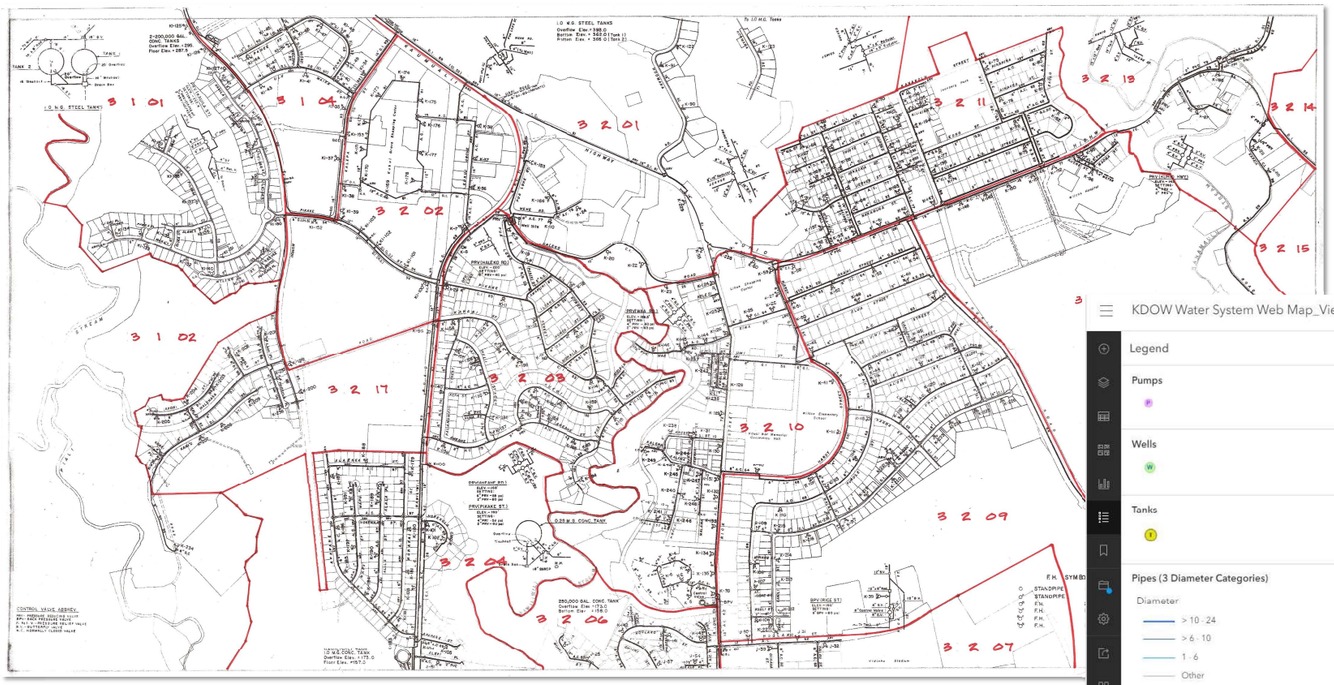
CIP Development

Purpose of the GIS and Hydraulic Model

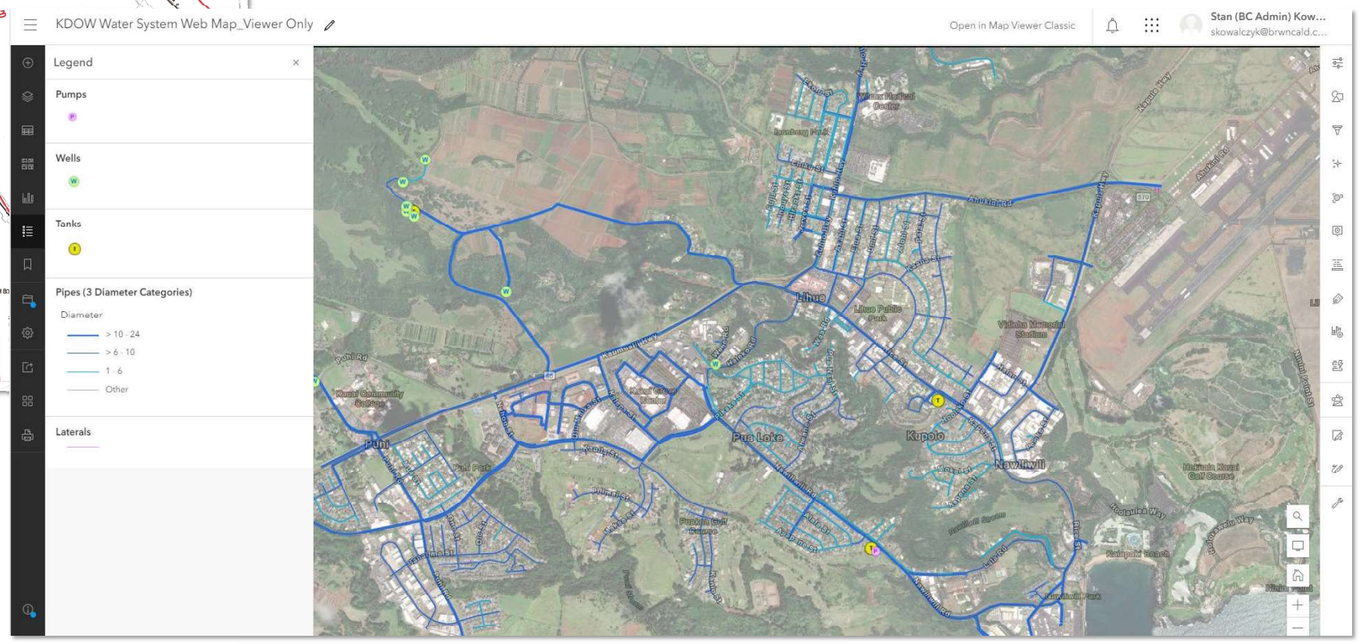
- Transition from paper to electronic database
- Provide access to information on facilities
- Improve understanding of system operations
- Improve the ability to assess and manage the capacity of the water system
- Support development and plan for future growth
- Support DOW's Capital Improvement Program

Upgrade DOW Information to Electronic Database

Paper Map

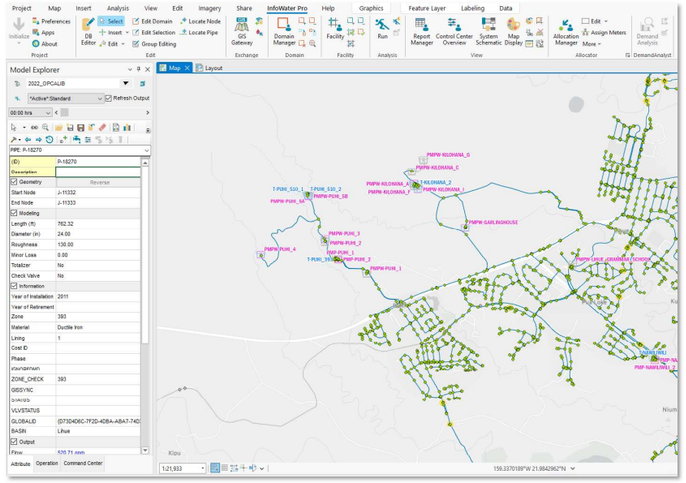


GIS



Hydraulic Model Development

1

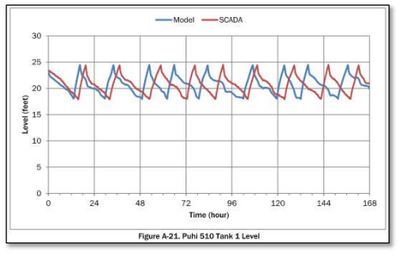


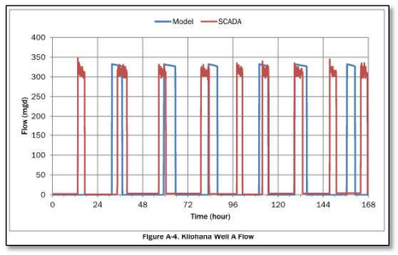
Develop model from GIS

2

Perform field testing

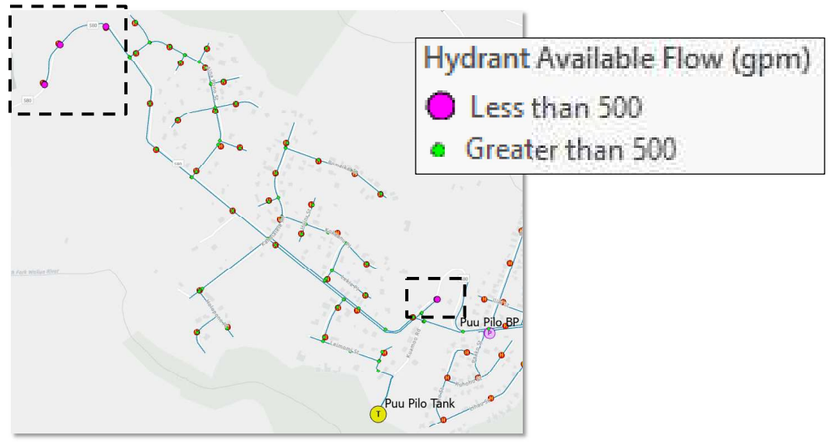
3





Calibrate model

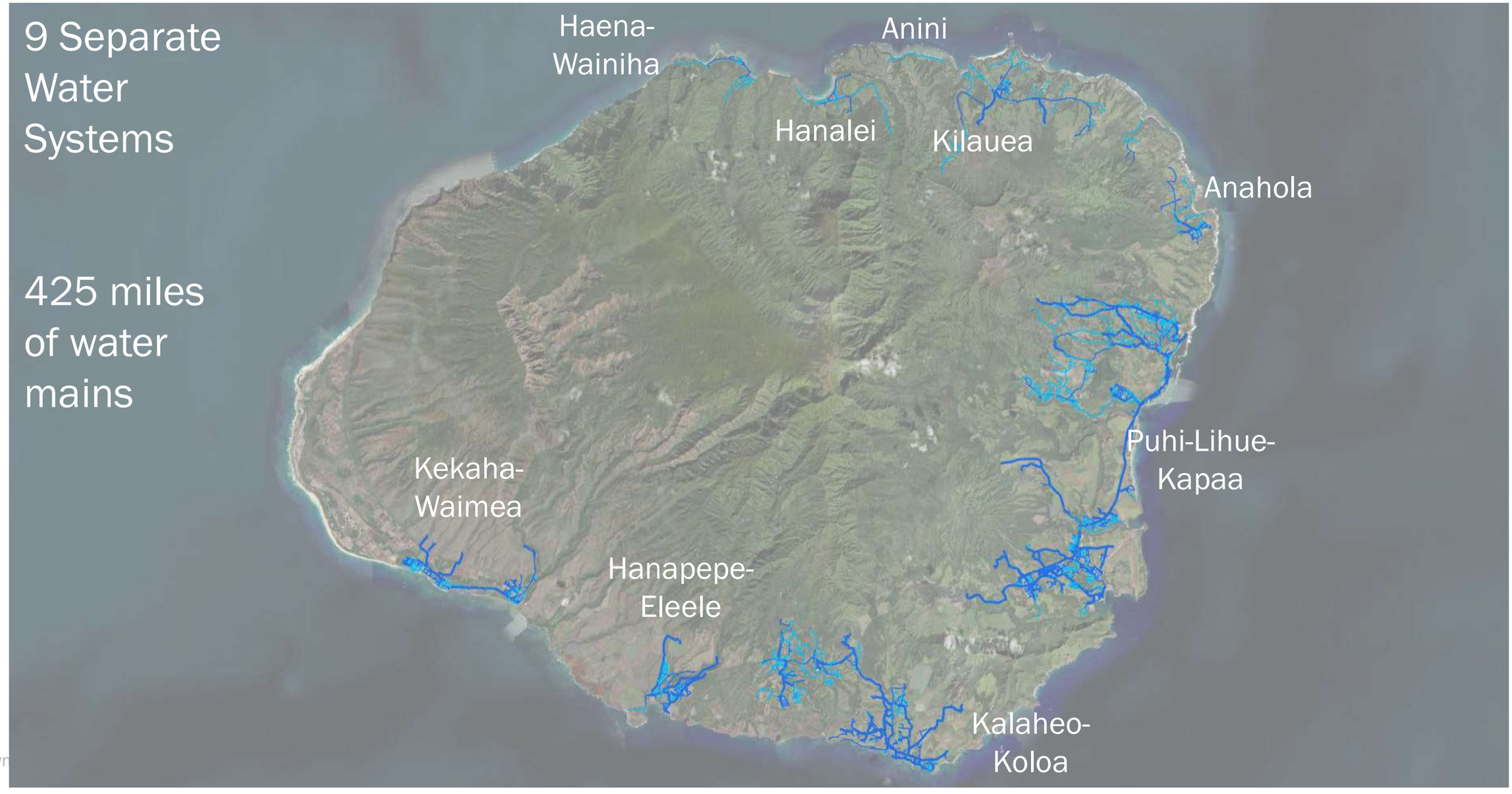
4



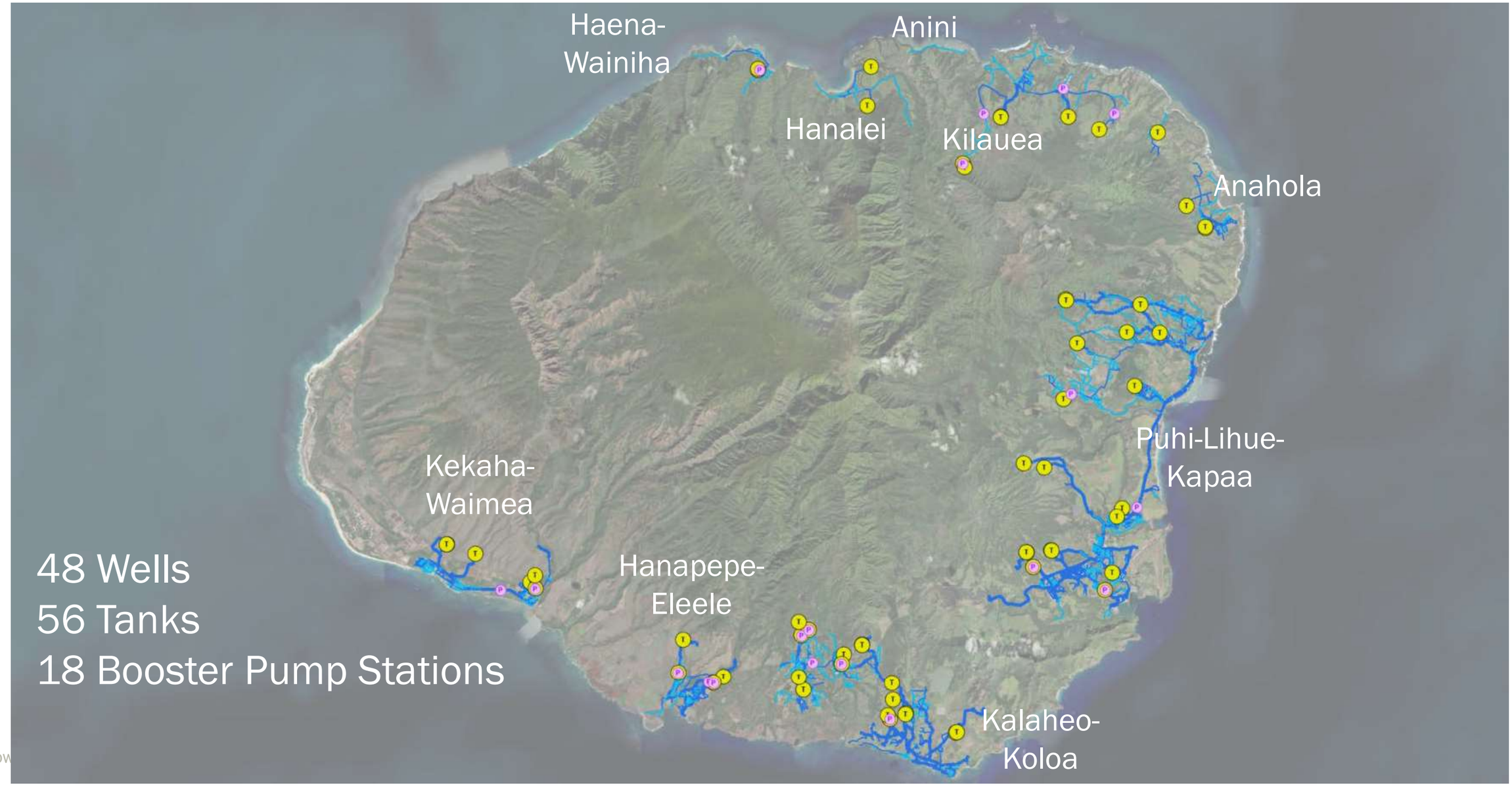
Evaluate water system

Department of Water System

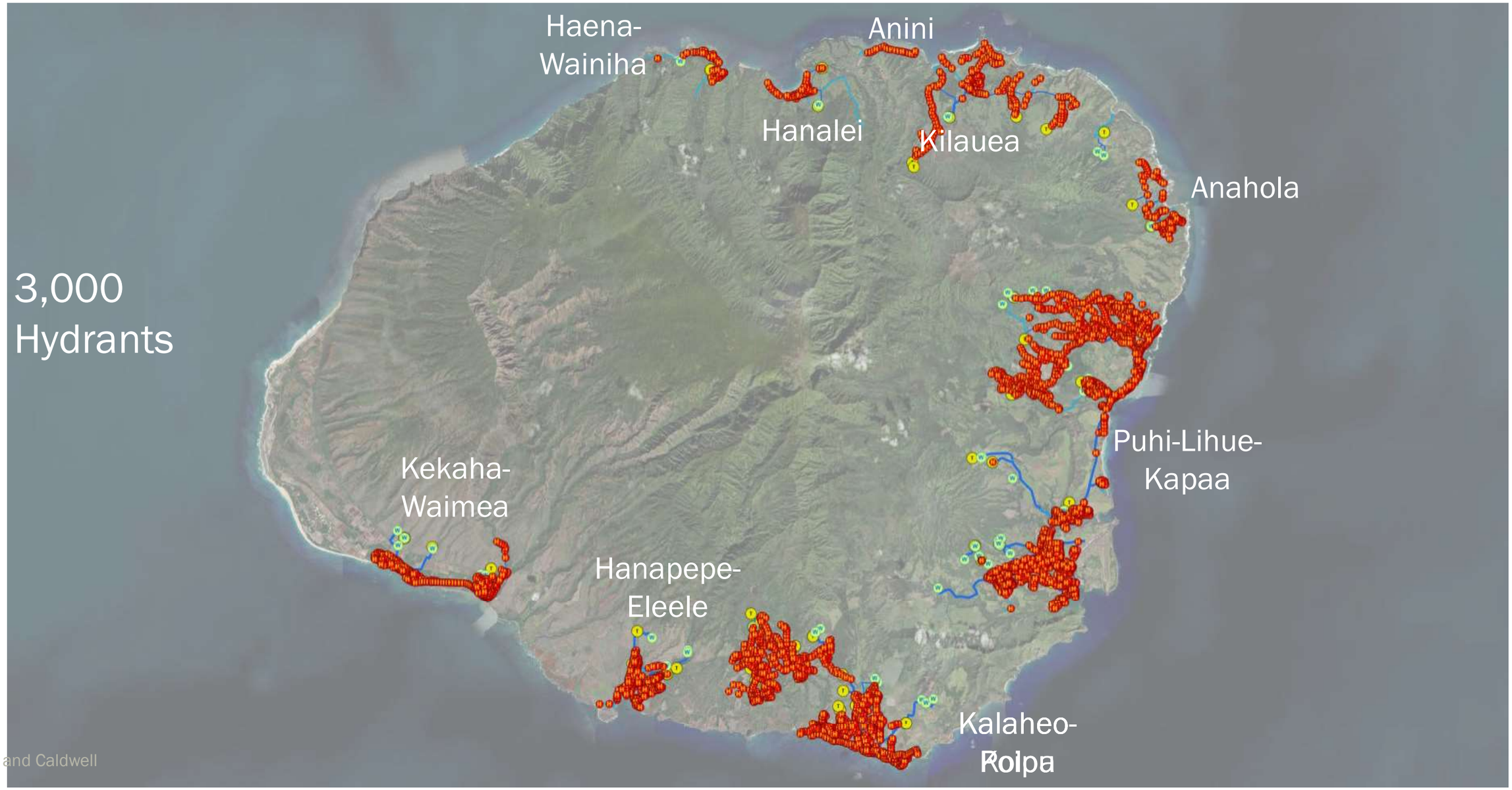
Department of Water System



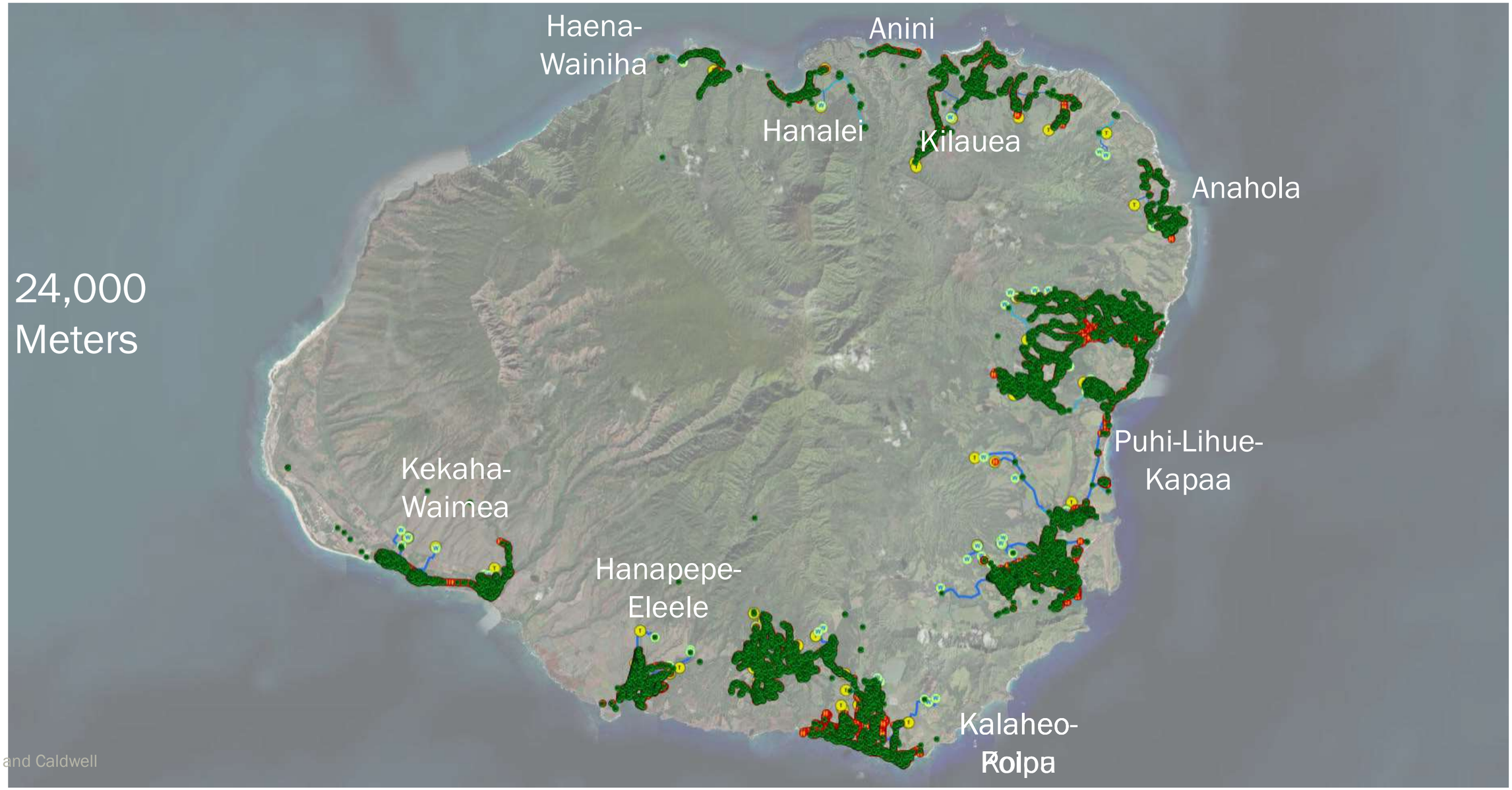
Department of Water System



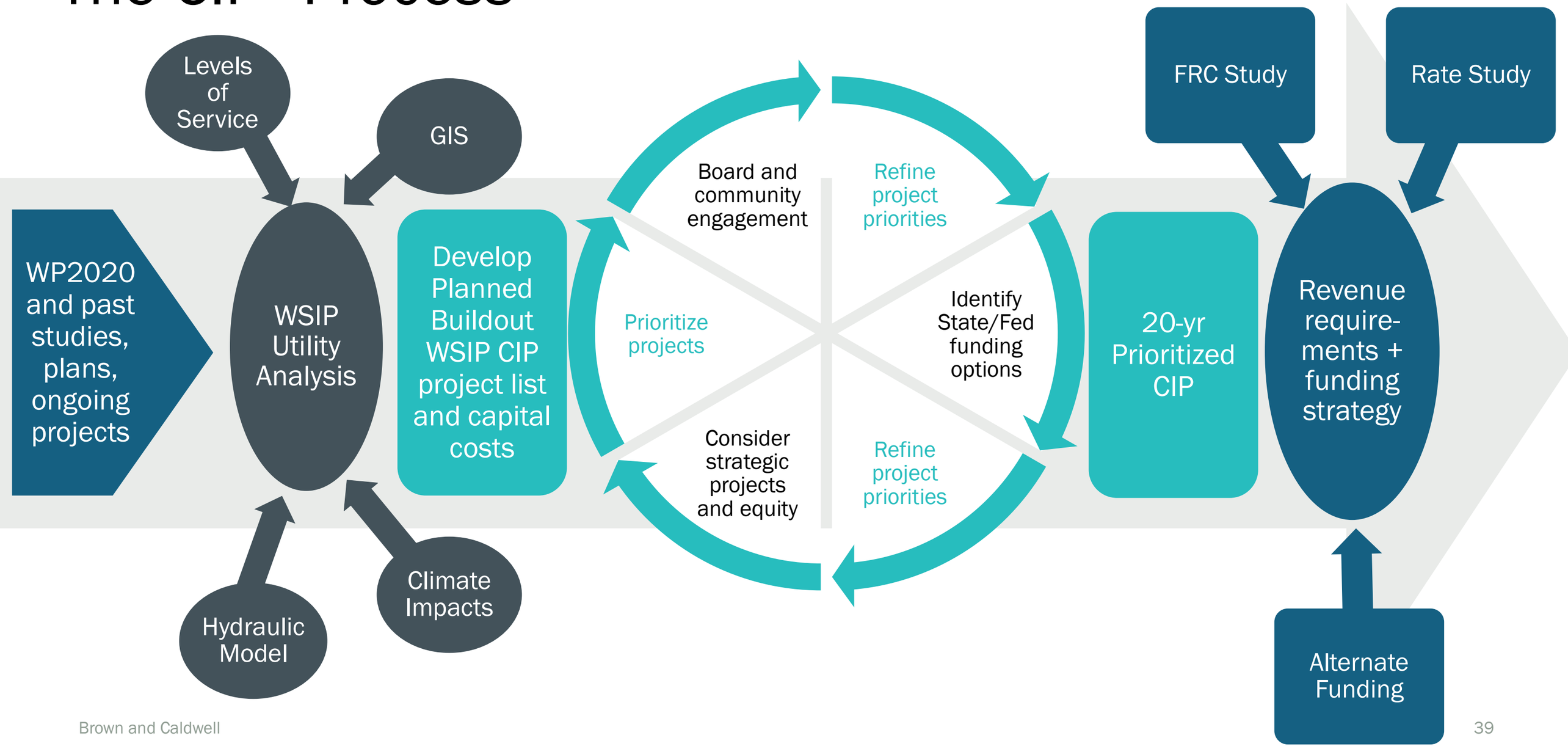
Department of Water System



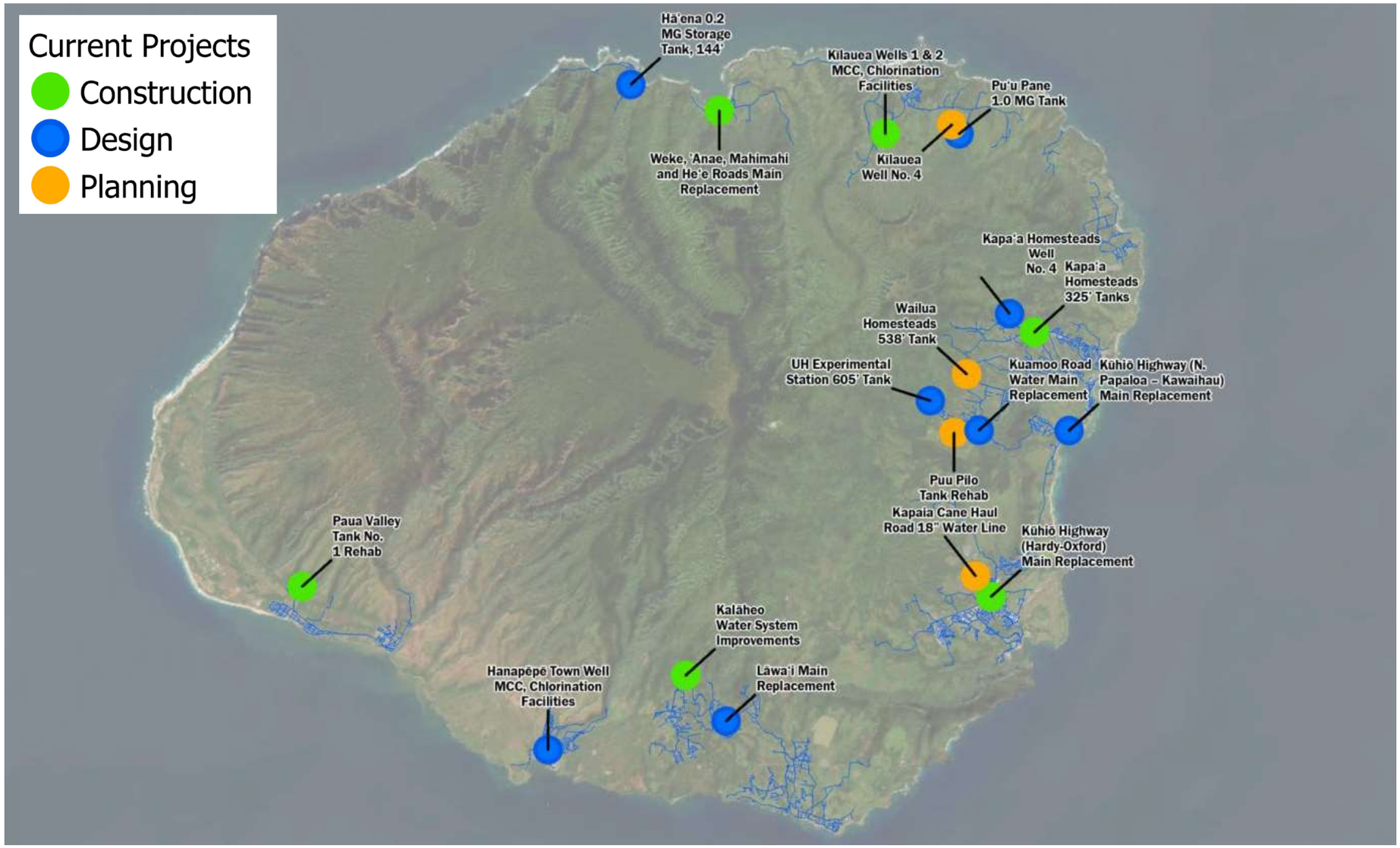
Department of Water System



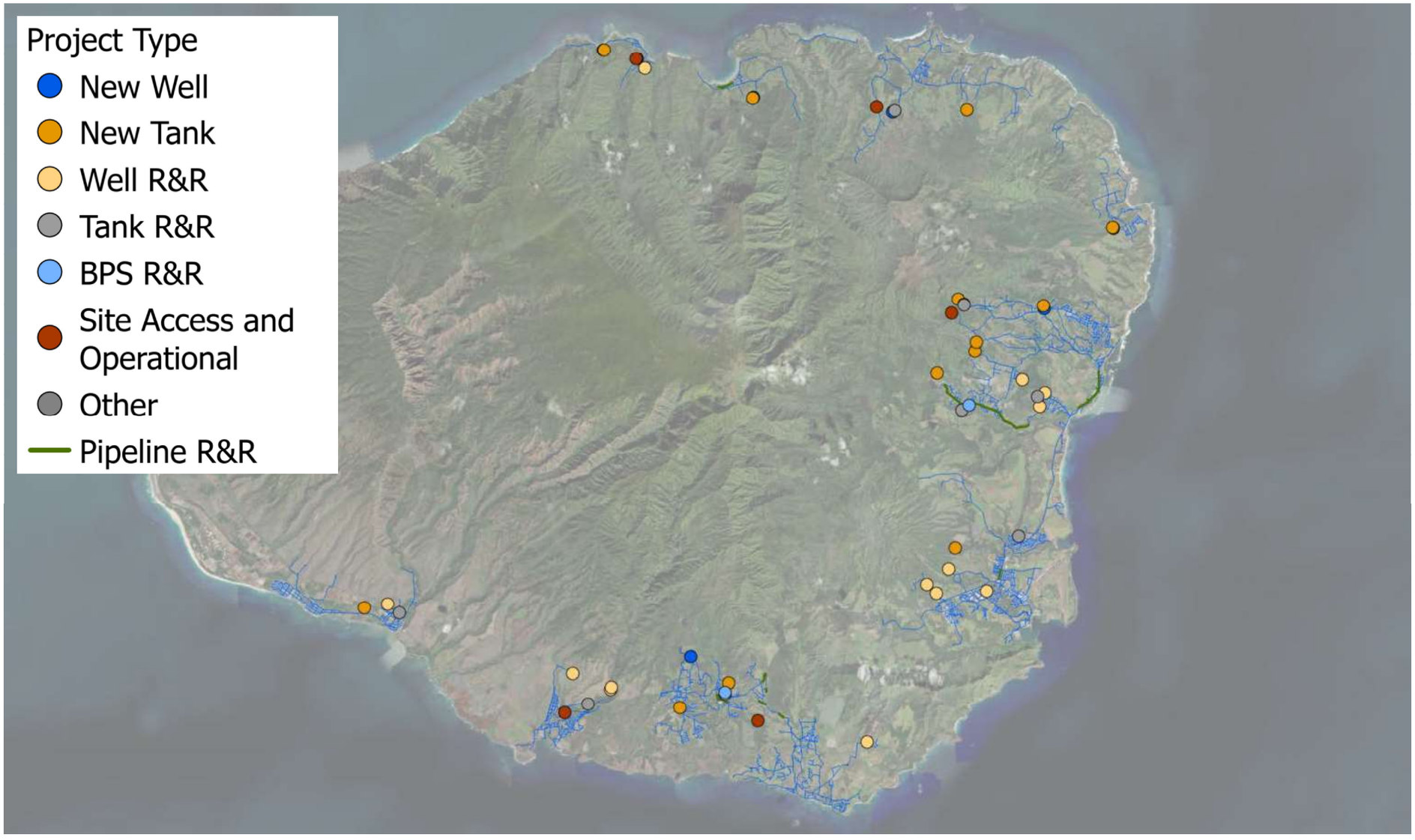
The CIP "Process"



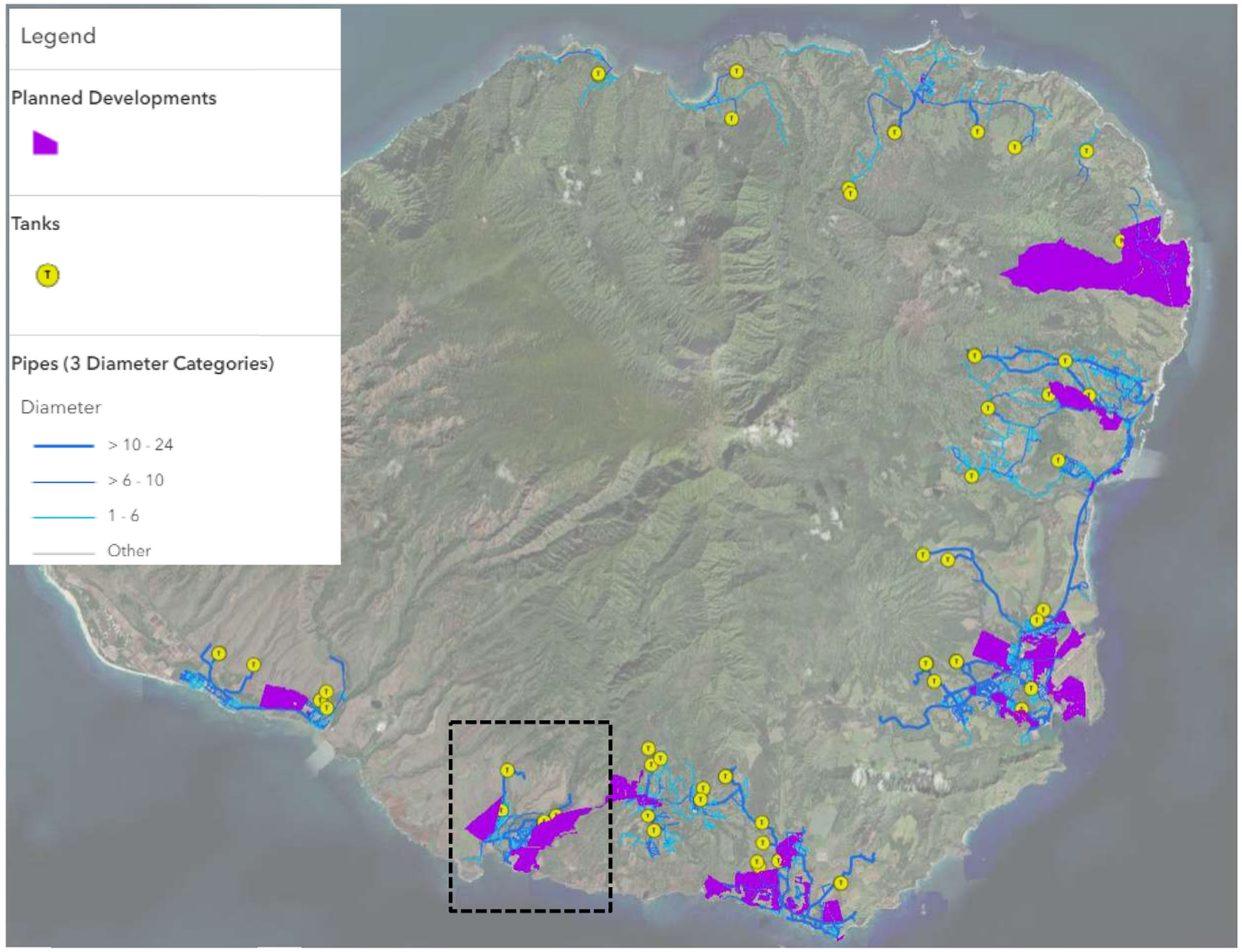
Projects Currently in Progress

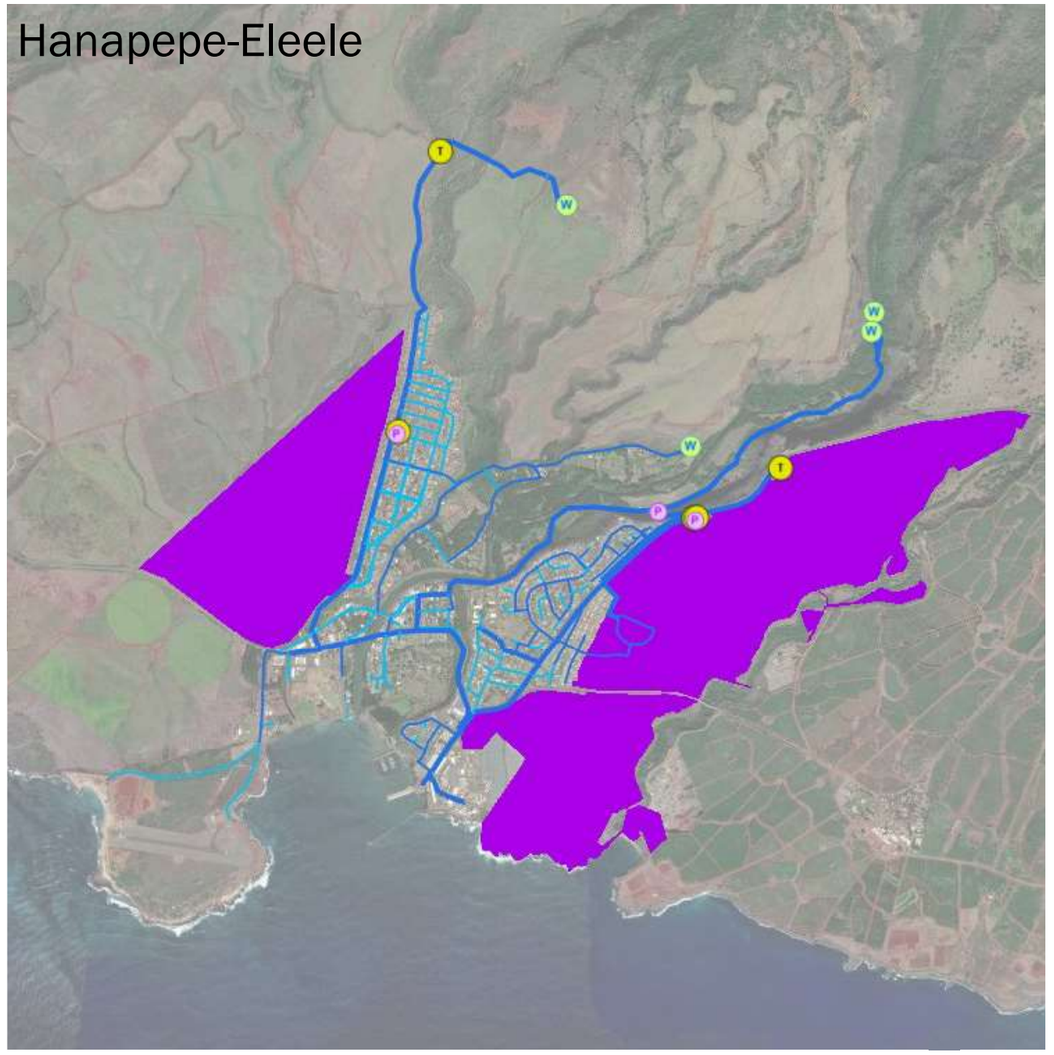


Projects From Water Plan 2020

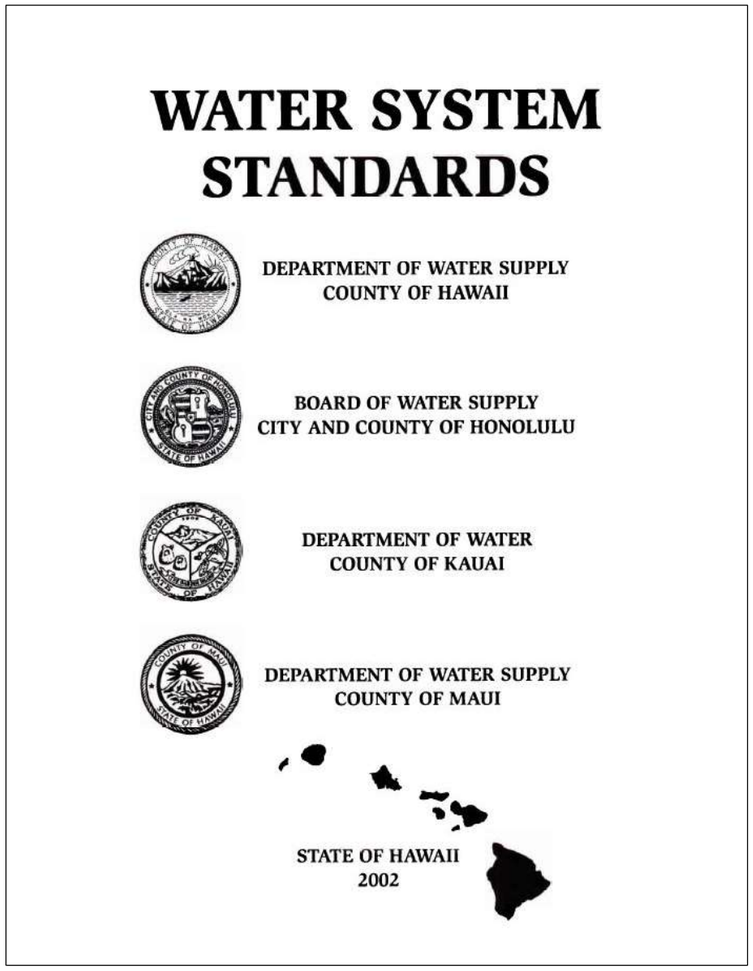


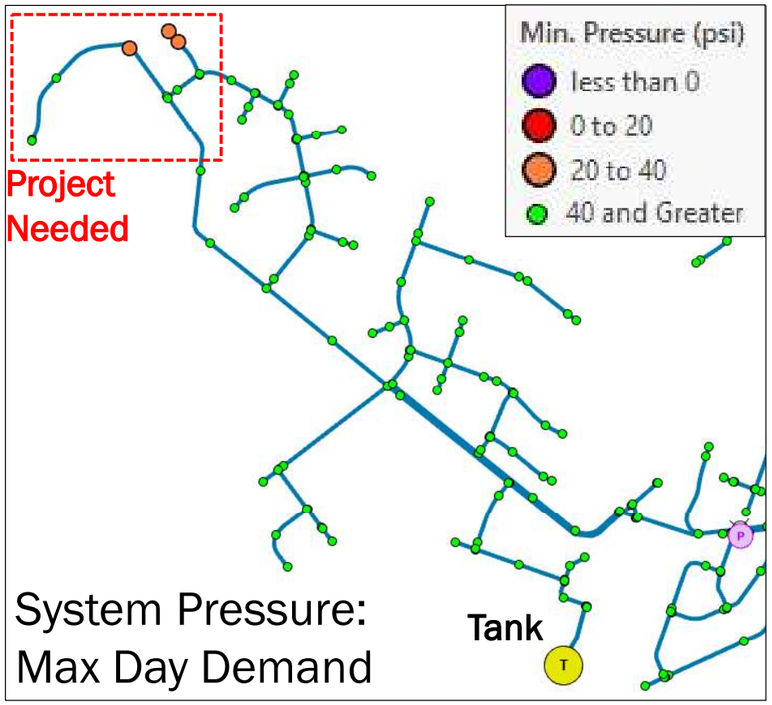
Assess Planned Development and Growth

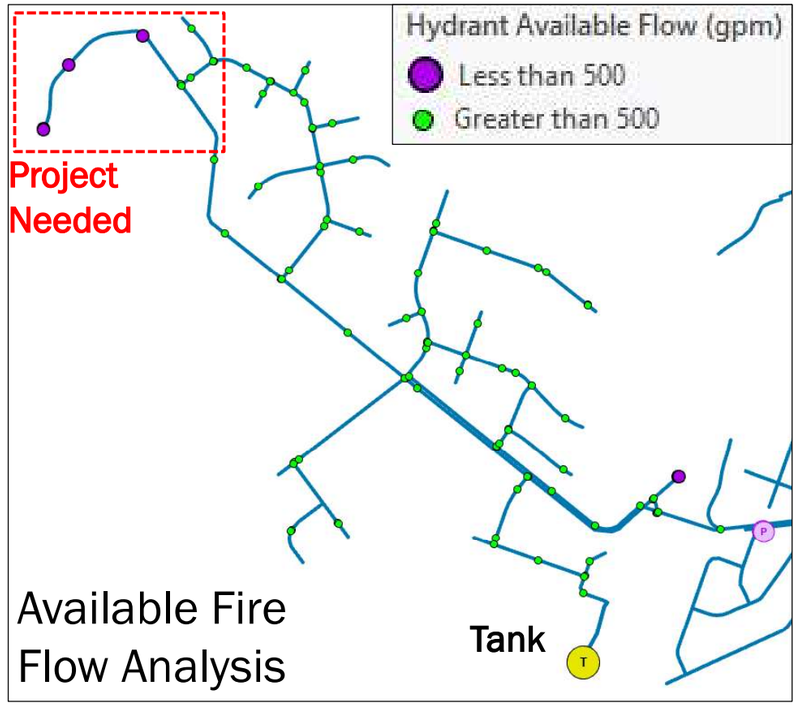




Evaluate Capacity of System



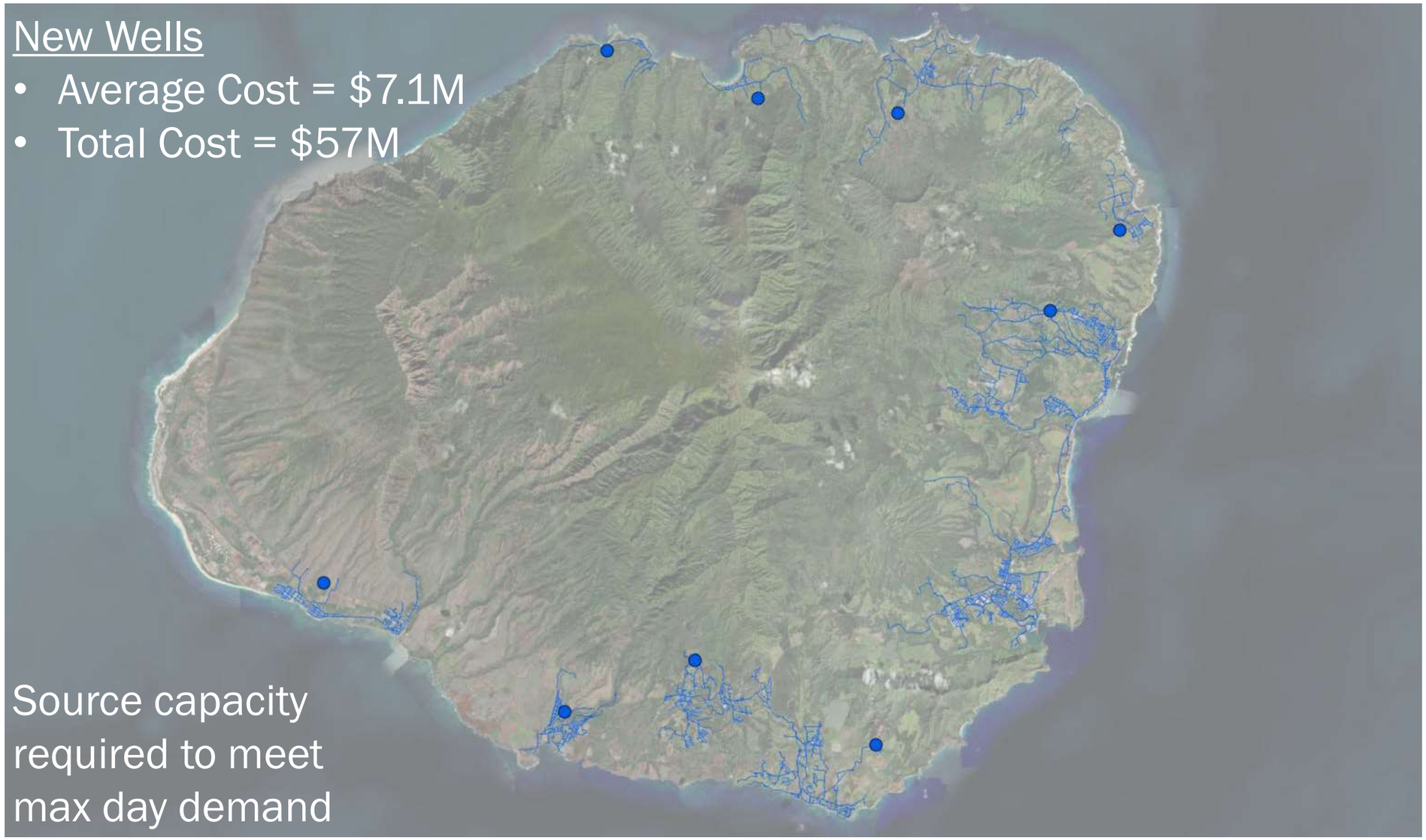




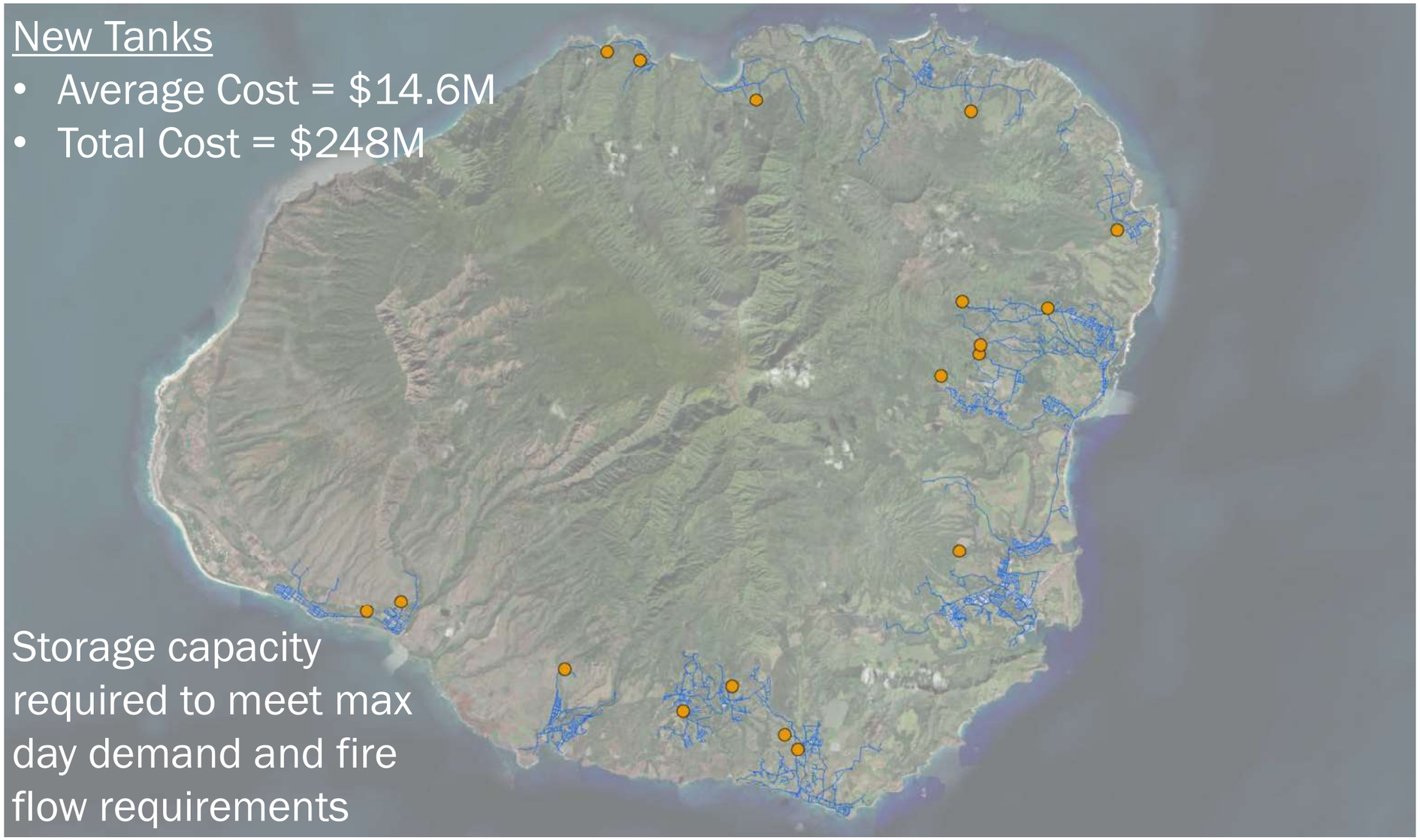
Available Fire Flow

- Across DOW's 9 separate water systems, 2,576 hydrants were assessed in model for available fire flow

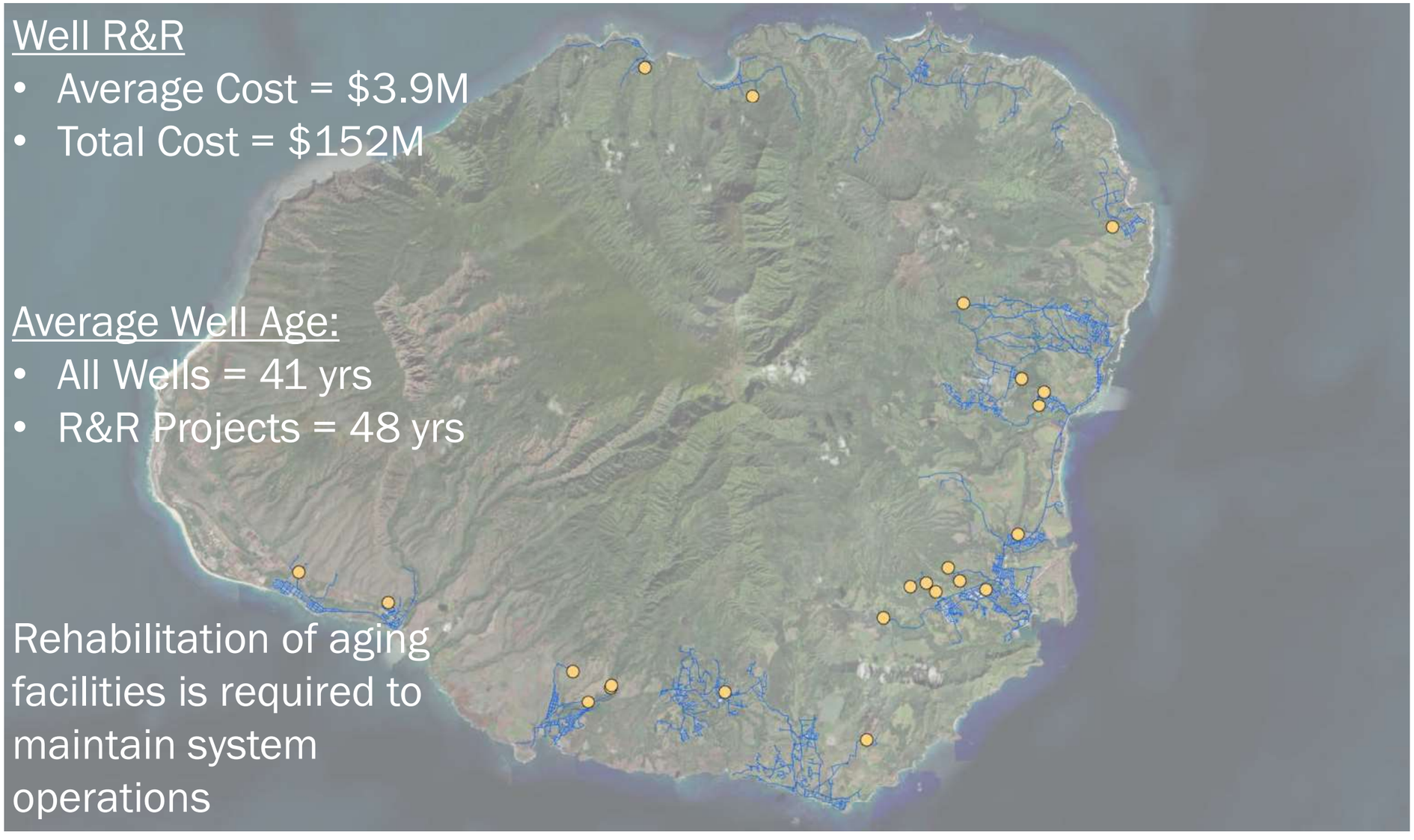
Evaluate System Capacity



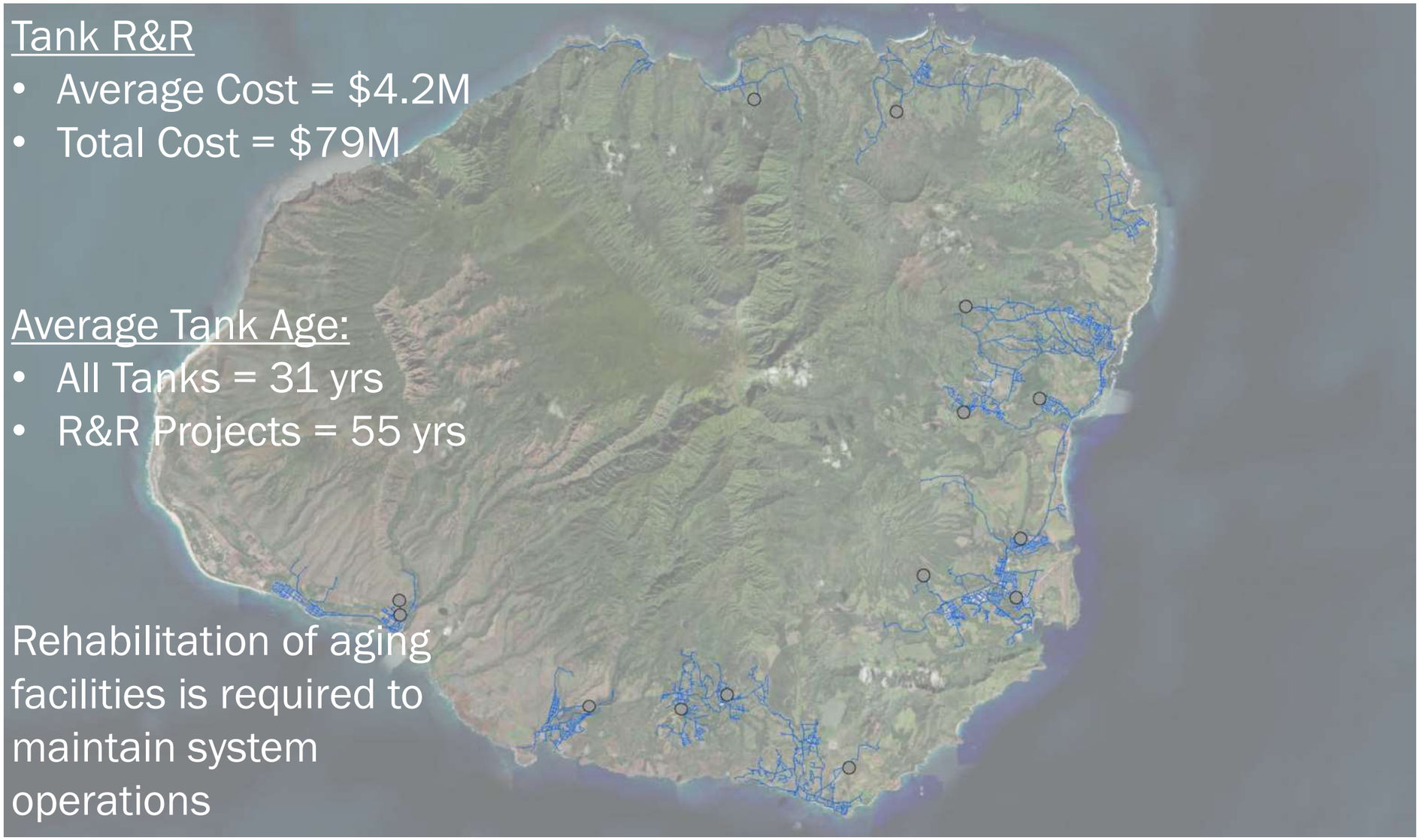
Evaluate System Capacity



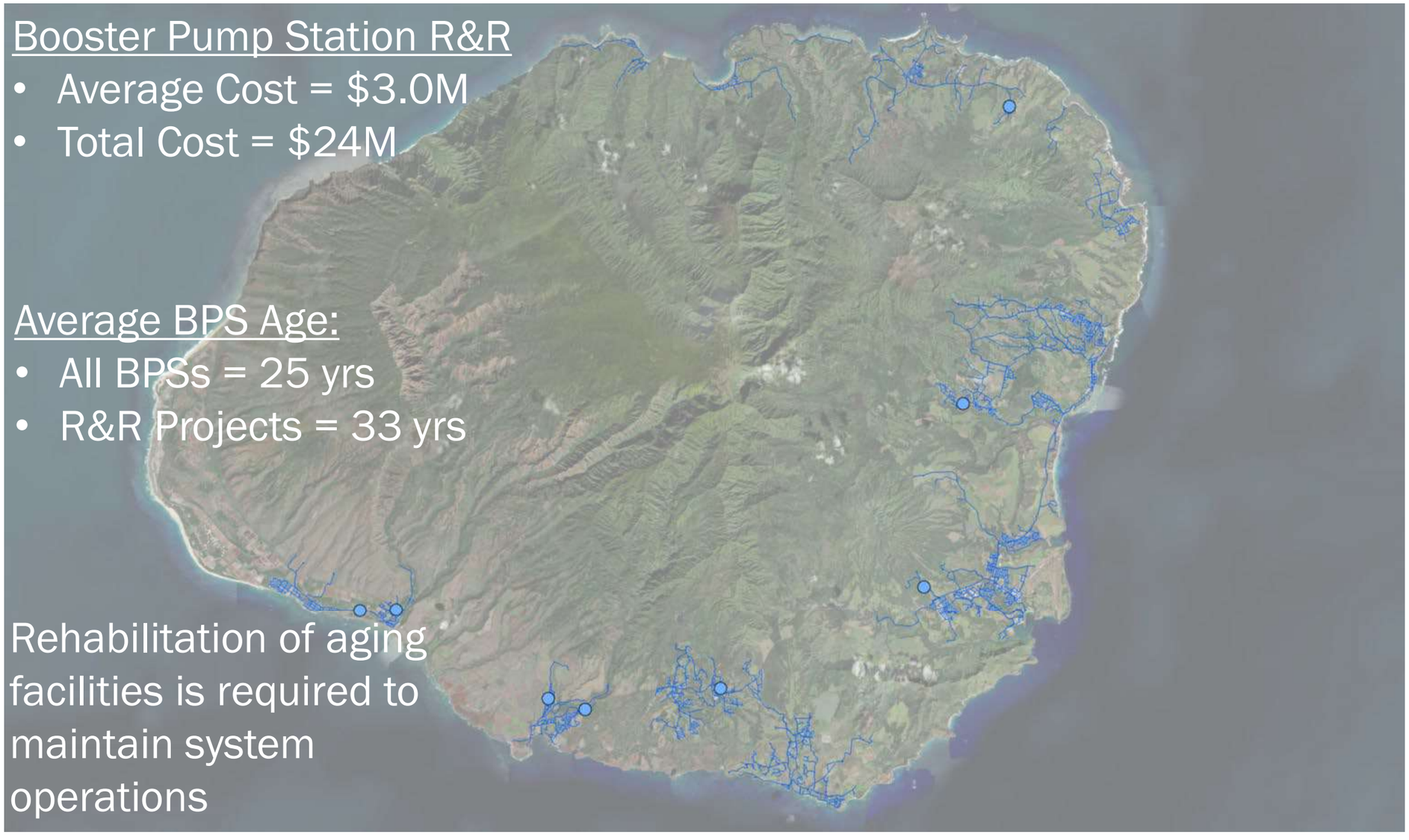
Evaluate System Capacity



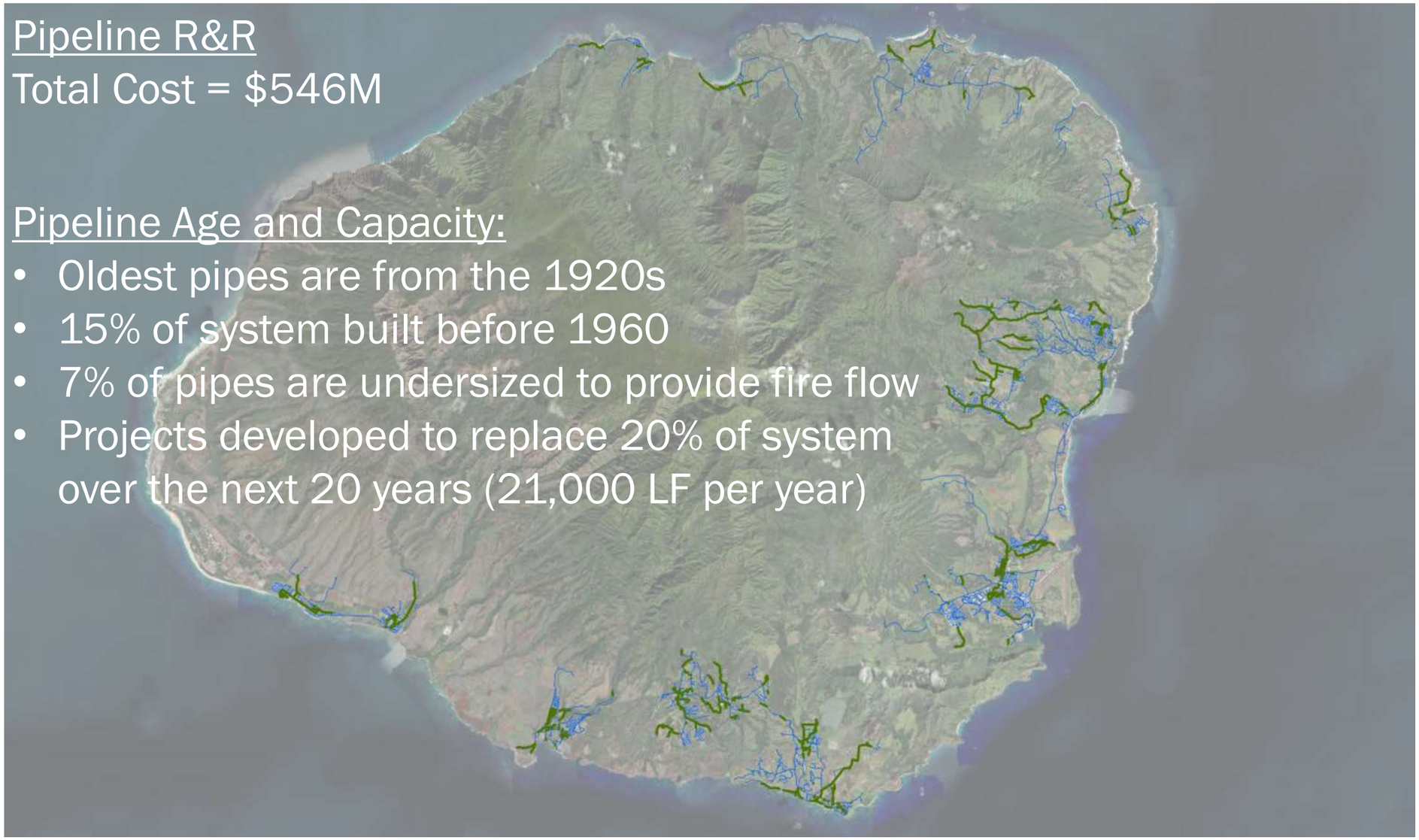
Evaluate System Capacity



Evaluate System Condition



Evaluate System Condition

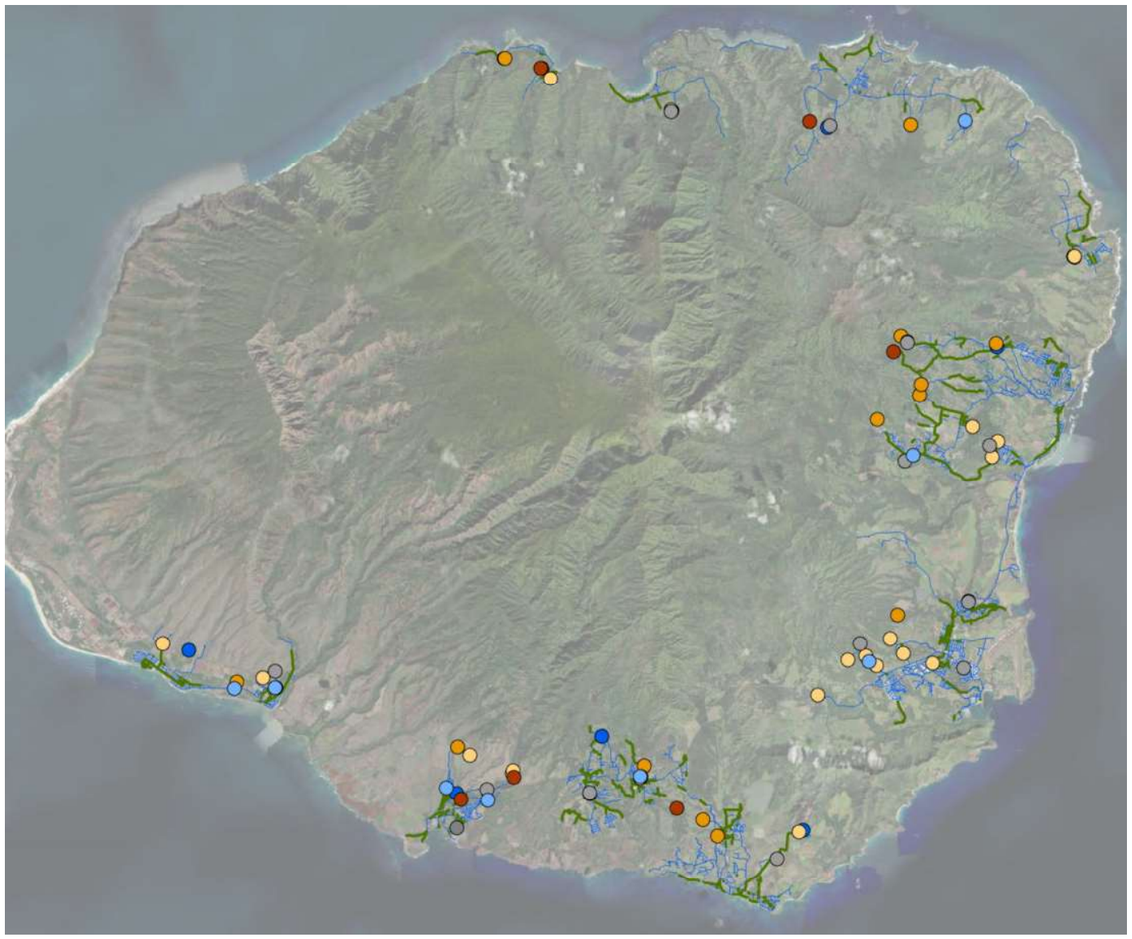


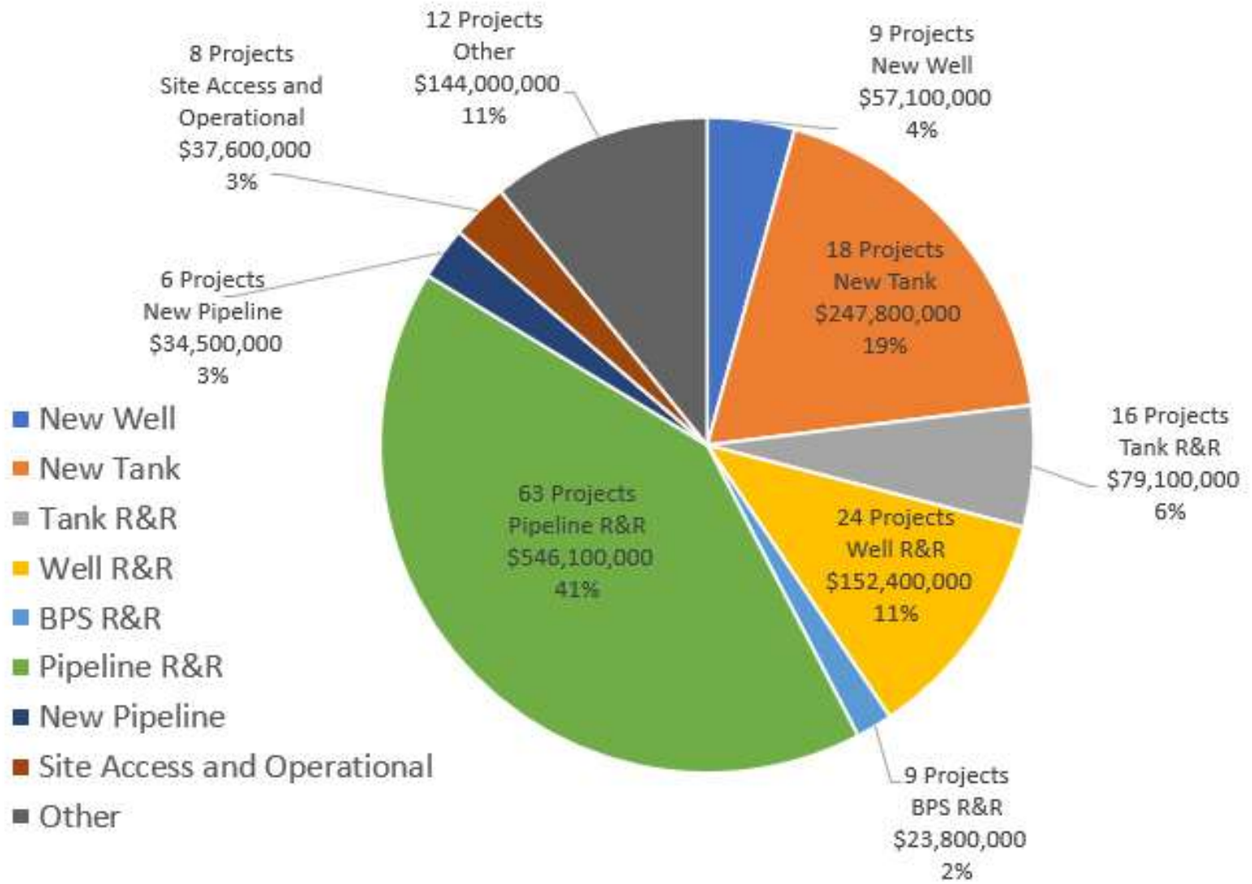
Pipeline R&R
Total Cost = $546M

Pipeline Age and Capacity:

- Oldest pipes are from the 1920s
- 15% of system built before 1960
- 7% of pipes are undersized to provide fire flow
- Projects developed to replace 20% of system over the next 20 years (21,000 LF per year)

“Planned Buildout” – Comprehensive Project List and Costs





A Note on Inflation…

- The average inflation rate in Hawaii between 2000 and 2025 has been approximately 2.5% per year.
- This means a capital project with a budget of $1,000,000 in 2000 would cost nearly $2,000,000 in today's market.
- This surge is attributed to various factors, including the state's remote location, the high cost of imported materials, scarcity of labor, and evolving regulations.
- Additionally, natural disasters in the state such as hurricanes and volcanic eruptions have necessitated extensive rebuilding efforts.
- All of these factors are amplified on Kauai

"The price to construct a Department of Water tank on Kauai has increased by a factor of 3 between 2008 and 2023"

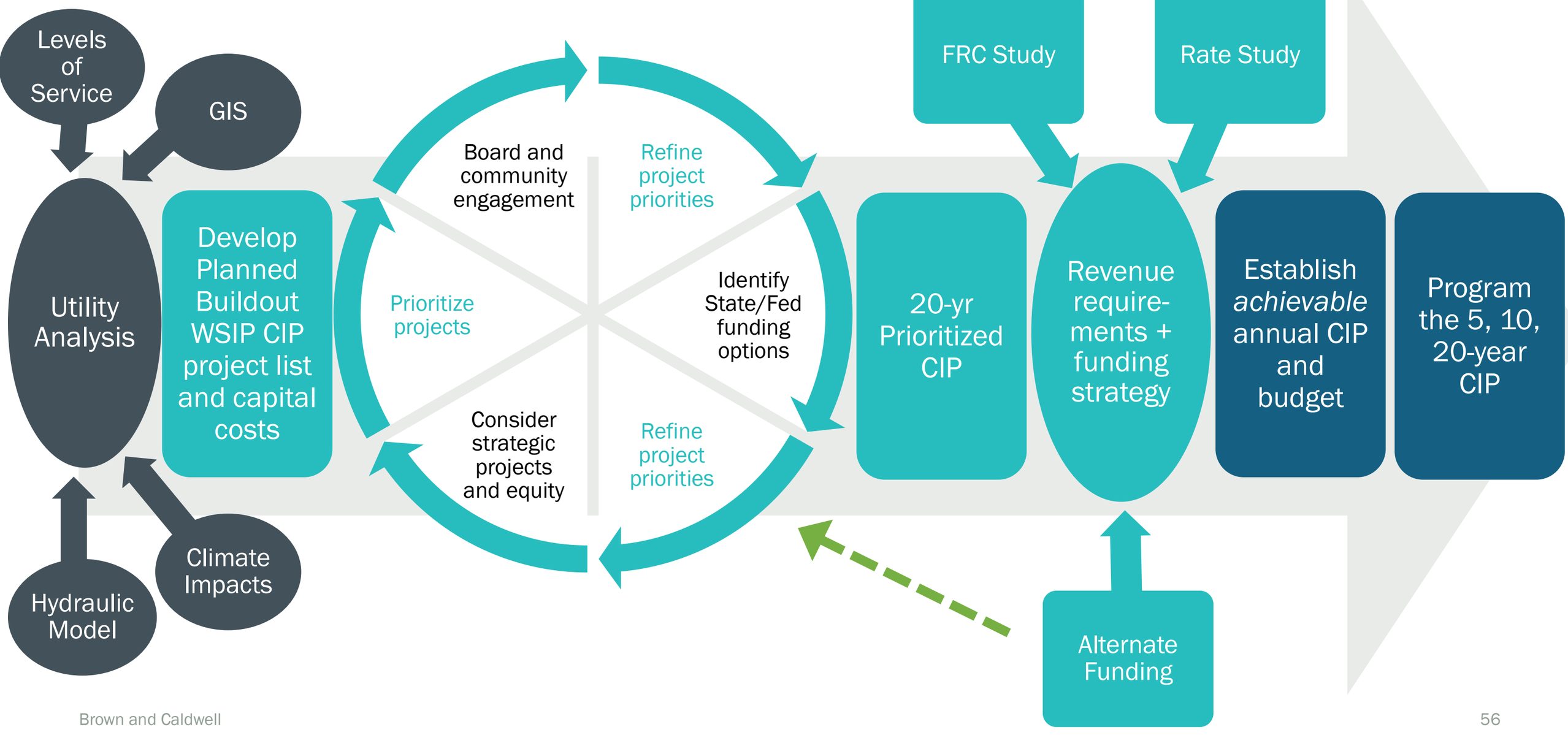
Board Discussion

CIP Prioritization

CIP Definitions

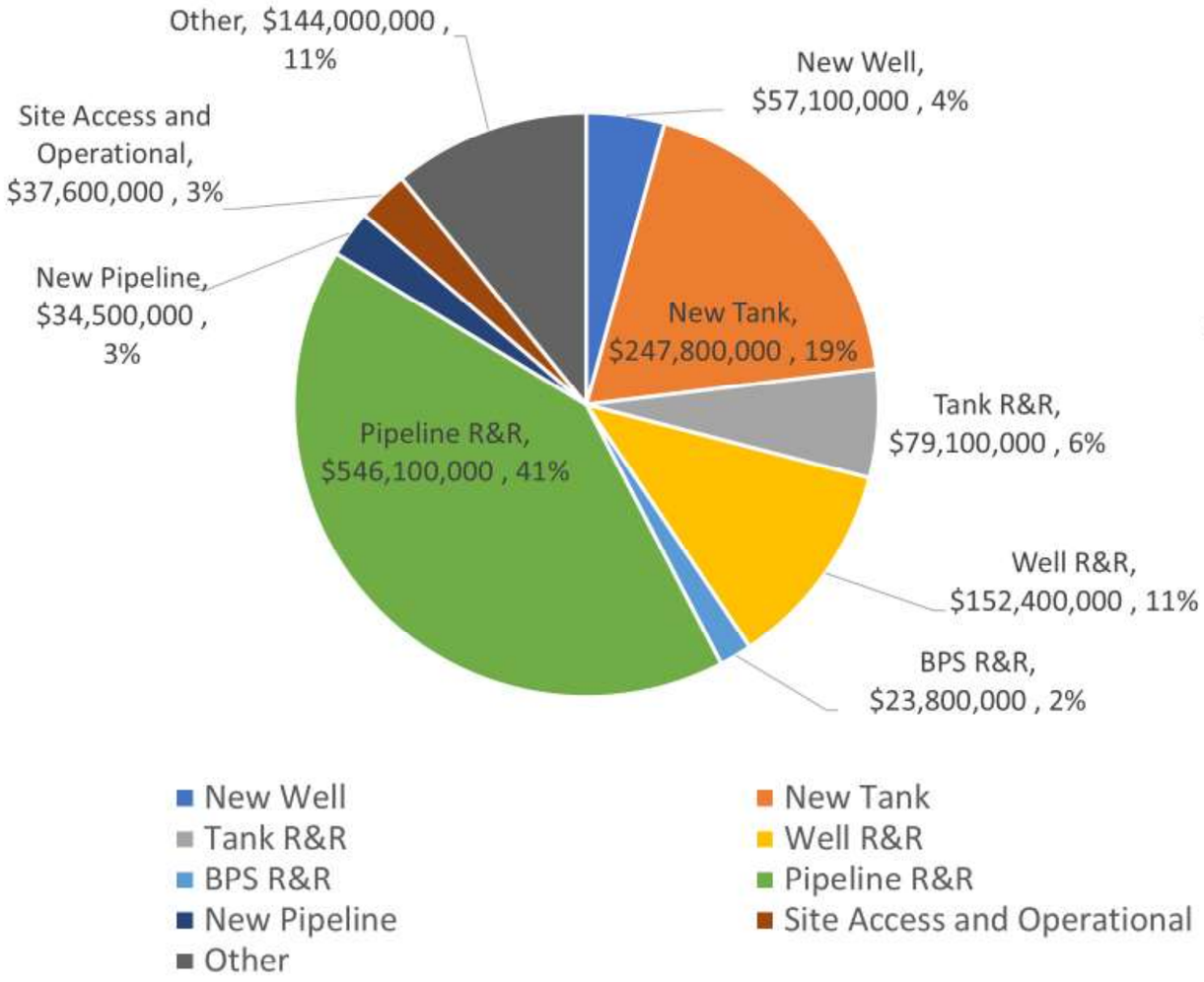
- “Planned Buildout” CIP
- “20-year Prioritized” CIP
- “Achievable Prioritized” CIP

The CIP "Process"



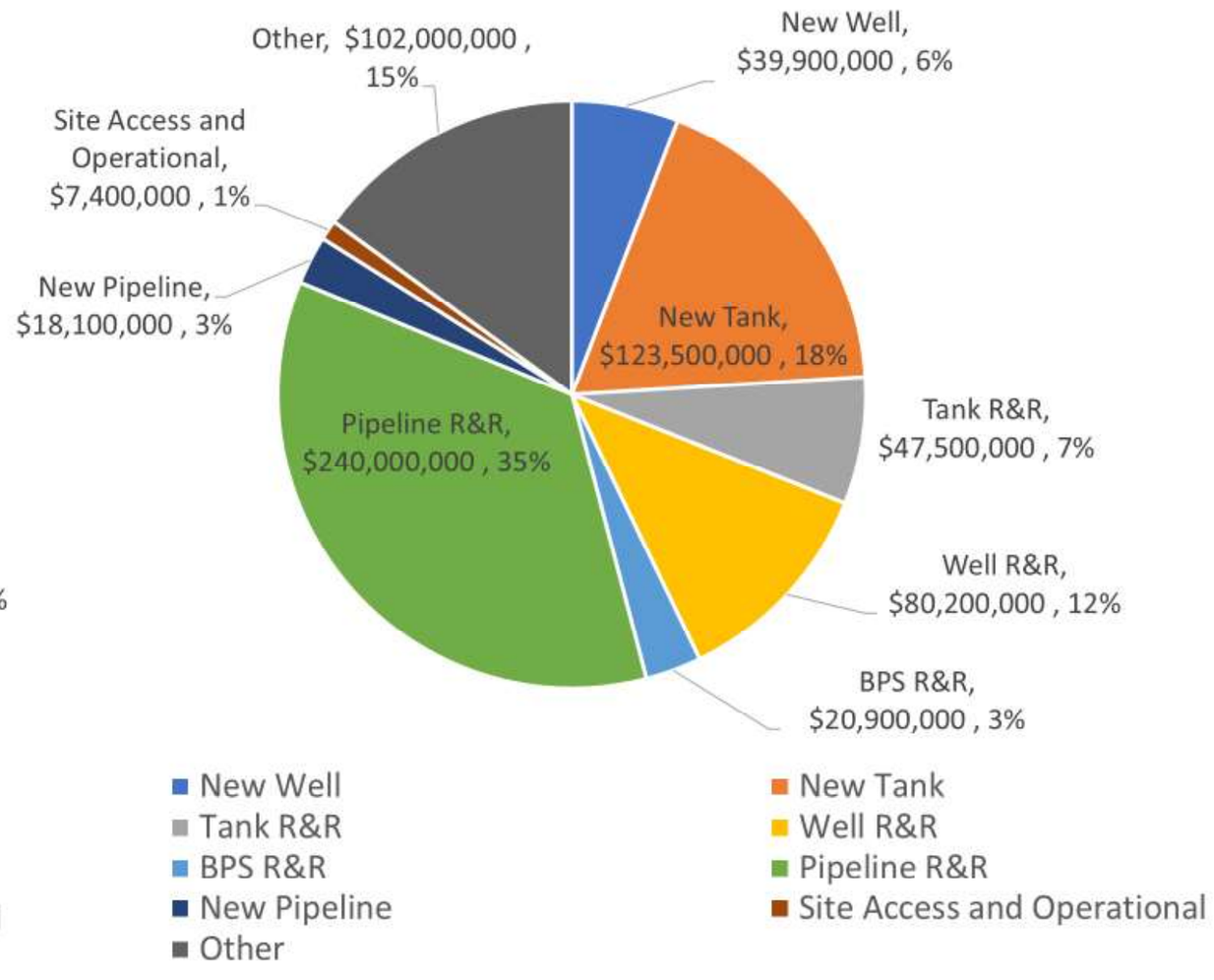
“Planned Buildout” CIP*

160 Projects, $1.3B, ~66M/year



20-Yr Prioritized CIP*

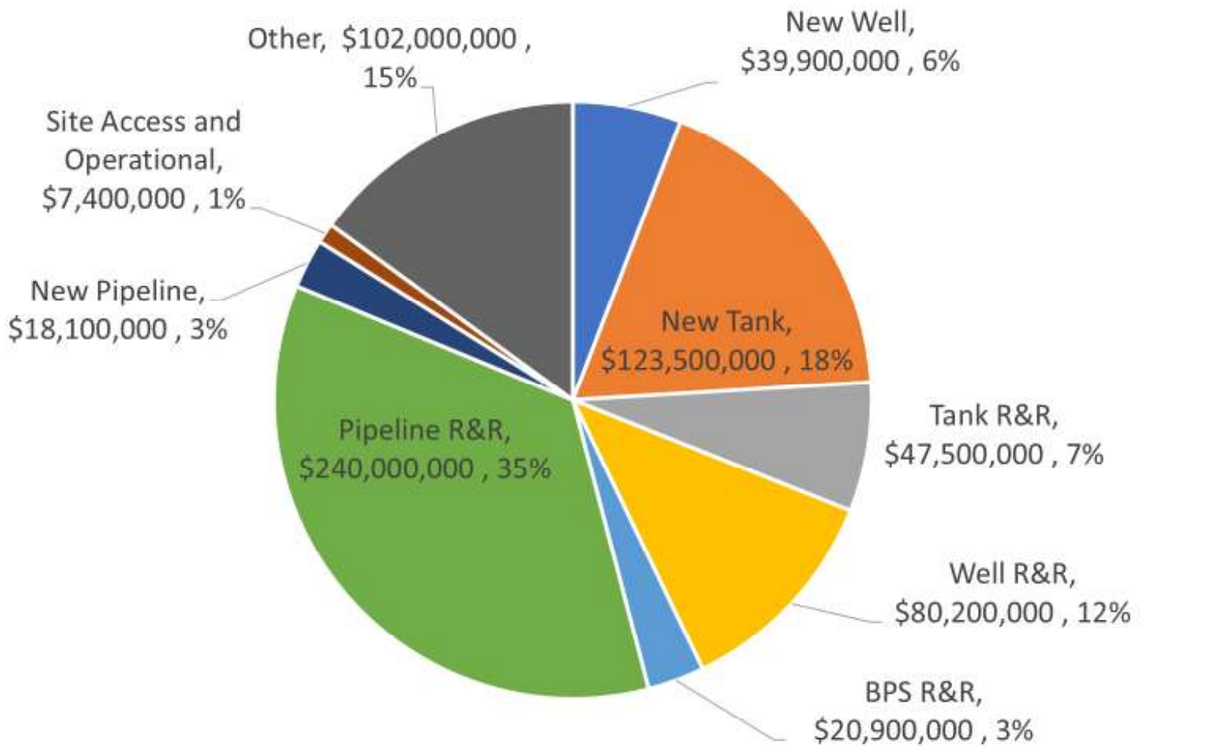
127 Projects, $680M, ~34M/year



*As of March 4, 2025

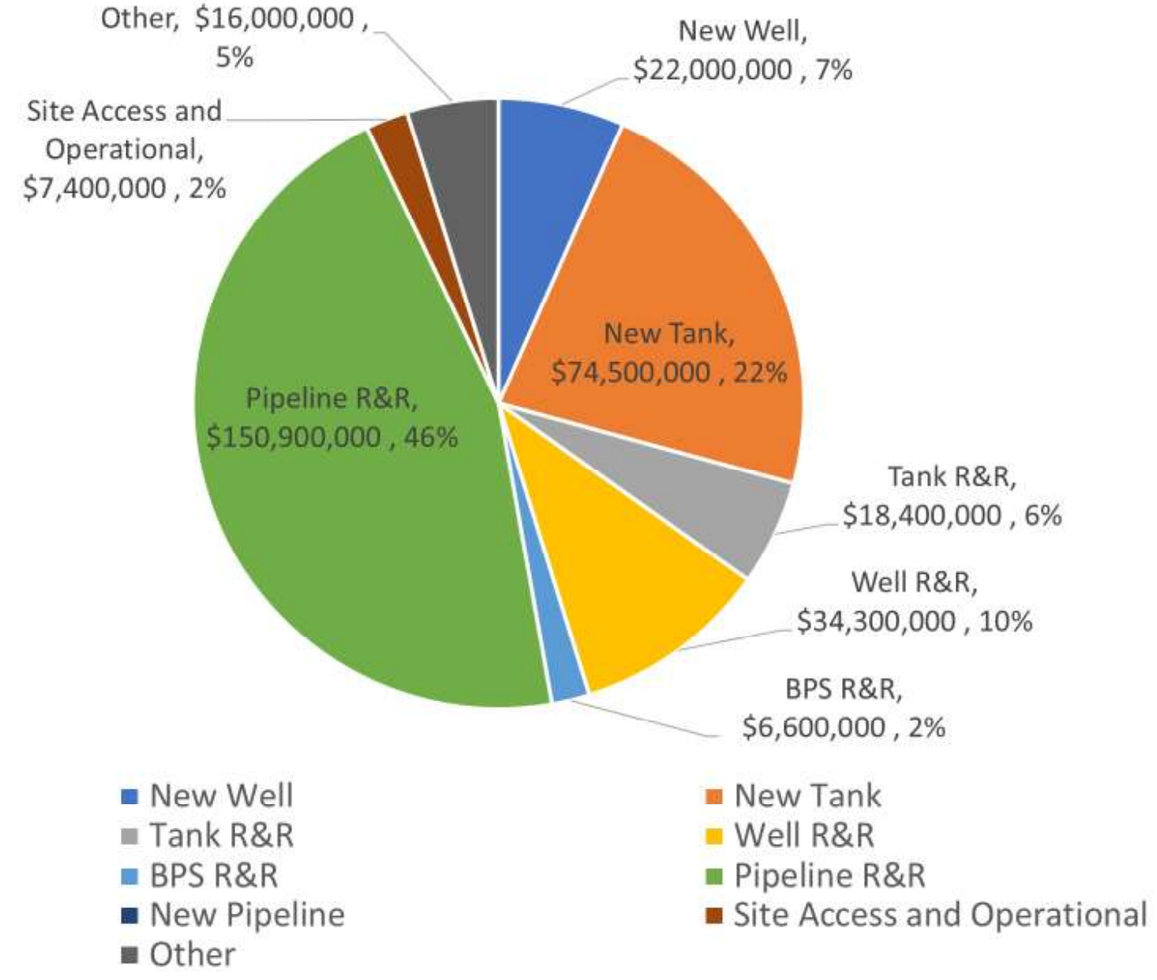
20-Yr Prioritized CIP*

127 Projects, $680M, ~34M/year



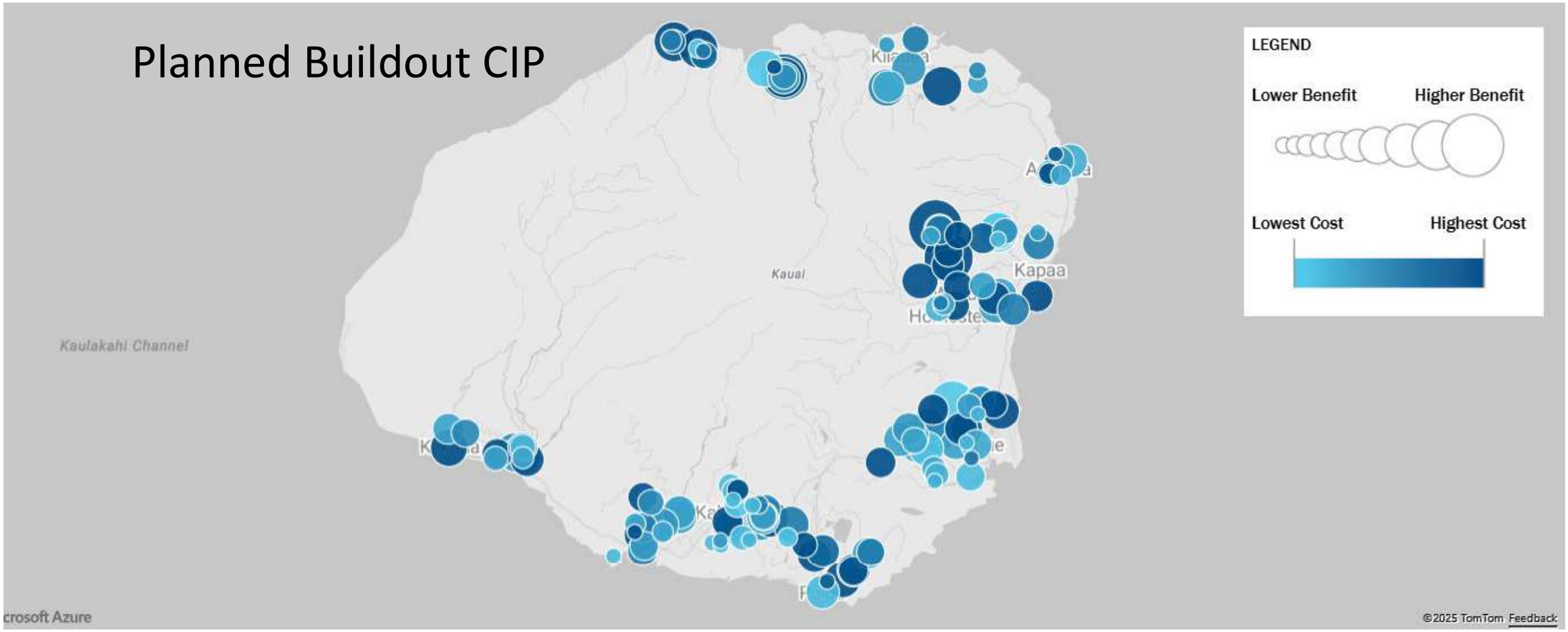
"Prioritized Achievable" CIP*

98 Projects, $330M, ~16.5M/year

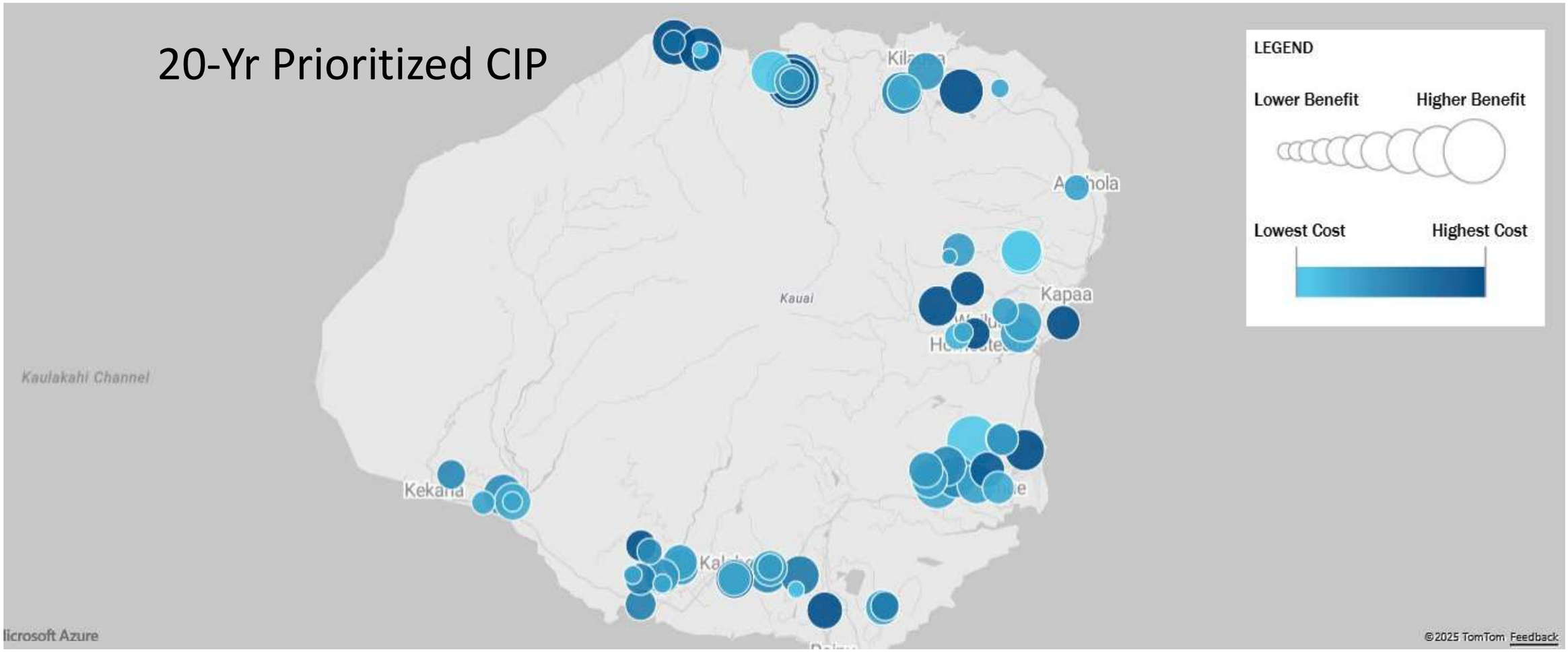


*As of March 4, 2025

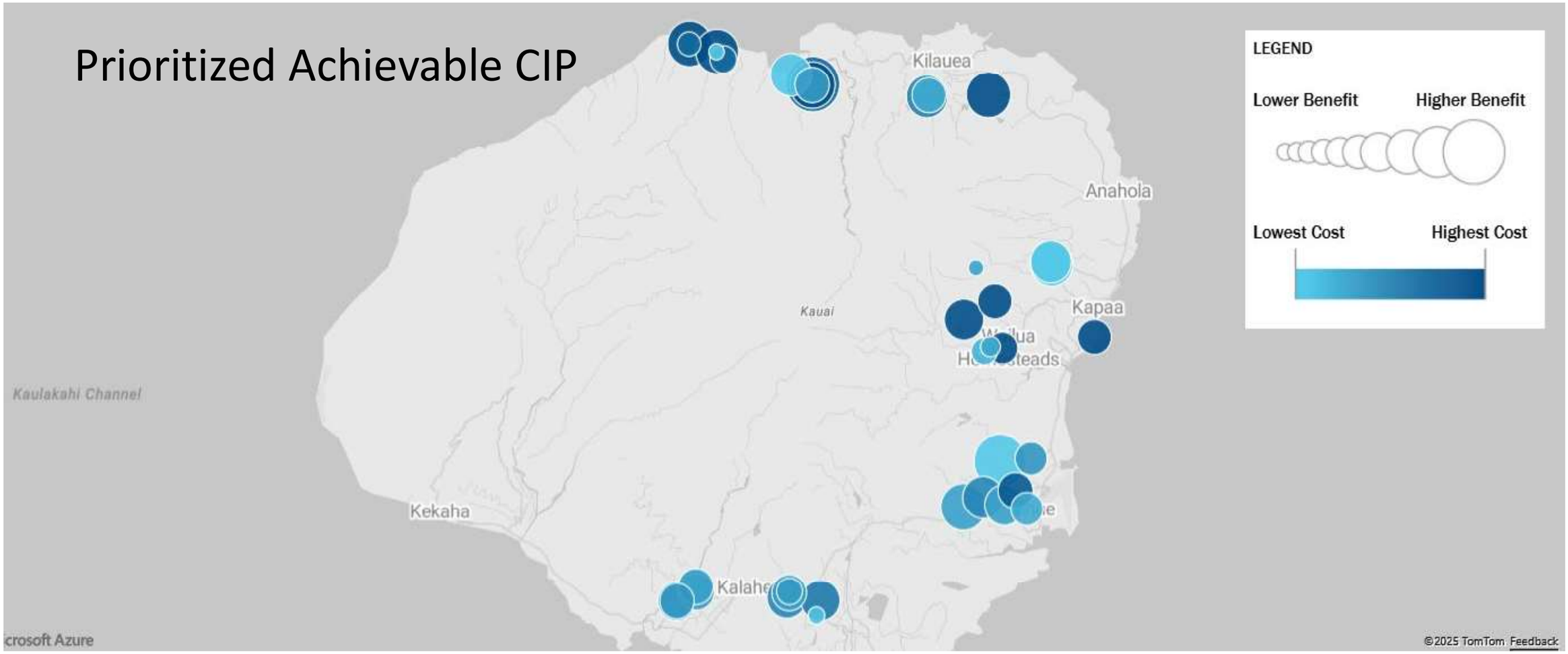
Draft CIP Prioritization



Draft CIP Prioritization



Draft CIP Prioritization



Interdepartmental Coordination

- County-wide coordination is needed to help prioritize, program, and fund the CIP
- Wastewater projects are needed to serve same areas as water projects
- Projects to support County-wide initiatives such as Affordable Housing, Climate Adaptation Plan, General Plan…

Prioritizing the CIP

How should DOW and the Board of Water Supply prioritize CIP investments to align with the department's values, goals, and commitments?

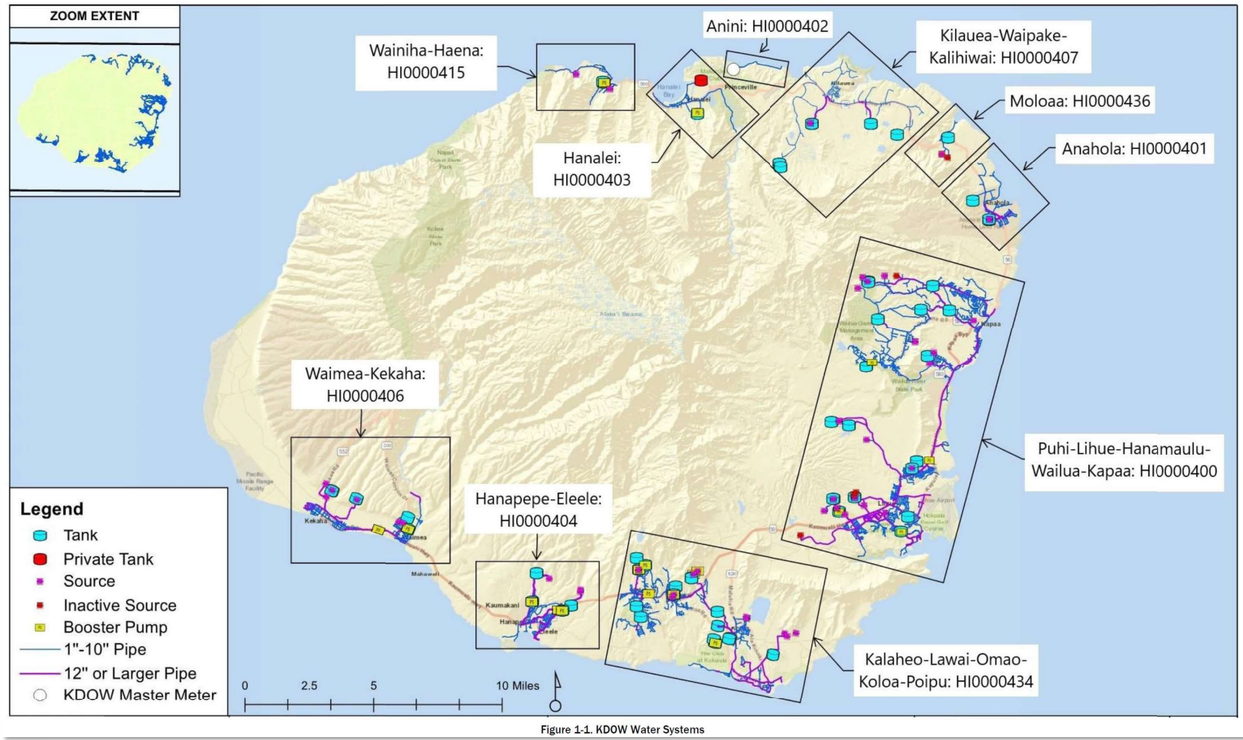


Figure 1-1. KDOW Water Systems

MCDA: Determine Key Criteria for Levels of Service

*Considered in the Water Plan 2020 criteria

LOS CATEGORY	PROPOSED CRITERIA
Workforce	• Not a differentiator - factor is so important that ANY and ALL CIP must include the proper amount of training and staffing
Financial	1.Availability of funding for project
Regulatory/Standards	2.Resolves fire flow deficiencies* 3.Improves water safety*
Customer Service	4.Replaces components in poor condition* 5.Project serves a critical connection in the water system
Redundancy/Resiliency	6.Improvement addresses system vulnerabilities – Redundancy 7.Improvement addresses system vulnerabilities – Climate
Growth & Expansion	8.Addresses capacity deficiency*
System Operations	• Not a differentiator - factor so important that ANY and ALL CIP must be operable and maintainable
Water Resource Stewardship	• Environmental impact

MCDA Criteria development example – Resolves Fire Flow Deficiencies

LOS: Duty to Public // Regulatory & Standards
Description: Projects that would reduce or resolve fire flow deficiencies in the existing system.

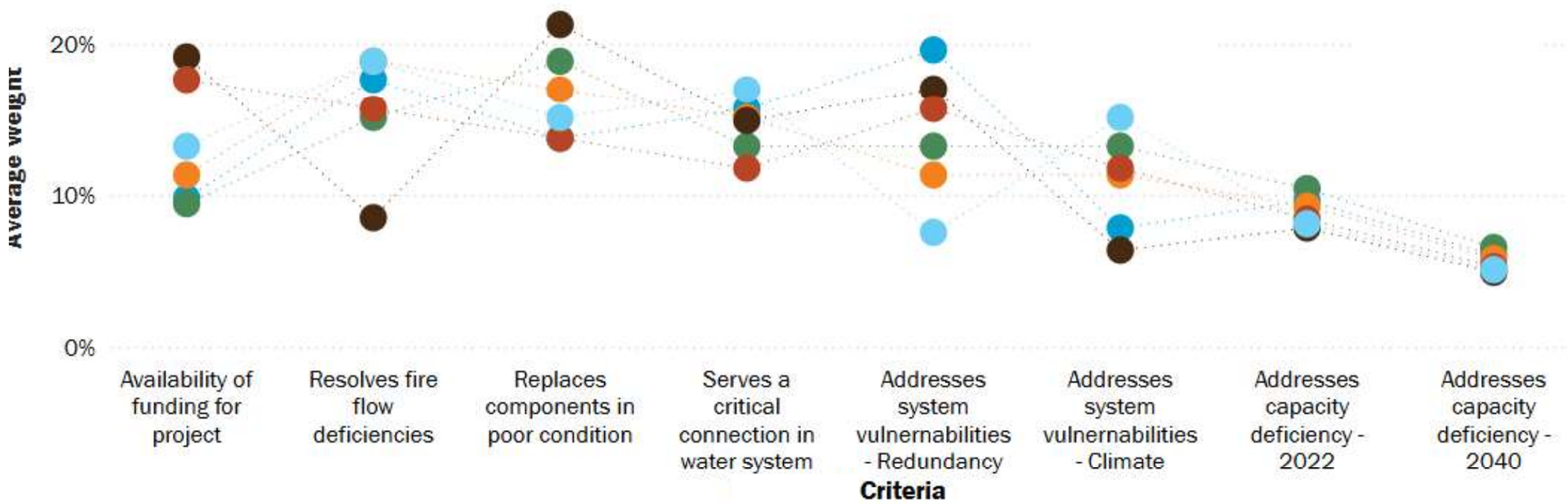
Meets Mandatory Criteria → **Additional Benefits**

- **Pipes:** In pressure zone with no deficient hydrant connections
- **Storage:** Serves pressure zone with the greatest fire flow *surplus* (gallons)

- **Pipes:** In pressure zone with most deficient hydrant connections (# connections)
- **Storage:** Serves pressure zone with the greatest fire flow *deficiency* (gallons)

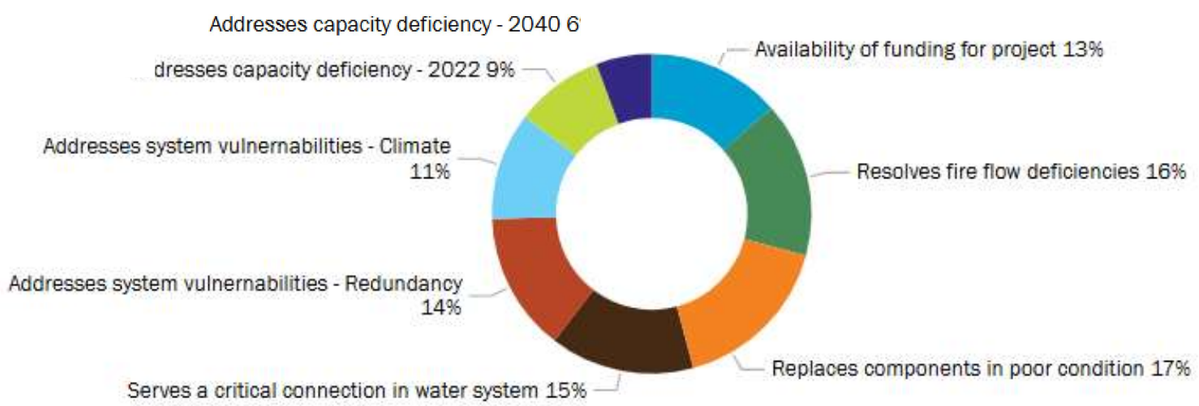
Water CIP Planning Tool

- Person A
- Person B
- Person C
- Person D
- Person E
- Person F
- Equal Weight



Current to Future Weight Ratio

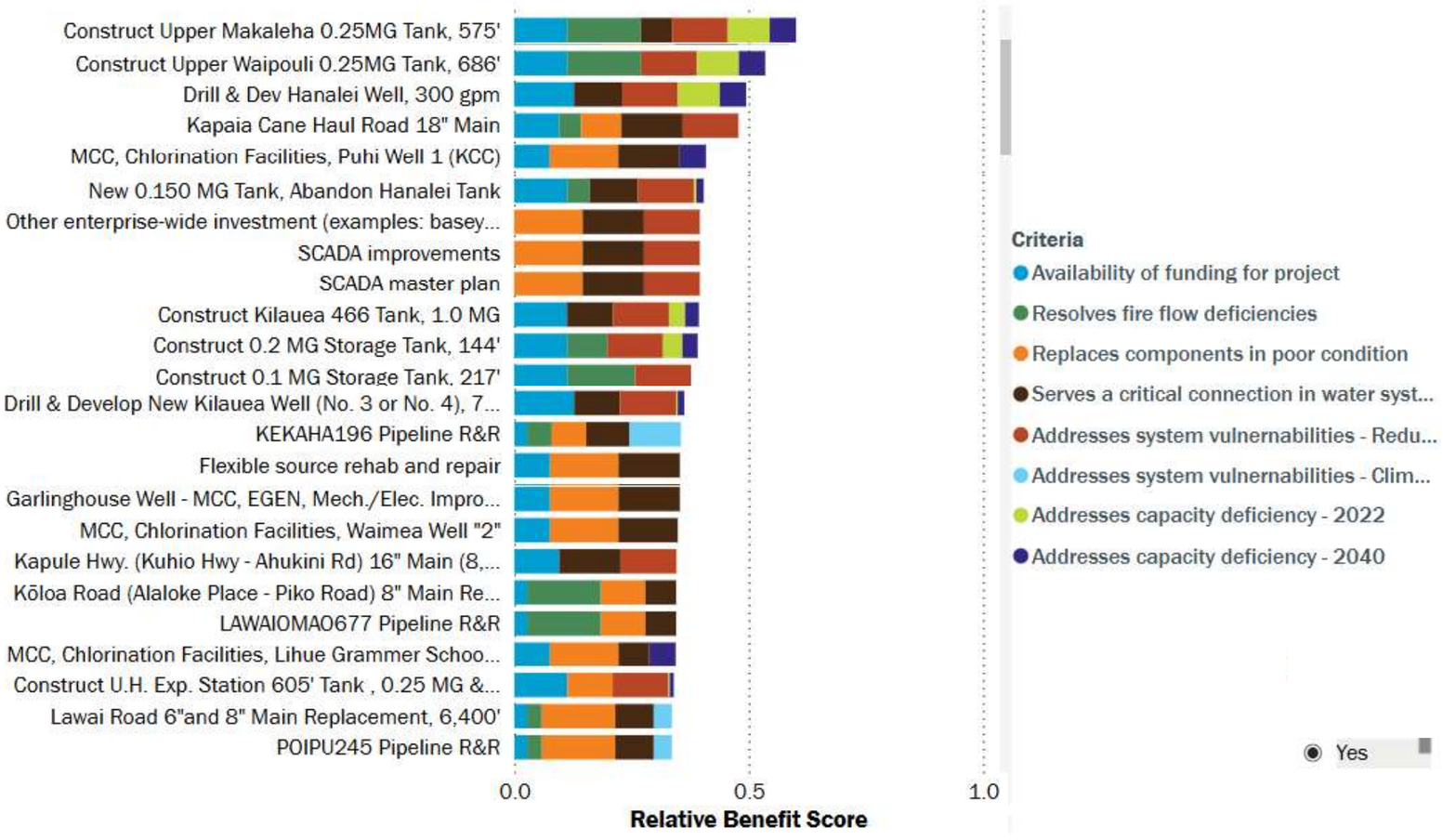
66%



Select Criteria

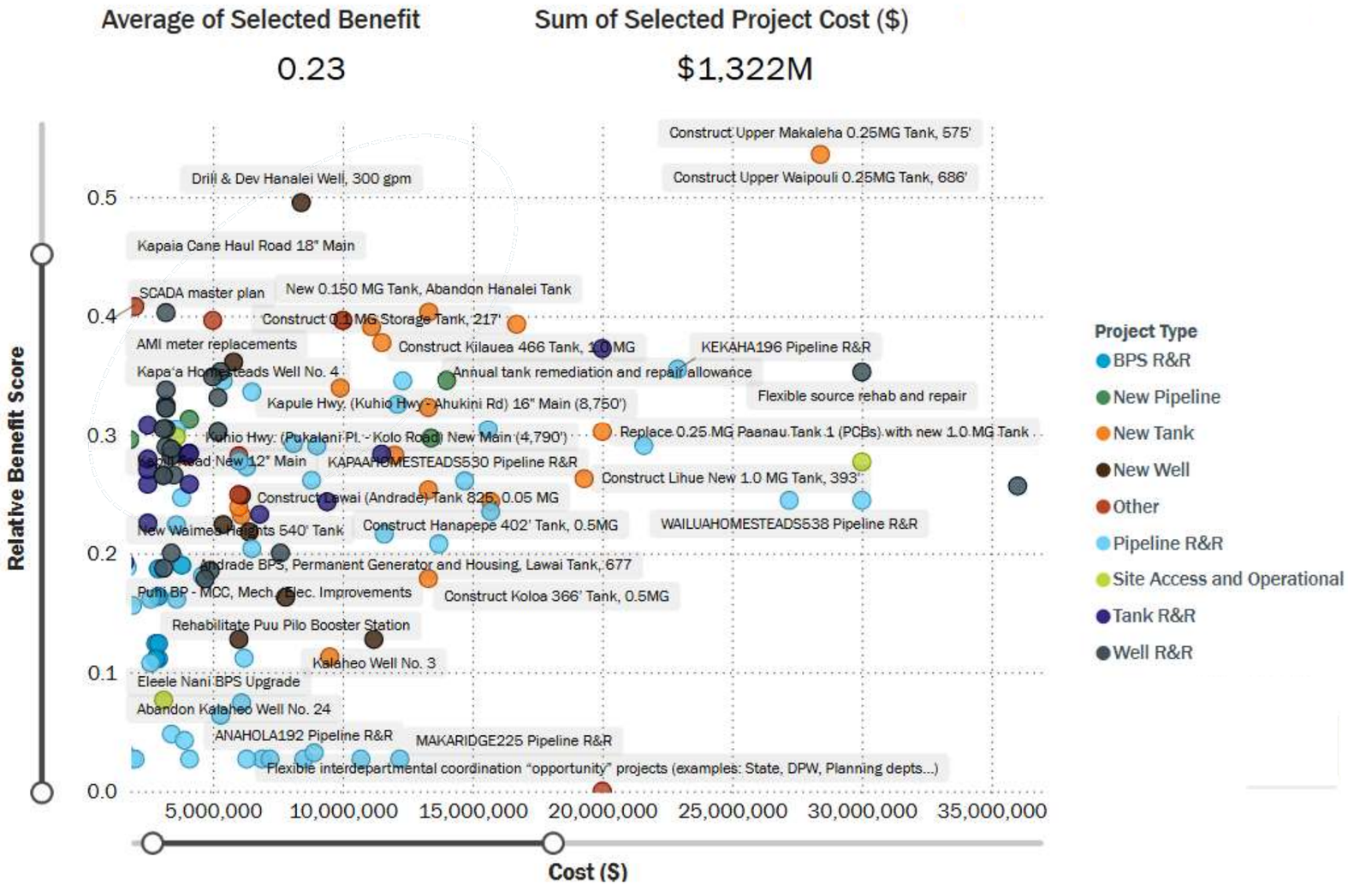
All

Multiple Criteria Decision Analysis Tool



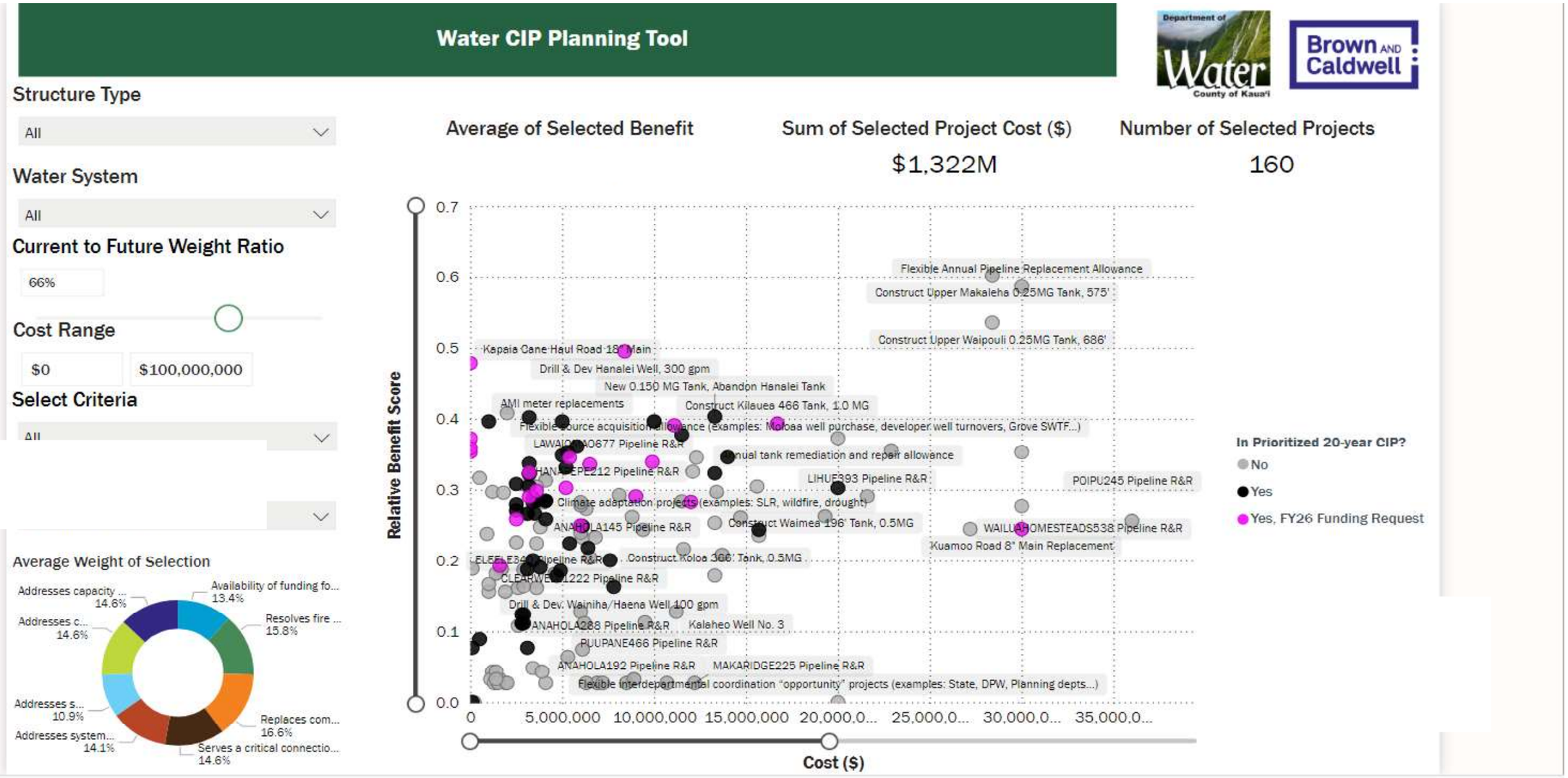
It is important to first look at benefits, and reasons for benefits...

Identifying high-value Capital Projects

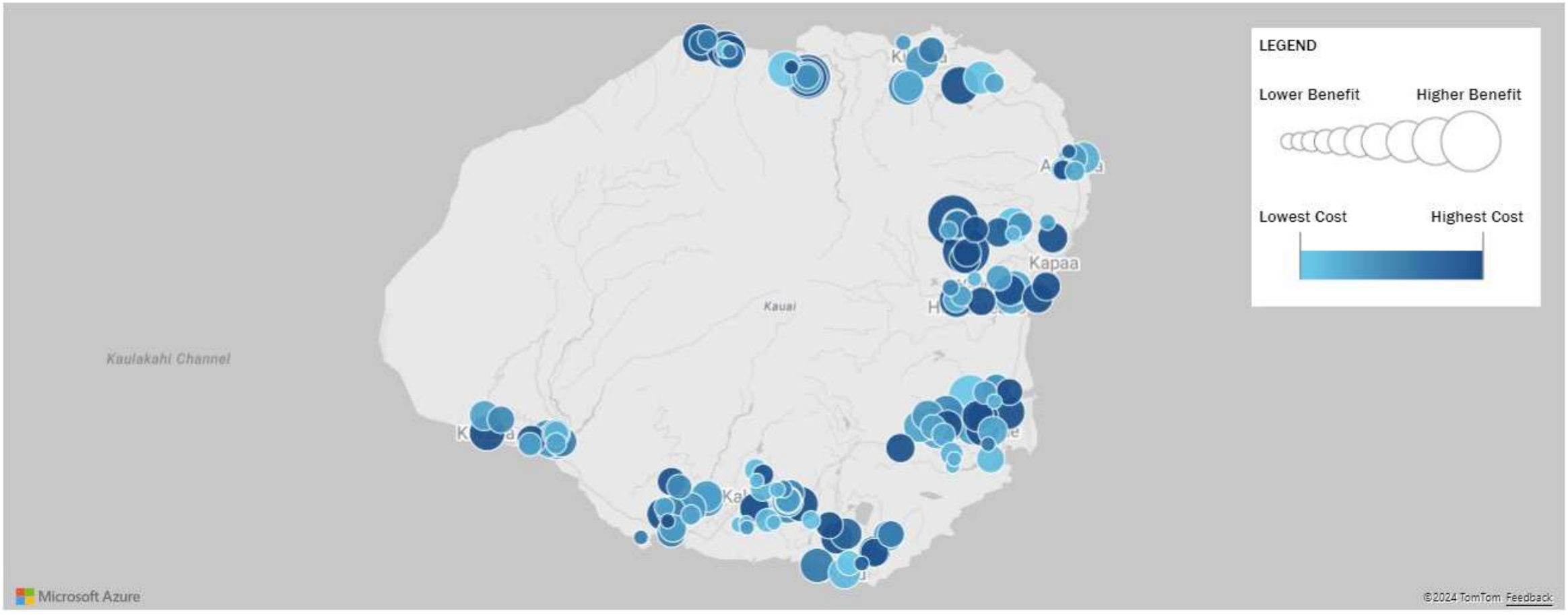


... and then layer in cost to fully grasp high value projects

Identifying High-Value Capital Projects

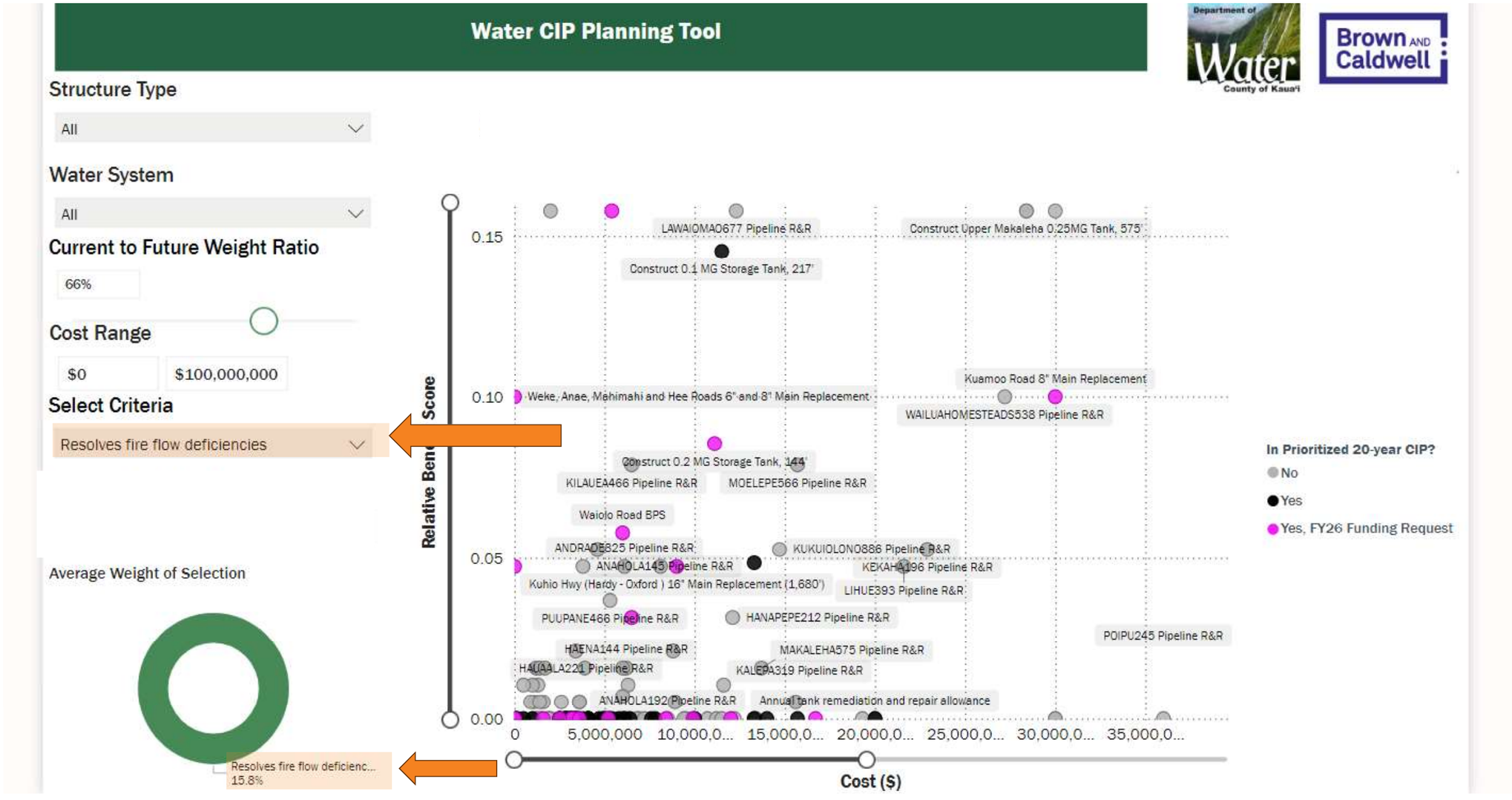


Identifying High-Value Capital Projects



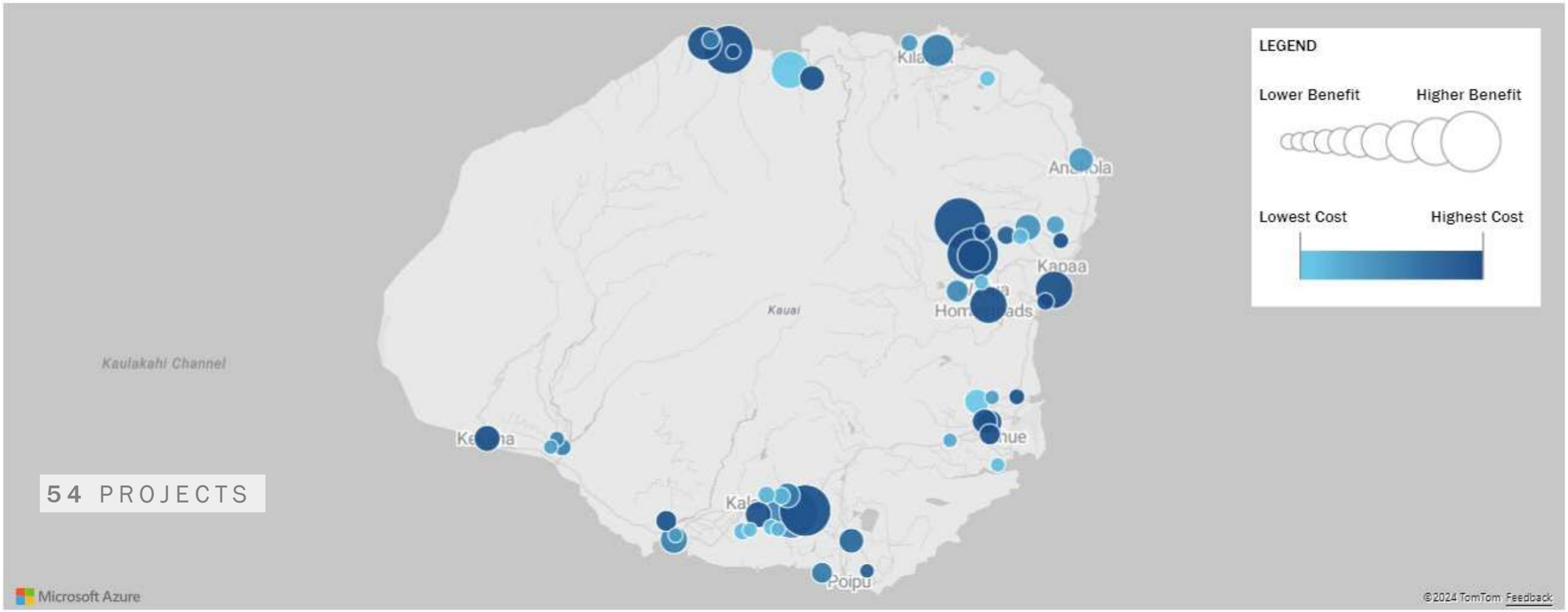
Identifying Projects that Target Key Needs

Example: Fire Flow Deficiencies

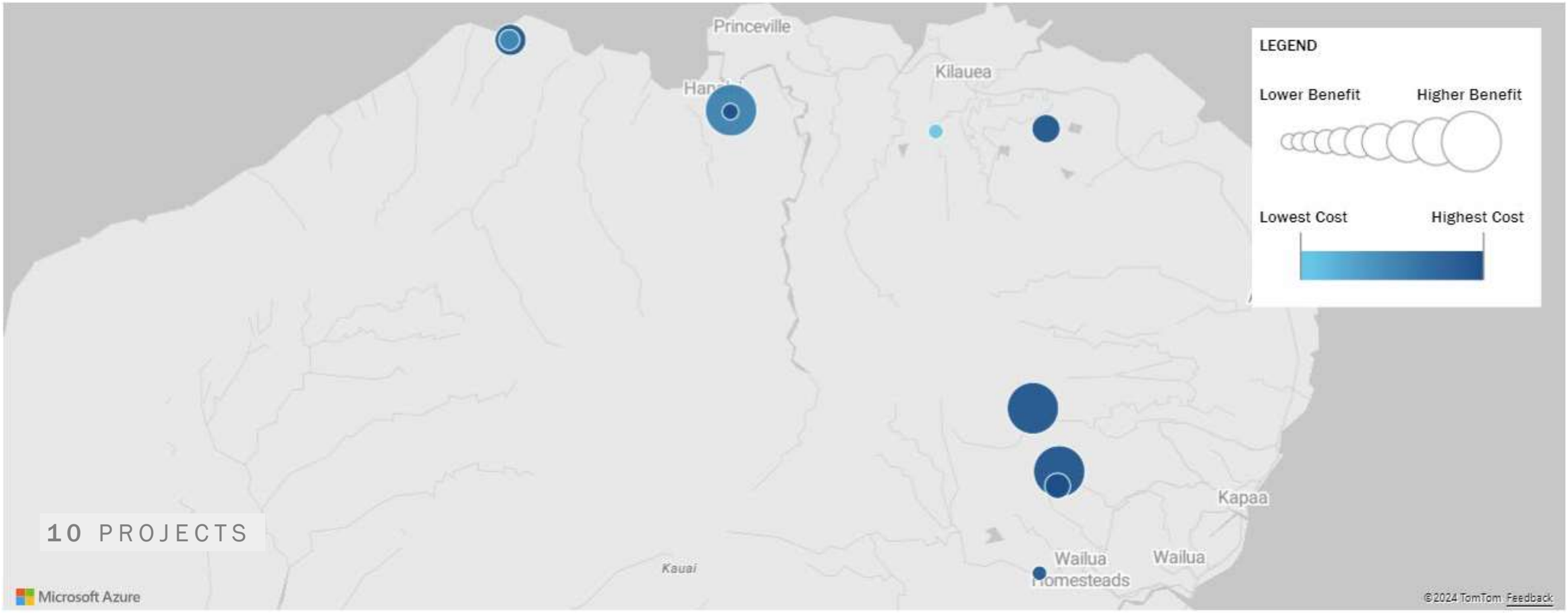


Identifying Projects that Target Key Needs

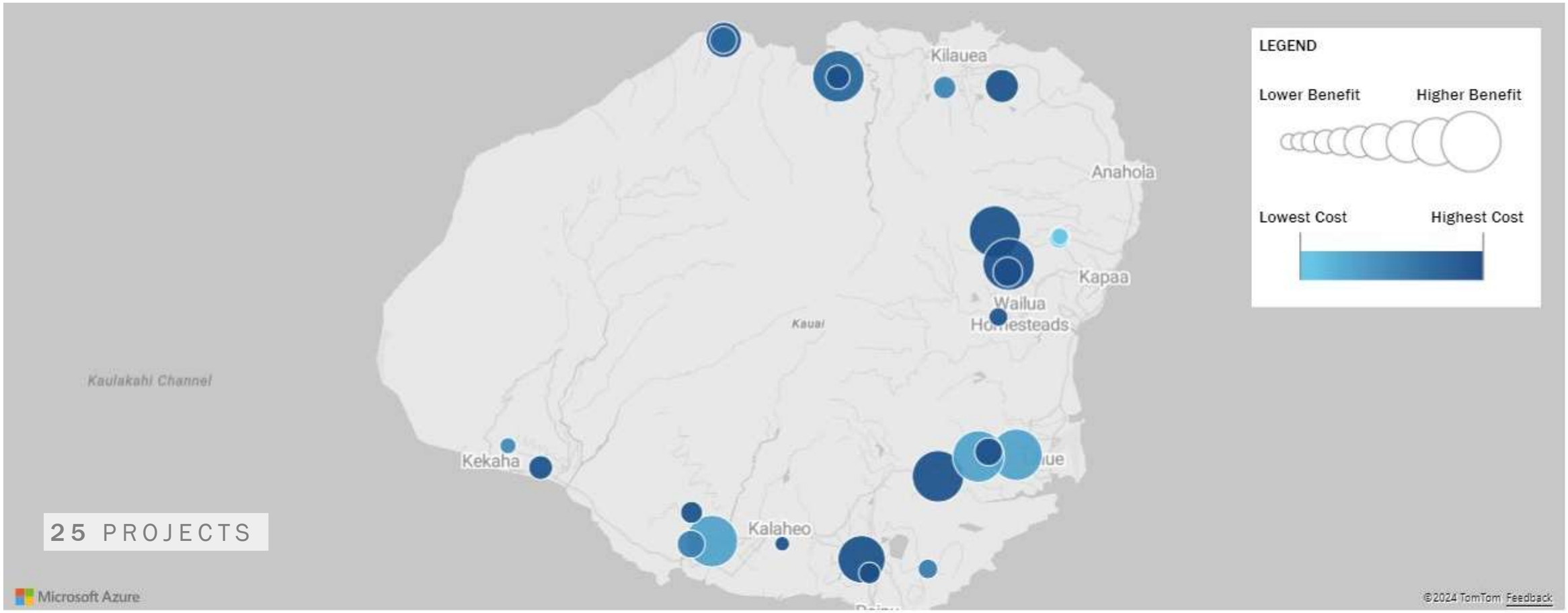
Example: Fire Flow Deficiencies



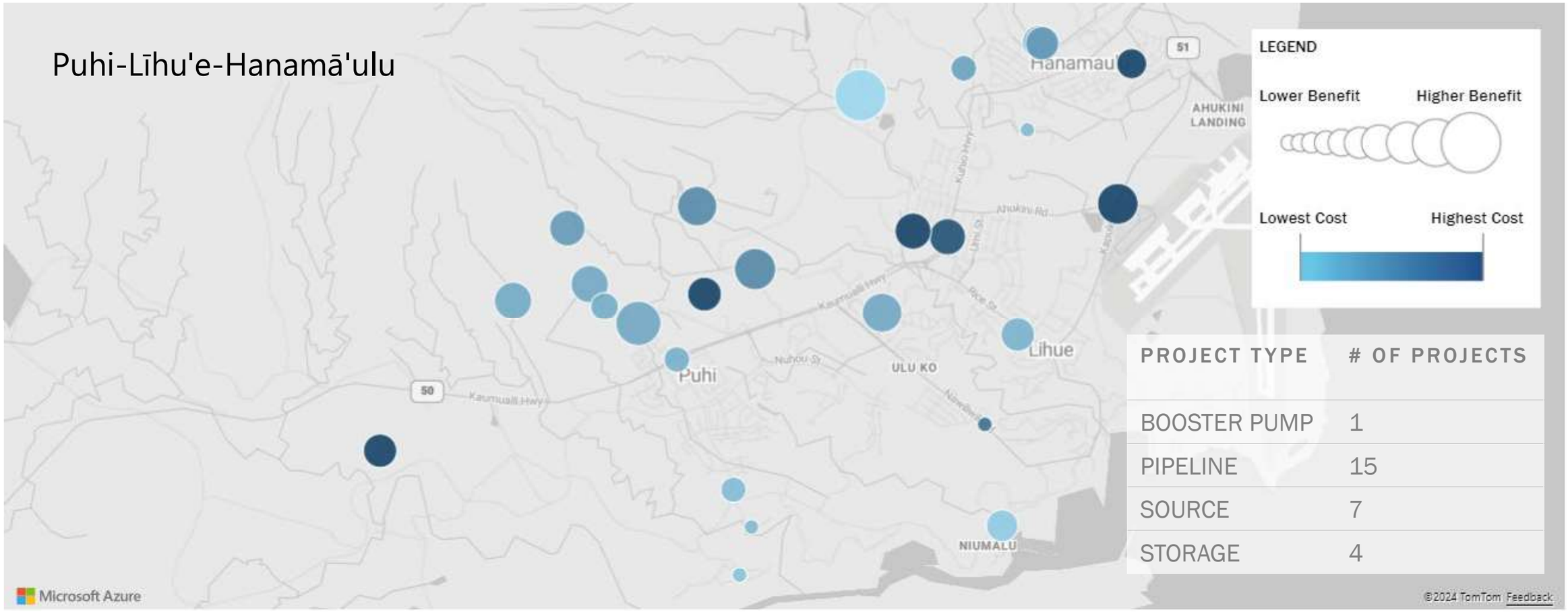
Resolving Today's Capacity Issues



Anticipating and Resolving Future Capacity Deficiencies

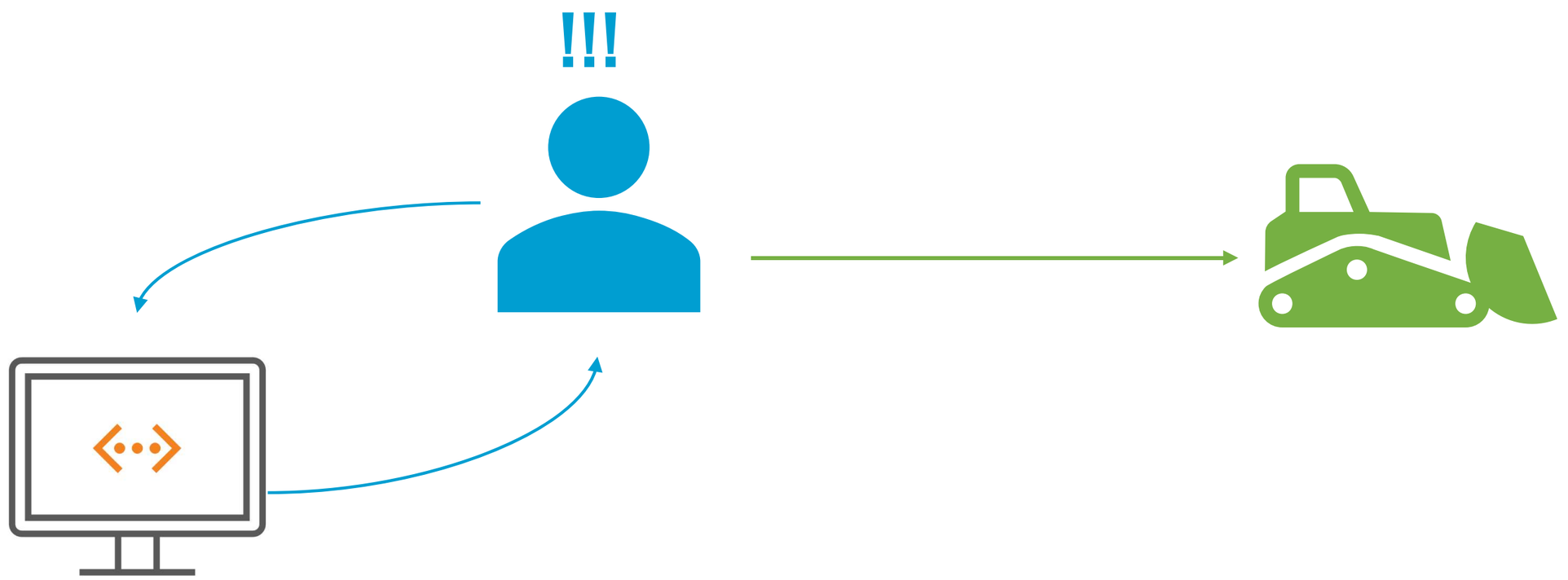


Highlighting System-Specific Projects



PROJECT TYPE	# OF PROJECTS
BOOSTER PUMP	1
PIPELINE	15
SOURCE	7
STORAGE	4

Reviewing and interpreting MCDA results



The key to this is the people

Board Discussion

The WSIP Financial Plan

WSIP Financial Plan – FRC and Water Rates

- The main components to fund the financial plan are FRC and water rates.
- 20-year Prioritized CIP is the basis for the recommended FRC.
- Recommended FRC includes considerations for affordable housing.
- Water rate options will be provided to the Board later this year for consideration
- Water rates are billed monthly to all DOW customers to recover O&M and capital costs.

FRC Overview

FRC Overview – Definition and Purpose

- An FRC is a one-time charge imposed on new water service connections and represents a proportionate share of the cost of facilities necessary to provide water system capacity for new development.
- The AWWA “Incremental Approach” methodology was used to calculate the DOW FRC
  - Incremental cost of additional system capacity (utility-funded portion) needed to serve growth
    - Growth-related cost divided by growth-related capacity added
    - Most appropriate when upsizing and/or new facilities are needed to accommodate growth
      - DOW has existing capacity deficiencies in majority of water systems
      - FRC calculated by water system components of Source, Storage, and Transmission and summed for total FRC
- The calculated FRC is the maximum allowable charge. Board can adopt a FRC lower than the calculated charge but not higher than the calculated charge
  - Impact of reduced FRC collections from charging lower than the max FRC could result in deferred projects and/or use of rates to fund the shortfall
- FRC collections may be used to directly fund growth-related CIP projects and/or to pay growth-related debt service - this a policy choice for DOW

FRC Overview - Key Steps for the FRC Calculation

1. Develop a prioritized and achievable 20-year CIP
2. Identify the growth-related (capacity-increasing) projects from the prioritized 20-year CIP for inclusion in the FRC
3. Identify assumptions by CIP project for potential grant funding
4. Allocate total demand by project between existing and future growth needs
5. Determine cost basis by project for growth (% growth demand x project cost)
6. Derive unit cost of growth-related capacity ($/gpd)
7. Convert unit cost to equivalent residential unit (ERU) charge basis (max-day demand for 5/8” meter)
8. Apply ERU to FRC schedule (currently based on meter size)
9. Calculate applicable credits:
   - Cash balance in FRC Fund available for new growth-related projects (current cash balance committed to prior projects)
   - Assumption for debt-financed growth-related projects to be repaid by rates (to be further discussed with DOW after baseline FRC finalized)

FRC Overview - Key Capital Assumptions

Total prioritized 20-year CIP of $679.5M; average annual expenditure of $34M

1. Total growth share for FRC of $145.2M (~21% of total)
   - Average annual expenditure of $7.3M
2. Average annual expenditure of $34M/year needs to be considered from a financial and execution perspective
   - Prioritizing the annual capital spend to a lower level, e.g. $16.5M, did not reduce the FRC due to the $ to capacity relationship
3. Board considerations for final FRC recommendation:
   - Analysis results in $28k per 5/8” meter as the maximum allowable amount
   - Board can adopt lower FRC; this is a policy decision
   - DOW staff recommending changing single-family 5/8” meter to FRC based on house size vs FXTUs

FRC Draft Results

FRC Draft Results

- Updated FRC analysis per DOW direction based on 20-Year Prioritized growth-related CIP, associated costs, and capacity demand shared between existing and future deficiency/needs
- Derived draft FRC (prior to grant funding assumptions and potential debt service credits)
- Maximum allowable FRC of $28.8k compared to existing $14.1k FRC

FRC Calculation per 5/8-inch Meter

	Proposed FRC Based on Meter Size			Compared to Existing FRC		
Component	Unit Cost per max-day gpd	Per 5/8-Inch Meter	Percentage of Total	Unit Cost per max-day gpd	Per 5/8-Inch Meter	Percentage of Total
Source	$14.50	$7,251	25%	$6.06	$3,030	21%
Storage	$38.49	$19,244	67%	$11.55	$5,773	41%
Transmission	$4.57	$2,284	8%	$10.62	$5,312	38%
Total	**$57.56**	**$28,779**	**100%**	**$28.23**	**$14,115**	**100%**

Source CIP Projects (Growth-Related)

Project No.	Project Name [1]	Total Cost (2024$) [2]	Net Cost to Fund	2040 Demand GPM	2040 Demand GPD	Percent for Existing [3]	Net Cost for Existing	Percent for Growth [3]	GPM Growth	GPD Growth	Total Cost for Growth	Net Cost for Growth
H-08	Drill & Dev Hanalei Well, 300 gpm	$ 8,400,000	$ 8,400,000	300	432,000	78%	$ 6,528,745	22%	67	96,236	$ 1,871,255	$ 1,871,255
WKK-02	Drill & Develop New Kilauea Well (No. 3 or No. 4), 350 gpm	5,800,000	5,800,000	350	504,000	13%	727,694	87%	306	440,766	5,072,306	5,072,306
HW-12	Drill & Dev. Wainiha/Haena Well, 100 gpm	7,800,000	7,800,000	100	144,000	40%	3,083,015	60%	60	87,083	4,716,985	4,716,985
HE-04-WSIP	Drill & Dev. Hanapepe 212 Well, 700 gpm	6,100,000	6,100,000	700	1,008,000	0%	-	100%	700	1,008,000	6,100,000	6,100,000
KW-07-WSIP	Drill & Dev. Kekaha 196' Well, 150 gpm	5,400,000	5,400,000	150	216,000	0%	-	100%	150	216,000	5,400,000	5,400,000
KP-03-WSIP	Drill & Dev. Poipu 245 Well, 840 gpm	6,400,000	6,400,000	840	1,209,600	0%	-	100%	840	1,209,600	6,400,000	6,400,000
Total		**$ 39,900,000**	**$ 39,900,000**	**2,440**	**3,513,600**	**26%**	**$ 10,339,453**	**74%**	**2,123**	**3,057,685**	**$ 29,560,547**	**$ 29,560,547**

Unit Cost of Growth-Related Source Capacity, $/gpd		**$ 9.67**
Unit Cost of Growth-Related Source Capacity, $/max-day gpd:	1.50	**$ 14.50**
Unit Cost of Growth-Related Source Capacity, $ per 5/8-inch Meter:	500	**$ 7,251**

Notes:

Current charge $3,030

[1] Excludes CIP Projects identified as Repair/Replacement (RR).

[2] Brown and Caldwell Source File: *KDOW_CIP_20241009_w_estimates.xlsx., Tab "Prioritized CIP".*

[3] Brown and Caldwell Source File: *KDOW_CIP_20241009.xlsx., Tab "All Other Projects-FRC_Growth".*

Storage CIP Projects (Growth-Related)

Project No.	Project Name [1]	Total Cost (2024$) [2]	Net Utility-Funded Cost	2040 Demand MG	2040 Demand Gallons	Percent for Existing [3]	Net Cost for Existing	Percent for Growth [3]	Gallons for Growth	Total Cost for Growth	Cost for Growth
HW-11	Construct 0.2 MG Storage Tank, 144'	$ 11,100,000	$ 11,100,000	0.20	200,000	62%	$ 6,920,112	38%	75,313	$ 4,179,888	$ 4,179,888
HW-13	Construct 0.1 MG Storage Tank, 217'	11,500,000	11,500,000	0.10	100,000	75%	8,643,185	25%	24,842	2,856,815	2,856,815
WK-23	Construct U.H. Exp. Station 605' Tank , 0.25 MG	9,900,000	9,900,000	0.25	250,000	16%	1,559,084	84%	210,629	8,340,916	8,340,916
WK-10	Construct Wailua Homesteads 538 Tank, 1.0 MG	12,000,000	12,000,000	1.00	1,000,000	61%	7,362,493	39%	386,459	4,637,507	4,637,507
WKK-15	Construct Kilauea 466 Tank, 1.0 MG	16,700,000	16,700,000	1.00	1,000,000	58%	9,699,105	42%	419,215	7,000,895	7,000,895
H-07	New 0.150 MG Tank, Abandon Hanalei Tank	13,300,000	13,300,000	0.15	150,000	19%	2,510,339	81%	121,688	10,789,661	10,789,661
HE-05-WSIP	Construct Hanapepe 402' Tank, 0.7MG	15,700,000	15,700,000	0.70	700,000	0%	-	100%	700,000	15,700,000	15,700,000
KP-01-WSIP	Replace 0.25 MG Paanau Tank 1 with new 1.0 MG Tank	20,000,000	20,000,000	1.00	1,000,000	25%	5,000,000	75%	750,000	15,000,000	15,000,000
K-05a	Kalaheo New Tank, 0.5MG, 886' (Kukuiolono)	13,300,000	13,300,000	0.50	500,000	0%	-	100%	500,000	13,300,000	13,300,000
Total		**$ 123,500,000**	**$123,500,000**	**4.90**	**4,900,000**	**34%**	**$ 41,694,318**	**66%**	**3,188,146**	**$ 81,805,682**	**$ 81,805,682**
									Unit Cost of Growth-Related Source Capacity, $/gpd		**$ 25.66**
									Unit Cost of Growth-Related Source Capacity, $/max-day gpd: 1.50		**$ 38.49**
									Unit Cost of Growth-Related Source Capacity, $ per 5/8-inch Meter: 500		**$ 19,244**

Notes:

[1] Excludes CIP Projects identified as Repair/Replacement (RR).

[2] Brown and Caldwell Source File: *KDOW_CIP_20241009_w_estimates.xlsx., Tab "Prioritized CIP".*

[3] Brown and Caldwell Source File: *KDOW_CIP_20241009.xlsx., Tab "All Other Projects-FRC_Growth".*

$5,773

Transmission CIP Projects (Growth-Related)

Project No.	Project Name [1]	Total Cost (2024$) [2]	Net Utility-Funded Cost	2020 Demand [3] GPM	2020 Demand [3] GPD	Percent for Existing	Net Cost for Existing	2040 Demand [3] GPM	2040 Demand [3] GPD	Percent for Growth [3]	Total Cost for Growth	Net Cost for Growth
Various	Prioritized CIP R/R Over 20-year period	$ 105,500,000	105,500,000	3,526	5,077,495	76%	$ 80,175,975	5,923	8,528,504	24%	$25,324,025	$ 25,324,025
WK-34	Kuamoo Road 8" Main Replacement	30,000,000	30,000,000	499	719,256	81%	$ 24,193,856	596	858,459	19%	5,806,144	5,806,144
LO-08	Kōloa Road (Alaloke Place - Piko Road) 8" Main Replacement, 1,70	5,400,000	5,400,000	476	685,282	81%	$ 4,400,246	604	869,155	19%	999,754	999,754
LO-11	Lawai Road 6"and 8" Main Replacement, 6,400'	6,500,000	6,500,000	476	685,282	73%	$ 4,755,931	604	869,155	27%	1,744,069	1,744,069
Total		**$ 147,400,000**	**$ 147,400,000**	**4,977**	**7,167,314**	**77%**	**$ 113,526,008**	**7,726**	**11,125,273**	**23%**	**$33,873,992**	**$ 33,873,992**
											Unit Cost of Growth-Related Source Capacity, $/gpd	**$ 3.04**
											Unit Cost of Growth-Related Source Capacity, $/max-day gpd: 1.50	**$ 4.57**
											Unit Cost of Growth-Related Source Capacity, $ per 5/8-inch Meter: 500	**$ 2,284**

Notes:

Current charge $5,312

[1] Excludes CIP Projects identified as in-kind Repair/Replacement (RR), no growth component.

[2] Brown and Caldwell Source File: *KDOW_CIP_20241009_w_estimates.xlsx., Tab "Prioritized CIP" and Tab "Pipeline-FRC_Growth".*

[3] Brown and Caldwell Source File: *KDOW_CIP_20241009_w_estimates.xlsx., Tab "Pipeline-FRC_Growth".*

FRC Calculation by Meter Size			
Water Meter Size	AWWA Maximum GPM (M22 Manual)	Equivalents Relative to 5/8-Inch meter	Updated FRC
5/8-Inch	20	1.00	$28,779
3/4-Inch	30	1.50	43,168
1-Inch	50	2.50	71,947
1 1/2-Inch	100	5.00	143,894
2-Inch	160	8.00	230,230
3-Inch	320	16.00	460,461
4-Inch	500	25.00	719,470
6-Inch	1000	50.00	1,438,940
8-Inch	1600	80.00	2,302,304

FRC Draft Results

- Livable Area
- Fixture Counts

DRAFT FRC Structure:
"Option 1" FRC Based on SFR Livable Area

- Consider basing 5/8"SFR meter FRC to focus on liveable area or $14.39/SF of livable area up to 3,000 SF
- Revise 5/8" meter FRC policy to charge SFR based on 1" or appropriate meter size for homes over 3,000 SF
- Non-single family residential customers continue on meter size approach

- Example FRC Amount for Suggested Livable Area:

  ARU/Guest House (800 SF) - $11,512

  SFR (1,000 SF) - $14,389

  SFR (1,500 SF) - $21,584

  SFR (2,000 SF) - $28,779

  SFR (3,000 SF) - $43,168

Examples for Phased-in FRC for "Option 1"

- Assume 5-year phase in period to reach the maximum allowable FRC in FY 2030

FY 2025 **7/1/2024**	FY 2026 **7/1/2025**	FY 2027 **7/1/2026**	FY 2028 **7/1/2027**	FY 2029 **7/1/2028**	FY 2030 **7/1/2029**
$14,115	$16,276	$18,769	$21,643	$24,957	$28,779

FRC based on $14.39/SF at Year 5

FRC for Year 1 is $7.06/SF

- Using Option 1 – 5/8” Meter and Livable Area FRC Structure over 5 years

Per SQ Ft Basis

Area (SF)	Existing	YR 1	YR 2	YR 3	YR 4	YR 5
800	$ 14,115	$6,511	$7,508	$8,657	$9,983	$11,512
1,000	$ 14,115	$8,138	$9,384	$10,821	$12,479	$14,389
1,500	$ 14,115	$12,207	$14,077	$16,232	$18,718	$21,584
2,000	$ 14,115	$16,276	$18,769	$21,643	$24,957	$28,779
3,000	$ 14,115	$24,415	$28,153	$32,464	$37,436	$43,168

FRC Structure Recommendation
House Size – Other Agencies' Experience

Table 3-1 Calculated Residential Water and Sewer Development Fees

Property Type	Water	Sewer	Combined
Residential – Individually Metered (Heated sq. ft.)			
<1,000	$1,247	$2,309	$3,555
1,000 - 1,500	$1,332	$2,466	$3,797
1,501 - 2,000	$1,359	$2,517	$3,876
2,001 - 2,500	$1,443	$2,672	$4,115
2,501 - 3,000	$1,500	$2,778	$4,278
3,001 - 3,500	$1,613	$2,987	$4,600
3,501 - 4,000	$1,724	$3,193	$4,918
Over 4,000	$1,992	$3,689	$5,681
Multi-Family per-unit Master-Metered	$894	$1,656	$2,551
Mobile Homes per unit Master Metered Park	$1,399	$2,592	$3,991

Hendersonville, NC

2023 Water and Sewer System Development Fee Study

Approach aligns fee structure more closely to actual water use.

FRC – Comparison to Other Hawaii Water Agencies

Meter Size	Maui DWS (1)	Kauai DOW (2)	Honolulu BWS (3)	Hawaii DWS (4) Existing	Hawaii DWS (5) Proposed	Increase over Existing
5/8"	$ 12,060	$ 14,115	$ 5,745	$ 5,500	$ 6,095	11%
3/4"	$ 18,884	$ 21,170	$ 9,822	n/a	n/a	11%
1"	$ 33,356	$ 35,290	$ 23,722	$ 13,750	$ 15,237	11%
1-1/2"	$ 71,948	$ 70,580	$ 70,425	$ 27,500	$ 30,474	11%
2"	$ 125,012	$ 112,920	$ 128,248	$ 44,000	$ 48,759	11%
3"	$ 279,380	$ 225,840	$ 356,946	$ 82,500	$ 97,518	18%
4"	$ 496,460	$ 352,880	$ 670,895	$ 137,500	$ 152,372	11%
6"	$ 1,113,932	$ 705,750	$ 1,538,239	$ 275,000	$ 304,744	11%
8"	$ 1,977,428	$ 1,129,200	$ 2,223,960	$ 495,000	$ 487,591	-1%
10"	$ 3,089,360	n/a	n/a	$ 797,500	$ 1,279,927	60%
12"	$ 4,447,436	n/a	n/a	$ 1,182,500	$ 1,615,146	37%
Updated	2017	2015	1996	2003	2020	

(1) WSDF for a 5/8" meter was set at $6,060 between 2002-2013; raised to $12,060 in FY 2014; decreased to $6,030 in FY 2015 and increased again to $12,060 in FY 2017.

(2) Considered ranges up to $22,000 per 5/8" meter in 2012; at the time rate was $4,600 per 5/8".

(3) Based on fixture units (FUs), e.g. 31 FUs for a 5/8" meter/avg is 20 FUs or $3,700.

(4) 5/8" value is for second and subsequent meters.

(5) Recommended 2020.

DRAFT FRC Structure: “Option 2” Fixture Units (FXTU)

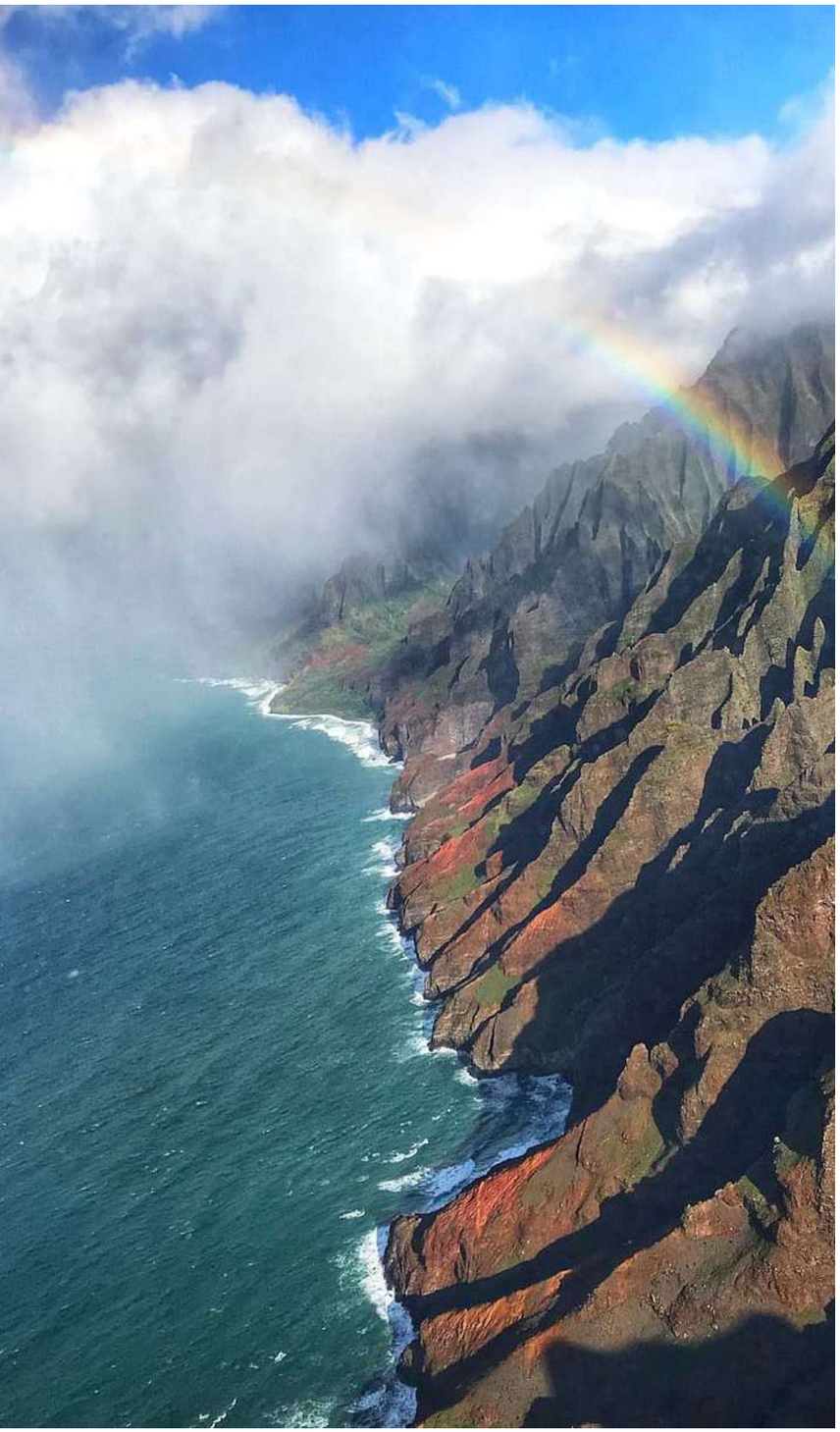
- Revise 5/8”meter FRC policy to charge SFR $959.29/FXTU
- Non-single family residential customers continue on meter size approach

- Example FRC Amount for FXTU Based on Approximate Livable Area

  ARU/Guest House (800 SF, 17 FXTU) - $16,307
  SFR (1,000-1,500 SF, 22 FXTU) - $21,104
  SFR (1,501-2,000 SF, 26.6 FXTU) - $25,517
  SFR (2,001-2,500 SF, 36.6 FXTU) - $35,110
  SFR (2,501-3,000 SF, 37 FXTU) - $35,494

FRC Structure Option: FXTU for Agriculture

- Agriculture customers would stay on a meter size basis
- All county water utilities use meter size as the basis for FRC



FRC Structure Option: "Option 2" Fixture Units (FXTU) – Other Agencies' Experience

- Alternative to basing FRC on meter size
- Typically used for water utilities that are unmetered
- **Honolulu BWS** has used this fee structure since 1995
  - Uses minimum 20 Fixture Units up to 30 Fixture Units for a 5/8" meter
- **Maui DWS** looked at this option in 2017; stayed with meter size; uses fixture unit counts to size residential and NR meters
- **Hawaii DWS** uses meter size

Alignment of FRC and Rate Study

Alignment Between FRC and Water Rates

- **Growth assumptions**
  - Should be reasonably consistent between FRC and water rate study but can and often do vary
  - DOW FRC growth projections derived to ensure adequate facilities and associated capacities are put in place to serve potential future growth in all areas of the water system (based on WSIP)
    - For this FRC analysis growth projections were developed in close coordination with DOW and based on a combination of the County's General Plan and more recent proposed development information (estimate of 3.5% system-wide)
  - Rate study growth projections should be more conservatively set based on growth that is likely to connect and generate annual rate revenue within the planning period (estimate of <1% based 5-year historical average growth)

- **Capital assumptions**
  - FRC analyzes total growth needs over longer horizon (20 years); doesn't matter if costs are identified for Year 1 or Year 20
  - Rate study analyzes total annual funding needs (existing + growth) over a shorter horizon (5 yrs)

Alignment Between FRC and Water Rates

- Both FRC and water rates analyses incorporate consideration of other funding sources:
  - Developer contributions
  - Grants
  - State grants and loans
  - Federal grants and loans

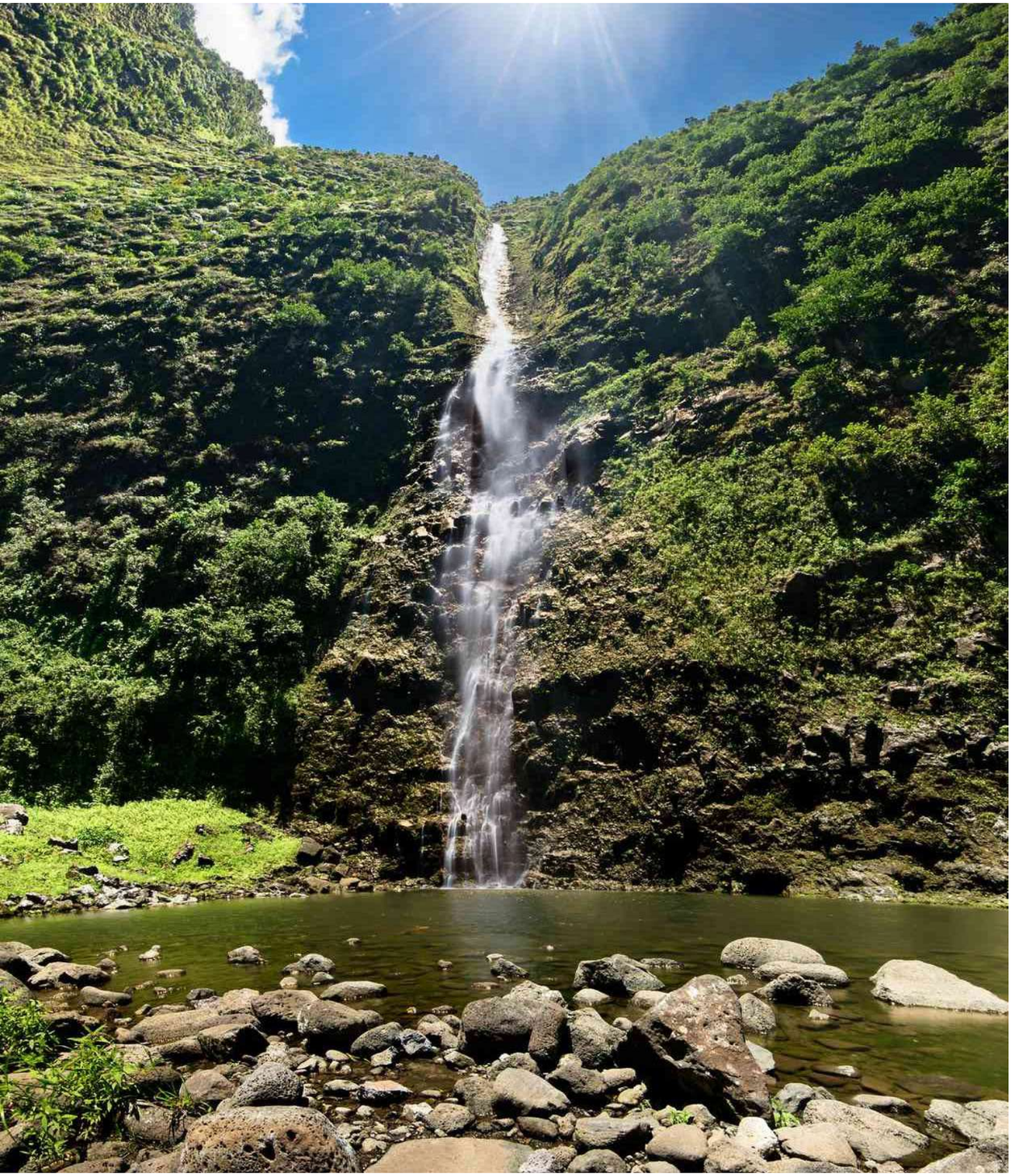
- Water rates pay for:
  - All non-growth-related CIP costs (in-kind, existing deficiencies) net of grant funding
  - Debt service on any growth-related debt (depending on selected policy, i.e. growth pays for growth)
  - Funding growth-related projects net of available FRC balance, annual FRC collections and grant funding
    - All capital project costs need to be funded by time of construction
    - FRC collections occur over long period of time
    - Due to timing issues, rates pay for some level of growth projects in the short term

Board Discussion

Next Steps

Next Steps

- Receive Board feedback today, April 22nd
- Staff and Brown & Caldwell/Harris team finalize FRC analyses
- Brief Board on water rate analysis
- Submit Draft FRC and water rate options to Board for consideration
- Staff receives Board direction for FRC and water rates
- Schedule Public Hearings including SBA for Implementation of new FRC and water rates
- Complete Board rule making process for implementation of new FRC and water rates



Department of Water County of Kaua'i

Brown AND Caldwell

Harris & Associates

Thank you!