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STAFF SUBMITTAL

COMMISSION ON WATER RESOURCE MANAGEMENT

January 28, 2025
Honolulu, Hawai'i

Adoption of the Kaua'i Water Use and Development Plan Update for
Incorporation into the Hawai'i Water Plan

SUMMARY OF REQUEST:

Staff recommends the Commission on Water Resource Management (Commission) adopt the Kaua'i Water Use and Development Plan (KWUDP)[1] Update with conditions.

BACKGROUND:

The original KWUDP was adopted by Kaua'i County ordinance on April 27, 1990. The ordinance delegates authority to the Kaua'i Board of Water Supply (KBWS) and the Kaua'i Department of Water (KDOW) to amend the KWUDP to "reflect changes in hydrologic or other scientific information and land use." KDOW hired Fukunaga and Associates, Inc. (consultant) to assist with preparation of the plan.

AUTHORITY:

The State Water Code (Hawai'i Revised Statutes 174C-2(b)) recognizes the need for comprehensive water resources planning and establishes the Hawai'i Water Plan (HWP) as the guide for developing and implementing this policy. The HWP is intended to serve as a long-range guide for the Commission in executing its general powers, duties, and responsibilities to protect, manage, and regulate Hawai'i's freshwater resources (ground and surface water) and provide for the maximum beneficial use of water by current and future generations.

[1] Link to Kaua'i Water Use and Development Plan Update
http://www.kauaiwater.org/Final%20KWUDP%20(June%202024).pdf

The HWP currently consists of five major components (plans)[2] identified as the: 1) Water Resource Protection Plan, 2) Water Quality Plan, 3) State Water Projects Plan, 4) Agricultural Water Use and Development Plan, and 5) County Water Use and Development Plans.

The Water Code recognizes that the HWP must be continually updated to remain useful and relevant and further specifies that "[e]ach county shall update and modify its water use and development plans as necessary to maintain consistency with its zoning and land use policies" §174C-31(q) HRS.

WATER USE AND DEVELOPMENT PLANS (WUDPs)

A separate WUDP is prepared by each of the four counties and in some cases is adopted by county ordinance. The county WUDPs are a means to integrate land and water planning and help ensure the County has a plan to meet existing and future water needs and recognizes, respects, and protects public trust resources and uses. The WUDPs encompass all water resources and water systems within the county, including the municipal and private water uses. The WUDPs are intended to provide information about current and projected water demands (over the next 20 years) based on various county land use plans and should be consistent with the other component plans of the HWP.

Hawai‘i Administrative Rules (HAR) §13-170-31 states that each WUDP shall include, but not be limited to:

> *(1) Status of county water and related land development including an inventory of existing water uses for domestic, municipal, and industrial users, agriculture, aquaculture, hydropower development, drainage, reuse, reclamation, recharge, and resulting problems and constraints;*
> *(2) Future land uses and related water needs; and*
> *(3) Regional plans for water developments including recommended and alternative plans, costs, adequacy of plans, and relationship to the water resource protection plan and water quality plan.*

Additional guidelines for preparing the WUDPs are provided in HAR §13-170-32:

> *(1) Each water use and development plan shall be consistent with the water resource protection plan and the water quality plan.*
> *(2) Each water use and development plan and the state water projects plan shall be consistent with the respective county land use plans and policies, including general plan and zoning as determined by each respective county.*
> *(3) Each water use and development plan shall consider a twenty year projection period for analysis purposes.*

[2] Exhibit 1 summarizes the agencies responsible for preparing each of the five components and the primary objectives of each plan.

(4) The water use and development plan for each county shall also be consistent with the state land use classification and policies.

(5) The cost of maintaining the water use and development plan shall be borne by the counties; state water capital improvement funds appropriated to the counties shall be deemed to satisfy Article VIII, section 5 of the State Constitution.

STATEWIDE FRAMEWORK FOR THE HAWAI‘I WATER PLAN

HRS §174C-31(n) provides that "[t]he commission may add to the Hawai‘i water plan any other information, directions, or objectives it feels necessary or desirable for the guidance of the counties in the administration and enforcement of this chapter".

In February 2000, the Commission adopted the Statewide Framework for Updating the Hawai‘i Water Plan (Framework)[3]. The Framework is intended to provide additional instructions to help with the preparation and update of the five components of the HWP. The objectives of the Framework are:

- To achieve integration of land use and water planning efforts that are undertaken by federal, state, county, and private entities so that a consistent and coordinated plan for the protection, conservation and management of our water resources is achieved;
- To recommend guidelines for the HWP update so that the plan and its component parts are useful to the Commission, other state agencies, the counties, and the general public;
- To develop a dynamic planning process that results in a "living document" for each component of the HWP which will provide county and state decision-makers with well formulated options and strategies for addressing future water resource management and development issues;
- To better define roles and responsibilities of all state and county agencies with respect to the development and updating of the HWP components;
- To describe and outline the techniques and methodologies of integrated resource planning as the basic approach that should be utilized in developing and updating the County WUDPs;
- To facilitate permitting and to identify potential critical resource areas where increased monitoring or baseline data gathering should proceed;
- To establish an overall schedule for phased updating of the HWP; and
- To outline an Implementation Plan for near-term and long-term actions.

The Framework (2000) includes the following recommended plan elements for the WUDP update process:

- County-Specific WUDP Project Description
- Coordination with Commission on Water Resource Management
- Stakeholder and Public Involvement

[3] https://dlnr.hawaii.gov/cwrm/planning/hiwaterplan/framework

- Development of Policy Objectives and Evaluation Criteria
- Description of Water System Profiles
- Identification of Resource and Facility Options
- Development and Evaluation of Strategy Options
- Implementation Plan

The Framework (2000) further recommends integration of HWP component plans at the county level and advocates the use of an integrated resource planning (IRP) approach. In adopting the Framework (2000), the Commission recognized that each county faces a unique set of conditions that have an impact on the county's planning process, including:

- The nature and occurrence of water resources and existing infrastructure in the county;
- The planning issues and water use priorities the county must address;
- The financial resources available to the county; and
- The financial and organizational structure that has been established by its County Council and administration.

Thus, the Framework (2000) recognizes the need for appropriate flexibility to encourage innovation as well as to accommodate unique and county-specific concerns that may be addressed within the WUDP. In light of the above conditions, the Framework (2000) requires that each county develop a scope of work for updating its WUDP which best meets its overall objectives. The process by which these objectives are to be achieved should be set forth in a detailed project description and schedule for updating the WUDP. A project description and scope of work for the KWUDP was approved by the Commission on June 24, 2015. The KWUDP was developed using the Framework (2000).

UPDATING THE STATEWIDE FRAMEWORK (2000)

It has been 25 years since the Framework was last updated. During that time, various component plans of the HWP, including county WUDPs, have been drafted and amended. However, questions remain about the utility of these plans and if they provide sufficient guidance for the proper protection, conservation and management of the waters of the State. Commission staff have begun an update of the Framework (2000) document. This update began in 2019 and is nearing completion within the next 6-12 months. The goal of the Framework update is to make the HWP more integrated, enabling better holistic decision making across various sectors and agencies. It also attempts to build more explicitly on the unique cultural foundation and values of Native Hawaiians with a focus on the interconnectedness and sanctity of wai (water). Once completed, this update will undergo a formal adoption process, which includes statewide public hearings, and a vote by the Commission. Subsequent HWP component plans will need to be consistent with the new Framework once adopted. This includes future updates of the KWUDP. A methodology for ensuring timely and consistent plan updates across all HWP component plans is intended as part of the Framework update.

COMMUNITY OUTREACH

A total of 17 meetings were held with various stakeholders as part of the KWUDP update process. Advanced notice of public meetings was given via press releases, newspaper (posted in The Garden Island), on-air announcements via radio, and posted to the County's and KDOW's website and on social media (Facebook). The KDOW website was used to disperse information on the KWUDP, including preliminary findings, meeting presentations and minutes, and draft reports.

- Outreach prior to December 2023 CWRM Briefing:
  - Two rounds of public meetings in Waimea, Kalāheo, Līhuʻe, Kapaʻa, Kīlauea (2015, 2023)
  - Three stakeholder advisory group (SAG) meetings
- Outreach and meetings following the December 2023 CWRM Briefing:
  - Two DHHL meetings, Anahola and Kekaha, with DHHL beneficiaries on March 21, 2024 and March 28, 2024, respectively
  - Two meetings prior to DHHL meetings with key community members identified by DHHL on March 14, 2024
  - CWRM Public Hearing on May 21, 2024
  - Kauaʻi BWS approval at meeting on July 18, 2024

After the May 2024 public hearing, Commission staff directly engaged with individual testifiers to better understand their concerns and questions.

ANALYSIS/ISSUES

Consistency with State Water Code Requirements and Recommended Framework Elements:

After reviewing the document submitted to the Commission for adoption, staff concludes that the KWUDP meets all of the statutory requirements set forth in the State Water Code §174C-31, Hawaiʻi Administrative Rules §13-170, and addresses most of the recommended elements in the Framework (2000) pertaining to the update of the County WUDPs.

Requirement/Recommendation	Compliance achieved?
Status of county water and related land development including an inventory of existing water uses for domestic, municipal, and industrial users, agriculture, aquaculture, hydropower development, drainage, reuse, reclamation, recharge, and resulting problems and constraints *HAR §13-170-31*	20101-3.1, 20102-3.1, 20103-3.1, 20104-3.1, 20105-3.1, 20201-3.1, 20202-3.1, 20203-3.1, 20204-3.1, 20301-3.1, 20302-3.1, 20303-3.1, 20304-3.1

Future land uses and related water needs *HAR §13-170-31*	Table 2-4, Table 20101-13, Table 20102-12, Table 20103-10, 20105-4.1, 20201-4.1, 20202-4.1, 20203-4.1, 20204-4.1, 20302-4.1, 20303-4.1, 20304-4.1, 20105-4.1.1, 20201-4.1
Incorporation of current and foreseeable WUD needs of DHHL *HRS §174C-31*	20101-4.1, 20101-4.1.1, 20102-4.1, 20102-4.1, 20102-4.1.1, 20103-1.3.1, 20103-4.1, 20103-4.1.1, 20104-1.3.1, 20104-4.1, 20104-4.1.1, 20105-4.1, 20201-4.1.1, 20202-4.1, 20202-4.1.1, 20203-1.3.1, 20203-4.1, 20203-4.1.1, 20204-1.3.2, 20204-4.1, 20204-4.1.1, 20301-1.3.1, 20301-4.1, 20301-4.1.1, 20302-1.3.1, 20302-4.1, 20302-4.1.1, 20303-1.3.2, 20303-4.1, 20303-4.1.1, 20304-1.3.1, 20304-4.1, 20304-4.1.1
Regional plans for water developments including recommended and alternative plans, costs, adequacy of plans, and relationship to the water resource protection plan and water quality plan *HAR §13-170-31*	ES-10, ES-12, ES-14, ES-15, ES-17, ES-19, ES-21, ES-22, ES-23, ES-24, ES-26, ES-28, ES-29, (Note – these are recommended alternative water sources without plans, costs, adequacy)
Each water use and development plan shall be consistent with the water resource protection plan and the water quality plan *HRS §174C-31*	ES-1, 1.1.3.1, Page 1-5, 1.1.3.2 (references 2008 WRPP), 1.2.4.1, 1.6, Table 20101-5
Each water use and development plan and the state water projects plan shall be consistent with the respective county land use plans and policies, including general plan and zoning as determined by each respective county *HAR §13-170-32, HRS §174C-31*	ES-2.3.1
Each water use and development plan shall consider a twenty year projection period for analysis purposes *HAR §13-170-32*	2.3.1.2, 20101-5.1.2, 20102-5.1.2, 20103-5.1.2, 20104-5.1.2, 20105-5.1.2, 20201-5.1.2, 20202-5.1.2, 20203-5.1.2, 20204-5.1.2, 20301-5.1.2, 20302-5.1.2, 20303-5.1.2, 20304-5.1.2

The water use and development plan for each county shall also be consistent with the state land use classification and policies *HAR §13-170-32, HRS §174C-31*	ES-2.3.1
County-Specific WUDP Project Description approved by CWRM *HRS §174C-31*	Approved by the Commission on June 24, 2015
Coordination with the Commission *HWP Framework; HRS §174-32*	KDOW provided briefings to the Commission on December 19, 2023 and September 17, 2024 and met with staff prior to completing the final draft plan.
Stakeholder and Public Involvement *HWP Framework*	2.1.1, 2.1.2, APPENDIX C
Development of Policy Objectives and Evaluation Criteria *HWP Framework*	1.1.2
Description of Water System Profiles *HWP Framework*	20101-1, 20102-1, 20103-1, 20104-1, 20105-1, 20201-1, 20202-1, 20203-1, 20204-1, 20301-1, 20302-1, 20303-1, 20304-1
Identification of Resource and Facility Options *HWP Framework*	2.3, 20101-5, 20102-5, 20103-5, 20104-5, 20105-5, 20201-5, 20202-5, 20203-5, 20204-5, 20301-5, 20302-5, 20303-5, 20304-5
Development and Evaluation of Strategy Options *HWP Framework*	2.3.2.2 - This WUDP update includes only general water resource strategies for the ASYAs. A separate KDOW plan, the Water Systems Investment Plan (WSIP), will be the KDOW long-range capital improvements plan for KDOW water systems

Implementation Plan *HWP Framework*	A separate KDOW plan, the Water Systems Investment Plan (WSIP), which is currently being drafted, is intended to be one component of the larger KWUDP Implementation Plan. Note – a condition has been added to ensure full compliance with this requirement.

Public Testimony:

In addition to the outreach conducted by KDOW and their consultant, the Commission staff held a public hearing on May 21, 2024, on Kaua‘i to solicit comments on the plan. Commission staff received both oral and written testimony on the KWUDP. The written testimony and a summary of all comments received throughout the planning process is attached as Exhibit 3. Some of the reasons and common comments for opposing the plan’s adoption are summarized below:

1. Why did it take so long to update the plan?
2. The plan is based on old and missing data
3. The plan does not consider the water needs of traditional and customary (T&C) practices and lacks a Ka Pa‘akai Analysis (KPA)
4. Reservoirs and other water infrastructure needs to be improved and maintained
5. Climate change impacts are not considered
6. Interim instream flow standards (IIFS) need to be updated
7. No information about DHHL water reservations
8. Water use reporting and enforcement needs to be improved
9. Are aquifer Sustainable Yields (SY) reliable?
10. Why is there no Implementation Plan?

Commission staff appreciates the time and effort made by stakeholders to comment on the KWUDP. We would like to offer the following responses to the concerns and questions identified. Underlined and *italicized* text has been made part of the staff recommendation as conditions of plan adoption.

1. Why did it take so long to update the plan?

   Response:

   It has been 34 years since the KWUDP was updated. The original KWUDP was adopted in 1990. The first update of the KWUDP was drafted in 1992, but was not officially adopted by the Commission. Many years passed before a project description (scope of work) was approved by the Commission in 2015, kicking off the current update process.

Between 2015 and 2019, KDOW and its consultant coordinated with the Kaua‘i Planning Department and Commission staff (including holding several joint meetings), organized public meetings and met with various stakeholders. During that time, KDOW and its consultant prepared and shared the prototype chapter which set the format and content for the Aquifer System Area (ASYA) chapters. In 2018, Commission staff notified KDOW that the WRPP was being updated and it was agreed that KDOW would wait for its adoption, which occured in 2019. During that time, the Kaua‘i General Plan (2018) was also updated. Since these plans are critical to informing the KWUDP, the planning process was delayed until these plans were finalized. In 2020, a first draft of the KWUDP was completed. However, due to the COVID pandemic, public meetings were put on hold, severely limiting the county's ability to conduct meaningful outreach. In 2021, KDOW and their consultant coordinated with Commission staff to revise the draft KWUDP. Revisions continued through 2022 and on December 19, 2023 KDOW and their consultant briefed the Commission about the plan. Based on the comments received, additional outreach to the Department of Hawaiian Home Lands (DHHL) was conducted in March 2024. Commission staff held a public hearing on Kaua‘i on May 21, 2024 and conducted targeted outreach to particular individuals after the public hearing. In July 2024, the Kaua‘i Board of Water Supply approved the KWUDP. Another briefing on the plan was given to the Commission on September 17, 2024.

Commission staff recognize the extensive timeline for this plan update and acknowledge this is not the normal process for updating component plans of the Hawai‘i Water Plan. The HWP Framework (2000) recommends that plans should be updated every five (5) years. A three (3) year timeline was presented as part of the 2015 KWUDP project description, but for the reasons identified above, that timeline was extended significantly. A methodology for ensuring timely and consistent plan updates across all components of the HWP is intended as part of the Framework update.

2. The plan is based on old and missing data

   Response:

   Water Demand: The KWUDP update process started in 2015 after the project description was approved. Water use data from 2014-2015 was used as part of the initial review and water demand was projected 20 years into the future (2015 to 2035). The water demand projections were based on population projection rates from the Planning Department's Socioeconomic Analysis and Forecasts (February 2014). Although it has been almost 10 years since the project started, KDOW and its consultant determined that analyzing updated water use based on 2023 data and projecting water demand to 2043 would not result in significant changes because projected water demands based on population projection rates between 2035 and 2043 were still far below each aquifer's sustainable yield. In addition to assessing projected water demands based on population projections, KDOW and its consultant also assessed projected water demand using the full build-out

(FBO) scenario identified in various land use plans, which is a more conservative approach (compared to population based water demand projections) because it assumes future land use development will occur to the maximum density allowed, something that will not happen within the 20-year evaluation period, including by 2043, due to current infrastructure needs. The projected water demands for the FBO scenario were much higher than the projected water demands based on population projections (as shown in Figures 20101-12, etc. of the KWUDP), including population projections between 2035 to 2043. As a result, water demand projections based on the FBO scenario continue to provide the most conservative demand projections.

Land Use: The 2000 General Plan (GP) was initially assessed for the KWUDP. The Planning Department coordinated with KDOW during the development of the Līhuʻe and South Kauaʻi Community Plans (both adopted in 2015). KDOW and its consultant included these community plans in their analysis. When the GP was updated in 2018, KDOW and its consultant reviewed the 2018 GP to see how future water demand compared to the 2000 GP. The Līhuʻe and South Kauaʻi Community Plans (which are captured in the 2018 GP) were used to update the water demands in these areas. No other areas in the 2018 GP were flagged that would significantly increase future water demand.

Surface Water: Several stakeholders commented on the lack of surface water use data in the plan. Surface water use data incorporated into the KWUDP was pulled from a variety of sources including the AWUDP (2004), the Kauaʻi Important Agricultural Lands (IAL) Study (2015), surface water use reports from the Commission, declared stream diversion information, and established Interim Instream Flow Standards (IIFS). While all water users are required to report monthly usage to the Commission, there continues to be a lack of reporting leading to deficiencies in surface water use data and a full understanding about how much surface water is being used. Further, there is often a discrepancy between surface water withdrawals and surface water use since most systems were designed to optimize withdrawals regardless of day-to-day irrigation demand. The KWUDP analyzed surface water reports received between 2016 to 2017 representing diverted flow data, but not necessarily the amount of water being used for irrigation. Commission staff provided more gaged data in 2024, but again the data was limited to the amount of water diverted, which does not necessarily correlate with water usage. Ultimately, KDOW and its consultant decided that the Commission's surface water data was not sufficient for inclusion. KDOW commits to working with Commission staff to encourage compliance with water withdrawal reporting and analyze the Commission's more recent surface water withdrawals for incorporation into a future update of the KWUDP. Commission staff and the KDOW will continue to work together to expand the network of streamflow monitoring stations across the island to address concerns over surface water availability in the face of changing climate conditions. KDOW has a joint funding agreement with the U.S. Geological Survey (USGS) to support this effort.

The Agriculture Water Use and Development Plan (AWUDP)[4]: The AWUDP was unofficially updated in 2019 and again in 2021, but has not been adopted by the Commission. As a result, Commission staff advised the KDOW and its consultant to refrain from citing the updated AWUDP. Therefore, the analysis of agricultural water demands in the KWUDP is limited to data from the 2004 AWUDP. However, general information about the irrigation systems and their conditions from the 2019 AWUDP were incorporated into the KWUDP. Generally, and based on the recommendation of Commission staff, only finalized information from approved documents have been incorporated into the KWUDP. The absence of the most up-to-date agriculture water demands is a valid concern. Efforts are now underway for the Commission to officially adopt the 2021 version of the AWUDP in early 2025. As an immediate next step, *KDOW and its consultant will revise the Executive Summary of the KWUDP with a reference and hyperlink to the 2021 AWUDP and will work with its Board of Water Supply to initiate an update process of the KWUDP following the adoption of the AWUDP.*

The issue of old and outdated data is a recurring concern. Like other plans, the KWUDP is intended to be a living document and should be based on the "best available information" and the most recent water demand forecasts. These forecasts and "best available information" are often found in other HWP components such as the WRPP and AWUDP. Frustratingly, that information becomes obsolete once an update of a HWP component is completed mid-way through the WUDP planning process. When an update of another plan occurs, including non-HWP components like General Plans and Community Plans, there is now new "best available information" and the county must figure out how to incorporate the new data into the WUDP. In many cases, this new information cannot be sufficiently incorporated because the county has either already done their analysis and/or may lack the funding needed to pay their consultant to include the new information. Therein lies one of the major challenges for plan preparers.

Commission staff recognize the importance of timely updates of all HWP components. As stated earlier, a methodology for ensuring timely and consistent plan updates across all components of the HWP is intended as part of the Framework update. Once the new Framework is finalized in the next 6-12 months, Commission staff will work directly with plan preparers to update their plans, so they are consistent with the new Framework requirements. As drafted, the new Framework will provide detailed and comprehensive guidance and more explicitly address farming and agriculture. It will also encourage plan preparers to gather data and information from a variety of sources, not just approved HWP components. These non-HWP sources could include resources like the Hawai‘i Climate Data Portal which contains real-time data on rainfall, or tools such as IWREDDS which can help estimate anticipated water demands for different crop types. A variety of data sources, both official and unofficial, can and should be used to inform qualitiative scenario planning for future WUDPs.

[4] https://hdoa.hawaii.gov/arm/

3. The plan does not consider the water needs of traditional and customary (T&C) practices and lacks a Ka Paʻakai Analysis (KPA)

   Response:

   The 2015 KWUDP project description states that the planning objectives for the KWUDP are to provide current and future water demand forecasts and prioritize and protect public trust uses of water, including water used for traditional and customary (T&C) Hawaiian practices. The approved project description suggests T&C should be included as part of the KWUDP and outreach to this group of stakeholders would be conducted. The Stakeholder Advisory Group (SAG), which was consulted during the preparation of the KWUDP, was established to represent a broad spectrum of Kauaʻi's community, including Native Hawaiians. Additionally, KDOW held two meetings for DHHL beneficiaries and two meetings prior to those meetings with key community members identified by DHHL. These meetings were requested as part of DHHL's testimony during the December 19, 2023 Commission briefing. The KDOW and their consultant acknowledge that while the SAG and DHHL meetings included representation from the Native Hawaiian community, it did not adequately represent the voice of T&C practitioners. Section 1.5.3.1 of the plan does discuss the importance of Native Hawaiian rights and notes the legal requirement of the State and counties to conduct a Ka Paʻakai Analysis (KPA) to protect T&C practices. However, the plan lacks any robust discussion about the water needs of T&C, how T&C practices may be impacted by the plan, and what mitigation measures could be taken to prevent harm to T&C rights. The omission of a KPA is largely because the KWUDP, as with other WUDPs, is intended to be a regional plan. It does not analyze the site-specific impacts of individual projects, but rather takes a high-level view of current and future water demands of the County. While the KWUDP does not include a KPA, there are a variety of ways a KPA is addressed at the project level. First, the Commission expects applicants to conduct a KPA when applying for Well Construction and Pump Installation Permits (WCPIPs), Stream Channel Alteration Permits (SCAPs), Stream Diversion Works Permits (SDWPs), and requires all ground and surface Water Use Permit (WUP) applicants to conduct KPA as part of the application process. KDOW is currently amending its contract for the Water Systems Investment Plan (WSIP) (i.e. KDOW's long-range planning document including an updated capital improvement program (CIP)) and a KPA will be conducted for all proposed projects listed within the WSIP at the planning stage. A more detailed KPA will be conducted when the project moves into the design phase, at which time the project specifics will be more defined. Since it would be challenging to identify all current and future water demands associated with T&C, the KWUDP, as part of its next update, could identify areas where T&C is known to occur and draft policies or strategies to protect those areas and practices, so that other agencies, etc. could consult the KWUDP when conducting a project-specific KPA. The explicit incorporation of T&C water

demands and associated strategies for protection at a regional level within all WUDPs is intended to be part of the Framework update. A more formalized approach to KPA, outreach, and effective communication, especially with Native Hawaiian stakeholders and T&C practitioners, is also expected as part of the Framework update. As an immediate step, *KDOW will commit to ensuring T&C practitioners are included in future outreach meetings for the WSIP to help build relationships and better understand what T&C issues the county needs to be aware of when moving forward with projects identified in the WSIP. In addition, KDOW will consult with the Aha Moku island/moku representatives to develop a general inventory of the T&C practices for each moku (district) on island. Funding for this effort will be requested by KDOW as part of the county's FY2025-2026 KDOW budgeting process. This consultation will be completed within 12-months of contract execution with the selected consultant. The findings will be incorporated into the next KWUDP update.*

4. Reservoirs and other water infrastructure needs to be improved and maintained

   Response:

   The KWUDP does not evaluate specific water infrastructure needs for planned developments and projects. However, the plan was amended to include the location of reservoirs on surface water figures and a discussion on Waitā reservoir. KDOW is currently working on a Water Systems Investment Plan (WSIP), which is a separate planning document that will evaluate KDOW's water systems and recommend capital improvement projects. The WSIP is applicable to the KDOW system only and is not intended to address water infrastructure needs and improvements for private potable water systems or agricultural infrastructure. In addition to drafting the WSIP, KDOW has been participating in the Commission's annual American Water Works Association (AWWA) water audits, which informs the County about water losses within its system. In order to improve water data and reduce water losses, KDOW is fine tuning its GIS system to inventory assets and update maps of their facilities, which were previously only static hard-copy maps. KDOW is also in the process of replacing failing water meter transponder components and has a leak detection program for its existing infrastructure. Commission staff have recommended Source/Production and Customer meter testing to further improve water loss data. In addition to making infrastructure improvements to limit water loss in the KDOW system, KDOW agrees that rehabilitating reservoirs for water storage is extremely important. Reservoirs store water that can be used for irrigation or could possibly be made available for fire protection or other emergency uses. However, there are costs associated with operating, maintaining, and repairing reservoirs. In addition, reservoirs regulated by the State must meet the requirements of the Hawai‘i Dam and Reservoir Safety Act. The costs, risks, and benefits of improving reservoirs is a decision made by the individual reservoir owner. While the KDOW does not own any surface water reservoirs, the County can help facilitate discussions among reservoir owners and stakeholders. KDOW has already started to envision an island-wide water

cooperative that would meet regularly to discuss water issues more generally. The cooperative would include various water management agencies like the Commission and KDOW, private landowners, and specific community stakeholders and seek to solve immediate problems and develop long-term solutions. Coming up with a strategy for reservoir improvements could be one action taken by the Kauaʻi water cooperative.

5. Climate change impacts are not considered

   Response:

   The current KWUDP has been updated to include a qualitative discussion on climate change (see Section 1.2.4.1). The future impact of climate change on water resources is still being studied. The impact of climate change on water resource availability, including sustainable yield, will be considered in future updates of the Water Resource Protection Plan (WRPP). Commission staff are in the process of analyzing a new 2024 USGS report[5] estimating groundwater recharge under various climate scenarios. This data will be used in the near-term to revise sustainable yields statewide. The updating of sustainable yields may trigger an update of WUDPs, including the KWUDP. As mentioned earlier, Commission staff are also in the process of updating the HWP Framework. The updated Framework will provide a new lens by which the counties and others can understand and execute water resource planning in the context of climate change. For example, the new Framework may explicitly require plan preparers to incorporate climate change models into a range of water demand scenarios.

6. Interim instream flow standards (IIFS) need to be updated

   Response:

   Work by the Commission to update IIFS on Kauaʻi is ongoing. Under the State Water Code, the Commission has the responsibility of establishing Interim Instream Flow Standards (IIFS) - or the amount of water flowing in a stream that is needed to protect fishery, wildlife, recreational, aesthetic, scenic, and other beneficial instream uses - on a stream-by-stream basis whenever necessary. IIFS are designed to protect streams and various instream values. The Commission's Stream Protection and Management Branch (SPAM) is responsible for managing, protecting and regulating 376 perennial streams statewide, but operates on a small budget with only 3 full-time field staff. Despite the Commission's limited budget and personnel constraints, staff are working diligently to develop datasets to recommend IIFS across the island of Kauaʻi, especially in areas where conflicts over water are intensifying. Since 2017, nine (9) IIFS have been

[5] USGS Report: "Estimated groundwater recharge for mid-century and end-of-century climate projections, Kauaʻi, Oʻahu, Molokaʻi, Lānaʻi, Maui, and the Island of Hawaiʻi" https://www.usgs.gov/publications/estimated-groundwater-recharge-mid-century-and-end-century-climate-projections-kauai

established on Kauaʻi.[6] More priority surface water hydrologic units have been identified and are either in development, under study, or happening soon. The Commission staff have also started to reach out to various County partners to assist in IIFS development by providing additional funding to support hydrological monitoring and data collection for various streams around the island. KDOW has an ongoing joint funding agreement with the U.S. Geological Survey (USGS) to support streamflow monitoring on Kauaʻi.

7. No information about DHHL water reservations

   Response:

   Information about DHHL water reservations and the current and foreseeable water needs of DHHL is a requirement of all WUDPs (HRS 174C-31(q)). Existing DHHL water resevations are discussed in Chapter 2 (Section 2.2.2.5.2) and Table 2-7 of the KWUDP. Information about existing DHHL water reservations and water demand projections were pulled from the 2017 State Water Projects Plan (SWPP), DHHL Island Plans, and direct communication with DHHL staff. There are currently four (4) ground water and two (2) surface water reservations for DHHL on Kauaʻi. The process to petition for new reservations of water is completely separate from the KWUDP and is done through direct communication with the Commission. At the December 2023 briefing to the Commission, several testifiers noted that outreach to DHHL beneficiaries was lacking and that many DHHL beneficiaries were not aware of and did not attend the outreach meetings held in 2023. As a result, KDOW and its consultant organized meetings with DHHL beneficiaries in March 2024. A summary of those meetings is included in the KWDUP in Appendix C. KDOW is committed to working with DHHL to better understand infrastructure needs and the potential to expand county water systems, adjacent to DHHL development areas, to serve beneficiaries.

8. Water use reporting and enforcement needs to be improved

   Response:

   The Commission's Administrative Rules (HAR 13-168-7) requires all water users to submit monthly water use reports. Water use reporting provides the Commission with information needed to make informed management decisions about resource availability. Reporting information is also incorporated into the county WUDPs to inform existing water use and current demands. Unfortunately, not all water users report. Over the last several years, Commission staff have attempted to increase reporting compliance via direct outreach, phone calls, and more. While reporting compliance is improving, it is

[6] Kawaikōī Stream, Waimea (4/18/2017), Waiakōali Stream, Waimea (4/18/2017), Koaiʻe Stream, Waimea (4/18/2017), Waimea River (Below diversion), Waimea (4/18/2017), Waimea River (At USGS 1603100), Waimea (4/18/2017), Kōkeʻe Stream (Below Kokee Ditch), Waimea (4/18/2017), Kauaikinana Stream, Waimea (4/18/2017), Lāwaʻi Stream, Lāwaʻi (3/16/2021), Waiʻoli Stream, Waiʻoli (5/18/2021)

still lacking, especially for surface water. The enforcement of reporting and other water-related violations are incredibly important. During public testimony, several community members expressed concerns about illegal wells in Moloa‘a. While Commission staff cannot substantiate those claims, staff reiterated the need to report suspected violations so staff can conduct a formal investigation. The Commission is attempting to amend the State Water Code to increase penalties and fines to a maximum of $25,000 to deter violators and make sure water is being used judiciously. In 2022, two positions were created specifically to ensure compliance and enforcement of the State Water Code. These positions are in the process of being filled.

9. Are aquifer sustainable yields reliable?

   Response:

   Information about aquifer sustainable yields (SY) in the KWUDP is based on data from the 2019 Water Resource Protection Plan (WRPP)[7]. SYs are adopted by the Commission in the WRPP using the best available data. "Sustainable yield" means the maximum rate at which water may be withdrawn from a water source without impairing the utility or quality of the water source as determined by the Commission. For most aquifers, the Commission uses a Robust Analytical Model (RAM) to derive SY estimates. There are several assumptions and limitations associated with RAM. In general, the Commission will adopt the most conservative (or lowest) SY number for each aquifer based on a range of data. The SY numbers established in the WRPP (Appendix F) are reviewed periodically based on new information and findings. Commission staff are in the process of analyzing a new 2024 USGS report estimating groundwater recharge under various climate scenarios. This data will be used in the near-term to revise sustainable yields statewide. As part of this process, Commission staff are also investigating alternative approaches to using RAM that can account for the impact of ground water withdrawals on ground water dependent ecosystems (GDEs), T&C, and other public trust uses. Based on preliminary analysis of the new recharge data from the USGS, Commission staff believe SY will be reduced for certain aquifers on Kaua‘i. Once that occurs, *the Commission will require the KDOW to review future water demand scenarios based on the updated SY values and KDOW will work with its Board of Water Supply to initiate an update process of the KWUDP immediately after the next update of the WRPP is adopted by the Commission. KDOW will request funding from the Board of Water Supply in the fiscal year following the adoption of the WRPP.*

10. Why is there no Implementation Plan?

    Response:

    An Implementation Plan is required of all WUDPs per the 2000 Framework and is intended to detail the actions (near-term, medium-term, and long-term) to accomplish the

[7] https://dlnr.hawaii.gov/cwrm/planning/hiwaterplan/wrpp/

strategies outlined in the WUDP. The approved 2015 KWUDP Project Description also promised the development of an Implementation Plan. No Implementation Plan has been submitted to the Commission as part of the KWUDP. However, the KDOW is in the process of drafting a Water System Investment Plan (WSIP), which KDOW intends to use to satisfy this requirement. Unfortunately, the 2000 Framework does not clearly articulate the scope of the Implementation Plan and many counties have interpreted the Implementation Plan requirement to only apply to the county water systems. Since WUDPs encompass all water resources and water systems within the county, including the municipal and private water uses, the Implementation Plan should detail the full range of implementation actions, not just actions relevant to the KDOW water system. In order to meet the Implementation Plan requirement, *KDOW will request funding as part of the county's FY2025-2026 KDOW budgeting process. The Implementation Plan will be completed within 12-months of contract execution with the selected consultant and will identify actions needed to protect water resources island-wide, inclusive of the KDOW WSIP. The Implementation Plan will identify actions and strategies related to watershed protection, conservation, water quality, and more. KDOW will provide quarterly updates to the Commission about the status of the Implementation Plan. The findings will be incorporated into the next KWUDP update.*

V. Chapter 343 – Environmental Assessment (EA) Compliance

Chapter 343 is not applicable to the proposed action. HAR §11-200-5(d) provides:

> *For agency actions, chapter 343, HRS, exempts from applicability any feasibility or planning study for possible future programs which the agency has not approved, adopted, or funded. Nevertheless, if an agency is studying the feasibility of a proposal, it shall consider environmental factors and available alternatives and disclose these in any future assessment or subsequent statement. If, however, the planning and feasibility studies involve testing or other actions which may have significant impact on the environment, then an environmental assessment shall be prepared.*

The water use and development plans are planning studies, which do not involve testing or other actions that will impact the environment. Therefore, HRS Chapter 343 is not applicable to this agency action.

RECOMMENDATION:

Staff recommends that the Commission adopt the Kaua‘i Water Use and Development Plan (KWUDP) Update for incorporation into the Hawai‘i Water Plan with the following conditions.

1. KDOW and its consultant will revise the Executive Summary of the KWUDP with a reference and hyperlink to the 2021 AWUDP after the Commission adopts the 2021 AWUDP.

2. KDOW will work with its Board of Water Supply to initiate an update process of the KWUDP immediately after both updates of the AWUDP and WRPP are adopted by the Commission. In anticipation of adoption of the 2021 AWUDP and a WRPP update in the near future, KDOW will request funding from the Board of Water Supply as part of the county's budgeting process in the fiscal year following adoption of both plans.

3. KDOW will commit to ensuring T&C practitioners are included in future outreach meetings for the WSIP to help build relationships and better understand what T&C issues the county needs to be aware of when moving forward with projects identified in the WSIP.

4. KDOW will consult with the Aha Moku island/moku representatives to develop a general inventory of the T&C practices for each moku (district) on island. Funding for this effort will be requested by KDOW as part of the county's FY2025-2026 KDOW budgeting process. This consultation will be completed within 12-months of contract execution with the selected consultant. The findings will be incorporated into the next KWUDP update.

5. KDOW will complete a KWUDP Implementation Plan within 12 months of contract execution with the selected consultant that identifies actions needed to protect water resources island wide. The Implementation Plan will identify actions and strategies related to watershed protection, conservation, water quality, and more. KDOW will provide quarterly updates to the Commission about the status of the Implementation Plan. The findings will be incorporated into the next KWUDP update. Funding for this effort will be requested by KDOW as part of the county's FY2025-2026 KDOW budgeting process.

6. KDOW will conduct annual progress briefings to the Commission on fulfilling these conditions.

Respectfully submitted,

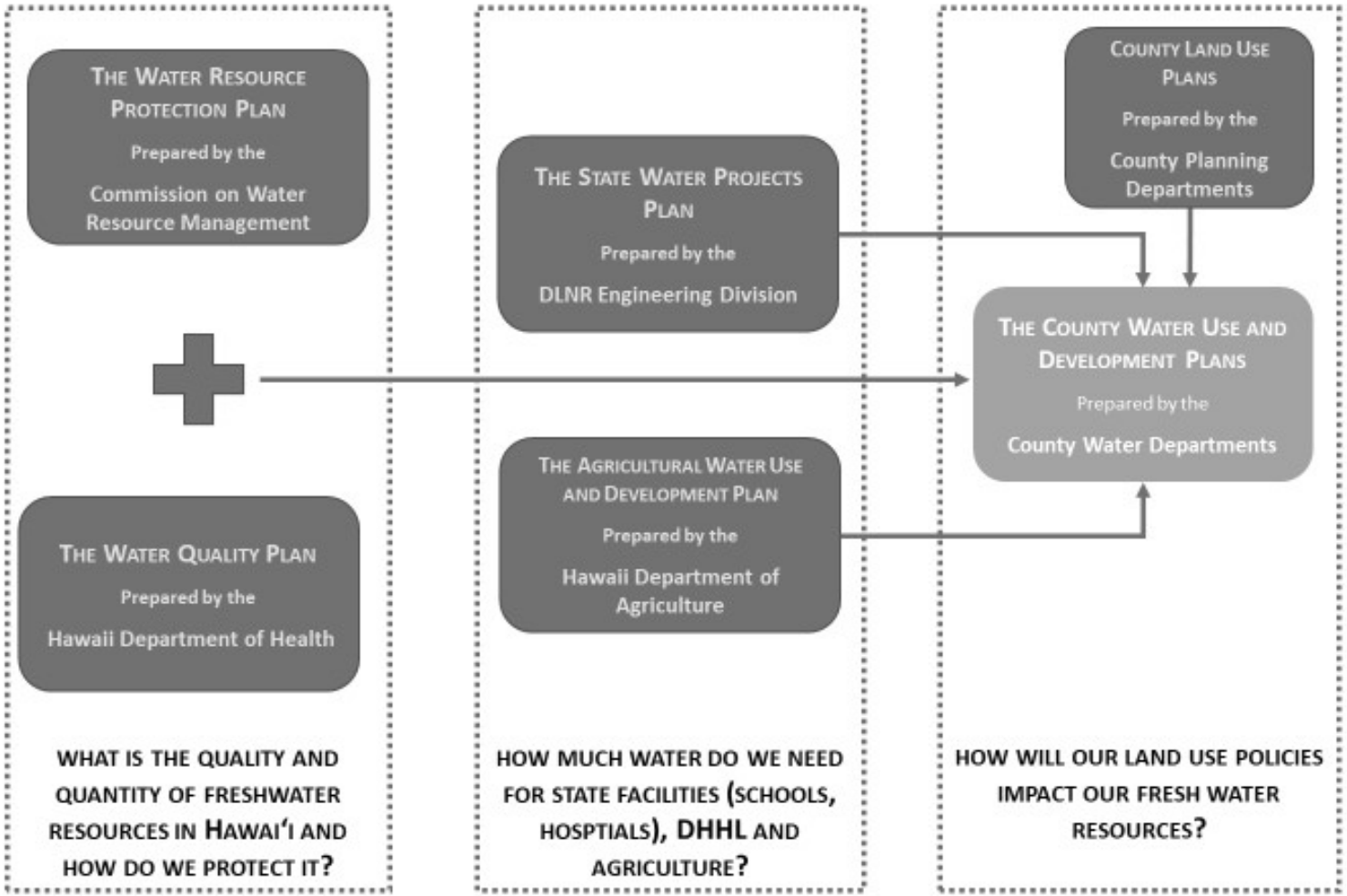
CIARA W.K. KAHAHANE
Deputy Director

Exhibit(s):
1 Hawaiʻi Water Plan Components
2 2015 Project Description for the Kauaʻi Water Use and Development Plan Update (KWUDP)
3 Summary of Public Testimony and Comments Received

APPROVED FOR SUBMITTAL:

Dawn N.S. Chang
Chairperson

Exhibit 1 – Hawai‘i Water Plan Components



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

STAFF SUBMITTAL

for the meeting of the
COMMISSION ON WATER RESOURCE MANAGEMENT

June 24, 2015
Honolulu, Hawaii

Approval of the Project Description for the
County of Kauai's Water Use and Development Plan Update

SUMMARY OF REQUEST

Staff requests that the Commission approve the project description for the County of Kauai's Water Use and Development Plan update (Exhibit 1).

BACKGROUND

The State Water Code, Chapter 174C, HRS, requires that the Commission on Water Resource Management (Commission) implement and utilize comprehensive water resources planning in its regulation and management of our State's water resources. The Water Code sets forth the requirement for initial development and updating of the Hawaii Water Plan (HWP) to guide the Commission in executing its general powers, duties, and responsibilities assuring economic development, good municipal services, agricultural stability, and environmental protection.

The HWP is intended to serve as a continuing long-range guide for water resource management. The HWP currently consists of five major components (plans) identified as the: 1) Water Resource Protection Plan, 2) Water Quality Plan, 3) State Water Projects Plan, 4) Agricultural Water Use and Development Plan, and 5) County Water Use and Development Plans (WUDP). The Water Code mandates that these individual plans be prepared and integrated into a comprehensive "master plan" to provide for effective coordination and long-range planning between state and county agencies to link water use, development, and protection of the resource.

To fulfill this mandate, the components of the HWP must be reviewed and updated on a regular basis. The initial HWP adopted by the Commission in 1990, provided the means to address many issues, including but not limited to, establishment of ground water hydrologic units, estimates of sustainable ground water yields and surface water flows by island, existing water systems, and an initial evaluation of current and projected water needs for the State and the Counties.

An updated HWP is considered essential to effective coordination and integration of State and County actions related to sustainable water resource development and enables the Commission to more effectively implement the statutory objectives of the Water Code. Absence of updated information can lead to preparation and implementation of inadequate or unrealistic plans for development of existing and alternative water resources, and may result in conflicting objectives or uses that threaten our State's limited water resources. The lack of up-to-date demand projections and proposed strategies to meet such demands limit the State's and Counties' ability to address future water development and resource protection issues.

In updating the HWP components, there is consensus agreement among State and County agencies that a comprehensive water resource planning process is needed to address the problems of supply, demand, and conservation of water. Accordingly, the required updates/revisions to the HWP should follow and utilize an evaluation and assessment process that emphasizes the consideration of various planning scenarios incorporating uncertainties, environmental externalities, and public needs into a strategic decision-making process.

Under a comprehensive resource planning approach, all types of resources would be assessed and weighed in the context of new/existing supply-side resources, alternative source development such as wastewater reuse, conservation, alternative rate structures, as well as other demand-side management methods. In this process, the concept of least-cost planning can be pursued while balancing supply- side and demand-side management issues. A major outcome of this effort will be the development of coordinated strategies to meet future water demands, including greater use of alternative water sources, wherever possible.

STATEWIDE FRAMEWORK

Updating the various components of the HWP should take into consideration current statutory objectives that include, but are not limited to, obtaining maximum reasonable-beneficial uses of water; protection of natural resources, existing water rights (including the Department of Hawaiian Homelands) and traditional and customary Hawaiian practices; protection and procreation of fish and wildlife; and the maintenance of proper ecological balance, scenic beauty, and recreation.

In addition, the updating process should lead to refinement of demand projections, planning principles, and strategies associated with water resource planning and development. Such efforts should result in: identification and assessment of potential new sources; more realistic demand projections/forecasts; improvements in the operation of existing systems; application of various screening criteria/analyses; more effective integration between demand- and supply-side resource options; and overall improved coordination between State and County WUDPs.

Another element of the updating process should include a facilitated public participation process involving the community, public interest groups, and government agencies involved in the preparation of the County WUDPs. Under such a process, it is envisioned that stakeholder and/or community groups may be formed by the county to scope issues and address water-related concerns using a collaborative (as opposed to an adversarial) process.

The planning objectives described above are clearly set forth and established within *The Statewide Framework for Updating the Hawaii Water Plan* (Framework) adopted by the Commission in February 2000. Recommended planning elements for each component of the HWP are prescribed in the adopted Framework, including issues that should be addressed as part a comprehensive updating process.

In addition to the statutory requirements set forth in the Water Code, key elements of the Framework pertaining to the update of the County WUDPs include, but are not limited to:

- Submission of a County-Specific WUDP Project Description for review and approval by the Commission. The Project Description should include:
  - Identification of specific issues relating to land use, water use and resource development, and the relative priority of the issues to be addressed in the WUDP update;
  - An outline of the County's plan for establishment of planning objectives and evaluation criteria;
  - A description of its public/stakeholder participation and public information program;
  - A description of its plans for identification of: water demand forecasts (and the consideration of future uncertainties) within the hydrologic units and water availability limits established by the Commission, conservation and demand-side management programs, source development options and any potential impacts to the resource, and the development and integration of resource development strategies;
  - A schedule for the County's updating of the WUDP, which shall:
    - Outline the different stages and activities of the County's planning effort;
    - Indicate the approximate times and anticipated duration for public participation activities;
    - Indicate the approximate timeframe for County approval of the WUDP and submission of the WUDP to the Commission for adoption;
  - A description on how information from the State Water Projects Plan and the Agricultural Water Use and Development Plan will be integrated and used in updating the WUDP.
- Each County shall brief the Commission and its staff regarding any planned updates of the County WUDP; and
- Lastly, periodic milestone briefings to the Commission by the County shall also be required as part of the WUDP updating process.

Key statutory requirements that should be addressed as part of the WUDP update include:

- Consistency with:
  - The Water Resource Protection Plan and Water Quality Plan;
  - County land use plans and policies; and
  - State land use classification and policies.
- The status of water and related land development including an inventory of existing water uses;
- Future land uses and related water needs;
- Regional plans for water developments including recommended and alternative plans, costs, and adequacy of plans;

- Consultation and careful evaluation of recommendations of concerned Federal, State and County agencies;
- Incorporation of the current and foreseeable development and use needs of the Department of Hawaiian Home Lands (DHHL); and
- Lastly, updating and modification of the WUDP as necessary to maintain consistency with its zoning and land use policies.

The statutory and Framework provisions described above set forth the minimum requirements for updating the WUDP component of the HWP, including the overall-planning framework that should be followed by the Counties in updating their respective WUDPs. The required elements are consistent with the goals and policy of the Water Code and the Commission's mandate to manage and protect the State's water resources. The envisioned outcomes, benefits, and products are directly supportive of the Commission's duties and responsibilities set forth in §174C-5, HRS, and the requirements of the HWP described in §174C-31, HRS.

PROJECT DESCRIPTION FOR THE WUDP UPDATE

In accordance with these established provisions, the County of Kauai, Department of Water Supply, has submitted to the Commission for review and approval, the attached "Kauai Water Use & Development Plan Update Project Description" dated May 2015 (Exhibit 1).

Staff has evaluated the Project Description and the planning elements described therein and have determined that the proposed WUDP updating process meets with the provisions and guidelines set forth in the State Water Code and the Commission's Statewide Framework for Updating the Hawaii Water Plan.

The proposed approach for updating is similar to the County of Hawaii's WUDP 2010 update, which was approved by the Commission in 2011. Under this approach, a uniform, island-wide review of the sustainability of land use plans, policies, and designations will be conducted. This will result in the identification of sensitive areas for which more detailed regional planning may be warranted. For example, following the completion of the County of Hawaii's WUDP update in 2010, Hawaii County has initiated the development of regional WUDPs for the Keauhou and Waimea Aquifer System Areas, which were found to exceed the respective aquifer system areas' sustainable yields under full build-out scenarios based on current General Plan and zoning designations.

This type of analyses fulfills a key objective of the WUDP – to assess the long-term sustainability of county land use plans with regard to water resources. Early assessment of demand projections relative to water resource availability can inform subsequent land use decisions and policies and provide the opportunity to attach appropriate conditions to development approvals that will help to address water issues. It can provide the county time to adjust its land use vision as well as to develop alternative water sources, storage or transmission system improvements, and implement water conservation or other measures to help meet future demands within the sustainable limits set in the Water Resource Protection Plan. The County WUDP is a means to integrate land and water planning and can help to ensure stakeholders and regulatory agencies that the county has a plan to meet existing and future water needs that recognizes, respects, and protects public trust resources and uses.

Staff looks forward to Kauai County's adoption of a "living document" approach, which facilitates regular updating of the WUDP, and the development of an updated WUDP that conforms to the intentions and plans of the counties in terms of land use planning to provide guidance for decision-making on water allocation requests and the formulation of recommended and alternative strategies for resource development to meet future demand scenarios.

Upon completion of the plan update and approval by the Board of Water Supply, CWRM will schedule a public hearing on Kauai to maximize public participation in the updating of the County's WUDP.

RECOMMENDATION

Staff recommends that the Commission:

1. Approve the County of Kauai's Project Description for updating its Water Use and Development Plan; and

2. Authorize staff to participate in meetings and/or workshops, as necessary, with pertinent State and County agencies to facilitate implementation of statutory and framework provisions for updating the County Water Use and Development Plan.

Respectfully submitted,

W. ROY HARDY
Acting Deputy Director

Exhibit 1 May 2015 Kauai Water Use and Development Plan Update Project Description

APPROVED FOR SUBMITTAL:

SUZANNE D. CASE
Chairperson

TECHNICAL MEMORANDUM
Kauai Water Use & Development Plan Update
Project Description

I. INTRODUCTION

In 1987, the State Legislature passed the State Water Code (Hawaii Revised Statutes, Chapter 174C) to protect Hawaii's surface and ground water resources. The waters of the State are held in a public trust, and cannot be owned privately. The Public Trust Doctrine is a policy of the State Water Code and is stated as follows:

> *It is recognized that the waters of the State are held for the benefit of the citizens of the State. It is declared that the people of the State are beneficiaries and have a right to have the waters protected for their use.* (HRS §174C-2(a)).

The State Water Code (the Code) called for the establishment of a Commission on Water Resource Management (CWRM) that would be responsible for administering the Code. Part of the requirements set forth in the Code was the formulation of a *Hawaii Water Plan* that would serve as a dynamic, long-range planning guide for the Commission. The Commission established the Hawaii Administrative Rules Chapter 13-170, *Hawaii Water Plan*, which specifies and clarifies definitions, procedures, requirements, etc., required by, but not specified in, the Code.

The objectives of the *Hawaii Water Plan* are as follows:

- Proper conservation and water development
- Reasonable and beneficial use of water
- Control of water for public purposes
- Attainment of adequate water quality
- Provision for Department of Hawaiian Home Lands needs and Hawaiian water rights
- Implementation of water resource policies
- Linkage between land use and water by County "home rule"

The *Hawaii Water Plan* consists of five parts:

(1) the *Water Resource Protection Plan* (WRPP),
(2) the *Water Quality Plan* (WQP),
(3) the *State Water Projects Plan* (SWPP),
(4) the *Agricultural Water Use and Development Plan* (AWUDP), and
(5) the County Water Use and Development Plans (WUDP). A separate WUDP is to be prepared by each of the four Counties.

The original *Hawaii Water Plan*, which did not include the AWUDP at the time, was completed and adopted by the Commission in July 1990. The Code calls for all parts of the *Hawaii Water Plan* to be updated regularly to reflect the current needs of the State. Each of the Counties is responsible to update their respective WUDP as required. Updates of the

Exhibit 1

various elements were drafted in 1992, but were not officially adopted by the CWRM. The AWUDP was added to the *Hawaii Water Plan* by mandate under Act 101, Session Laws of Hawaii (SLH) 1998, by the State Legislature. **Table 1** summarizes the responsible agency, objectives, elements and current status of each of the *Hawaii Water Plan* components.

Table 1 – *Hawaii Water Plan* Components

***Hawaii Water Plan* Document**	**Objectives**	**Elements**	**Status**
Water Resource Protection Plan (Commission on Water Resource Management)	To protect and sustain statewide ground/surface water resources, watersheds and natural stream environments.	• Designation of hydrologic units • Characterization & inventory of groundwater and surface water resources • Instream uses • Programs to conserve, augment and protect such resources	1st Update Completed in 2008 2nd Update in Progress
Water Quality Plan (Department of Health)	To protect the public health and sensitive ecological systems by preserving, protecting, restoring and enhancing the quality of ground and surface water throughout the State of Hawaii.	• Water quality criteria and standards • Groundwater protection • Water quality problems • Existing water quality management programs and recommended policies and strategies	1st Update in Progress
State Water Projects Plan (Department of Land and Natural Resources)	To provide a framework for planning and implementation of water development programs to meet projected water demands for state projects.	• Inventory existing State wells, stream diversions and water systems • Identification of proposed State projects/developments • Assessment of future water demand projections • Water development strategy, strategy implementation and recommendations • Incorporation of State agricultural water needs as outlined in the Agricultural Water Use and Development Plan	1st Update Completed in 2003 2nd Update in Progress – limited to Department of Hawaiian Home Lands 3rd State-wide Update in Progress

Table 1 – *Hawaii Water Plan* Components (continued)

***Hawaii Water Plan* Document**		**Objectives**	**Elements**	**Status**
Agricultural Water Use and Development Plan (Department of Agriculture)		To assess State and private agricultural water use, supply and irrigation water systems through a long-range management plan.	• Master inventory of existing irrigation systems • Existing statewide agricultural land uses, assessment of current and future water irrigation needs • Rehabilitation costs, prioritization and program for system repairs • Identification of options for additional/alternative irrigation water sources, conservation, and demand management	Completed in 2003 Revised in 2004 2nd Update in Progress
Water Use and Development Plan (Respective Counties)	Maui	To ensure that the future water needs of the County are met and to provide guidance to the CWRM for decision-making on water uses and water reservation requests.	• Set forth the allocation of water to land use consistent with zoning and land use policies • Current and future water demand forecasts • Water system inventory and profiles • Resource and facility options, including supply sources, transmission, storage and conservation	1st Update in Progress
	Kauai			1st Update in Progress
	Hawaii			1st Update Completed in 2011 2nd Partial Update in Progress
	Oahu			1st Update in Progress

II. HISTORY – KAUAI WUDP

In compliance with the State Water Code, the County of Kauai Department of Water (DOW) was tasked with the responsibility to prepare the *County of Kauai Water Use and Development Plan* in 1988. The original Kauai WUDP was adopted by the County Council by Ordinance No. 568 and endorsed by the Mayor on April 27, 1990. The WUDP was conditionally accepted by the State Commission on Water Resource Management for incorporation into the *Hawaii Water Plan* on June 27, 1990, with the provisions that the WUDP be reviewed and revised as necessary by the County to coincide with the review process of the *Hawaii Water Plan*. The first update was drafted in 1992, but was not officially adopted by the CWRM.

III. KEY REFERENCES & POLICY DOCUMENTS

Key reference and policy documents to serve as the basis of the Kauai WUDP Update include:

1. Hawaii Revised Statutes, Chapter 174C, State Water Code.
2. Hawaii Administrative Rules, Title 13, Department of Land & Natural Resources, Sub-title 7, Water Resources, Chapter 170, Hawaii Water Plan.
3. Statewide Framework for Updating the Hawaii Water Plan, Commission on Water Resource Management, Department of Land & Natural Resources, State of Hawaii, dated February 2000.
4. Kauai Water Use and Development Plan – Review Draft, prepared for the Department of Water, County of Kauai, by R.M. Towill Corporation, dated January 1992.
5. Water Plan 2020, prepared for the Department of Water, County of Kauai, by RW Beck, et al., dated March 2001.
6. Water Resource Protection Plan, prepared for the Commission on Water Resource Management, Department of Land & Natural Resource, State of Hawaii, by Wilson Okamoto Corporation, dated June 2008.
7. Draft Water Quality Plan 2014, Department of Health, State of Hawaii, dated August 2014.
8. State Water Projects Plan, prepared for the Commission on Water Resource Management, Department of Land & Natural Resources, State of Hawaii, prepared by Fukunaga & Associates, Inc., dated February 2003.
9. Agricultural Water Use and Development Plan, prepared for the State Department of Agriculture, prepared by Water Resource Associates, dated December 2003, revised December 2004.
10. NREM-CTAHR-UHM Report on Agricultural Water Use and Irrigation Systems in Hawaii, prepared by Department of Natural Resources and Environmental Management, College of Tropical Agriculture and Human Resources, University of Hawaii at Manoa, dated July 2010.

11. County of Kauai Important Agricultural Lands Study Final Study, prepared by the University of Hawaii Department of Urban and Regional Planning and the University of Hawaii Economic Research Organization, dated July 2014.
12. 2013 Update of the Hawaii Water Reuse Survey and Report, prepared for the Commission on Water Resource Management, Department of Land & Natural Resources, State of Hawaii, prepared by The Limtiaco Consulting Group, dated July 2013.
13. State Land Use Classification, State Land Use Commission.
14. Kauai General Plan, Planning Department, County of Kauai, dated November 2000.
15. Kauai General Plan Update: Socioeconomic analysis and Forecasts, prepared by SMS Research & Marketing Services, Inc., dated February 2014.
16. Lihue Town Core Urban Design Plan, Planning Department, County of Kauai, June 2009.
17. Kilauea Town Plan, County of Kauai, September 2006.
18. South Kauai Community Plan, Koloa, Poipu, Kalaheo, Omao, Lawai, November 2014.
19. Lihue Community Plan, Planning Commission Approved Draft Final, County of Kauai, Planning Department, November 2014.
20. County Zoning, Planning Department, County of Kauai.
21. Kauai Island Plan, prepared for the State Department of Hawaiian Home Lands, prepared by Group 70 International, dated May 2004.
22. Water System Standards, Department of Water, County of Kauai, 2002.

IV. OBJECTIVE

The primary objective of the WUDP is to set forth the allocation of water to land use. As required by the *Hawaii Water Plan*, each of the four counties is responsible to prepare a WUDP to include, but not be limited to the following:

> *(1) Status of county water and related land development including an inventory of existing water uses for domestic, municipal, and industrial users, agriculture, aquaculture, hydropower development, drainage, reuse, reclamation, recharge, and resulting problems and constraints;*
> *(2) Future land uses and related water needs; and*
> *(3) Regional plans for water developments including recommended and alternative plans, costs, adequacy of plans, and relationship to the water resource protection plan and water quality plan.*

The intent of the Kauai WUDP is to guide the County in its planning, management and development of land use and water resource strategies and policies for sustainable development. The focus of this initial Kauai WUDP update is to conduct an island-wide assessment of water resource supply and demand conditions, with the intent to identify and prioritize sensitive areas of concern. Identification of sensitive areas through this initial update is proposed to guide future subsequent efforts and focus future expenditure of County

resources on these areas in a prioritized manner. Other areas would continue to be monitored for significant changes in water resource information and land use policies.

V. PROPOSED TECHNICAL APPROACH

The County of Kauai proposes to implement the following technical approach. The Kauai WUDP Update will include an inventory of existing water uses, an assessment of available water resources, future water demand projections, and master plan level resource and facility recommendations.

A. General

The *Statewide Framework for Updating the Hawaii Water Plan* (Framework) dated February 2000 was created by the Commission on Water Resource Management to facilitate coordination, integration, and consistency of the components of the *Hawaii Water Plan*. In addition, the Framework is a guide for preparation of the WUDP to ensure effective implementation by the County and utilization by the CWRM for resource management purposes, and provides recommended WUDP update process elements that are incorporated in the proposed technical approach.

The Framework requires presentation of data and analyses based on ground water hydrologic units or aquifer sectors and systems, and surface water hydrologic units, designated by the CWRM.

1. Ground Water

There are 3 aquifer sectors and 13 aquifer systems on the island of Kauai, as shown on **Figure 1**. **Table 2** lists the aquifer sectors and systems, geographical area of coverage, and sustainable yield (MGD, million gallons per day). The State Water Code defines sustainable yield as "the maximum rate at which water may be withdrawn from a water source without impairing the utility or quality of the water source as determined by the commission."

Table 2 – Aquifer Sectors and Systems

Sector Code	System Code	Sector	System	Area (Acres)	SY (MGD)
201		**Lihue**		**145,276**	**131**
	20101		Koloa		30
	20102		Hanamaulu		36
	20103		Wailua		43
	20104		Anahola		17
	20105		Kilauea		5
202		**Hanalei**		**79,765**	**86**
	20201		Kalihiwai		11
	20202		Hanalei		34
	20203		Wainiha		24
	20204		Napali		17
203		**Waimea**		**129,980**	**95**
	20301		Kekaha		10
	20302		Waimea		37
	20303		Makaweli		26
	20304		Hanapepe		22
Total for Island of Kauai				**355,021**	**312**

Source: *2008 Water Resource Protection Plan*
State of Hawaii, DBEDT, Office of Planning GIS Data

2. Surface Water

There are 74 surface water hydrologic units on the island of Kauai, as shown on **Figure 2**. Evaluation of the surface water hydrologic units and the ground water hydrologic units on the island of Kauai indicate that they generally share similar boundaries, thereby allowing the surface water hydrologic units to be "assigned" to a specific ground water hydrologic unit. This is displayed on **Figure 3**, which is an overlay of the surface water hydrologic units and ground water hydrologic units. The only major anomaly in this method is that the surface water hydrologic unit number 2060 (highlighted in red on **Figure 3**) lies over both the Waimea and Makaweli Aquifer Systems (20302 and 20303, respectively). Since the surface water hydrologic units and ground water hydrologic units are well-correlated, surface water data and analyses will be presented based on the ground water hydrologic units or aquifer systems. This will be addressed further in Section C.2 Surface Water below.

For the purposes of the WUDP, all references to water demand and unit rate are proposed to be specific to average day demand, which is pertinent to the evaluation of water resources. Maximum and peak demands are typically used for the planning and

design of water system facilities, including pipeline sizing, reservoir capacity and pump capacity, and are not referred to within this document, unless specifically indicated.

B. Inventory of Existing Water Uses

The CWRM classifies water use based on six categories as listed in the following table taken from the WRPP. Water use will be categorized in accordance with the list to the extent possible.

Well Operator	Category	Sub-Category
Individual Operator	**Agriculture**	• Aquatic plants and animals • Crop irrigation and processing • Livestock water, pasture irrigation, and processing • Ornamental and nursery plants • Taro • Other agricultural applications
	Domestic Residential Domestic, includes potable and non-potable water needs Non-residential Domestic, includes potable (and non-potable) water needs	• Single- and multi-family households, including non-commercial gardening • Commercial businesses • Office buildings • Hospitals • Churches • Hotels • Schools
	Industrial	• Fire protection • Mining, dust control • Geothermal, thermoelectric cooling, power development, hydroelectric power • Other industrial applications
	Irrigation	• Golf course • Hotel • Landscape and water features • Parks • Schools • Habitat maintenance
Agency Operator	**Military**	• All military use
	Municipal	• State • County • Private

1. Water Demand

   a. *Estimated Use of Water, United States Geological Survey (USGS)*

   General information is available from the USGS website, which lists ground water and surface water uses in the County of Kauai for various categories of use. **Table 3** lists fresh water consumption for each use in million gallons per day (MGD) based on data from the year 2010. As indicated in the footnote, "Public Supply" includes various water uses; a breakdown in accordance with the CWRM categories and based on available information is intended to be provided in the WUDP.

Table 3 – Existing Fresh Water Uses

Use	MGD	% of Total
Ground water	**17.56**	**28.94**
Public supply*	13.22	21.78
Industrial	0.00	0.00
Hydroelectric	0.00	0.00
Thermoelectric**	4.04	6.66
Irrigation	0.00	0.00
Livestock	0.18	0.30
Aquaculture	0.00	0.00
Mining	0.12	0.20
Surface water	**43.13**	**71.07**
Public supply*	2.02	3.33
Industrial	0.00	0.00
Hydroelectric	-	0.00
Thermoelectric**	0.00	0.00
Irrigation	41.11	67.74
Aquaculture	0.00	0.00
Mining	0.00	0.00
Total	**60.69**	**100.00**

Source: The USGS *Estimated Use of Water in the United States County-Level Data for 2010* webpage (http://water.usgs.gov/watuse/data/2010/) and USGS *Water Use Data for Hawaii* webpage (http://waterdata.usgs.gov/hi/nwis/water_use/)

* Includes water withdrawn by public and private water suppliers that furnish water to at least 25 people or have a minimum of 15 connections. Public suppliers provide water for a variety of uses, such as domestic, commercial, industrial, thermoelectric-power, and public water use. Public water use includes such purposes as firefighting, street washing, flushing of water lines, and maintaining municipal parks and swimming pools.

**Saline water withdrawn from groundwater sources; where saline water is defined as water that contains 1,000 mg/L or more of dissolved solids. Freshwater is defined as water that contains less than 1,000 mg/L of dissolved solids.

b. Public Water System Data

The State Department of Health regulates public water systems. A public water system is defined as a water system that "has at least fifteen service connections or regularly serves an average of at least twenty-five individuals daily at least sixty days out of the year." **Table 4** lists the Kauai public water systems, owners, number of service connections, and population served. The information was obtained from the State Department of Health sanitary surveys. Customer meter data from the DOW and customer meter data made available by the private water system purveyors will be used to evaluate and categorize the island water consumption. The DOW serves over 60,000 people, and historical average day use based on DOW meter data from 2001 through 2009 ranged from 11.7 MGD to 13.4 MGD.

Table 4 – Kauai Public Water Systems (PWS)

PWS No.	Name	Owner	No. of Connections	Population Served
400	Lihue-Kapaa	DOW	10,697	30,000
401	Anahola	DOW	620	2,174
402	Anini	DOW	61	109
403	Hanalei	DOW	424	1,023
404	Hanapepe-Elelele	DOW	1,710	4,430
406	Kekaha-Waimea	DOW	1,880	5,135
407	Kilauea	DOW	1,468	3,758
408	Koloa-Poipu	DOW	1,408	5,312
415	Haena-Wainiha	DOW	408	1,120
417	Gay & Robinson	Gay & Robinson	325	999
421	Koloa	Grove Farm	19	40
422	Kahili Mountain Park	Kahili Adventist School	38	150
423	Kealia	Kealia Water Co. Holdings, LLC	69	260
425	Kokee State Park	DLNR	93	2,000
426	Polihae State Park	DLNR	1	300
428	Princeville	Princeville Utilities, Co., Inc.	1,029	1,698
430	Pacific Missile Range	U.S. Dept. of Navy	185	1,200
432	Anahola Farm Lots	DHHL	77	385
434	Kalaheo-Koloa	DOW	4,799	15,108

DLNR – State Department of Land and Natural Resources
DHHL – State Department of Hawaiian Home Lands
Source: State Department of Health Sanitary Surveys performed between 2008 and 2011

2. Instream Use

Instream use is defined by the Code as, "beneficial uses of stream water for significant purposes which are located in the stream and which are achieved by leaving the water in the stream. Instream uses include, but are not limited to:

(1) Maintenance of fish and wildlife habitats;
(2) Outdoor recreational activities;
(3) Maintenance of ecosystems such as estuaries, wetlands, and stream vegetation;
(4) Aesthetic values such as waterfalls and scenic waterways;
(5) Navigation;
(6) Instream hydropower generation;
(7) Maintenance of water quality;
(8) The conveyance of irrigation and domestic water supplies to downstream points of diversion; and
(9) The protection of traditional and customary Hawaiian rights."

In accordance with the Code, the CWRM must establish and administer instream flow standards on a stream-by-stream basis as necessary to protect public interests. Instream flow standard is defined as, "a quantity or flow of water or depth of water which is required to be present at a specific location in a stream system at certain specified times of the year to protect fishery, wildlife, recreational, aesthetic, scenic, and other beneficial instream uses." Considerably more research and study needs to be completed to accumulate the data and perspective necessary to conduct a thorough and meaningful assessment of instream flow standards. Until permanent instream flow standards are established, interim instream flow standards have been adopted. According to Section 13-169-46, Hawaii Administrative Rules, "Interim Instream Flow Standard for all streams on Hawaii, as adopted by the commission on water resource management on June 15, 1988, shall be that amount of water flowing in each stream on the effective date of this standard, and as that flow may naturally vary throughout the year and from year to year without further amounts of water being diverted offstream through new or expanded diversions, and under the stream conditions existing on the effective date of the standard, except as may be modified [by the commission]." Instream use will be based on the best available information available from CWRM.

The Code states that "adequate provisions shall be made for the protection of traditional and customary Hawaiian rights, the protection and procreation of fish and wildlife, the maintenance of proper ecological balance and scenic beauty, and the preservation and enhancement of waters of the State for municipal uses, public recreation, public water supply, agriculture, and navigation." The Code also specifically discusses the protection of Native Hawaiian water rights.

a. Native Hawaiian Water Rights

Section 174C-101 of the Code discusses the protection of Native Hawaiian water rights in greater detail addressing reservation of water for Hawaiian Home Land allotments, and traditional and customary rights, including appurtenant rights. Hawaiian Home Lands are discussed further in section V.D.2.c.ii of this document. In describing traditional and customary rights, Section 174C-101 states that "traditional and customary rights of ahupua'a tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778 shall not be abridged or denied by this chapter [the Code]. Such traditional and customary rights shall include, but not be limited to, the cultivation or propagation of taro on one's own kuleana and the gathering of hihiwai, opae, o'opu, limu, thatch, ti leaf, aho card, and medicinal plants for subsistence, cultural, and religious purposes."

Water resource strategies will be reviewed for potential impacts to instream uses and Native Hawaiian water rights. Water supply reliability and quality, feasibility, environmental and cultural impacts, and water rights will be considered as projects and programs develop. More detailed and site specific evaluation of these impacts will be required and accomplished through the environmental review process (HRS Chapter 343).

C. Assess Available Water Resources

Naturally occurring water resources on the island of Kauai include ground water, surface water or stream diversions, and rainwater catchment. Conservation is vital to preservation of these valuable water resources. Water supply can be further augmented by wastewater reclamation and desalination. Water quality varies with the source, and depending on the proposed use, treatment requirements also vary. Water quality protection is covered by the *Water Quality Plan*, which describes the Department of Health and other programs which protect existing and potential sources of drinking water.

The inventory of the existing ground water sources and stream diversions is intended to be obtained from the CWRM database. Reclaimed wastewater information is intended to be obtained from the Department of Health, Wastewater Branch and is also available in the recent Update of the Hawaii Water Reuse Survey and Report, July 2013.

1. Ground Water

The CWRM database on wells was developed with information received from the Well Registration program and, since 1998, supplemented with information obtained through the well construction/pump installation permitting process. The

CWRM also has data on well pumpage, which only includes wells that are reported; therefore the data on well pumpage is not complete in all areas. These databases are the best available information and are proposed to be used to evaluate the existing ground water resources.

Based on the CWRM well database and limited available updated well information, the island of Kauai has 298 well sources with a total pumping capacity of 227.7 MGD, as listed in **Table 5** and shown on **Figure 4**.

Table 5 – Ground Water Resources

Category	# of Wells	Capacity (MGD)	% of Total Capacity
Agriculture	29	96.1	42
Domestic	91	4.3	2
Industrial	10	41.2	18
Irrigation	34	21.9	10
Municipal	73	59.6	26
Observation	25	2.3	1
Others	36	2.3	1
Total	298	227.7	100

Source: CWRM Well Database

Table 6 summarizes the sustainable yield (SY), preliminary assessment of current production and percentage of SY for the current production. Current production is represented by the highest 12-month moving average (MAV) or the highest annual average yield calculated from the actual pumpage data for each aquifer system/sector from January 2007 to September 2009.

Table 6 – Sustainable Yield

Aq Code	Sys Code	Sector	System	SY (MGD)	High 12-Month MAV (MGD)	High 12-Month MAV SY (%)
201		**Lihue**		**131**	**9.61**	**7.34**
	20101		Koloa	30	3.99	13.29
	20102		Hanamaulu	36	2.39	6.63
	20103		Wailua	43	0.43	1.00
	20104		Anahola	17	1.99	11.69
	20105		Kilauea	5	0.82	16.32
202		**Hanalei**		**86**	**1.85**	**2.15**
	20201		Kalihiwai	11	1.31	11.95
	20202		Hanalei	34	0.23	0.67
	20203		Wainiha	24	0.31	1.28
	20204		Napali	17	0.00	0.00
203		**Waimea**		**95**	**2.32**	**2.44**
	20301		Kekaha	10	1.48	14.79
	20302		Waimea	37	0.00	0.00
	20303		Makaweli	26	0.26	1.00
	20304		Hanapepe	22	0.58	2.62
		Island of Kauai	**Total**	**312**	**13.77**	**4.41**

Source: CWRM Well Database

CWRM well database and sustainable yield information indicate that current pumpage is well within the sustainable yield of each aquifer system with the highest percentage in the Kilauea Aquifer System at 16.32% of the 5 MGD SY, which translates to 0.82 MGD.

2. Surface Water

The annual rainfall on the island of Kauai generally tends to be greater than the rest of the major Hawaiian Islands, with Mount Waialeale reputed to be one of the world's wettest spot with annual rainfall of 450 inches per year. The island's wet climate has provided substantial surface water sources, which supported major agricultural production (primarily sugarcane) in the past.

The CWRM has 292 declared stream diversions on the island of Kauai. **Figure 5** shows the locations and distribution. The stream diversions are associated with surface water hydrologic units, and as mentioned earlier, the surface water hydrologic units will be correlated with the ground water hydrologic units.

Accordingly, surface water data and analyses will be presented based on the ground water hydrologic units or aquifer systems.

Currently, there are no quantitative interim instream flow standards for any streams located on Kauai; meaning that unlike ground water aquifer systems with an associated sustainable yield, there is no designated quantity of water that may be diverted without degrading a stream. In order to assess surface water sustainability, it is assumed that no additional diversions will be allowed from any stream. Each existing declared diversion reported in the CWRM surface water diversion database will be assigned to an aquifer system to estimate the amount of surface water that may be used in each aquifer system. The potential capability of irrigation systems to transfer surface water to adjacent aquifer systems will be noted (irrigation system database indicates presence of flume or pipe), particularly if adjacent areas are deficient in surface water sources to meet the projected surface water demands.

Table 7 lists the major stream diversions or ditch systems and assessed conditions.

Table 7 – Major Irrigation Systems

Major Irrigation System	Status	Condition
Anahola Ditch	Inactive	Poor
East Kauai IS	Unknown	Fair
Kaloko and Puu Ka Ele Ditches	Unknown	Dam failed
Kauai Coffee IS	Partially Active	Unknown
Kekaha Ditch IS	Active*	Fair
Kokee Ditch IS	Active*	Fair
Olokele Ditch	Active	Unknown
Upper and Lower Haiku Ditches	Partially Active	Unknown, portions non-operational
Upper and Lower Lihue Ditches	Active	Fair
Waiahi-Kuia Aqueduct	Partially Active	Unknown

Source: *Agricultural Water Use and Development Plan, 2003 rev. 2004*
NREM-CTAHR-UHM Report on Agricultural Water Use and Irrigation Systems in Hawaii, 2010
** Kekaha Agriculture Association Overview of Ditch System and Agricultural Infrastructure Presentation to CWRM, April 29, 2015*

3. Water Conservation

The Hawaii Water Conservation Plan defines water conservation as the reduction in fresh water use by improving the efficiency of water delivery and end water uses. Minimizing losses and waste in water delivery systems and increasing the efficiency of end water uses, increase the amount of water available and help to ensure the long-term viability of water resources.

The DOW's current conservation activities include 100% customer metering, meter repair/replacement program, non-metered water analysis/report, leak detection, tank overflow controls/alarms, plumbing code water efficient fixture and pressure reducing valve requirement, voluntary water restriction notice, and public outreach/education programs. Public participation and cooperation is key to the success of water conservation programs. In addition to its public outreach/education programs, the DOW provides the public with water conservation tips and resources on its website.

As required by the Framework, conservation by agricultural water use is covered by the AWUDP. For the irrigation systems under the jurisdiction of the State Department of Agriculture (DOA), DOA evaluates and prioritizes system rehabilitation. Conservation by farmers is encouraged through metering; efficient use of water by farmers is inherent to maintain their economic viability.

Another part of water conservation is resource conservation. The objective of resource conservation is "to assure optimum development of sources to protect them against contamination, waste, and overdraft." Resource conservation includes the protection of watersheds. Watersheds are precipitation infiltration areas, where rainfall percolates through the soil, that are crucial to the replenishment and preservation of basal aquifers.

4. Rainwater Catchment

Rainwater catchment systems are typically located outside of the County water system service areas. There are no rainwater catchment public water systems regulated by the Department of Health, Safe Drinking Water Branch. There is no government agency that oversees private individual systems. The owner is responsible for the water quantity, quality and maintenance of the system. Water use by individual catchment systems is determined by deduction, i.e. if a developed parcel is not served by DOW or other water system of record, then it is assumed that it is served by a catchment system. If the County or other private water systems decide to extend water service to these areas, then more water sources will be needed.

5. Reclaimed Wastewater

Reclaimed wastewater is a valuable resource, especially for landscape and agricultural irrigation purposes. **Table 8** lists existing reclaimed water applications, classifications, and capacities for the island of Kauai.

Table 8 – Reclaimed Wastewater Resources

Wastewater Treatment Plant	Reclaimed Water Classification	WWTP Capacity (MGD)	Current Reuse Amount (MGD)	Irrigation Application
Eleele WWRF	R-2	0.8	0	
Grand Hyatt WWRF	R-2	0.25	0.1	Poipu Bay Resort Golf Course - golf course irrigation
Lihue WWRF	R-1	2.5	1.2	Kauai Lagoons Resort - golf course irrigation, Roadway landscaping - landscape irrigation
Lihue-Puhi WWTP	R-1	1	0.4	Puakea Golf Course - golf course irrigation
Poipu WRF	R-1	1	0.36	Kiahuna Golf Club - golf course irrigation, Koloa Landing – landscape irrigation
Princeville WWRF	R-2	1	0.6	Princeville Makai Golf Course - golf course irrigation
Wailua WWRF	R-2	1.5	0.5	Wailua Golf Course - golf course irrigation, Lydgate Park – athletic field irrigation
Waimea WWRF	R-1	0.7	0.3	Kikialoa Land Company - agriculture irrigation

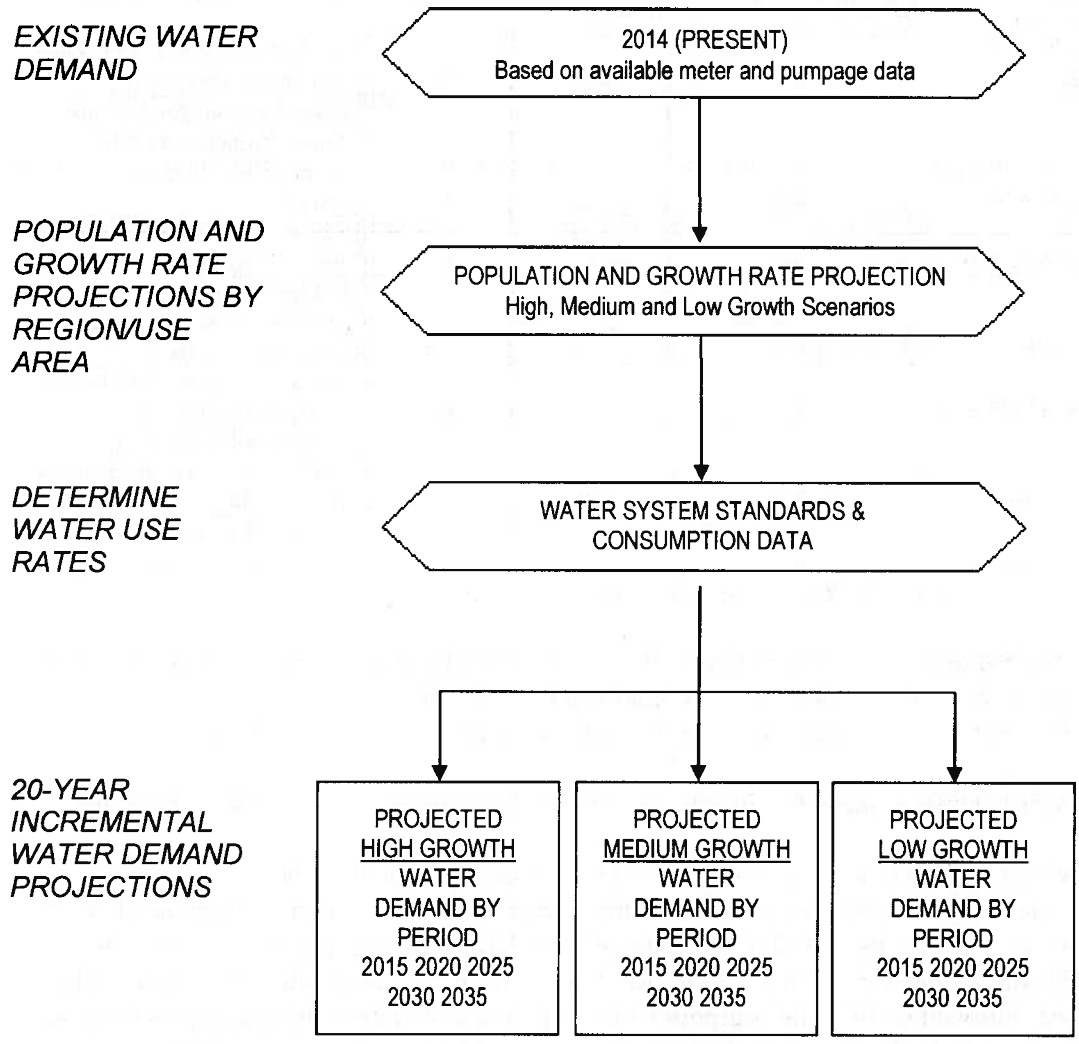
Source: *2013 Update of the Hawaii Water Reuse Survey and Report*

Expanded use of reclaimed water will always be considered as a water resource strategy where applicable. This serves to enhance the sustainable use of water resources by preserving other sources and reusing water that might otherwise be disposed.

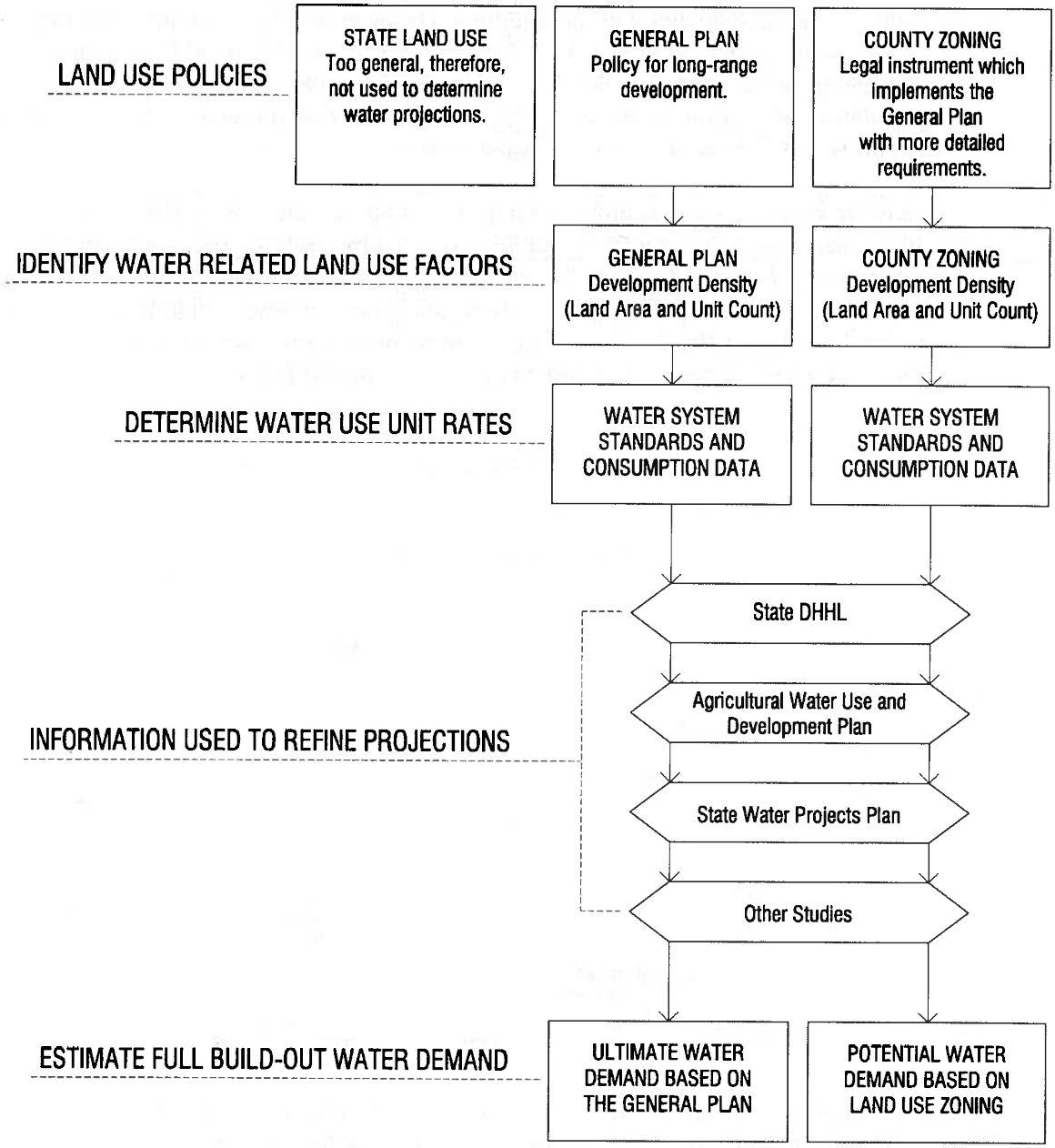
D. Develop Methodology for Integrated Water Resources and Land Use Planning

The planning methodology for the WUDP will consider population growth rate and land use based water demand to plan for future water needs. Incremental water needs for the next 20 years are proposed to be based on population growth rate projections. Full build-out demand or the maximum water needs if all land is developed to the highest extent allowed by the land use policy are proposed to be based on land use evaluations. The intent is to determine the sustainability of water needs associated with the potential full build-out development that is allowed by current land use policies set by the State of Hawaii and the County of Kauai. This proposed island-wide assessment will provide a consistent basis for relative evaluation of the aquifer system areas to identify and prioritize sensitive areas, so that future subsequent water resource planning efforts can be more detailed and focused. Flowcharts illustrating the proposed planning methodology are shown on the following pages.

PROPOSED WATER RESOURCES PLANNING METHODOLOGY
20-YEAR INCREMENTAL WATER DEMAND PROJECTION



PROPOSED WATER RESOURCES PLANNING METHODOLOGY
FULL BUILD-OUT WATER DEMAND

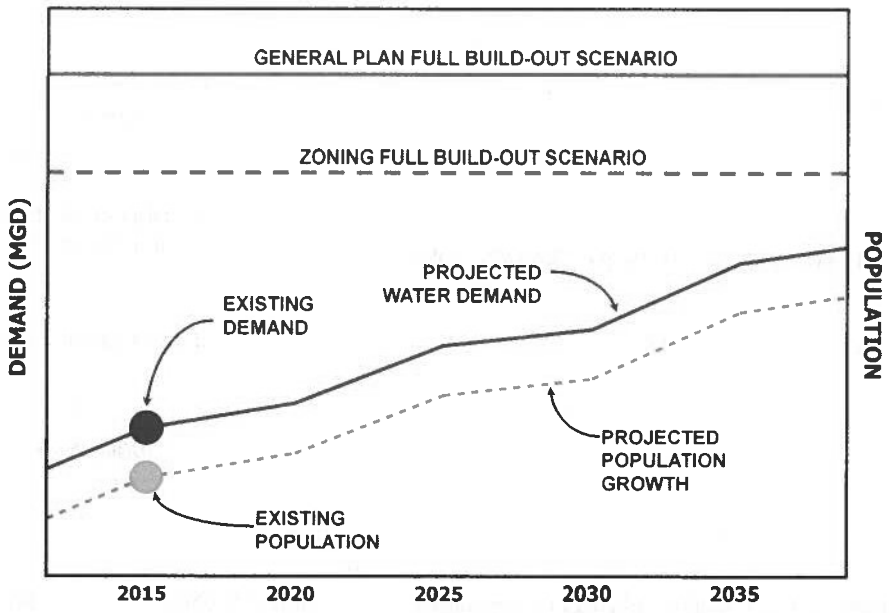


1. 20-Year Incremental Water Demand Projections

Population and growth rate projections are proposed to be used to project water demands in 5-year increments for the next 20 years. The population projections used will be coordinated with the Planning Department. The Planning Department is conducting technical studies in preparation for the next General Plan update. One of these technical studies is the Socio-Economic Forecast, which includes population projections to the year 2035. The population projections from this study are proposed to be used to project water demand.

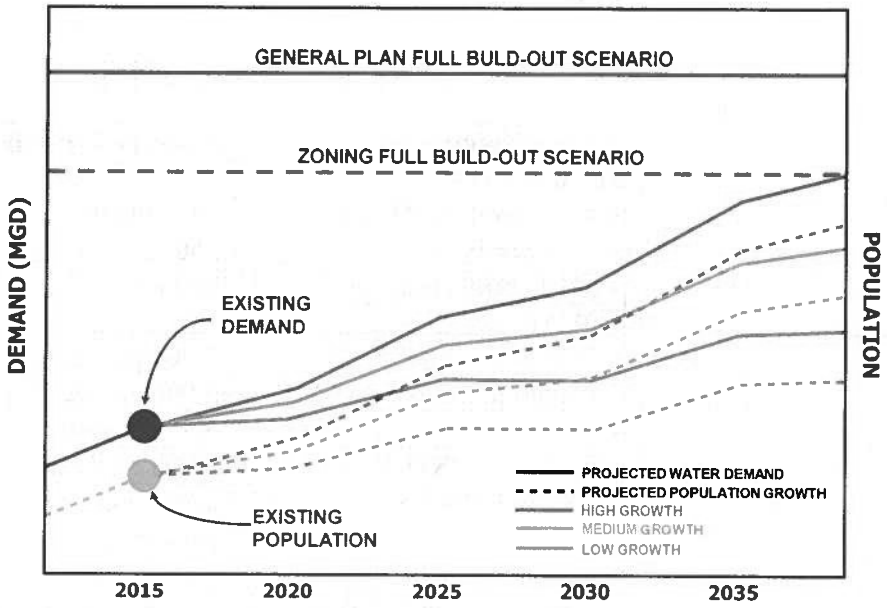
Existing water demand is proposed to be the basis of water demand projections. Water demand to the year 2035 will be projected by applying the population growth rate to existing water demand. Projecting water demand at the same rate as population growth assumes that the character of communities, including per capita water demand and the density of units within communities, will be similar in the future. **Graph 1** shows a theoretical example of the projected demands.

Graph 1 – Projected Demand



The following growth scenarios are proposed to be evaluated for each 5-year increment: high or rapid growth, medium growth or the base case, and low growth which is the most conservative. **Graph 2** depicts a theoretical example with high, medium, and low growth scenarios, which were not shown on **Graph 1** for clarity.

Graph 2 – Projected Demand H-M-L Growth Scenarios



2. Full Build-Out Water Demand

Full build-out water demand is land use based and is the maximum water needs anticipated if all land is developed to the highest extent allowed by current land use policies set by the State of Hawaii and the County of Kauai. The full build-out scenarios are unlikely to occur because it assumes that all land area is developed to the maximum density allowed, including redevelopment of existing developed areas. However, this evaluation will identify areas where water resources are more than adequate to support maximum demands, thereby providing guidance for future assessments to focus efforts on the more sensitive areas. Maximum development, in terms of unit count and land area, is proposed to be determined from land use policies as described below. Full build-out demand is proposed to be determined by multiplying these unit count and land areas by the water use rates that are also described below.

a. Water Use Unit Rates

Water use unit rates are intended to be based on the *Water System Standards* and actual consumption data. Potable and non-potable water requirements will be differentiated as appropriate.

i. Applicable water use unit rates from the *Water System Standards* Table 100-18 – Domestic Consumption Guidelines are listed in **Table 9**.

Table 9 – Domestic Consumption Guidelines

Zoning Designation	Average Daily Demand
RESIDENTIAL:	
Single Family or Duplex	500 gals/unit
Multi-Family Low Rise	350 gals/unit
Multi-Family High Rise	350 gals/unit
COMMERCIAL:	
Commercial Only	3,000 gals/acre
Commercial/Industrial Mix	5,000 gals/acre
RESORT:	350 gals/unit
LIGHT INDUSTRY:	4,000 gals/acre
SCHOOLS, PARKS:	4,000 gals/acre or 60 gals/student
AGRICULTURE:	3,400 gals/acre*

*Agriculture average daily demand based on AWUDP water application rate for diversified crops.

ii. Water use unit rates and per capita rates are proposed to be projected from available historical consumption and population data. This data would be used as a comparison to the *Water System Standards* water use unit rates. The *Water System Standards* water use unit rates will be used for calculating full build-out water demands unless the historical consumption and population data indicate a rate that is more appropriate.

b. Full Build-Out Land Use Based Water Demand

The State Land Use, County General Plan, County Development Plans, and County Zoning Land Use classifications will be assessed to estimate the projected development densities for each designation at full build-out. The results are proposed to be used to determine a range of water needs at full build-out, and to determine the sustainability of water needs if the development allowed by current land use policies is realized. The State Department of Hawaiian Home Lands property is not subject to the state and county land use classifications and will be specifically addressed as discussed further below.

i. State Land Use

The State Land Use classification is very general with only four land use districts: Urban, Rural, Agriculture, and Conservation. The County administers the local land use policy within the Urban, Rural, and Agricultural districts, while the Board of Land and Natural Resources regulates activities within the Conservation district. The County of Kauai State Land Use acreage by classification is listed in **Table 10** and shown in **Figure 6**.

Table 10 – State Land Use Classification (SLUC)

State Land Use	Acreage	% of Total
Agricultural	144,347	41
Conservation	194,429	55
Rural	1,374	<1
Urban	14,865	4
Total	355,015	100

State of Hawaii, DBEDT, Office of Planning GIS Data
Data as of May 2000

The State Land Use classification has no guidelines to identify the level of development densities within the various districts, and therefore, it has been decided that SLUC will not be used to estimate full build-out water demand.

ii. Kauai County General Plan

The County General Plan is a long-range, "direction-setting policy document that is intended to serve as a guide to help plan and improve the physical environment and quality of life for the people of Kauai, and to address the overall development of the island. This document also presents the County's vision for Kauai and establishes the strategies to help achieve that vision." The first General Plan was adopted in 1971 and subsequently updated in 1984 and 2000. The Planning Department currently is conducting a series of technical studies to support the upcoming General Plan Update planning process.

The General Plan Land Use Map, shown in **Figure 7**, indicates the general distribution of various land uses on the island. The land use designations and their associated acreage for the island are listed in **Table 11**:

Table 11 – General Plan Land Use

Land Use	Acreage*	% of Total
Agricultural	80,019	23
Military	2,046	1
Open	256,223	72
Park	1,014	<1
Residential Community	10,044	3
Resort	2,239	1
Transportation	968	<1
Urban Center	2,640	1
Total	355,193	100

*Estimate – County of Kauai Planning Department, GIS Data

Although the General Plan is more detailed than the State Land Use classification, the land use designations are broad. In addition, since the General Plan is a direction-setting policy document and not a legal instrument, it does not provide specific density guidelines. It is proposed, in the absence of specific density guidelines in the General Plan, that County Zoning guidelines be applied to General Plan land use designations in order to determine full build-out water demand, as described below.

The General Plan provides only a broad density guideline of 1 to 20 units per acre for the Residential Community designation. Applying a uniform density of 1 unit per acre or 20 units per acre to all lands designated as Residential Community results in full build-out water demand of 5 MGD or 100 MGD, respectively. Instead of using either extreme for the density of units on lands designated as Residential Community, using an intermediate density is proposed. Under the assumption that most residents would like their communities, including the development density, to remain similar in the future, it is proposed that, for each Aquifer System, the intermediate density be calculated from the weighted average of the density of lands zoned as Residential by County Zoning. The weighted average density is calculated by dividing the total number of units allowed in the Aquifer System's Residential zones according to County Zoning by the total land area of Residential zones in that Aquifer System.

The General Plan does not provide a density guideline for the Resort land use designation. Therefore, similar to the approach proposed for Residential Community, it is proposed to use the weighted average

density of lands zoned as Resort by County Zoning in each Aquifer System to estimate full build-out water demands.

The General Plan acknowledges that dwellings are allowed on lands designated as Agricultural and Open, but does not provide a specific density guideline. It is proposed that the regulations placed on lands zoned as Agricultural and Open by County Zoning be applied to the lands designated as Agricultural and Open by the General Plan.

The full build-out water demand based on the General Plan is proposed to be used to determine if there are adequate water resources to sustain the long-range land use vision adopted by the County.

iii. Kauai County Development Plans

A development plan is "intended to direct physical development and public improvements within a specific geographic area of the County within the framework of the General Plan." Development plans establish more detailed policy than the General Plan and range in scope and timeframe. Not every community needs or desires a development plan since some communities may not require more specific, detailed policy than what is established in the General Plan. Development plans do not provide comprehensive coverage over the County of Kauai and may not provide enough detail for full build-out water demand. However, full build-out water demand will consider the development plans where sufficient detailed information is provided.

iv. Kauai County Zoning

The Comprehensive Zoning Ordinance (CZO) is the County's legal instrument that regulates land development, and implements the General Plan policies; therefore, zoning must be consistent with the General Plan. The zoning districts with associated acreage for the island are shown in **Figure 8** and listed in **Table 12**:

Table 12 – County Zoning

County Zoning Districts	Acreage *	% of Total
Agricultural	70,022	20
Commercial - General	588	<<1
Commercial - Neighborhood	124	<<1
Conservation	193,585	55
Industrial - General	1,183	<1
Industrial - Limited	231	<<1
No Zone	24,648	7
Open	56,325	16
Residential	7,615	2
Resort	625	<<1
Special District	232	<<1
Total	355,178	100

* Estimate – County of Kauai Planning Department, GIS Data

County Zoning is more detailed and precise than the General Plan. The Residential and Resort designations specify the minimum building site area required for each unit. Accordingly, County Zoning addresses existing conditions and shorter range planning; and the potential full-build out development based on zoning typically would be assumed to be less than the full build-out based on the General Plan.

The full-build out water demand based on County Zoning would be used to determine if there are adequate water resources to sustain the level of development that is allowed by law.

c. Additional Information to Refine Projections

The Framework recommends that forecasts from the most recent *State Water Projects Plan* (SWPP) and the *Agricultural Water Use and Development Plan* be used to refine the projections. More recent information is available from the ongoing SWPP updates (DHHL and State-wide), State agencies, and the *County of Kauai Important Agricultural Lands Study*; therefore, this more recent information will also be used to refine the projections. The Framework also recommends that forecasts of water requirements from federal and private sector purveyors be incorporated. Information on federal and private water systems will be gathered as practicable to further refine projections.

i. State Water Projects Plan

The *State Water Projects Plan* (SWPP) dated February 2003 is a water development plan specific to future State projects through the year 2020. The State projects, with the exception of lands owned by the Department of Hawaiian Home Lands (DHHL), generally conform to the County zoning (and therefore conform to the General Plan); consequently, the water projections for State projects, not including DHHL, are already accounted for in the WUDP proposed methodology. The DHHL projects will be addressed separately.

The SWPP indicates that, "Hydrological sectors with unmet SWPP water demands of 1.0 mgd or greater will be recommended for State source development. It is anticipated that County water systems will be able to supply the balance of State water demands in all hydrological sectors." Therefore, the WUDP is proposed to indicate State source development to meet State project water demands of 1.0 mgd or greater. Coordination between appropriate State agencies and the County will be continued to cooperatively and jointly develop future source requirements, and to provide for more expeditious and efficient utilization of government resources whenever possible.

The State-wide SWPP update is in progress, and the WUDP update will be coordinated to incorporate the best available information.

ii. State Department of Hawaiian Home Lands

The *Kauai Island Plan* dated May 2004 provides recommendations for future use of Department of Hawaiian Home Lands (DHHL) and is based on a 20-year planning period. Although the plan is originally dated May 2004, DHHL recognized the plan as current in 2012; therefore, the planning period is from 2012-2032. **Figure 9** shows DHHL Kauai lands. Currently, DHHL lands are primarily zoned for agriculture; however DHHL is exempt from State and County land use classifications. DHHL determines the land use classification for its lands and the County Planning Department modifies its zoning map and Land Use accordingly. These modifications and coordination are ongoing.

The SWPP update for DHHL is in progress. The SWPP update methodology determines DHHL water needs based on the *Kauai Island Plan* and supplemental information from DHHL, and does not consider existing County zoning. Available information from the SWPP for DHHL will be included and allocated to the appropriate

aquifer sectors. Proposed water development strategies, which generally rely on historically available water resources whenever possible, will be addressed. The land use classification with associated acreage from the *Kauai Island Plan* is listed in **Table 13.** **Tables 11** and **12** do not account for DHHL lands; the DHHL areas were subtracted from the appropriate land use classifications and are not included in the acreage reflected in **Tables 11** and **12.**

Table 13 – Department of Hawaiian Home Lands – Kauai Lands
Summary of Existing and Proposed Land Use Designations

Land Use Designation	Waimea (Acres)	Kekaha (Acres)	Hanapepe (Acres)	Wailua (Acres)	Kapaa (Acres)	Anahola (Acres)	Moloaa (Acres)	Total (Acres)	%
Residential	202	39	168	216	0	565	0	1,190	5.79
Subsistence Agriculture	214	0	158	99	0	533	200	1,204	5.85
Supplemental Agriculture	0	0	0	0	0	0	0	0	0.00
Pastoral	475	0	0	0	0	148	0	623	3.03
General Agriculture	12,527	0	0	52	1	1,018	86	13,684	66.54
Special District	1,258	13	0	92	0	1,419	30	2,812	13.67
Community Use	42	0	22	20	0	127	0	211	1.03
Conservation	343	0	0	0	0	350	0	693	3.37
Commercial	0	0	17	47	0	68	0	132	0.64
Industrial	0	0	0	0	16	0	0	16	0.08
TOTALS	15,061	52	365	526	17	4,228	316	20,565	100.00

Source: *Kauai Island Plan*, May 2004

iii. Agricultural Water Use and Development Plan

According to the Framework, "the major objective of the AWUDP is to develop a long-range management plan that assesses state and private agricultural water use, supply and irrigation water systems. The plan shall address projected water demands and prioritized rehabilitation of existing agricultural water systems." The AWUDP dated December 2003 (revised December 2004) is limited in scope due to time and funding constraints and assesses the needs and proposes improvements for the East Kauai irrigation system (IS), Kauai Coffee IS, Kekaha IS, and Kokee Ditch IS.

More recent, comprehensive information on agricultural lands is available in the *County of Kauai Important Agricultural Lands Study* and is relied upon as the best available information for agricultural water demand estimates. The DOA is currently updating the AWUDP, and its information will supersede the agricultural water use information included in this WUDP when it becomes available.

iv. County of Kauai Important Agricultural Lands Study

The purpose of the *County of Kauai Important Agricultural Lands (IAL) Study* is to operationalize the County-specific directives of Act 183 (SLH 2005) Important Agricultural Lands. According to Act 183, IALs are lands that are capable of producing sustained high yields when treated and managed according to accepted farm methods and technology, contribute to the State's economic base and produce agricultural commodities for export or local consumption, and are needed to promote the expansion of agricultural activities and income for the future, even if currently not in production. Act 183 also includes eight criteria for identifying IALs. The study, conducted from 2009 to 2011, evaluated Kauai's agricultural lands for these eight IAL criteria. Agricultural lands that met all eight criteria to some degree received a score of 28. The County of Kauai is in the process of determining which lands based on their score, size, and other factors will be recommended for IAL designation. Only a subset of lands with a score of 28 or better is expected to be designated as IALs.

It is not reasonable to assume that all lands designated or zoned as Agricultural will be fully irrigated at all times. Therefore, it is proposed that the diversified water use rate of 3,400 gallons per acre per day (gpad) estimated in the 2004 AWUDP be applied only to

agricultural lands that have received a score of 28 or better in the IAL study.

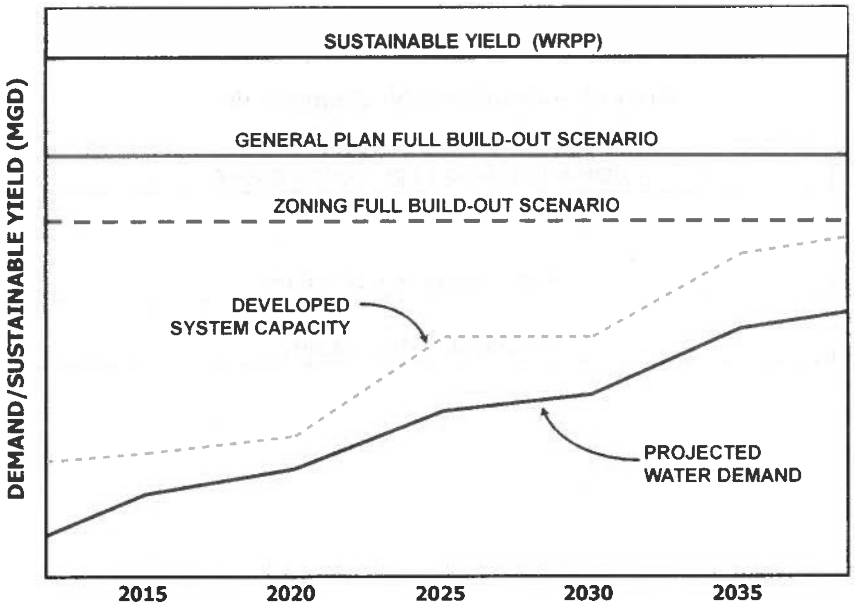
v. Federal and Private Water Systems

Federal water system managers and private water system owners will be queried on the existing populations served and water production capabilities of their systems, as well as future projections if available.

E. Develop Master Plan Level Resource and Facility Recommendations

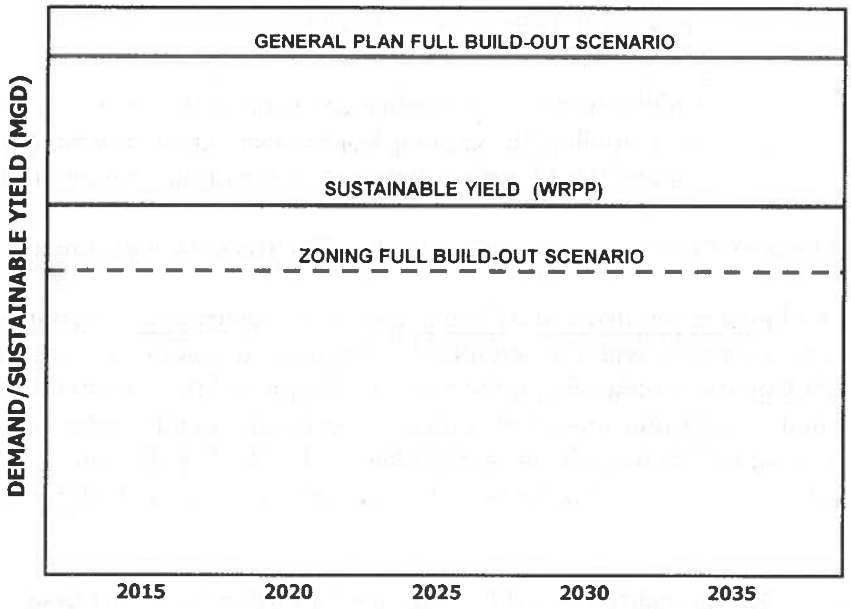
The full build-out water demand will be evaluated to determine the sustainability of the water needs associated with the potential full build-out development that is allowed by the current land use policies set by the State of Hawaii and the County of Kauai, and will be evaluated to determine master plan level resource and facility needs and options. Available information from the on-going State-wide SWPP update and DHHL SWPP update, and AWUDP will be incorporated. **Graph 3** depicts an ideal theoretical example.

Graph 3 – Sustainability of Land Use Policies & Meeting Projected Demands

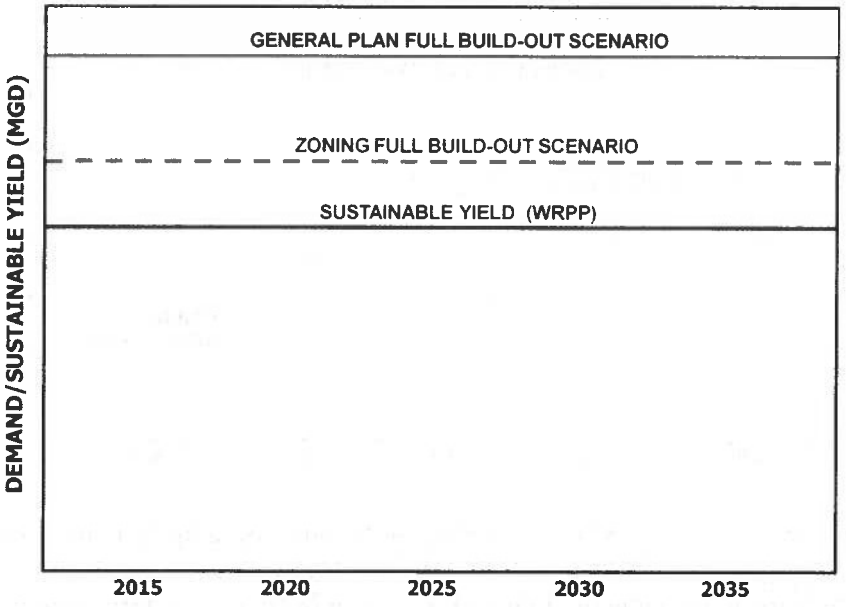


Graphs 4 and **5** show possible theoretical situations where the land use based water demands may exceed the aquifer sector sustainable yield indicating that the County should reevaluate the General Plan and/or zoning in light of water resource limitations. These areas likely would be deemed sensitive and recommended for more detailed assessment.

Graph 4 – Unsustainable General Plan Policy



Graph 5 – Unsustainable Zoning Policy



The proposed process to develop master plan level resource and facility recommendations is described below:

1. Use the highest quality of water for the highest beneficial use.

   The general approach proposed for development of the master plan level resource and facility recommendations assumes that ground water sources will primarily be used as potable drinking water for human consumption, while existing surface water diversions, water conservation, and reclaimed water will be used for agricultural irrigation.

2. Evaluate water source adequacy and determine source development requirements.

   The ability of existing water resources to meet future demand projections will be evaluated to determine source development requirements. Available information on the capacity and integrity of existing water resources are intended to be assessed.

3. Evaluate conventional water infrastructure capabilities.

   Conventional water infrastructure capabilities, including the extents of existing distribution systems, are proposed to be evaluated to determine their ability to meet future demand projections.

4. Promote and expand water conservation programs.

   Water conservation options, including watershed management, will be considered as carefully as other resource options. Existing water conservation programs should be identified and promoted, and proposed water conservation measures should complement existing programs. Watershed management efforts should include protecting watershed areas to ensure sufficient recharge of ground water aquifers and protecting the quality of ground water and surface water.

5. Explore alternative water sources.

   Alternative water sources are proposed to be explored. These alternative measures include rainwater catchment systems, wastewater reclamation and desalination. While alternative sources may not be able to completely provide enough source water to meet demand, alternative water sources should be developed to augment naturally occurring water supplies. Alternative water sources should be developed not only to help meet future demand projections, but also to help ensure the long-term viability of ground water and surface water sources.

6. Explore development of additional conventional water sources.

   The development of ground water and surface water sources will be evaluated. The development of ground water and surface water sources is proposed to be considered after first considering conservation options and alternative water sources.

7. Evaluate resource options and recommend a strategy.

   A water resource strategy is defined as a flexible sequence of supply, infrastructure, storage, and conservation program additions intended to meet county water needs. Conservation options and conventional and alternative water resource options are proposed to be evaluated to determine the recommended water resource strategy. Water supply reliability and quality, feasibility, environmental and cultural impacts, and water rights will be considered.

VI. IMPLEMENTATION PLAN

Water is a precious resource and is a high priority in land use decisions. An implementation plan for the Kauai WUDP will be developed to provide guidance for further integration of water resource management with the development of land use policies to ensure sustainable management of this vital resource. In accordance with the Framework, the implementation plan will be divided into 3 periods as practicable: near-term (initial 5 years), medium-term (subsequent 5 years), and long-term (final 10 years). Applicable information on the DOW Capital Improvement Projects and from the Water Plan 2020 will be incorporated.

VII. STAKEHOLDER AND PUBLIC INVOLVEMENT

Substantial and credible stakeholder involvement is critical to the success of the County WUDP. Therefore, it is proposed to form a stakeholder advisory committee composed of key stakeholders representing various landowners, community and civic groups. The intent is for the stakeholder advisory committee to provide a comprehensive cross-section of the community and interested parties. Members of the stakeholder advisory committee will participate as active reviewers of the WUDP update. The primary purpose of the stakeholder advisory committee is to disperse information and act as a conduit or channel to the public. The committee will meet prior to the approval of the project description to CWRM and prior to the completion of the draft WUDP.

Concerned federal, state, and county agencies will be consulted, and their recommendations will be carefully evaluated. An inter-agency kickoff is proposed to introduce the WUDP update process to interested agencies.

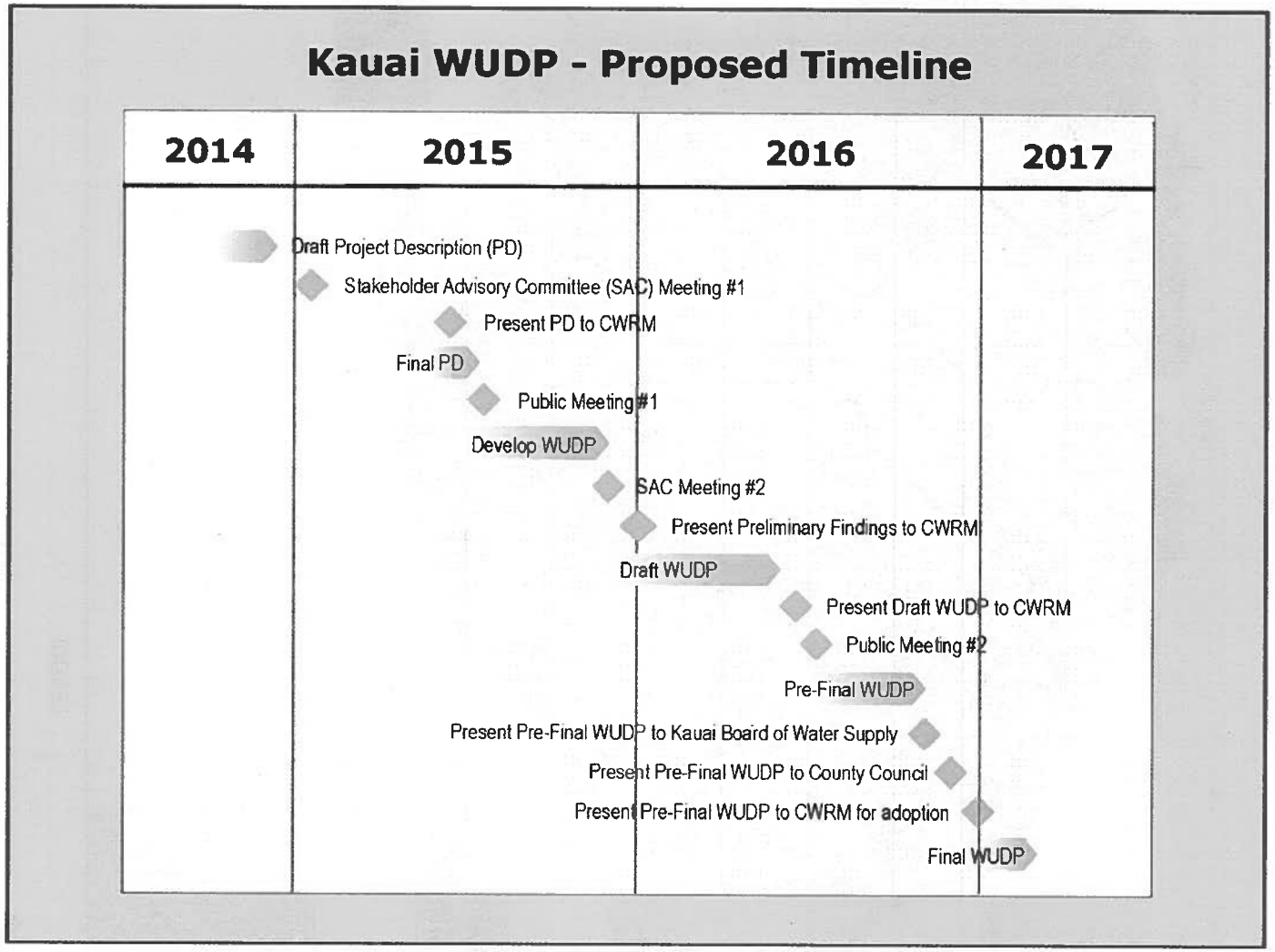
In addition to the stakeholder advisory committee, a series of public informational meetings are proposed to present findings of the update effort. More importantly, the meetings also will provide a forum to gather input on the development of the WUDP and will focus on recommendations from the public on the alternative water resource measures favored to meet growing demands. The meetings will be well-publicized. At a minimum, information about the meetings will be issued 7 to 10 days before the meeting to the newspaper, radio stations, and television stations, and posted on the DOW website (www.kauaiwater.org) and the County of Kauai website (www.kauai.gov). Additionally, the DOW's social media pages on Facebook (www.facebook.com/KauaiDOW) and Twitter (www.twitter.com/kauaiwater) may also be utilized for dissemination of information about the meetings. Information about the meetings will be distributed to the DOW public meeting email list and noted on DOW Board Meeting agendas. Public informational meetings will be held on the North, South, East, and West sides of the island after approval of the Project Description to inform the public of the WUDP update commencement and process. A second set of meetings is anticipated during development of the WUDP update report, followed by presentation to the general public when the draft WUDP is completed. Slideshow presentations will be utilized at the public meetings as a means of transmitting information.

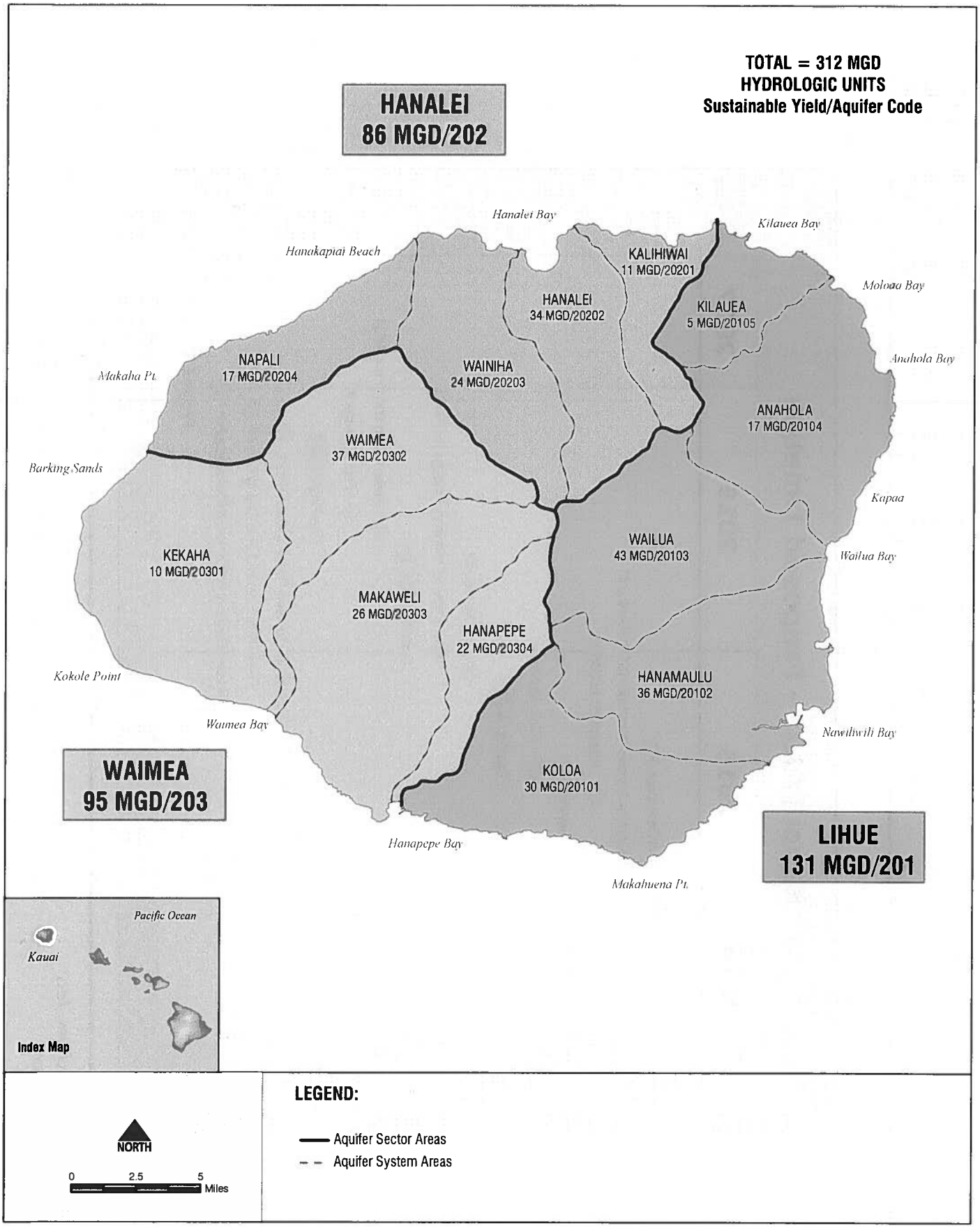
VIII. CURRENT WATER ISSUES

Current water issues will be tracked, and decisions for the WUDP will be made with awareness of these water issues. Current water issues include a petition to restore flow in the Waimea River, suspension of the Kahili Horizontal Directional Drilled Well project, and recent discussion regarding consideration of designating the Hanamaulu Aquifer System as a water management area. Climate change is an emerging issue, and specific impacts on water resources are unknown at this time. Kauai's freshwater resources depend heavily on rainfall; therefore, changes in annual rainfall or changes in the frequency and duration of droughts could affect ground water recharge and stream flow. Changes in temperature could affect the hydrologic cycle, especially evapotranspiration. Changes in the intensity, duration, and frequency of weather events may also impact water resources. Climate change adaptation strategies will be considered.

IX. UPDATING AND ADOPTION PROCESS

This Project Description initiates the process to update the WUDP for the County of Kauai, and notifies the CWRM of the County's intent and proposed technical approach. Periodic milestone briefings to the CWRM will be conducted throughout the preparation of the WUDP. The completed WUDP will be submitted to the Kauai Board of Water Supply for approval. Finally, the approved WUDP will go before the County Council, public and CWRM for final adoption. For a more detailed schedule, refer to the proposed timeline on the following page.


Kauai WUDP - Proposed Timeline
2014
2015
2016
2017
Draft Project Description (PD)
Stakeholder Advisory Committee (SAC) Meeting #1
Present PD to CWRM
Final PD
Public Meeting #1
Develop WUDP
SAC Meeting #2
Present Preliminary Findings to CWRM
Draft WUDP
Present Draft WUDP to CWRM
Public Meeting #2
Pre-Final WUDP
Present Pre-Final WUDP to Kauai Board of Water Supply
Present Pre-Final WUDP to County Council
Present Pre-Final WUDP to CWRM for adoption
Final WUDP

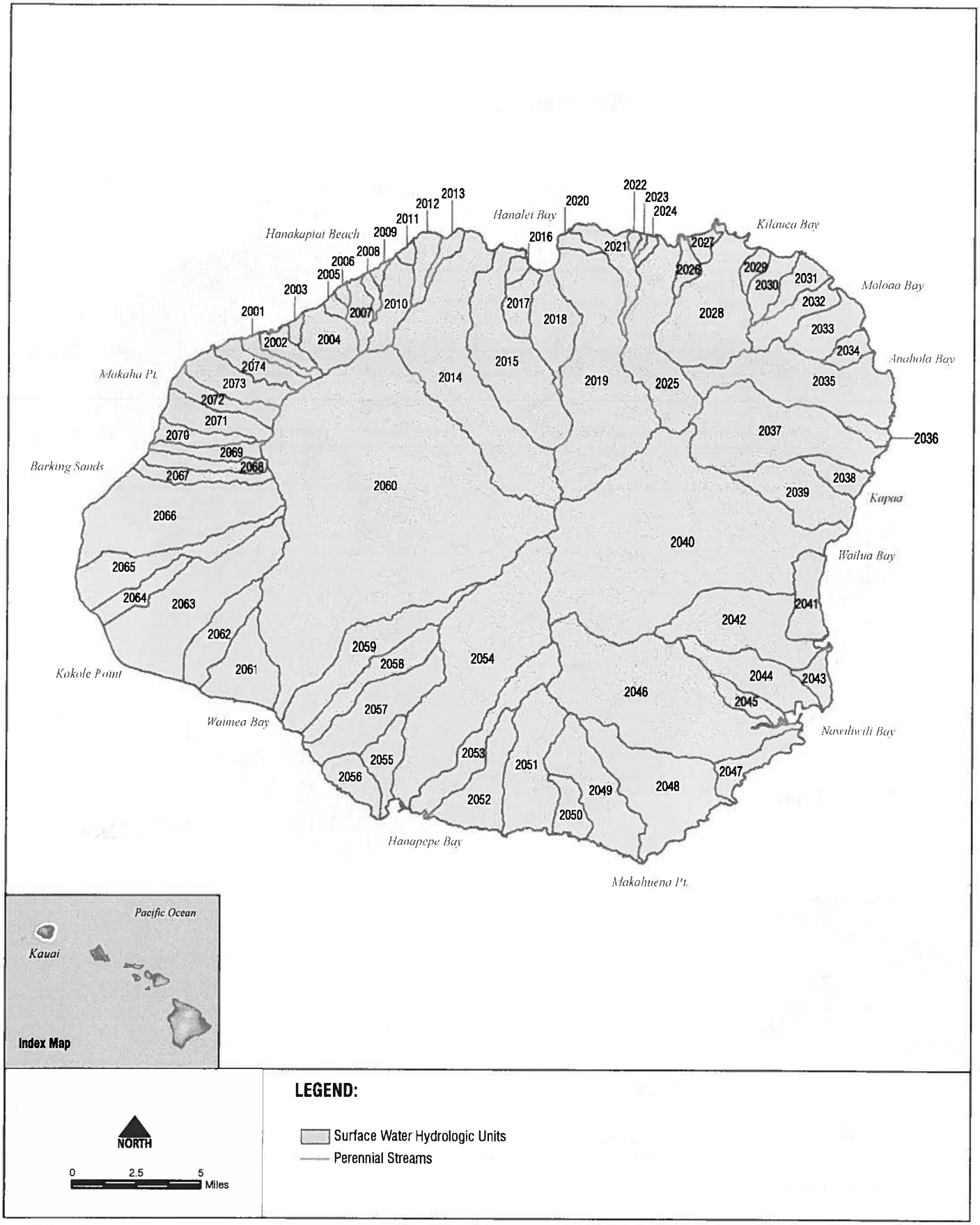


Kauai Water Use and Development Plan - County of Kauai

Ground Water Hydrologic Units and 2008 Sustainable Yield

FIGURE 1

Fukunaga & Associates, Inc.
Consulting Engineers

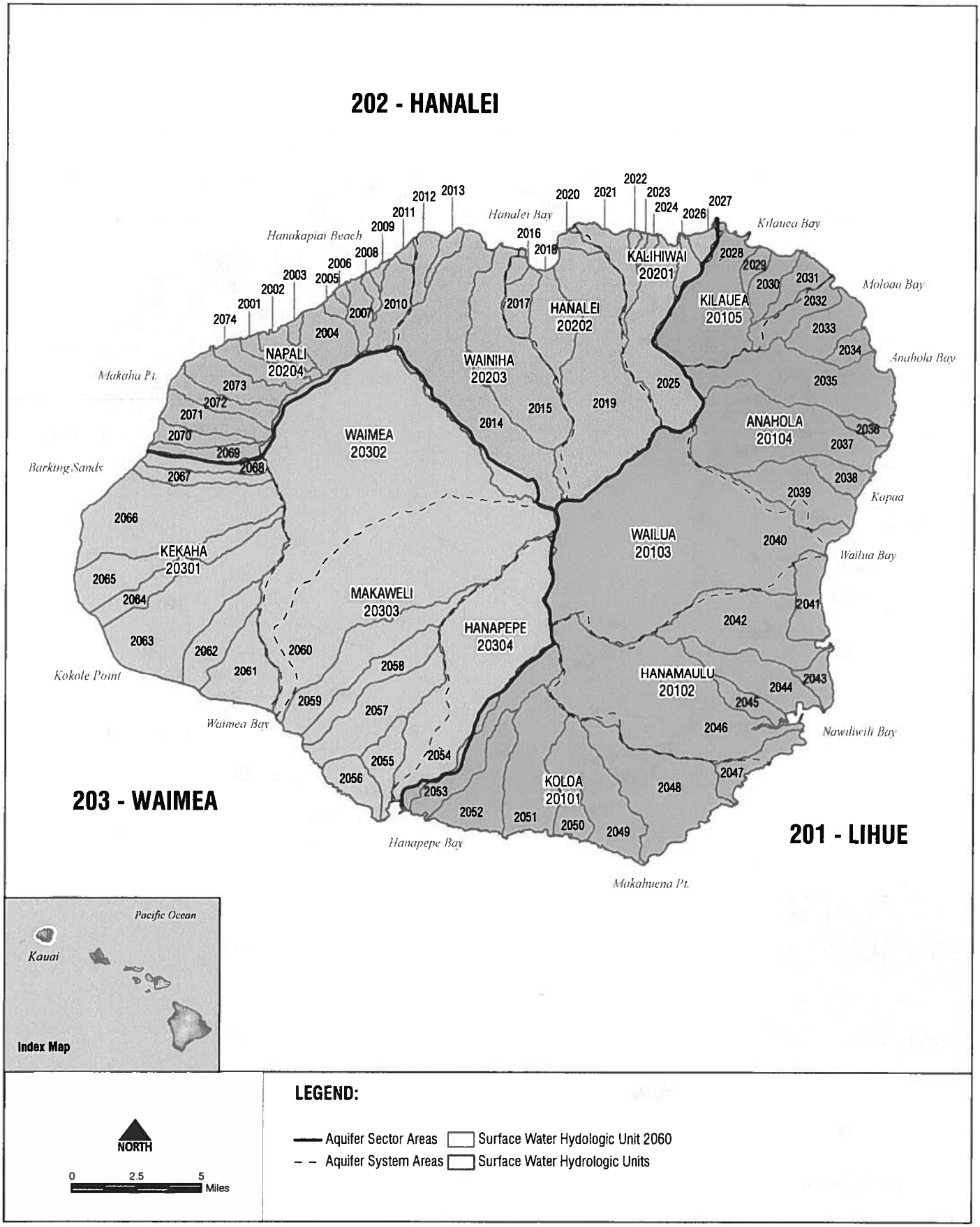


Kauai Water Use and Development Plan - County of Kauai

Surface Water Hydrologic Units

FIGURE 2

Fukunaga & Associates, Inc.
Consulting Engineers



Kauai Water Use and Development Plan - County of Kauai

Aquifer Sectors and Systems and Surface Water Hydrologic Units

FIGURE 3

Fukunaga & Associates, Inc.
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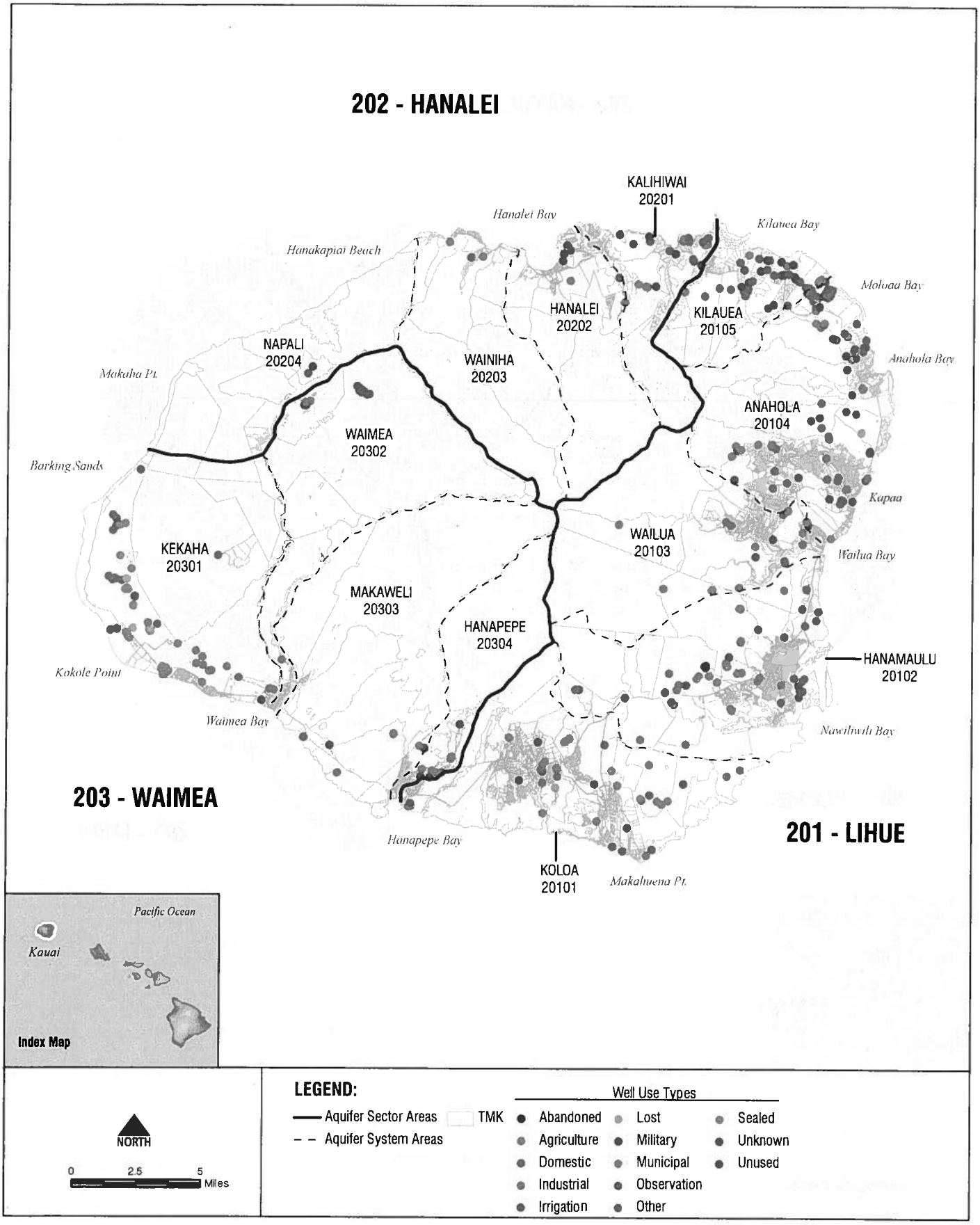

Kauai Water Use and Development Plan - County of Kauai

Registered Wells

FIGURE 4

Fukunaga & Associates, Inc.
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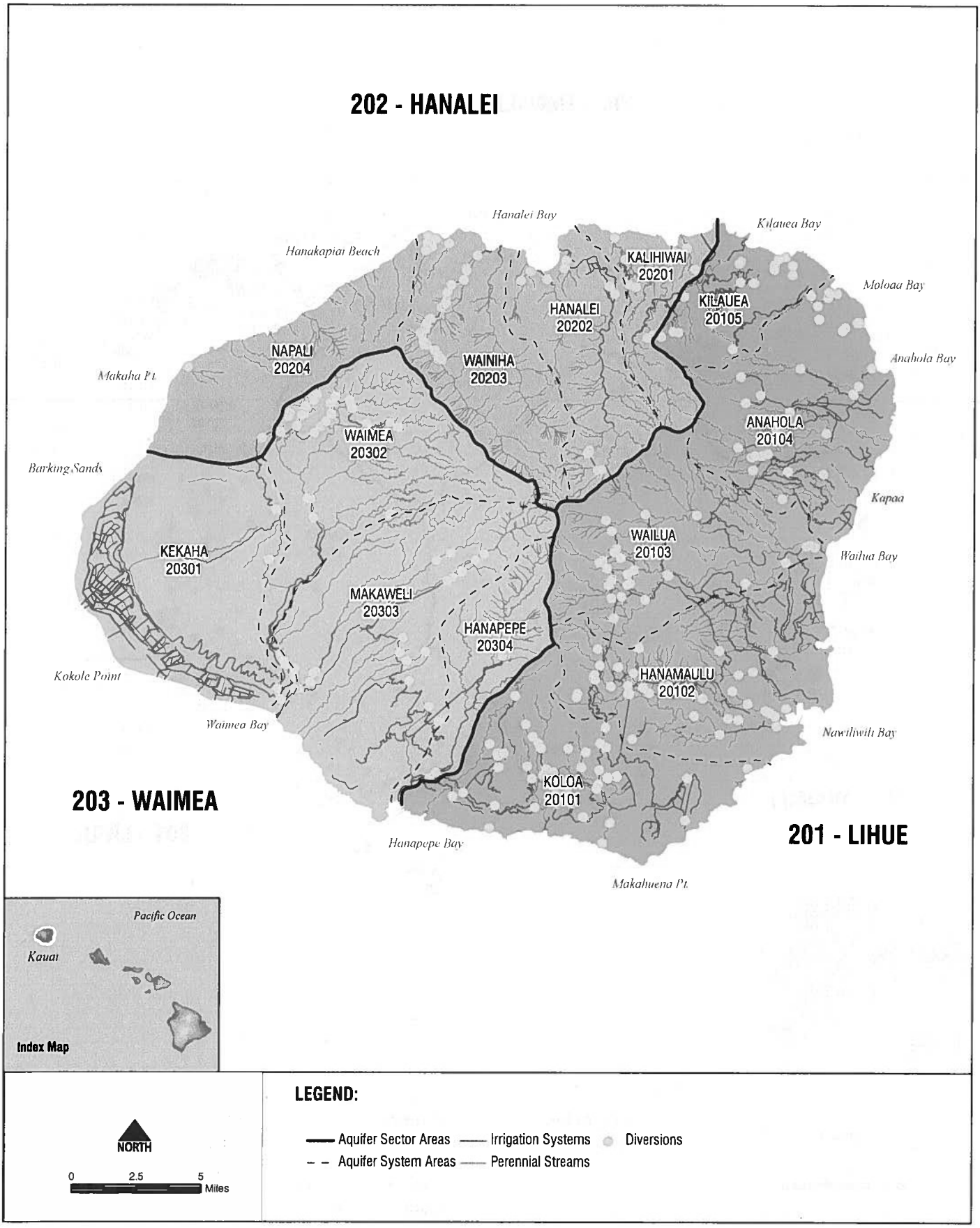
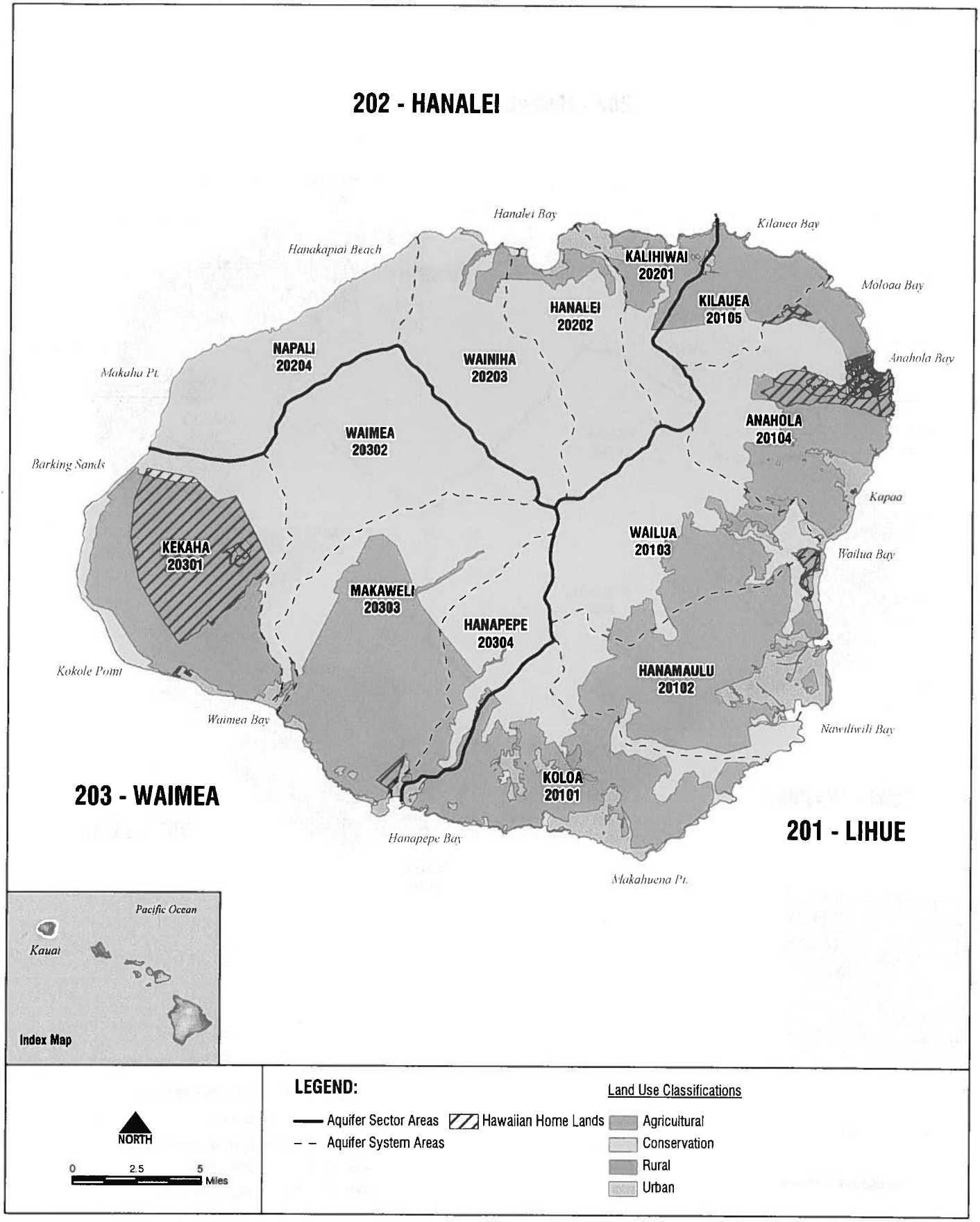


Kauai Water Use and Development Plan - County of Kauai

Stream Diversions

FIGURE 5

Fukunaga & Associates, Inc.
Consulting Engineers

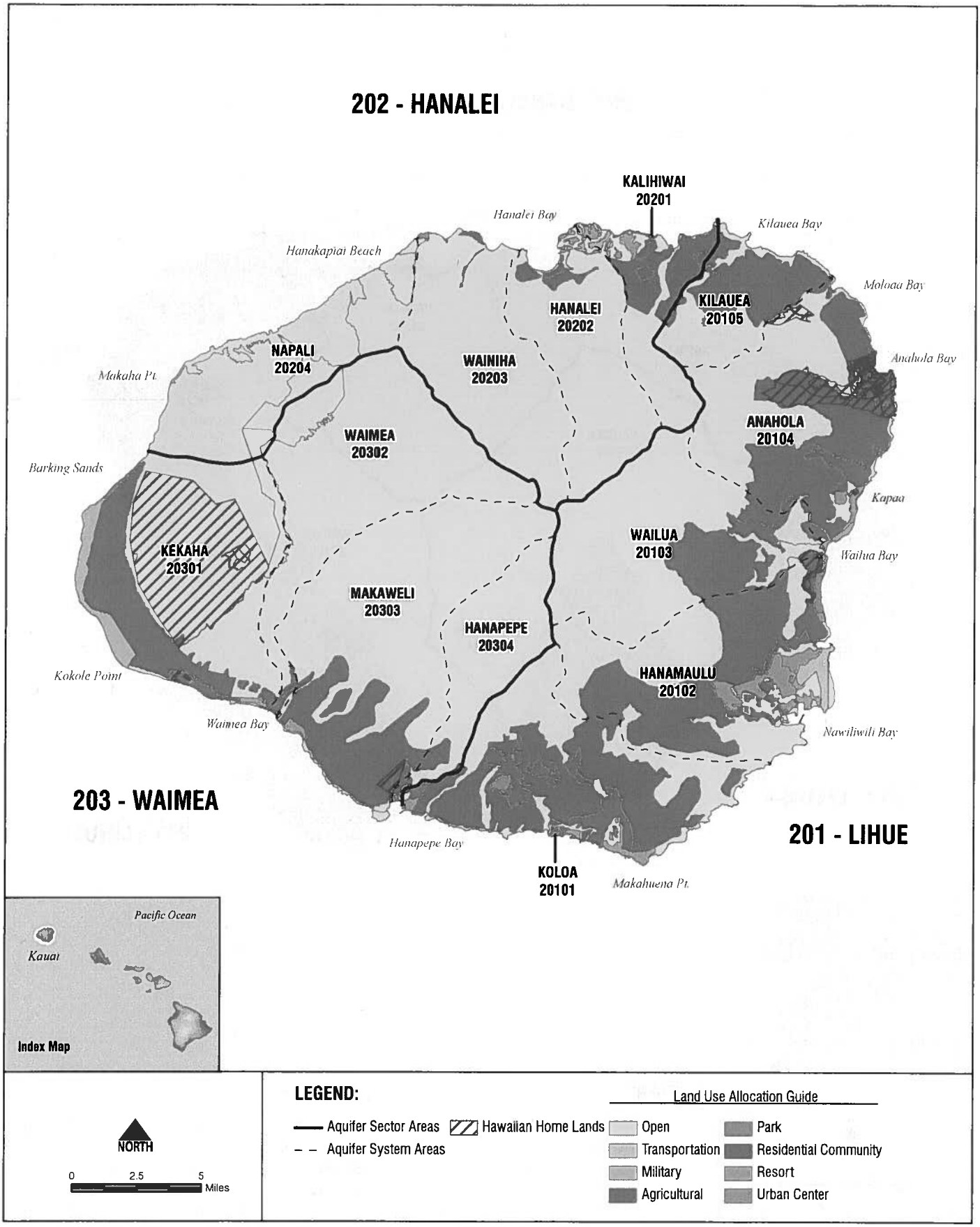


Kauai Water Use and Development Plan - County of Kauai

State Land Use District Boundaries

FIGURE 6

Fukunaga & Associates, Inc.
Consulting Engineers



Kauai Water Use and Development Plan - County of Kauai

General Plan Land Use Map

FIGURE 7

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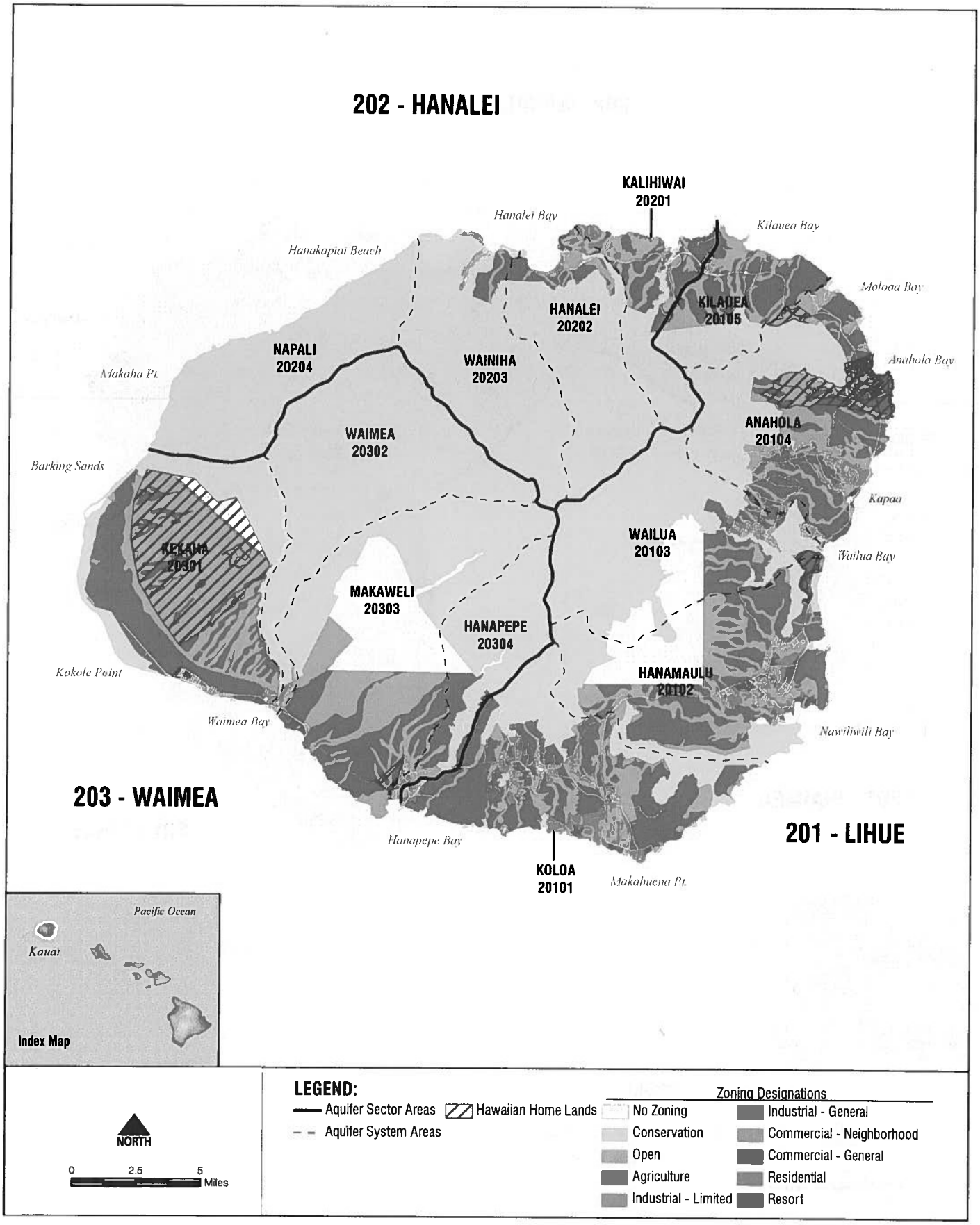
Consulting Engineers

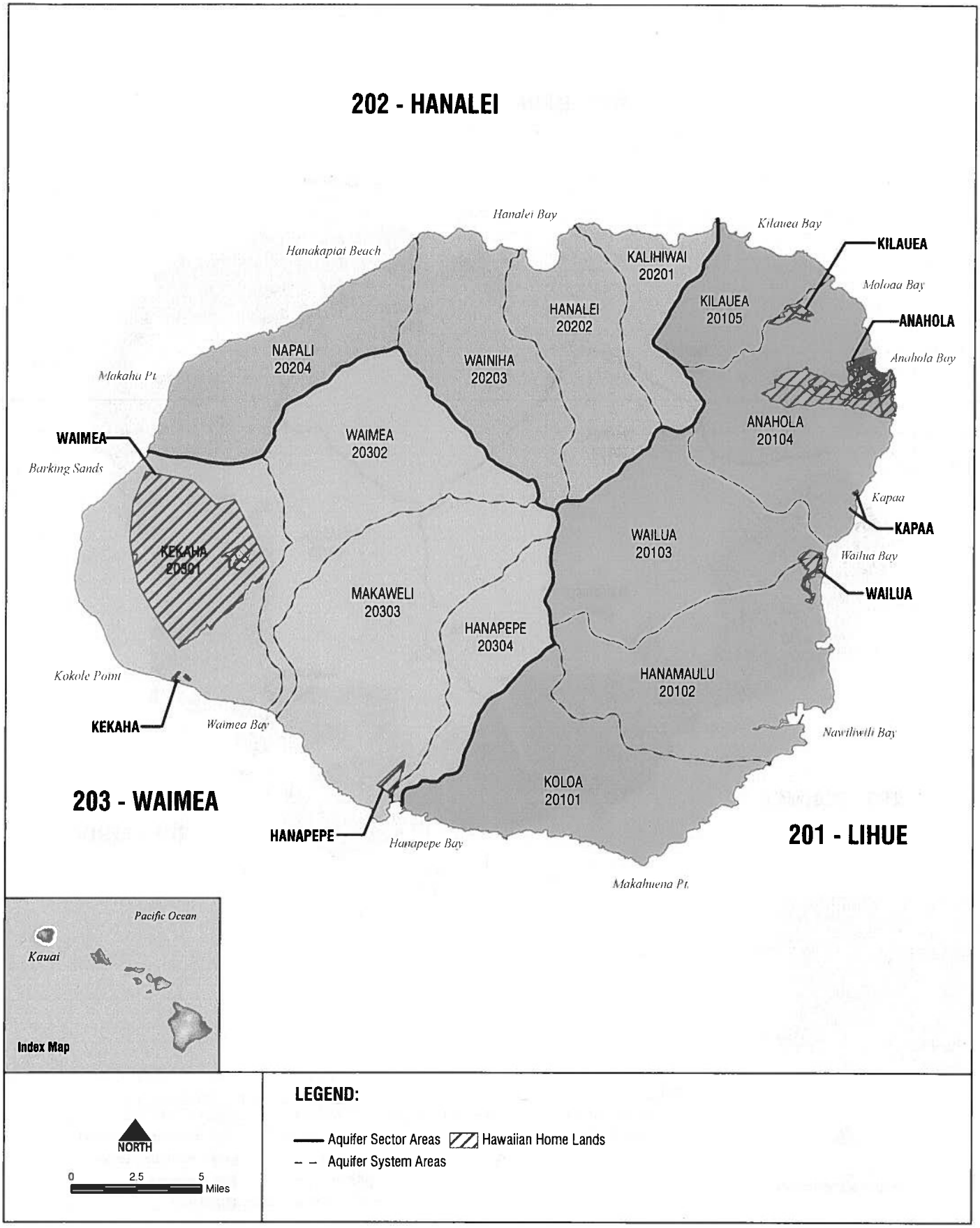


Kauai Water Use and Development Plan - County of Kauai

County Zoning Map

FIGURE 8

Fukunaga & Associates, Inc.
Consulting Engineers



Kauai Water Use and Development Plan - County of Kauai

Department of Hawaiian Home Lands - Kauai

FIGURE 9

Fukunaga & Associates, Inc.
Consulting Engineers

Summary and Compiled KWUDP Comments, Testimony, and Responses					
Comment #	Meeting Date	Agency Commission Public Hearing Written Testimony	Name	Comment	Response to Comment (if applicable)
I		Common Theme/Issue / Concern		**Surface Water/Agricultural Water Management:** Lack of data on surface water use and agriculture water use, why is surface water being treated and supplied when there appears to be adequate ground water resource	The KWUDP is a living document that coordinates and integrates information from the other Hawaii Water Plan documents at the County level. Fulfillment of the requirements for the WUDP requires significant information, some of which was not available for this update and the best available information was used. As a general rule, only finalized information from approved documents have been incorporated into the KWUDP. The 2004 Agricultural Water Use and Development Plan (AWUDP) is the most recent adopted AWUDP. It is noted that the 2019 AWUDP has not yet been adopted. The AWUDP should ultimately provide agricultural water demand projections, information on irrigation water systems, and consideration of related factors such as crop types, climate factors, soil, terrain, etc. Also, surface water use is dependent on user reporting, and CWRM staff is making strides in water use data collection and is focusing on water use reporting for large irrigation systems. Although the sustainable yield for each aquifer system is much greater than the existing demand, the sustainable yield does not consider the feasibility of developing the groundwater and should not be equated to developable groundwater. Due to Kauai's age, it has complex hydrogeology and the sustainable yield is not directly related to the productivity of the groundwater wells.
II		Common Theme/Issue / Concern		**Reservoir Use:** concerns about maintenance costs and decommissioning; importance of reservoirs for drought, agriculture, fire fighting, aim to increase water storage	Reservoirs store water that can be used for irrigation or could possibly be made available for fire protection. (The use of reservoirs for fire protection is typically coordinated between the Fire Department, reservoir owner, and DLNR's Division of Forestry and Wildlife.) However, there are costs associated with operating, maintaining, and repairing reservoirs. In addition, reservoirs regulated by the State DLNR must meet the requirements of the Hawaii Dam and Reservoir Safety Act. The costs and risks need to be considered by the owner against the benefits. The decommissioning of a reservoir is not taken lightly, and the decision is made by the owner.
III		Common Theme/Issue / Concern		**Infrastructure Maintenance:** Focus on maintaining and upgrading existing water infrastructure for reliability and efficiency, billing system improvements from water utility	The Department of Water is currently working on the Water Systems Investment Plan (WSIP), which is a separate planning document. The WSIP will evaluate DOW's water systems and recommend projects for infrastructure improvements, expansion, etc.
IV		Common Theme/Issue / Concern		**Resource Protection:** ensure balanced water use to protect natural resources from over-extraction	The planning objectives of the KWUDP Update, including prioritizing and protecting public trust uses of water and reserving the highest quality of water for the most valued end use, formed the basis for the evaluation and development of resource strategies. Alternative water resources are promoted as a recommended water source alternative in each aquifer system chapter and recommended to be used for landscaping and agriculture when available. The primary objective of the KWUDP Update is to set forth the allocation of water to land use to guide the county in its planning, management, and development of land use and water resource strategies and policies for sustainable development.
V		Common Theme/Issue / Concern		**Native Hawaiian Consultation:** consult Native Hawaiian organizations, and include NH rights into WUDP	The Stakeholder Advisory Group, which was consulted during the preparation of the WUDP, was established to represent a broad spectrum of Kauai's community, including native Hawaiians. In addition, meetings with DHHL beneficiaries were held in March 2024. Section 1.5.3.1 discusses Native Hawaiian rights. DHHL's projected future water use was included in the DHHL State Water Projects Plan, which has been incorporated into the KWUDP Update. Current DHHL water reservations are also discussed in the KWUDP Update.

VI		Common Theme/Issue / Concern		**SY & Climate Change:** address the impact of climate change and reduced rainfall on SY; include discussions and estimates in the plan (even if you don't have exact data), utilize resources like the Hawaii Climate Data Portal; recognize that SY varies across times and space (IE not all wells act the same)	The future impact of climate change on water resources is still being studied. The impact of climate change on water resource availability, including sustainable yield, shall be considered in future updates of the Water Resource Protection Plan. The KWUDP Update has been updated to include a qualitative discussion on climate change (Section 1.2.4.1)
VII		Common Theme/Issue / Concern		**Enforcement and Compliance:** Improve enforcement for wells not reporting usage, ensure compliance, and address illegal diversions	CWRM is responsible for maintaining databases of wells and stream diversions. The Code requires owners or operators of wells and stream diversion works to measure their water use and submit regular monthly reports, and CWRM is responsible for enforcing compliance. Please see WRPP Appendix H.3 for more information on reporting and compliance. There is high reporting compliance rate for municipalities (please note that DOW reports pumpage for all its wells), but better reporting is needed for small, non-municipal wells. CWRM is making great strides in water use data collection and is focusing on water use reporting for large irrigation systems.
VIII		Common Theme/Issue / Concern		**Water Reuse & Recycling:** Promote the reuse and recycling of water	To optimize appropriate use of water resources, the quality of the water resource should be matched to the quality of water required. A planning objective of the KWUDP Update is to reserve the highest quality of water for the most valued end use (sustenance of life). Lower quality non-potable water, such as recycled water, should be utilized for landscaping and agriculture where feasible. If there is a practical alternative water source available, such as recycled water, that alternative source should be used in lieu of ground water or surface water. Use of alternative water sources can be promoted by installing alternative water systems in the proximity of concentrated development. It is noted that installation of alternative water infrastructure can be costly and take years to implement. The ASYA chapters include information on recycled water. Actual additional recycled water use will depend on several factors, including the quantity of wastewater generated (which may be significantly less than the design capacity), the demand for recycled water, and the number of viable users within close proximity to the facility.
IX		Common Theme/Issue / Concern		Old Data: including General Plan concerns; lack of surface water data (refers to AWUDP) - a gap esp. if surface water seen as best back-up source. Since plan was drafted, here is the SW data that we have (was not available prior)	The data analysis for this KWUDP Update was done in 2015 with 2014 data. Water demands were projected from 2015 to 2035 using the population projection rates from the Planning Department's Socioeconomic Analysis and Forecasts, dated February 2014. (It is noted that the population projection rates from this Planning Department study are until 2035 only.) Once analysis was completed, the preliminary results were presented to the stakeholders and public for input. Around that time, the sustainable yield values were being updated by CWRM, and CWRM advised not to use the new values until the WRPP was approved. Therefore, the decision was made to wait until the SY values were finalized in the WRPP before continuing with preparation of the KWUDP Update. Once the WRPP was approved, it took time to prepare the draft KWUDP Update which includes one chapter for each aquifer system area (13 total) instead of just one chapter for each aquifer sector area (3 total), resulting in a much longer document. Internal review, CWRM staff review, DOW review, and subsequent revisions also took time. Although the water demand projections do not extend beyond 2035, it is noted that extending the projections beyond 2035 at similar projection rates would not cause a large increase in future demand that would require a change to the findings or recommendations of the KWUDP Update. All 20-year demand projections are far below sustainable yield. It is also noted that the KWUDP is a "living document" that will have future updates. It is further noted that using 2020 data as the starting point may not be representative of normal conditions due to the pandemic. **Fukunaga**: SW data - stream data not consistent across the island; relying on AWUDP for understanding SW info; Fukunaga did reach out to SPAM (Ayron) - sent them gage data, wanted to know if this represented actual water use, it does not correlate directly. Fukunaga couldn't figure out way to incorporate stream gage data into the plan. "Best available" data issues and how we can address this as part of condition - there is new best available data (more gages have been installed, more data has been collected since plan was drafted)

X				**Ka Pa'akai (lack of)**	The KDOW and their consultant acknowledge that while the SAG included representation from the Native Hawaiian community, it did not adequately represent the voice of T&C practitioners. Section 1.5.3.1 of the plan does discuss the importance of Native Hawaiian rights and notes the legal requirement of the State and counties to conduct a Ka Pa'akai Analysis (KPA) to protect T&C practices. However, the plan lacks any robust discussion about the water needs of T&C, how T&C practices may be impacted by the plan, and what mitigation measures could be taken to prevent harm to T&C rights. The omission of a KPA is largely because the KWUDP, as with other WUDPs, is intended to be a regional plan. It does not analyze the site-specific impacts of individual projects, but rather takes a high-level view of current and future water demands of the county. While the KWUDP does not include KPA, there are a variety of ways KPA is addressed at the project level.
XI		Common Theme/Issue / Concern		**Public Engagement:** Increase/add interim meetings and publish updates/info online for community awareness; provide advance notice of public hearings and meet with homesteads on Kauai; if KWUDP goes to public hearing for approval might be more frustrating than productive if not more advance notice, have the discussions prior to approval (DHHL & Chair comments); having different meetings for various stakeholders	A total of 17 meetings were held, including 2 pre-meetings and 2 meetings with DHHL beneficiaries and 3 meetings with the stakeholder advisory group. Advance notice of public meetings were given via press release, DOW website, and social media, and and advance notice of the DHHL beneficiaries meetings were given via postcards. The DOW website was used to disperse information on the KWUDP Update, including preliminary findings, meeting presentations and minutes, and draft reports.
1	2024-12-19	Kauai County Council, Councilmember	Felicia Cowden	Please incorporate into the dKWUDP the 2021 update of the AWDP1 that was adopted in 2022 and is available on the State of Hawaii Agricultural Resource Management site2. The Department of Agriculture prepared the AWUDP 2021 Update in accordance with Hawaii Revised Statutes 174C-31(e).	The 2019 update, which was revised in 2021, was not adopted by CWRM. Accordingly, we are not including this update until it's adopted by CWRM. The 2004 AWUDP Update is still the most recent plan adopted by CWRM and we will continue to use that report as our reference for recommended water demand rates. Efforts are now underway to adopt the 2021 version of the AWUDP and any changes will be reflected in future revisions of the KWUDP.
2	2024-12-19	Kauai County Council, Councilmember	Felicia Cowden	The dKWUDP emphasizes the requirement of provision for potable drinking water to be supplied by ground water while agricultural irrigation is to be from surface water. The minimal reference made to the role of the, currently private, Wai`ahi Surface Water Treatment Plant in the Lihue-Hanamaulu area does not adequately quantify the significant estimated 3 million gallons per day of surface water delivered as potable water to KDOW annually since 2004.	This is incorrect. The KWUDP Update identifies that it's preferred to use groundwater for human consumption and alternative water resources (including surface water) for irrigation purposes when available.
3	2024-12-19	Kauai County Council, Councilmember	Felicia Cowden	At times, an estimate of up to 70% of KDOW residential customers can be provided drinking water from "secondary quality sources" of surface water through the former plantation ditch system.	The surface water treatment plant does not provide up to 70% of KDOW residential customers. Also, it is not a "secondary quality source" when it is treated to drinking water standards.
4	2024-12-19	Kauai County Council, Councilmember	Felicia Cowden	Storm Water Management is absent from this dKWUDP plan, eliminating a valuable water resource from future use consideration. This will support a future required Watershed Management Plan to obtain a permanent DLNR Surface Water lease for potential acquisition of the Wai'ahi SWTP.	Storm Water Management is discussed in each ASYA Chapter Recommendation section as well as in Section 1.5.6. The incorporation of storm water management was a comment received from CWRM staff. In discussing with Fukunaga, we weren't able to find much information, but we referenced the report "An Appraisal of the Statewide Framework for Stormwater Reclamation and Reuse in Hawaii". This report identified 2 areas on Kaua'i that has the opportunity to reuse stormwater – 1) Nāwiliwili Diversion and 2) Līhu'e Airport. It was noted, however, that COK doesn't operate a storm water utility that could be used to fund storm water infrastructure for the purposes of storm water reuse. In addition, there are no storm water reuse standards.

5	2024-12-19	Kauai County Council, Councilmember	Felicia Cowden	Reflection of DHHL reservations for potable and irrigation water for DHHL residential projects including recent DHHL land acquisitions and developments underway for affordable housing and subsistence agricultural homesites.	DHHL water demand projections have been incorporated into the KWUDP via the full build-out analysis. Fukunaga "cookie-cutter'ed" out the DHHL lands in the General Plan and Zoning and replaced it with the water demand projections from the 2017 DHHL SWPP. The DHHL water demand projections were provided by DHHL Staff and were based on the DHHL Island Plans. With regard to the developments underway, this should be included in DHHL's Island Plans and therefore in the DHHL SWPP water demand projections and by extension, the KWUDP. DHHL requested that we incorporate the updated Hanapepe Master Plan but there were no significant changes identified. With regard to recent DHHL land acquisitions, this would be reflected in DHHL's updated Island Plans and subsequent SWPP (and therefore subsequent KWUDP). With regard to DHHL Water Reservations, we are added a Water Reservations Section in the KWUDP (right after Section 2.2.2.5.2) to better explain water reservations and what the current water reservations are. Since the water reservations were largely supported by water demand projections in the DHHL SWPP, it's safe to say that water reservations are also incorporated into the KWUDP via the full build-out analysis.
6	2023-12-19	Commission Meeting	Hannahs	Our role is to be protective of the resource. The state motto of Ua mau ke ea o ka aina i ka pono is that we want to preserve this. We also have an active role. To balance the needs of aina, la hui, and future generations.	
7	2023-12-19	Commission Meeting	Hannahs	SY is going to change - it's not static	Spoke to KDOW, looking at possible future adjustments to rainfall and recharge estimates. If we do adjust we will adjust accordingly. It is a living document.
8	2023-12-19	Commission Meeting	Hannahs	Rethink the assumptions and what the need is now and in the future in developing sustainable food systems (Not clinging onto plantation era assumptions)	
9	2023-12-19	Commission Meeting	Kagawa-Viviani	You can now access models of future rainfall projections, and starting the conversation right now to think proactively think and plan for the future (how it impacts baseflow, etc.). Best available climate data, look at the HI Climate Data Portal: https://www.hawaii.edu/climate-data-portal/ Even if we don't know, it's helpful to think about how it might impact	Right now there's reference to the old Rainfall Atlas. How should we incorporate this? Staff is evaluating recent estimates of future recharge to determine how this may affect estimates of SY. Discussion on future rainfall projection data has been be added to the report as Section 1.2.4.1 Climate Change.
10	2023-12-19	Commission Meeting	Kataya ma	Using 2015 as starting point. Lots of cosmic events from now since 2015, how are those being comprehended in your analysis with Kauai Water Plan. There are quite a few TBDs how will capture that before plan is submitted for acceptance?	Started in 2015 when the project description was approved. We paused for a bit because we were waiting for the sustainable yield to be finalized. It took a little time to develop the full report and during that time the County 2018 General plan was developed. They did a technical analysis to look at these projections so we are in line with their projected amouts, and it was prior to these events happening. We could go back and take a look to see if there were any changes. Even if they slowed down certain years, in comparison to SY and full build out, they would be someone insignificant. Covid event, those were not normal. 2015-2020 is more relevant. Second question, we'll touch base with Aaron to see if there's any more recent information. For the AWUDP, we would normally get info from there. Beyond our capabilities.
11	2023-12-19	Commission Meeting	Kataya ma	Amount of users captured. How many water purveyors are there on the island?	4, Gay & Robsinson, Princeville, State Parks, DHHL, PMRF.
12	2023-12-19	Commission Meeting	Kataya ma	Do they provide metered water to their PUC regulated companies	Not really sure. Only Princeville is a PUC regulated utility.
13	2023-12-19	Commission Meeting	Kataya ma	You're capturing domestic water use, how are the private water users being integrated into the plan. I see the municipal and the private water systems.	The private water purveyors are in there because most of them report. In some areas well usage has poor reporting in some cases, so some info is not reflected in the report.
14	2023-12-19	Commission Meeting	Kataya ma	Is there a sense of what you're missing for your analysis	The domestic wells. Kilauea would be the most significant. The amount of usage there vs. the water system, is different.
15	2023-12-19	Commission Meeting	Kataya ma	Your projected water use slide for the Hanapepe Aquifer, you have listed 904 acres and 304 MGD. Is the coffee farm... personal account.	

16	2023-12-19	Commission Meeting	Kataya ma	How do you account for water diverted from one aquifer to another. Plantations used to do a lot of that.	In the SW tables shown, we tied the diversion to an irrigation system and didn't know if the system was in a different area. (Moved to service area location - it's comprehended into the projected water use on the percent land that could be irrigated)
17	2023-12-19	Commission Meeting	Chang	Does the plan's full build out take into account future development plans.	It includes State projects. For other areas, it's based off current zoning. The Lihue/South Kauai plans were assessed, West Kauai plan was assessed.
18	2023-12-19	Commission Meeting	Kagawa-Viviani	Re SW, Hanalei is a major producing. How are irrigated major kalo lands included in agricultural demand (only looking at other ag aspects). In other settings its a competing interest and in Kauai its part of the ag picture. You used the 3400/acre/day and then constrained it by available SW based on diversions (auwai are not metered). Kauai often challenges us in terms of what we consider agriculture. Kauai can help us think differently about water, irrigation, ag given the diverse landscapes. Maybe I'll need to follow up with you about this. How much water being used should take into account the diversity of agriculture. Do you have these graphs in map form? It might be a ratio of supply to demand to graphically show the hotspots. Human brain doesn't generally look at a graph and go 'aha'. Help to have conversations in explaining them (as a suggestion)	We did a broad brush overlook. Kalo can use a lot of water but it is also flow through. We can take another look at that. We also know the DHHL demands that were put into the SWPP. We'll need to talk to KDOW re graphs. Need to go back and forth between the visual and the graph of that area Kaleo:
19	2023-12-19	Commission Meeting	Chang	Is the 3,400/day a standard? A number being accepted by Ag community/acre. Big difference from what we use (2500).	We pulled that number from the report. 2500 used in Waihole, The 3500 pulled from the AWUDP, which they only looked at a specific area and at a specific time. It can be variable, and is on the higher (i.e. conservative) side for use as a planning number. See referencing the 3400 from the 2004 report. Staff uses IWReds to get a more accurate estimate, but for planning purposes use it as a planning number.
20	2023-12-19	Commission Meeting	Miike	How significant are reservoirs in Kauai? Are they a significant source for	There are a few significant reservoirs. Some are looking to decommission them for maintenance and cost, but feedback from the commmunity is that they are interested to keep them for ag and climate change and for fighting wildland fires.
21	2023-12-19	Commission Meeting	Chang	Our Eng Dept, as a result of the Koloko incident, legislation was passed for us to do dam safety. Eng has done an assessment of all dams and reservoirs and are issuing violations (either upgrade or decommission). These reservoirs, trying to make them available for fire suppression (there is a 10mil grant program available to landowners to upgrade/decommission reservoirs)	
22	2023-12-19	Commission Meeting	Hannah s	The avg. req. to support ag. That's the danger of averages. You can supply in Kauai, but would need to adjust that for an arid region. Your choice of ag production, is going to have to relate to what's available (not like plantation days, and it's dangerous)	
23	2023-12-19	Commission Meeting	Kataya ma	On West Kauai, deemed as ag. area of the island that the development plan focuses on. For ag you need three things: soil, water, sunlight. So generally you don't want it in a very rainy area. Use of 3400 is where you're taking it, using it, storing it. Reservoirs for 700 acreas of coffee are key. If can't store water, then have to drill and don't want to compete for potable water. The balance here is that we need to have storage capacity, to balance the high and low flows, fighting fires. All of this in the plan is key. The integration of SW use and GW use, and where DOW would be doing it's capital investment	

24	2023-12-19	Commission Meeting	Chang	Going to have Kalea challenge this 3400. If we're going to tailor something based on location, type of mechanism to appropriately address needs	The update from a few years ago, they increased the number to 5600/acre/day. What we've been challenging our agencies to think about, critiquing them. Our IWReds model is a useful tool and have been trying to make it front facing for community to use. (drip irrigation, spray, etc) We can get to a decent quantity based on crop type, we can present back to this commission about IWReds (show what tools we use)
25	2023-12-19	Commission Meeting	Felicia Cowden	Wanted to thank everyone for the work into this. Appreciated Katayama's comment that this should be 2025 as apposed to 2045. Also appreciate the comment on the reservoirs from Hannahs. Very conscious of the future. We can have changes. Meeting with DOW next month to drill down on specifics. I want to comment that Moloa'a, the information is insufficient. There is a concentration of wells, we have about 65 wells. Many of which are being(*cut out). Problematic area is Moloa'a doesn't have County water. The Kilauea well doesn't meet the demands. The County has purchased 50 acreas to put in affordable housing, just got a special permit for HS, middle school. But we don't see where we're going to have the water for it. We have a 1 million gallon tank hoping to put in at Kilauea. I also want to acknowledge the lack of reference to the Waiahi surface water treatment plant (feeds Lihue, Puhi, Hanamaulu... can range much further than that. Has potential to reach Kalaheo). How do we get the treatment plant on there. I didn't see DHHL water reservations plans that are underway (breaking ground in Hanapepe in January). Our service to our DHHL beneficiaries is long overdue.	Information from Moloaa is pulled in from other reports. If updated information is available, can incorporate into the next KWUPD update. KDOW is working to replace an existing 100,000 gallon tank with a 1,000,000 gallon tank. KDOW is working on getting land to perform a drill and test to determine if an adequate source if available. Waiahi Surface Water Treatment Plant is discussed in KWUDP Update. Water from the SWTP can't provide water to Kalaheo. Infrastructure does not connect to that water system. DHHL is included in SWPP.
26	2023-12-19	Commission Meeting	Kagawa-Viviani?	Do we know whether the aquifer (like the one on both sides of the island) in recent years have they remained the same? Decreased? What is the trend? I loved the presentation and the breakdown of water use. But I noticed that the ag wasn't included, and why not?	Ag was done separately because we have a lot more information on GW and land use plans and policies. For SW, there is a lack of available information available information on that. If that information is available, it can be added to the next KWUDP update.
27	2023-12-19	Commission Meeting	Jonathan Scheuer	Good that the consultants mentioned the well known and limitation of the gulf (gap?) between SY and the developable yield. That's a very significant issue on Kauai. You have lots of wells but cannot extract because of the density of the rock. Not sure what the gulf is, but having that on the chart would be meaningful. The 2019 WUDP that updated SY, used now, this is reflective of Hannahs comment. We know climate change is happening, not taking that into account, probably not accurate whatsoever. Other limitation is that wells are equally placed apart, pumping at same rate, laminar flow. Recharge is the same, same depth, geology is uniform, precipitation (not true), but most importantly for groundwater dependent ecosystem (where groundwater flowing to the coast) no accounting for that into SY. Just because you are below SY doesn't mean you are sustainable. Analysis must be done there to see if PT uses are being met, IE DHHL. We did not know about the 2023 meetings (including websites). No attendance numbers. If this goes to public hearing for approval, the level of engagement and dialogue might be more frustrating than productive.	KDOW held two meetings specifically for DHHL beneficiaries. The turnout was good and KDOW plans to continue to hold meetings specifically for DHHL beneficiaries and will coordinate with DHHL staff to send out meeting notices.

28	2023-12-19	Commission Meeting	Hannahs	The delta between development and SY, can you put that on the charts. Maybe some theoretical discussion on it, and how it could play a big role in availability of resources. Use a case study, because you are lacking the data across the board	See if there is anyway to indicate that these areas are getting close, and those warrant an analysis and update.
29	2023-12-19	Commission Meeting	Chang	CWRM is to host public hearings. What is the strategy on how to hold the meetings. Would rather have a talk about it with the community rather than hearing about it at the commission that the community didn't hear about it. So have some meetings there where the communities are impacted, even having it with all the homesteads on Kauai. We have our own kuleana and have to have a meeting, but does not preclude the water department from convening more public meetings.	Specific to KWUDP, CWRM usually just conducts one hearing related for this. During Covid, did them via Zoom. We can do this on island. Will see what works best for KDOW and community, but becomes a resource and cost issue. Plan is to take it to more public settings.
30	2023-12-19	Commission Meeting	Miike	Developable yield. Can't get the number, might use the #s we use: 70, 80, 90. You can't call it developable, but use it as like a warning sign.	
31	2015-10-21	Kilauea Public Meeting		Surface water is abundant on the North Shore, but there is not enough storage available	
32	2015-10-21	Kilauea Public Meeting		Will information on reservoirs and dams be included?	Yes, but the main source of information will come from the AWUDP. If this information is updated, can include in next KWUDP update.
33	2015-10-21	Kilauea Public Meeting		Hearings on Kauai for other components of the Hawaii Water Plan, including the AWUDP, should be well-publicized	
34	2015-10-21	Kilauea Public Meeting		Agricultural water use projection of 3,400 gpad seems low	See referencing the 3400 from the 2004 report.
35	2015-10-21	Kilauea Public Meeting		How does this process propose to integrate Federal water use?	Federal water use would be included in County [meter] data if the water comes from the County water system. If the water use is served by surface water, such as is the case for U.S. Fish & Wildlife Service's Hanalei National Wildlife Refuge, then that use should be accounted for in the Instream Flow Standards and diversion data, which are the responsibility of CWRM. [If the use is served by a well, that information should be reported to the Commission on Water Resource Management (CWRM).
36	2015-10-21	Kilauea Public Meeting		Are water catchment systems legal?	Yes, but they are not regulated by the Department of Health
37	2015-10-21	Kilauea Public Meeting		An attendee had thought water was a limiting factor for development. Based on the presentation, it doesn't seem like it.	The limiting factor is having the necessary infrastructure (meeting water system standards) to provide water to the end user. Maintaining irrigation systems is also difficult/costly.
38	2015-10-21	Kilauea Public Meeting		There needs to be a balance. More water being used for irrigation may mean more recharge. However, more water left in the stream will promote the health of the stream as well as the health of the ocean.	
39	2015-10-21	Kilauea Public Meeting		Concern was raised over the Kalihiwai Reservoir. Residents want it to look full and beautiful, while users want to use the water when needed. In addition, maintenance is difficult due to the costs and number of owners/users.	

40	2015-10-21	Kilauea Public Meeting		People take water for granted and need to understand the cost of getting the water to them and should be willing to pay more for this service. An attendee encouraged KDOW to charge more for water so they have money to maintain and build more infrastructure.	
41	2015-10-20	Kapa'a Public Meeting		Is there an inventory for existing water uses? How much water is the military taking?	Existing water use is being inventoried. The gathered information will be presented at the second series of public meetings next year.
42	2015-10-20	Kapa'a Public Meeting		What is the difference between the CWRM categories, “Irrigation” and “Agriculture”?	Agriculture refers to uses for agriculture, such as crops or nursery plants, while Irrigation includes uses such as park and golf course irrigation.
43	2015-10-20	Kapa'a Public Meeting		Should the Island of Kaua‘i be divided up by ahupua‘a instead of by aquifer systems? For example, the Kapa‘a watershed and Anahola watershed are characteristically different but are grouped together in the same aquifer system	CWRM requires that the WUDP update be based on the hydrologic units established by CWRM. Therefore, all data for each of the Hawaii Water Plan components are compiled and summarized using the aquifer or hydrographic systems as basic study area units.
44	2015-10-20	Kapa'a Public Meeting		How confident are you that the reported pumpage numbers are accurate? Is reporting required?	Reporting is required. Although we are aware that not all well owners report pumpage to CWRM (< 100%), it is currently the best available information. It should be noted however that CWRM generally pursues most of the larger well owners to report.
45	2015-10-20	Kapa'a Public Meeting		There was some confusion about the definition of a privately-owned public water system	A public water system is one that has 15 or more service connections or serves 25 people daily for at least 60 days of the year. Public water systems can be privately owned. Princeville was given as an example of a privately-owned public water system.
46	2015-10-20	Kapa'a Public Meeting		When the General Plan and/or Zoning are approaching the Sustainable Yield, what is the definition of approaching? Is it a percent?	As of now, there is no definition (%) set, but it is generally based on a relative scale when compared with conditions of other areas islandwide; this must be discussed further. [“Sensitive” areas are those areas where the General Plan full build-out demand or Zoning full build-out demand exceeds Sustainable Yield. This is a very conservative approach as SY and full build-out concept are both conservative.
47	2015-10-20	Kapa'a Public Meeting		A legend for the Zoning categories should be provided.	A legend was created and was posted with the zoning map at the remaining public meetings.
48	2015-10-20	Kapa'a Public Meeting		Label the quantities on the slides with their units (i.e., MGD).	The slides were revised to add unit labels for the remaining public meetings.
49	2015-10-20	Kapa'a Public Meeting		The Sustainable Yield line should decrease over time, given that we are getting less rainfall, i.e. climate change.	
50	2015-10-20	Kapa'a Public Meeting		We need to reuse wastewater. People should not be squeamish about reusing treated wastewater.	
51	2015-10-20	Kapa'a Public Meeting		Springs need to be identified.	This is CWRM’s responsibility (spring discharge would be accounted for in Instream Flow Standards).
52	2015-10-20	Kapa'a Public Meeting		How often is the Sustainable Yield document updated? Is climate change accounted for in this document?	The current sustainable yield numbers are from the 2008 Water Resource Protection Plan (WRPP). The Sustainable Yield is currently being updated by CWRM. (Climate change is accounted for in that the SY numbers are conservative. CWRM is working with climatology scientists to better understand climate change, but until more information becomes available, CWRM is taking a precautionary approach and uses the most conservative estimate.)
53	2015-10-20	Kapa'a Public Meeting		For the 20-year demand projections, are resorts, industrial uses, etc. included in the calculation?	Yes, they are included. As population increases, not only will residential demands increase, these other demands will also increase.

54	2015-10-20	Kapa'a Public Meeting		When was the last KWUDP?	The KWUDP was first adopted in 1990. It was updated in 1992, but that update was not adopted by CWRM.
55	2015-10-20	Kapa'a Public Meeting		Will we ever get a clear picture of where stream diversions are (ex. Waimea is a problem area)?	CWRM is responsible to inventory stream diversions and they are working on this.
56	2015-10-20	Kapa'a Public Meeting		For full build-out, is it built out to the maximum capacity? Are there any areas of concern that are close to the Sustainable Yield (SY)?	The full build-out concept assumes that all land area is built out to the theoretical maximum extent. Based on the 2008 WRPP SY, there are no areas that are close to SY.
57	2015-10-20	Kapa'a Public Meeting		Concerns were expressed that the General Plan was developed a long time ago.	The General Plan was adopted in 2000 and is currently being updated. Zoning hasn't changed; some places are just more developed than before.
58	2015-10-20	Kapa'a Public Meeting		What was discussed at the stakeholder meeting? How often do they meet?	The stakeholders have met once so far. They were given a similar presentation, and we discussed the update process/methodology as well as obtained their input on water resource issues.
59	2015-10-20	Kapa'a Public Meeting		How long has the stakeholder group been in existence	Approximately one year
60	2015-10-20	Kapa'a Public Meeting		How were the stakeholders chosen	The stakeholder group is a cross-section of the community. There are representatives for farmers, developers, and Native Hawaiians.
61	2015-10-20	Kapa'a Public Meeting		Concern regarding water being diverted to Grove Farm and KIUC was raised.	
62	2015-10-20	Kapa'a Public Meeting		Why were Condominium Property Regimes (CPRs) not included in the past General Plan?	CPRs are a means of dividing ownership. The County Comprehensive Zoning Ordinance (CZO) is what regulates the development of lots and the allowable density. Dwelling units on agricultural land, as allowed by the CZO, were accounted for in the full build-out calculations.
63	2015-10-20	Kapa'a Public Meeting		Form-based code was mentioned.	Information from the recent community plans [South Kauai and Lihue] has been obtained and will be analyzed.
64	2015-10-20	Kapa'a Public Meeting		Please take Native Hawaiian water rights into consideration when writing the KWUDP.	Will do.
65	2015-10-20	Kapa'a Public Meeting		An attendee expressed approval that the KWUDP Update will be taking a comprehensive look at the island's water needs and availability.	
66	2015-10-29	Lihue Public Meeting		What is the difference between General Plan and Zoning?	The General Plan and Zoning full build-out analyses are completely separate island-wide assessments. General Plan is conceptual and is the County's vision for land use and Zoning is what is legally developable.
67	2015-10-29	Lihue Public Meeting		Moloaʻa needs to be looked at.	
68				Concern was expressed about using Important Agricultural Lands (IAL) and the County's IAL Study for analysis of agricultural water demand. An attendee was part of the Technical Advisory Committee for the IAL Study and expressed frustration with the document.	

69	2015-10-29	Lihue Public Meeting		Why are there only two rounds of public meetings? There is a lot of information that will be gathered and analyzed between the two rounds. There should be interim meetings so the amount of data presented at each meeting is not overwhelming.	Two rounds of public meetings (and two advisory group meetings) are planned.
70	2015-10-29	Lihue Public Meeting		It was suggested that, if frequent interim meetings are not feasible, a website be used to publish new information as it becomes available for the public to see.	
71	2015-10-29	Lihue Public Meeting		The Sustainable Yield (SY) numbers are wrong. They are based on a 25 year old model that is obsolete.	CWRM is working on updating the SY numbers.
72	2015-10-29	Lihue Public Meeting		The SY numbers are not sustainable at all because there is so much groundwater pumping that streams and rivers are drying up. The SY numbers are based on an inappropriate model. You have the accepted model (USGS model), why won't you use the best information available?	We can look at other models, but ultimately, we need to use the numbers that are established and approved by CWRM. Determining the SY numbers is CWRM's responsibility (CWRM generally relies on USGS for recharge studies, which are the basis of the SY estimates).
73	2015-10-29	Lihue Public Meeting		Based on the SY & pumping graph in the presentation, Wailua is currently pumping 0.5 MGD and the SY is 43 MGD. If there is so much groundwater available, why would you build a treatment plant for surface water? The law states to only use surface water if you cannot use groundwater. All natural resources, including fish and fauna, should be protected. We are in current violation of the State Code and Public Trust Doctrine.	The Hawaii Supreme Court has identified four Public Trust purposes applicable to water resources that equally have priority: maintenance of water in its natural state; domestic use; traditional and customary rights; and DHHL reservations. Using surface water for domestic use, including for drinking water, is lawful.
74	2015-10-29	Lihue Public Meeting		Water should guide land use, not the other way around. We should develop where there is available groundwater.	Th KWUDP update process helps the County do that.
75	2015-10-29	Lihue Public Meeting		Regarding the SY & pumping graph, is the blue part in the Hanamaulu graph the current pumpage? Is that what is being delivered? How much surface water are we using? Have we determined that this surface water is not in violation of the Public Trust? Based on the Kauai Springs case, every government entity has the duty to show that the Public Trust Doctrine is not being violated. You as individuals are liable.	The blue bars in the Hanamaulu graph represents groundwater pumpage. Approximately 2 MGD of surface water goes into the County water system. There is currently a lack of data. Setting instream flow standards is extremely complex. This is an issue state-wide. CWRM is now looking back at diversions that had been grandfathered to see if they violate the Public Trust Doctrine.
76	2015-10-29	Lihue Public Meeting		We need to think about how to maintain the irrigation systems.	
77	2015-10-29	Lihue Public Meeting		Sometimes surface water cannot be used because of the amount of nitrates.	
78	2015-10-29	Lihue Public Meeting		An attendee gave testimony at a CWRM meeting on Kauai. He has all the data that supposedly doesn't exist. This is in violation of the Public Trust Doctrine and Federal Water Law. Groundwater should be reserved for potable drinking water as it is high quality water.	
79	2015-10-29	Lihue Public Meeting		The sugar irrigation systems are what dried our streams.	

80	2015-10-29	Lihue Public Meeting		A memorandum of understanding is needed between the Department of Aquatic Resources and CWRM.	
81	2015-10-29	Lihue Public Meeting		How can you move forward without SY and AWUDP numbers?	SY is available from the CWRM WRPP. In the absence of AWUDP numbers, assumptions need to be made until the AWUDP becomes available.
82	2015-10-29	Lihue Public Meeting		More detail should be provided.	When we come back, we will have a breakdown of meter data.
83	2015-10-29	Lihue Public Meeting		Data on all water sources should be gathered. There are some sources that you do not have data for.	
84	2015-10-29	Lihue Public Meeting		It was recommended that USGS data be used instead of CWRM data, when possible.	
85	2015-10-29	Lihue Public Meeting		There are a lot of wells that are pumping and not reporting. How is this being addressed?	CWRM is the only entity that has legal authority to collect the data. Regulating wells and diversions are CWRM's responsibility. CWRM recently updated their policy. Private individual domestic users are now required to report. CWRM is currently going after the larger users first. They are also working with the Department of Agriculture.
86	2015-10-29	Lihue Public Meeting		The KWUDP is supposedly a living document, but are we anticipating it will take 10-20 years before it is updated again? When you update the plan, how much does it cost to update the plan? Why are we continuing to use outdated data? It is important to get it right now. The margin of error is too large to be acceptable.	Risk and risk tolerance needs to be considered. Things are always going to change. The County has to make decisions on where and how to grow. The County needs to look at all resources and water is one of them. Each island is different. Kauai's problem is trying to get the water out of the ground. We are looking at the worst case scenario in terms of demand. Even with the uncertainty of the sustainable yield values, if these conservatively derived (high) demand numbers are way below the SY, wouldn't that provide some comfort that the land planning policies are sustainable? Ultimately, we want the County to have the best information available to make decisions (this KWUDP Update will provide the County with information on demand that will help them make land use decisions).
87	2015-10-29	Lihue Public Meeting		We should encourage water catchment and gray water use.	
88	2015-10-29	Lihue Public Meeting		U.S. Fish and Wildlife Service altered the course of Hanalei River with a stream bank restoration project. The project restricts the stream from its natural evolution and meandering.	
89	2015-10-29	Lihue Public Meeting		Watershed protection is important.	
90	2015-10-29	Lihue Public Meeting		How did we start down the road of taking surface water?	If there is an expansion of a diversion, an amendment is needed. This triggers CWRM to look at the existing diversion and its impacts. (Many factors contributed to the decision to use surface water to serve the Lihue area. The water table in the Lihue area has decreased over time, therefore, some of the existing wells have been taken offline. The closing of the plantation and cessation of related irrigation practices may have affected ground water recharge and contributed to the lowering of the water table. In addition, it has been difficult to develop high yielding wells in the Puhi/Hanamaulu area due to the geology and lava formation in the area. Economics and the availability of surface water are additional reasons KDOW started to use surface water to meet the needs of the community).
91	2015-10-29	Lihue Public Meeting		Even if a diversion is grandfathered in, the water must be returned in the same condition. Who regulates that?	CWRM understands that grandfathered diversions are not necessarily right. CWRM is working to address diversions. Regarding wells, it was mentioned that there are well construction standards, pumping tests, and studies of drawdown before a well is allowed.

92	2015-10-29	Lihue Public Meeting		What happens if the new SY numbers are exactly the same as or lower than the General Plan & Zoning full build-out numbers?	These areas would be considered sensitive and should be looked at more closely. Also, it is anticipated and will be verified that under existing conditions, water consumption is within the SY, and there is time to make corrections in the implementation of the land use policies to stay within sustainable limits of the resources.
93	2015-10-29	Lihue Public Meeting		It was proposed that the scope for the KWUDP Update be reduced to just the inventory portion instead of moving forward with the analyses based on outdated SY numbers and assumptions.	
94	2015-10-29	Lihue Public Meeting		It was proposed that the efforts for the KWUDP Update be focused on collecting and developing all the necessary information instead of depending on other agencies, such as CWRM and DOA.	
95	2015-10-27	Kalaheo Public Meeting		Are all the wells metered?	Data for all wells is required to be reported to the CWRM. However, not all [private] well owners report to CWRM. All KDOW wells are metered and reported to CWRM.
96	2015-10-27	Kalaheo Public Meeting		What are reclaimed water systems?	Reclaimed water systems are systems that distribute recycled water for irrigation after it has been treated at wastewater treatment plants.
97	2015-10-27	Kalaheo Public Meeting		In the past, population projections have been inaccurate. How are you addressing this?	Population projections from a technical study for the Planning Department's General Plan Update are being used. The growth rate is approximately 1-2%, which is reasonable compared to historical growth rates.
98	2015-10-27	Kalaheo Public Meeting		It seems that there is more than enough water to meet the demands. Is that true? Has global warming been taken into account? For example, it used to rain a lot here but it doesn't any more.	Climate change needs to be considered and monitored.
99	2015-10-27	Kalaheo Public Meeting		Is there a possibility of salt water intrusion and the water lens being pierced? Who monitors this?	Everyone must be careful. Public and private well owners are supposed to report chlorides to CWRM. KDOW monitors their wells and reports to CWRM.
100	2015-10-27	Kalaheo Public Meeting		Is there technology that shows the rate at which aquifers are being recharged? Has the aquifer capacity diminished or stayed the same? Is there historical data for the aquifers?	CWRM is responsible for studying the aquifers and analyzing/updating recharge rates. There are observation wells that are used to study the aquifers.
101	2015-10-27	Kalaheo Public Meeting		Is water quality monitored for wells?	Water from wells used for drinking water must meet the Safe Drinking Water Standards.
102	2015-10-27	Kalaheo Public Meeting		The Sustainable Yield numbers are from the 2008 WRPP. Will the updated numbers be used in the KWUDP?	Yes, when they become available.
103	2015-10-27	Kalaheo Public Meeting		Will both public and private water systems be looked at?	Yes
104	2015-10-27	Kalaheo Public Meeting		Do we have a policy for allocating water? Who gets the water if we end up using more than the Sustainable Yield (SY)?	No one owns the water. Uses that have equal priority were identified by the Hawaii Supreme Court. There are 4 Public Trust Purposes: Maintenance of water in its natural state; Domestic Use; Traditional and Customary Rights; DHHL reservations. Also, CWRM has a process for designating Water Management Areas (upon designation, applicants for water use permits are required to show that they meet the 7 statutory conditions for obtaining a water use permit under HRS 174C-49(a)).
105	2015-10-27	Kalaheo Public Meeting		A discussion on the process for designating Water Management Areas would be helpful.	

106	2015-10-27	Kalaheo Public Meeting		Are private water systems/wells not required to report their pumpage?	They are required to report their pumpage to CWRM but if private entities don't disclose their information, we cannot get the information.
107	2015-10-27	Kalaheo Public Meeting		Is there an enforcement mechanism for wells that are not reporting?	Yes, CWRM can pursue reporting.
108	2015-10-27	Kalaheo Public Meeting		Is there a time when we have to worry about agricultural companies using groundwater for irrigation?	Well permits can be requested for agricultural uses. If there is competition or threats to water resources, CWRM may designate a water management area and institute a water use permitting system.
109	2015-10-27	Kalaheo Public Meeting		Is there a priority for water? Who protects existing users?	Water belongs to the public. The Public Trust Doctrine prioritizes certain uses. Upon designation of a water management area, the shared use doctrine is replaced by a water use permitting system and all existing users must apply for a permit to continue their existing use. The Water Code gives some priority to existing users.
110	2015-10-27	Kalaheo Public Meeting		Is there any discussion for new reservoirs for potable water?	No
111	2015-10-27	Kalaheo Public Meeting		What is the water in the reservoirs used for?	Primarily for agricultural use.
112	2015-10-27	Kalaheo Public Meeting		The waterfall at the end of Wailua River was mentioned.	There is a very small pump there. However, the reason the water was not flowing was because there was no rain.
113	2015-10-28	Waimea Public Meeting		An attendee expressed enthusiasm that this update is happening and that the update is being coordinated to the extent possible with the General Plan Update which is also currently underway.	
114	2015-10-29	Waimea Public Meeting		It appears there are a lot of water resources but we're missing the infrastructure, which is already old.	Water Plan 2020 is addressing the aging infrastructure.
115	2015-10-30	Waimea Public Meeting		A concern was expressed about Eleele relying on Hanapepe for its water and the existing transmission main.	Presently, KDOW has two wells in Hanapepe Valley and one well located above Hanapepe Heights. Water is provided to the Eleele service zone by two booster pumps located in Hanapepe Valley which pump water through a transmission main that traverses the cliff to KDOW's storage tanks. KDOW installed a transmission main from Hanapepe town to the Eleele water system (near the intersection of Kaumualii Highway and Waialo Road adjacent to Eleele Shopping Center).
116	2023-08-31	Kilauea Public Meeting		Are you sure all of the water in Kalihiwai comes from Princeville?	The Princeville Water System is a privately-owned public water system in the Kalihiwai aquifer system area (ASYA) and is supplied by two wells. There are also two KDOW water systems that serve portions of the Kalihiwai ASYA: the 'Anini Water System and the Kīlauea Water System. The KDOW 'Anini Water System receives water purchased from the Princeville Water System. The KDOW Kīlauea Water System serves areas in the Kalihiwai ASYA and Kīlauea ASYA. The KDOW Kīlauea Water System spans from the Waipakē Subdivision in east Kīlauea to the Kalihiwai River. The KDOW Kīlauea Water System is supplied by two wells in the Kīlauea ASYA. See Figure 20201-5 for the service areas of the water systems.
117	2023-08-31	Kilauea Public Meeting		Land planning is determined by who? Is it like Kōloa where it's determined by project development?	Land use planning is done by the COK Planning Department.
118	2023-08-31	Kilauea Public Meeting		How do you determine sustainable yield (SY)? How can you tell whether aquifers are drying up?	CWRM establishes the SY estimates, which is evaluated by using analytical ground water models (Robust Analytical Model, please see Appendix F of the 2019 WRPP for a detailed discussion. CWRM applied the precautionary principle in selecting the SY for the 2019 WRPP Update, and in general, selected the most conservative SY for each ASYA. CWRM does not have any monitor wells on Kaua'i. Groundwater conditions can be monitored by the level of chlorides (salinity) in production wells.

119	2023-08-31	Kilauea Public Meeting		Is the SY from 1990?	No, the original WRPP was published in 1990 but has since been updated twice. The latest update was in 2019 and the 2019 WRPP is where the SY numbers are from.
120	2023-08-31	Kilauea Public Meeting		Can you go over the Hanalei/Princeville/Kilauea population projections?	The population projections are from the Planning Department and were published in the 2018 General Plan.
121	2023-08-31	Kilauea Public Meeting		I saw another plan that included an analysis based on unit counts and land area (e.g., can build 5 houses on 1,000 acres of land). What did the KWUDP Update do?	The demand analysis was performed two ways. The first evaluated the existing demand and projected future demand based on population projections. The second evaluated the General Plan and zoning full-build out (FBO), which multiplied land areas by appropriate water use rates and allowable development densities. It is noted that the analysis is a conservative preliminary analysis and does not evaluate water demand at a more precise/detailed level (property/parcels), which would decrease the FBO water demand projection. More information on the FBO analysis can be found in Section 2.2.2 of the KWUDP Update.
122	2023-08-31	Kilauea Public Meeting		What's a dwelling unit?	A dwelling unit is essentially the equivalent of a home. (A dwelling unit is defined as "any building or any portion thereof which is designed or intended for occupancy by one (1) family or persons living together or by a person living alone and providing complete living facilities, within the unit for sleeping, recreation, eating and sanitary facilities, including installed equipment for only one (1) kitchen. Any building or portion thereof that contains more than one (1) kitchen shall constitute as many dwelling units as there are kitchens" per the Title IV Chapter 8 of the Kaua'i County Code.)
123	2023-08-31	Kilauea Public Meeting		If we barely have enough water to support ourselves now, how can we expect to support up to the FBO scenario? Were schools, shopping centers, and new housing development considered?	The FBO scenario analyzed the maximum water needs if all land is developed to its theoretical highest extent allowed by current land use plans and policies (General Plan and zoning), including areas of land designated or zoned as residential, resort, etc. The FBO analysis assumes that every square foot is developed to the maximum extent and does not account for area needed for roads, buffer areas, or undevelopable topography. Therefore, the FBO scenario is extremely conservative as its main purpose was to determine if the existing land use plans and policies are sustainable. If the schools, shopping centers, and new housing development were included in the General Plan/zoning, then it was considered as part of the FBO scenario analysis. Source development and infrastructure improvements are separate from the FBO land use comparison to SY.
124	2023-08-31	Kilauea Public Meeting		The sustainability of land use policies (FBO scenario) vs. projected demand seems misleadingly low.	The FBO water demands are conservatively high, which may contribute to the projected demands seeming low.
125	2023-08-31	Kilauea Public Meeting		The KWUDP Update seems very esoteric. How does this plan affect projects 20 years from now and what feedback do you need to adjust it? This study doesn't address our "we don't have water" mentality.	The primary objective of the KWUDP Update is to analyze Kaua'i's land use plans and policies (General Plan and zoning) to see if the land use plans and policies are sustainable (i.e. FBO < SY), which is the case for all ASYAs on Kaua'i. KDOW is also working on the Water Systems Investment Plan (WSIP), which is a separate planning project. That project will evaluate KDOW's water systems and recommend projects for infrastructure improvements, expansion, etc.
126	2023-08-31	Kilauea Public Meeting		How can Kīlauea and Kalihiwai survive when only 5% of the water needs can be sustained (this is in reference to the Irrigation of Agricultural Lands table for the Kīlauea ASYA shown in the presentation)?	There is limited available information on agricultural water use and surface water. For the purpose of providing a general comparison of agriculture demand to surface water, it was assumed that no additional surface water diversions are allowed without amendment of the interim instream flow standards (IIFS) and declared surface water diversions were used to represent surface water supply. These declared diversion quantities are published in the WRPP and most of the quantities have not yet been verified by CWRM. The table showed that only 5% of agricultural lands that scored ≥ 28 in the County of Kaua'i's Important Agricultural Lands (IAL) Study can be irrigated at a rate of 3,400 gallons per acre per day, which is the diversified water use rate that was estimated in the 2004 AWUDP (i.e., this analysis is for agricultural lands only) using only the declared surface water diversions.
127	2023-08-31	Kilauea Public Meeting		How much water is available in the aquifers based on how much water is being withdrawn to serve existing demand? People can't develop here because there's not enough water.	The SY is the maximum rate at which water may be withdrawn from a water source without impairing the utility or quality of the water source. However, it is noted that SY does not consider the feasibility of developing the groundwater and should not be equated to developable groundwater. Due to Kaua'i's age, it has complex hydrogeology, and the SY is not directly related to the productivity of the groundwater wells. Several models have been developed to estimate the SY, which have been analyzed by CWRM to assist with selecting the SY. The models are explained in more detail in Appendix F of the 2019 WRPP.

128	2023-08-31	Kilauea Public Meeting		I've talked to CWRM recently about my well. Within 1 mile of my well, there's 60 other domestic water wells. Of those 60 wells, only 12 report their pumpage to CWRM. There's no penalty to the well owners who don't report. You're basing your analysis off their lack of knowledge.	The CWRM well database provides the best available information on wells and was used to evaluate existing ground water resources. Well pumpage reporting is relatively high with the large users; however, your concern will be passed along to CWRM.
129	2023-08-31	Kilauea Public Meeting		What is the long-term plan to provide agricultural water to properties when reservoirs are planned to be decommissioned?	This question will be sent to CWRM and the Department of Agriculture (DOA). It is noted that several of the irrigation systems in this area are inactive and DOA does not recommend repair per the 2019 draft of the AWUDP. More information on the existing status of the irrigation systems can be found in the 2004 AWUDP (available here) and the 2019 AWUDP (public review draft, available here).
130	2023-08-31	Kilauea Public Meeting		What is being done to preserve surface assets like Kalihiwai Reservoir?	DOA is responsible to prepare the AWUDP, which inventories the larger irrigation systems and assesses their rehabilitation potential and needs. KDOW does not own or manage reservoirs and surface water irrigation systems.
131	2023-08-31	Kilauea Public Meeting		By what criteria is a well, storage tank, or reservoir decommissioned? Does CWRM consider these storage/source taps comprehensively with regards to future land use?	The decommissioning of a well, storage tank, or reservoir is not taken lightly and the decision is made by the owner. There are costs associated with operating, maintaining, and repairing these elements, and the costs and risks need to be considered by the owner against the benefits. CWRM does not have input on the decommissioning of these elements as they are not the owner.
132	2023-08-31	Kilauea Public Meeting		How can we utilize non-potable water for fire flow protection?	Reservoirs have the ability to store water that could be made available for fire flow purposes. The use of reservoirs for fire protection is typically coordinated between the Fire Department, the reservoir owner, and the DLNR's Division of Forestry and Wildlife (DOFAW).
133	2023-08-31	Kilauea Public Meeting		Water is an asset to use for human/wildlife sustenance. However, as we know from Hurricane Iniki, it can also cause destruction. What plans do you have to address disasters and public safety from water misuse?	Agreed, potable water should be used for the most valuable end use, which is human consumption and domestic use.
134	2023-08-31	Kilauea Public Meeting		My understanding is that the KWUDP Update should include fire flow protection; it's lacking along our long-haul roads, especially in Hanalei. Where is money being allocated for infrastructure?	The primary objective of the KWUDP Update is to set forth the allocation of water to land use to guide the County in its planning, management, and development of land use and water resource strategies and policies for sustainable development. KDOW is concurrently working on the Water Systems Investment Plan (WSIP), which is the longrange plan and one of the items in the scope of work is to update the GIS of the KDOW water systems. Another item in the scope of work is to build the hydraulic model of KDOW's water systems, which will include analyzing the system under emergency situations (fire flow). This information will be used when developing the 20-year capital improvement program (CIP) project list. Public meetings for the WSIP will be held in 2024.
135	2023-08-31	Kilauea Public Meeting		Does existing development or affordable housing take priority over new development? There's land that still needs water. In the past, the land developer was responsible to install the infrastructure necessary to supply his development.	The water system is being evaluated as part of the WSIP. However, the current goal for KDOW is to update the existing water system and to lift water meter restrictions and/or provide fire flow protection. Once that is addressed, water system expansion can be considered. KDOW is doing their best to support the Mayor's Office in affordable housing.
136	2023-08-31	Kilauea Public Meeting		What is the timeline on expanding the water system? What projects is KDOW working on in Kīlauea? There's been talk to drill and develop a new well in Kīlauea for at least 10 years. Whenever we ask KDOW about it, we've been told it'll be another 3-5 years. What is the status of the well?	KDOW, currently has 30 CIP projects ongoing and 5 projects are in construction across the island. It is anticipated that an additional 3 projects will be in construction in the next year. In Kīlauea, there is a project to replace an existing storage tank with a larger tank. After the tank is constructed, there are plans to drill and develop a well at that tank site. In addition, KDOW is working on acquiring land for a new well in the Kīlauea area and a right-of-entry (ROE) access has already been secured. The public is encouraged to attend the WSIP public meetings next year as well to provide input on the new 20-year CIP projects and their prioritization. KDOW is also considering pursuing federal funding to help pay for projects that are identified in the WSIP.

137	2023-08-31	Kilauea Public Meeting		Will the additional capacity at the Puu Pane tank result in more water availability for housing projects 5-10 years from now? There's a water restriction in Kīlauea.	The additional capacity will help address storage limitations. Additional source(s) (well(s)) will also be needed. When KDOW develops a well, they are required to report the pumpage to CWRM. Part of the pump installation permit (administered by CWRM) is how much KDOW is permitted to pump from the well without negatively affecting the water source or the well. All wells have a certain capacity. Even if multiple storage tanks are built, there is still only a certain amount of water that can be pumped based on the number of wells in the vicinity. After upgrading the tank, a new groundwater source can be evaluated and possibly developed to fill the tank and supply more water to customers in the future. An environmental assessment (EA) will need to be completed, and KDOW would appreciate the community's support.
138	2023-08-31	Kilauea Public Meeting		KDOW does not provide water to properties on Ko'olau Road, between Waipake and Aliomanu. We were told that KDOW would not be able to provide water service for at least 20 years and we had to sign a form acknowledging this. Will we get water soon?	Unfortunately, KDOW's current priority is addressing their current water system (infrastructure improvements). Water system expansion is a long-range plan.
139	2023-08-31	Kilauea Public Meeting		The Kīlauea community would like to help. If KDOW needs any assistance with securing ROE access or with the EA process, the Kīlauea community can help.	
140	2023-08-31	Kilauea Public Meeting		As principal of the Namanahana School, I would like to know how we can add bathrooms, etc. to our school.	KDOW understands that Phase 1 of the project will provide portable restrooms and portable potable water but acknowledges that a permanent, stable supply of water is needed.
141	2023-08-31	Kilauea Public Meeting		Rainwater is a valuable resource, but Kaua'i doesn't allow water catchment. Is that something that will be changing? Is this a Department of Health (DOH) restriction or a KDOW restriction? Can rainwater catchment be used for agricultural purposes?	KDOW currently doesn't allow rainwater catchment to be used as a potable water source in areas that are served by the KDOW water system due to concerns with cross-contamination. There are areas that are not served by the KDOW water system that have rainwater catchment. Rainwater catchment may be used for agricultural purposes as this is a non-potable water demand.
142	2023-08-31	Kilauea Public Meeting		Why is KDOW having problems/delays in approving water permits? Specifically, a permit application for a farm commercial kitchen, which was approved by other COK departments more than 6 months ago? Why don't you provide a liaison in your department who can follow through with an applicant? Do we not have enough water or is there not enough staff at KDOW to process the permit?	For every permit, KDOW needs to assess source, storage and transmission requirements. Currently, there are source and storage limitations in the Kīlauea area, but the Puu Pane Tank upgrade will help alleviate the storage limitation.
143	2023-08-31	Kilauea Public Meeting		Are there programs to teach kids in school to conserve water? What efforts are planned to educate the public on conserving water use? For example, it's recommended to wash hair every few days (not every day) or to reuse kitchen sink water, which is great for plants.	Every year, KDOW coordinates an island-wide water education festival for 5th grade students called Make a Splash with Project WET (Water Education for Teachers). This festival brings together parents, students, teachers, government resource agencies and enthusiasts of all kinds for a common goal: to educate and promote awareness of water resources in a fun and interactive environment.
144	2023-08-31	Kilauea Public Meeting		A 2-inch lateral from Kūhiō Highway broke and was replaced with a 1 ½-inch lateral. Six homes are served from this lateral and there is not enough pressure. When we asked KDOW why the 2-inch lateral was replaced with a 1 ½-inch lateral, we were told this is standard practice and a 2-inch lateral is an additional cost. Why?	Please contact DOW Engineering Division with the specific location of the lateral break/replacement for review and response.
145	2023-08-31	Kilauea Public Meeting		There's a high concentration of wells in Moloa'a and an increasing need for surface water. I'm also concerned about aquifer recharge.	

146	2023-08-31	Kilauea Public Meeting		There's two separate water systems in the Kalihiwai Ridge area – one is KDOW and one is agricultural. The cost of the water from the agricultural water system is the same as the cost from the KDOW water system. Due to this, no one uses water from the agricultural water system. What's the point of installing the agricultural water system if it's not feasible to the farmers?	It may be more appropriate to ask this question to the owner of the agricultural water system.
147	2023-08-22	Kapa'a Public Meeting		Is there a report that summarizes the rainfall on Kaua'i in order to determine how much water we have?	The Rainfall Atlas is a resource that summarizes the rainfall on Kaua'i.
148	2023-08-22	Kapa'a Public Meeting		Who has evaluated how much water Kaua'i has?	CWRM is responsible for determining the quantity of water resources (groundwater and surface water). Sustainable yield is defined as the maximum rate at which water may be withdrawn from a water source without impairing the utility or quality of the water source as determined by CWRM. The current SY values are from the WRPP which is prepared by CWRM.
149	2023-08-22	Kapa'a Public Meeting		Based on the SY, it appears that there is a large surplus of water available for Kaua'i.	For all aquifer system areas (ASYAs), SY is greater than the full build-out projections. CWRM utilized the precautionary principle when selecting the SY for each ASYA, and in general, selected the most conservative SY. Also, as noted in the presentation, full build-out projections are conservatively high. However, it is noted that SY does not consider the feasibility of developing the groundwater and should not be equate d to developable groundwater.
150	2023-08-22	Kapa'a Public Meeting		Does the SY take into account diverted surface water?	The SY study takes the water cycle into account. SY modeling considers groundwater recharge as well as outflow that prevents seawater intrusion or maintains perennial streamflow.
151	2023-08-22	Kapa'a Public Meeting		How is the SY affected by climate change? USGS just released a report that included how climate change impacted groundwater supply across the islands.	The impact of climate change on water resources is something that CWRM will need to assess and this question will be relayed to CWRM. Fukunaga will ask if CWRM is aware of the report and how they plan to use the informat ion from the USGS report.
152	2023-08-22	Kapa'a Public Meeting		It is understood that revisions to water resource quantities is the responsibility of CWRM, but will the KWUDP Update include a discussion on the potential impacts of climate change?	The KWUDP Update currently has a brief discussion on climate change, but Fukunaga will see if the discussion can be expanded.
153	2023-08-22	Kapa'a Public Meeting		Is there water allocation for emergency response (i.e., fire protection)?	KDOW is currently working on a Water System Investment Plan (WSIP) which is their long-range capital improvements plan and are working on updating the GIS hydraulic model. Evaluation of the KDOW water systems with the hydraulic model, including analyzing the system under emergency situations (fire flow), will help direct future investment in expanding or upgrading the water systems. Public meetings for the WSIP will be held in early 2024.
154	2023-08-22	Kapa'a Public Meeting		Who regulates the wells? How do we ensure that the aquifers aren't contaminated?	Public wells are regulated by the DOH, who have sampling and reporting requirements. CWRM is responsible to protect Hawaii's water sources, and before a well is drilled, the developer needs to apply for a Well Drilling Permit from CWRM. After the well is drilled, a Pump Installation Permit from CWRM is required to develop the water source. The well must be drilled and developed by a licensed driller. Once the well is developed, DOH will inspect the well as part of their Wellhead Inspection Program. KDOW is also a member of the Kaua'i Watershed Alliance, whose goal is to provide for the long-term protection of Kaua'i's uppermost wat ershed areas.
155	2023-08-22	Kapa'a Public Meeting		Is there evidence that groundwater is impacted by cesspools?	New cesspools are banned and KDOW does not have any evidence that the groundwater is impacted by existing cesspools. KDOW also publishes an annual water quality report, called the Consumer Confidence Report.
156	2023-08-22	Kapa'a Public Meeting		Does the EPA regulate CWRM?	No, CWRM is a division of DLNR, who manages the "quantity" of water (surface water interim instream flow standards, well drilling and development permits, etc.). The quality of water is the responsibility of DOH, who is overse en by EPA.
157	2023-08-22	Kapa'a Public Meeting		What is the status of the Kapahi well?	KDOW is updating the Environmental Assessment (EA) and will do so in early 2024. Once the EA is finalized, KDOW can perform a pump test as part of the Well Drilling Permit and develop the well.

158	2023-08-22	Kapa'a Public Meeting		In East Kaua'i, how are agriculture lands utilized? Specifically looking for potential agriculture uses for the East Kaua'i Community Pla n (food vs. cattle, etc.).	The Statewide Agriculture Land Use Baseline Study inventoried agricultural land use in the State of Hawai'i and is a good reference. In terms of agricultural water demand, this information should come from the AWUDP. For the KWUDP Update, it was not realistic to assume that all lands designated or zoned as agriculture would be cultivated and irrigated. Instead, the KWUDP Update pro vides a general comparison of declared surface water diversions to agricultural lands that meet all Important Agricultural Lands (IAL) criteria based on the County of Kaua'i IAL Study.
159	2023-08-22	Kapa'a Public Meeting		What is the threshold that the SY/full build-out (FBO) scenarios/ existing and future demands are compared against in order to determine whether the ASYAs are "sensitive"?	None of the ASYAs on Kaua'i are considered sensitive as the FBO scenarios and existing and future demands are less than th e SY. The Hanamā'ulu ASYA has a General Plan FBO scenario that is approximately 80% of the SY, but since the SY is conservatively low and the FBO is conservatively high, it is still not considered sensitive. If the FBO scenarios were higher than the SY, the ASYA would be considered "sensitive" and the land use policies (general plan and zoning) would need to be analyzed in greater detail. CWRM has certain criteria that must be met in order to designate an area, see HAR §13-171-7 for the groundwater criteria and §13-171-8 for the surface water criteria (https://files.hawaii.gov/dlnr/cwr m/regulations/13-171.pdf). Related to land use policies, one criterion for groundwater designation is if the water use is 90% of the SY.
160	2023-08-22	Kapa'a Public Meeting		There have been reports of contamination due to king tides. Can king tides contaminate the wells?	The majority of KDOW wells are mauka, away from impacts due to king tides. Also, KDOW frequently monitors their wells and any contamination would be detected and addressed.
161	2023-08-22	Kapa'a Public Meeting		The presentation did not mention the Wailua Wastewater Treatment Plant (WWTP) as a source of recycled water for the Wailua ASYA.	This is due to the delineation of the ASYA, which is based on hydrogeological boundaries. The ASYAs don't necessarily correspond with the towns that share the same name. The Wailua WWTP and the area that uses recycled water from the Wailua WWTP are in the Hanamā'ulu ASYA.
162	2023-08-29	Lihu'e Public Meeting		The General Plan states that there will be a 10 million gallon per day (mgd) deficit by 2035, which seems contrary to the KWUDP Update findings (SY is higher than the full build-out scenarios and projected demands).	The SY is the maximum rate at which water may be withdrawn from a water source without impairing the utility or quality of the water source. However, it is noted that SY does not consider the feasibility of developing the ground water and should not be equated to developable ground water. SY is not pumped groundwater (developed ground water supply). The deficit mentioned in the County of Kaua'i's General Plan may be in reference to the gap between current pumpage (developed ground water supply)/existing infrastructure, including storage and distribution system, and future water demand projections.
163	2023-08-29	Lihu'e Public Meeting		How much KDOW water is supplied by the Grove Farm surface water treatment plant (SWTP)?	KDOW purchases approximately 2.45 mgd of surface water from the Grove Farm SWTP (the SWTP is rated for a capacity of 3 mgd and has a maximum capacity of 4 mgd. By agreement between the DOW and Grove Farm, DOW is required to accept a minimum of 2 mgd from the SWTP).
164	2023-08-29	Lihu'e Public Meeting		Is KDOW planning to buy the Grove Farm SWTP?	KDOW is currently evaluating the feasibility of acquiring the Grove Farm SWTP.
165	2023-08-29	Lihu'e Public Meeting		If we're paying for Grove Farm to process the surface water and we're paying for the infrastructure, is that reflected in our water bills? At what point do we stop?	The costs to process, operate and maintain the system to provide safe drinking water are calculated into KDOW's water rates similarly to the KDOW's own systems. KDOW is in the process of evaluating the feasibility of acquiring the Grove Farm SWTP.
166	2023-08-29	Lihu'e Public Meeting		What permits are required, and what departments require permits for KDOW?	KDOW obtains permits from CWRM to drill and develop their own wells. Grove Farm is the owner of the Grove Farm SWTP and is responsible to obtain all necessary permissions to operate the SWTP.
167	2023-08-29	Lihu'e Public Meeting		The County pays for 2/3 of Grove Farm's operating cost every month. When CWRM evaluates the SY, do they consider that at some point in time, the percentage that's taken can shift? Grove Farm also doesn't have the appropriate permits to divert water. How much of that is considered?	The operation of the Grove Farm SWTP and its allowance to withdraw water are not known to KDOW and its consultant and is not reflected in this plan.

168	2023-08-29	Lihu'e Public Meeting		Grove Farm is diverting water and they don't have the appropriate permits. According to Hawaii Revised Statutes (HRS) §171-58, the right to any mineral, surface, or groundwater shall not be included in any lease agreement, or sale as this right is reserved to the State. Grove Farm can't sell water that they don't own. The public is paying $2 million per month, and we're paying their operating fees. In the January 2019 Board of Water Supply Manager's Report, Grove Farm doesn't know how much water is being used; it took a mediator to determine how much water is being diverted. The diversion amount is very important when it comes to SY and the ability to provide surface water.	Grove Farm provides sustainable stewardship for 37,000 acres of Kaua'i lands that include vital watersheds, habitats, reservoirs, farming/ranching irrigation systems, public water storage and transmission lines. In the early 2000's, in partnership with KDOW, to reduce our island's dependence upon our precious underground aquifers, Grove Farm invested over $10 million and provided the land to build a state-of-the-art surface water treatment plant to provide and added 3 mgd to supplement our island's drinking water supply. The plant is professionally managed with water quality oversight provided by both KDOW and the DOH. KDOW currently reimburses Grove Farm a total of $1.90 per 1,000 gallons to cover the plant's operational costs. All water from the plant is provided directly to KDOW.
169	2023-08-29	Lihu'e Public Meeting		Have any native Hawaiian organizations been consulted with the KWUDP Update?	Yes, a Stakeholder Advisory Group (SAG) has been established that represents a broad spectrum of Kaua'i's community, including native Hawaiians. Debra Lee-Jackson, Peter Kea, and Billy Kaohelauli'i are all members of the SAG. Billy is the Aha Moku representative for Kaua'i. The SAG is encouraged to be a conduit to the public and to share information with community organizations and the public and to provide feedback.
170	2023-08-29	Lihu'e Public Meeting		Why was the Department of Hawaiian Home Lands (DHHL), Wailua tract not able to procure water in 2007?	DLNR is responsible to prepare the SWPP, which inventories future State projects and their water demands. In 2017, the SWPP was updated for DHHL only, and included an analysis on how DHHL's future demands are proposed to be met (new or existing well, new or existing water system, surface water, etc.). The 2017 DHHL SWPP is available here. (In 2007, there was not enough KDOW capacity in the Līhu'e-Hanamā'ulu water system due to source and storage deficiencies to supply water to DHHL's Wailua tract's planned development. If any developer wants to develop sooner than KDOW can provide the necessary infrastructure, a developer (inclusive of DHHL) can provide water service by either developing their own water source and/or constructing storage and transmission infrastructure.)
171	2023-08-29	Lihu'e Public Meeting		The KWUDP Update evaluated projected future demand and full build-out (FBO) demands. Now we're talking about DHHL and homestead uses. Are we planning for that FBO scenario regardless of what's in the General Plan? Is there water available?	The General Plan and Zoning FBO water demands include DHHL's projected future use, which was reported in DHHL's Island Plans and the 2017 DHHL SWPP. KDOW is currently working with DHHL on DHHL's tract in Hanapēpē.
172	2023-08-29	Lihu'e Public Meeting		Will KDOW play a role in supporting DHHL so that they don't remove or decommission the surface water reservoirs so that they can be available to support future agriculture by small homestead farmers? If so, how will you support?	The State Department of Agriculture (DOA) is responsible to prepare the AWUDP, which inventories the larger irrigation systems and assesses their rehabilitation potential and needs. KDOW does not own or manage reservoirs and surface water irrigation systems. DOA is currently trying to establish an initiative to identify which reservoirs could remain and which reservoirs can be removed.
173	2023-08-29	Lihu'e Public Meeting		Has the County taken a position on the State's intent to decommission the Wailua reservoir? The State is preparing an Environmental Impact Statement (EIS) and will reach out to COK.	KDOW has not been in discussion with the State to decommission the Wailua reservoir. KDOW has a concern if the decommissioning of the reservoir would result in an increase of potable water demand for non-potable usage. Comments will be provided during the State's EIS comment period.
174	2023-08-29	Lihu'e Public Meeting		Where is the water coming from that fills the Waitā Reservoir?	From the 2004 AWUDP, the Waitā Reservoir is fed by surface water from perennial streams and are diverted through man-made ditches. More information on the Waitā Reservoir may be found in the 2019 AWUDP Update (public review draft, available here) and the 2004 AWUDP, available here.
175	2023-08-29	Lihu'e Public Meeting		Is water diverted from Hanapēpē River to provide agriculture water for Kaua'i Coffee? How much is diverted daily?	The Kaua'i Coffee Irrigation System was assessed in the 2004 AWUDP, which can be found here. A description of the Kaua'i Coffee Irrigation System is included in the KWUDP Update along with a figure of streams and diversions [see 20101 Sections 2.2 and 3.5.3 and Appendix B].
176	2023-08-29	Lihu'e Public Meeting		Where is the 6.9 mgd diversion?	This is in reference to the Irrigation of Agricultural Lands table for the Hanamā'ulu ASYA shown in the presentation. 6.87 mgd is the total declared surface water flow from diversions for the Hanamā'ulu ASYA. These diversions were declared in 1989 as part of the interim instream flow standards (IIFS), set by CWRM. See Appendix B of the KWUDP Update for a list of the declared stream diversions.
177	2023-08-29	Lihu'e Public Meeting		The Kaua'i County Council did not accept the COK Important Agricultural Lands (IAL) Study.	The Kaua'i County Council did accept the IAL Study, however it was not adopted as it is not a plan and does not provide policies and therefore does not need to be adopted by charter.

178	2023-08-29	Lihu'e Public Meeting		How do you assess the quantity of water in our aquifers? How do you know how big the aquifer is? Is there science involved?	CWRM establishes the SY estimates, which is based off of several models and utilized the precautionary principle when selecting the SY for each ASYA. In general, CWRM selected the most conservative sustainable yield. The SY was published in the WRPP prepared by CWRM and is available here. Kaua'i has the most complex geology because of its age, and multiple overlapping layers of geologic formations. Please see Appendix F of the 2019 WRPP for a detailed discussion of how the SY is estimated.
179	2023-08-29	Lihu'e Public Meeting		How can the public access information about Kaua'i's aquifers?	Information about Kaua'i's aquifers are included in the WRPP, see the response to the previous question for a link to the report.
180	2023-08-29	Lihu'e Public Meeting		Streams and aquifers are related.	
181	2023-08-29	Lihu'e Public Meeting		The SY was determined over how long of a period?	The SY published in the 2019 WRPP Update were generally established by selecting the most conservative sustainable yield estimates from the available data sets. See Appendix F of the 2019 WRPP Update for more information.
182	2023-08-29	Lihu'e Public Meeting		Does the FBO scenario take into account an estimated gallons per household? Are homes/residents given priority over golf courses, resorts, etc.?	The FBO scenario analyzed the maximum water needs if all land is developed to the highest extent allowed by current land use plans and policies (General Plan and zoning), including areas of land designated or zoned as residential, resort, etc. The FBO approach applied standard water use rates (e.g., 500 gallons per single-family unit per day). The purpose of this analysis was to determine if the existing land use plans and policies are sustainable.
183	2023-08-29	Lihu'e Public Meeting		Do you know how many aqueducts we have in Hawai'i? How far in the data did you go to project the water use?	No, we do not know how many aqueducts there are in Hawai'i. In terms of the data, the SY is from CWRM. The existing water use is from CWRM (well pumpage), DOH (sanitary surveys), and KDOW (water meter data) and future water use was projected based on population projections. The FBO scenario analyzed the maximum water needs if all land is developed to the highest extent allowed by current land use plans and policies (General Plan and zoning).
184	2023-08-29	Lihu'e Public Meeting		How do you determine whether an ASYA is "sensitive" or "less sensitive"? What are the criteria for this determination?	All of the ASYAs on Kaua'i are not considered sensitive as the FBO scenarios and the existing and future demands are all less than the SY. The Hanamā'ulu ASYA has a General Plan FBO scenario that is approximately 80% of the SY, but even with the SY being conservatively low and the FBO being conservatively high, it is still not considered sensitive. If the FBO scenarios were higher than the SY, the ASYA would be considered "sensitive" and the land use policies (General Plan and zoning) would need to be analyzed in greater detail.
185	2023-08-29	Lihu'e Public Meeting		Shouldn't there be one organization in charge of all Kaua'i's water, above and below the ground?	CWRM administers the State Water Code (CWRM's mission is to "protect and manage the waters of the State of Hawai'i for present and future generations."). CWRM's responsibilities include, but are not limited to, administering the instream use protection program by recommending IFS and IIFS, processing permits for well drilling, pump installation, stream channel alterations, and diversion works construction, and receiving and processing water-related citizen complaints.
186	2023-08-29	Lihu'e Public Meeting		Who enforces compliance for reporting data? Who verifies that the data is correct? How can we trust the information that's presented to us if it references information from CWRM that hasn't been verified?	CWRM is responsible for enforcing compliance on reporting groundwater well pumpage and surface water use (diversions). Well pumpage reporting compliance is high, but surface water reporting compliance is lower than desired. CWRM is focusing their efforts on getting the large users to report first. CWRM has a Surface Water Branch that is currently working on verifying the diversion locations from the 1989 IIFS (not the diversion amount). It should be noted that it is more difficult to measure surface water use than ground water use. However, CWRM is making strides in monitoring stream flow, most notably in East Kaua'i by installing surface water gages. The KWUDP is a living document, and we need to rely on the best available information. The KWUDP Update took a preliminary "broad brush" approach to identify any ASYA that is considered sensitive and needs more attention (if FBO > SY). This was not the case for any ASYA on Kaua'i. The FBO compared to SY analysis focuses on domestic, commercial, and industrial demands compared to ground water source.

187	2023-08-29	Lihu'e Public Meeting		What is the list of priorities for determining the SY?	The SY is determined by CWRM, and the methodology is included in the WRPP. (Regarding instream and non-instream uses, a project of the 2019 WRPP Update is to manage instream and non-instream uses to provide reasonable beneficial use while protecting public trust uses. Tasks related to this project include prioritizing streams for developing measurable IFS, continuing to develop measurable IFS, and implementing and enforcing measurable IFS. This project and tasks are for the goal of "water resources, public trust uses, and water rights are protected and balanced against reasonable beneficial uses.")
188	2023-08-29	Lihu'e Public Meeting		How are water users allowed to take more water than the current IIFS? I have been living in Hanamā'ulu Valley my entire life and I have witnessed water levels decrease since I was young. If the farmers can only water their crops every other day, where is the water going to come from to support development?	Users are not allowed to divert more water than what was declared in the 1989 IIFS without petitioning to amend the IIFS. CWRM is responsible to receive and process water-related citizen complaints.
189	2023-08-29	Lihu'e Public Meeting		I sent videos of dry streams to CWRM. The response from CWRM was that this may be due to a lack of seasonal rainfall and unusual rainfall may have contributed to lower stream levels. I don't believe this to be true.	
190	2023-08-29	Lihu'e Public Meeting		Why does our most precious/valuable resource have limited resources to protect it? CWRM needs additional funding to enforce compliance for reporting data. They currently only have $19M in funding whereas Oregon has $224M.	
191	2023-08-29	Lihu'e Public Meeting		Will there be an opportunity for the public to have a meeting with CWRM to discuss enforcement and illegal stream diversions?	CWRM has monthly hybrid (in-person and virtual) commission meetings. Before the pandemic, CWRM held some meetings on Kaua'i. There will be public hearings as part of the KWUDP Update adoption. We will relay the message to CWRM that the public is interested in having a meeting.
192	2023-08-29	Lihu'e Public Meeting		Is there anything helping to invest in the aquifer systems?	KDOW supports the Kaua'i Watershed Alliance (KWA), whose goal is to provide for the long-term protection of Kaua'i's uppermost watershed areas. KDOW provides grant money to KWA to help protect the watershed.
193	2023-08-29	Lihu'e Public Meeting		KDOW provide grants [to the KWA], grants should have more direction into supporting more initiative to expand the watershed.	
194	2023-08-29	Lihu'e Public Meeting		Is there any movement to upgrade or are there investments to recharge the aquifer for future generations? Not just upgrading the system taking water? How can the community hold accountability?	Watershed management is a critical source protection measure. KDOW supports the Kaua'i Watershed Alliance, whose goal is to provide for the long-term protection of Kaua'i's uppermost watershed areas.
195	2023-08-29	Lihu'e Public Meeting		Maui has good GIS maps.	KDOW is concurrently working on the Water System Investment Plan (WSIP), which is the long-range plan and one of the items in the scope of work is to update the GIS of the KDOW water systems.
196	2023-08-29	Lihu'e Public Meeting		What is the process for communities to advocate for a fire hydrant in a high risk fire area?	A request may be submitted to the DOW Engineering Division for evaluation of the water system to support a fire hydrant.
197	2023-08-29	Lihu'e Public Meeting		Is there a plan to share water from the places that have the most water with those that have less water but a larger demand such as agriculture or density?	With regard to agriculture, there are some irrigation systems that can transfer water if they are maintained or repaired. With regard to KDOW's water systems (and other public water systems), there is some interconnectivity but it is very limited. On O'ahu, the Honolulu Board of Water Supply (HBWS) water system is fully interconnected. This is due to the amount of development on O'ahu that makes it possible to fund and support an expansive water system. There is significantly less development on Kaua'i which makes it less feasible to construct, operate, and maintain long transmission water lines to interconnect distant water systems.

198	2023-08-29	Lihu'e Public Meeting		What is COK's strategy to take measures to ensure that what took place on Maui is not going to repeat itself here? Specifically, in regards to the impact of the redirection of water for the sugar plantations has on the current state of the west side.	The WSIP is updating the hydraulic model to assess the capacity and health of KDOW's water systems. Evaluation of the KDOW water systems with the hydraulic model will help direct future investment in expanding or upgrading the water systems. In Waimea, there's the Waimea Watershed Agreement (which is an agreement between DHHL, Kaua'i Island Utility Cooperative (KIUC), and the Agribusiness Development Association (ADC)). This agreement was developed because there was a case where more was being diverted than what was needed, and the IIFS was amended to prevent future waste. CWRM was involved with the development of the Waimea Watershed Agreement.
199	2023-08-29	Lihu'e Public Meeting		How often is KDOW required to update the WUDP? How long is each WUDP applicable for? The last KWUDP was written in 1990 and so far, the graphs shared have been assigned an end date of 2035. A plan completed and adopted in early 2024 should be planning for more than the next 11 years.	Ideally, KDOW would like to update the KWUDP every 5-10 years. The KWUDP Update process was started in 2015 but waited for the new SY numbers to be finalized (in the 2019 WRPP Update).
200	2023-08-29	Lihu'e Public Meeting		What is the projected time of completion of the report?	The next steps is to brief CWRM in Fall 2023. Based on comments received from these public meetings and the CWRM briefing, KDOW will finalize the report and present to CWRM for adoption in 2024.
201	2023-08-29	Lihu'e Public Meeting		Is there a chain of command graph that shows all the agencies (federal, state, county, community)?	Yes, the Hawaii Water Plan handout shows the agencies responsible to prepare the different components (CWRM – WRPP, DOH – Water Quality Plan, DNLR – SWPP, DOA – AWUDP, Counties Department of Water – County WUDP). The Hawaii Water Plan is described in more detail in Chapter 1 of the KWUDP Update.
202	2023-08-29	Lihu'e Public Meeting		Former U.S. State Representative Kai Kahele asked current U.S. State Representative Ed Case what he is doing about surface water diversions on private land. Rep. Ed Case responded that they only require reporting on state land streams. USGS said if you divert from a stream, you deplete the aquifer, so how can you get an accurate picture of future use? We need to push the State to require anyone who has a diversion on their land to report to CWRM. CWRM hasn't done any enforcement.	
203	2023-08-10	Kalaheo Public Meeting		What is the status of the AWUDP Update?	The Department of Agriculture (DOA) published the public review draft of the AWUDP Update in 2019. However, this update primarily focused on inventorying irrigation systems and has not been adopted by CWRM.
204	2023-08-10	Kalaheo Public Meeting		Who is responsible for fire hydrant maintenance?	KDOW Operation's Division is responsible for fire hydrant maintenance on KDOW's system. KDOW is coordinating with the Fire Department and is also updating their GIS system.
205	2023-08-10	Kalaheo Public Meeting		Should KDOW consider retaining reservoirs?	This is something that is currently being discussed between DLNR and DOA, who are trying to establish an initiative to identify which reservoirs are to remain and which reservoirs can be removed.
206	2023-08-10	Kalaheo Public Meeting		Has there been specialized meetings (farmers, developers, etc.) whose needs are different than the general public?	Yes, a Stakeholder Advisory Group (SAG) has been established that represent a broad spectrum of Kaua'i's community, including farmers, developers, and water operators. Three separate meetings have been held with the SAG.
207	2023-08-10	Kalaheo Public Meeting		Will recycled water be utilized in the Kōloa area?	There are plans to have a regional system to provide more municipal wastewater collection and treatment that would provide recycled water. Two wastewater treatment plants (WWTPs) in the Kōloa area currently provide recycled water to irrigate golf courses. If demand is warranted, the utilities will need to invest money into infrastructure to distribute the recycled water to farther locations.
208	2023-08-10	Kalaheo Public Meeting		Is there enough water for future development?	According to the SY, yes. However, it is noted that the SY does not consider the feasibility of developing the groundwater and should not be equated to available developable groundwater. In addition, money may need to be invested in infrastructure.
209	2023-08-10	Kalaheo Public Meeting		Is Polihale State Park supplied by KDOW water?	No, Polihale State Park is served from a State water system (Polihale State Park Water System), which is owned by the DLNR.

210	2024-05-21	CWRM Public Hearing (Kauai Community College)	1 - Rosalyn Cummings	Po'o of EOLOKAKO Hawai'i. This is a critical point for the state to comply with the law. Development without updates affect natural resources. I was doing a project based on Mahloi practicions. We basically told people this your job this your area. We bascially told them we are taking all your water. Can you farm fish get medicine without water? We tell the alii that we need to get our water back. You gotta pay for that water, but no one believes that the water belongs for only one person. Can I get a original copy of the public trust doctrine. But there is none in the State archives. There is an issue. Most people don't know their rights to water! The water is right above Lawai falls. The excuse is there is no rain. I'll speak to those that know this!	CWRM to provide a response.
211	2024-05-21	CWRM Public Hearing (Kauai Community College)	2 - Roy Gap	Water department great job, good quality of water. We don't have a problem but there is billing issues. We all have a tier system problem. The tier system is flawed and there is proof. We get run-arounds. 4 and 6 thousand gallons a month, and told we have a bill at 33 thousand at tier 5. the meter tells us different and they tell us that they changed the meter. I take pictures every month just to prove it. a thousand gallons extra is 9 dollars or more. Thats alot of money. We cannot afford to not pay, we need water! who do we go to? estimation is not the point of a water meter!	The Kaua'i Department of Water acknowledges billing issues as a result of several issues occurring at the same time. The Department of Water is correcting this and can be contacted at billing@kauaiwater.org to address specific comments and concerns.
212	2024-05-21	CWRM Public Hearing (Kauai Community College)	3 - Felicia Cowden	As a county council person and individual. I've been seeing these for well over 10 years. Nothing that is contributed does a thing for the plan. Its so inaccurate when we have this goal of future land development based on land availability. Potable water is being used for irrigation in the NE. It should be reflected accurately. We have a new school etc. this doesn't show that challenge! There have been significant changes. In the NE we have lost our surface water. We are using our potable water. We need to include highly needed elements like schools and housing. These numbers haven't changed since 2004. I look and there isn't even 1000 acres being used for AG irrigation. It feels like whoever is writing this hasn't stepped on the island! We don't have enough water for our needs! We are approving new subdivisions when we don't have the water!	The ground and surface water information that was analyzed is the best available information from the Commission on Water Resource Management and the Hawaii Water Plan. The primary objective of the KWUDP Update is to analyze Kauai's land use plans and policies (General Plan and Zoning) to see if the land use plans and policies are sustainable (i.e., full build-out less than sustainable yield), which the case for all aquifer system areas on Kauai. If the schools and housing developments are consistent with the general plan/zoning, then they were considered as part of the full build-out analysis. The feeling that Kauai doesn't have enough water may be attributed to water distribution. The DOW is working on their Water Systems Investment Plan (WSIP), which is a separate planning document. The WSIP will evaluate DOW's water systems and recommend projects for infrastructure improvements, expansion, etc.

213	2024-05-21	CWRM Public Hearing (Kauai Community College)	4 - Kanani Fu	I have 2 comments. Individual. In the water development plan one thing that's concerning is that there is only 1 resource in 2020. We only look at land use documents for certain projects! The plan lacks relevant data for today. Projects that were passed after the General Plan. I saw Maui's plan and I saw the Kapaakai Analysis. This plan is going to dictate strategies and affect rights. Maui was able to put the framework into their plan. The policies will affect the customary rights. if you put transmission lines it will affect sites. This draft does not contain a summary of comments throughout the record.	The primary objective of the KWUDP is to set forth the allocation of water to land use to guide the county in its planning, management, and development of land use and water resource strategies and policies for sustainable development. The full build-out assessment of the General Plan (2000), Comprehensive Zoning Ordinance, and Lihue and South Kauai Community Plans calculates a conservatively high estimate for future water demands if all land is developed to its maximum extent in the future based on these land use plans and policies. Individual projects that align with these land use plans and policies (e.g., in compliance with zoning and general plan requirements), whether already developed or to be developed in the near future, are already included within these conservatively high estimates. The full build-out analysis is an initial, high-level, islandwide assessment to see if land use plans and policies are sustainable. The full build-out demands (conservatively high estimate for future demands) are less than sustainable yield in each ASYA and are considered sustainable. In collaboration with CWRM staff, a consultation process could be proposed and established to evaluate how the impact of specific source development projects on traditional and customary (T&C) rights issues may be assessed and how such impacts can be mitigated. The CWRM staff currently seeks input on and addresses T&C issues in its well construction/pump installation permit application process. CWRM staff is also proposing that T&C issues could be further vetted through the permitting process by including a more thorough Ka Paakai analysis in the WCPIPA. For more information, refer to Section 1.5.3.1. Appendix C includes the comments and responses for both rounds of public meetings. The meeting minutes for the March 2024 DHHL beneficiaries meetings has also been added to Appendix C.
214	2024-07-18	Email (written) testimony	Kanani Fu	The KWUDP lacks an analysis of implementation of the KWUDP's impact on Native Hawaiian right. I believe the KWUDP is insufficient without a Ka Paakai Analysis being conducted. Maui County included a Ka Paakai Analysis in their Water Use Development Plan after the county council rejected it. I've include an excerpt from one of the projects that I'm working on. It provides a brief overview of the State's obligation inclusive of DLNR, CWRM, DOW Kauai: Description of the Analysis :The State of Hawai'i has an "obligation to protect the reasonable exercise of customary and traditionally exercised rights of Hawaiians to the extent feasible" Public Access Shoreline Hawai'i v. Hawai'i County Planning Commission ("PASH") 79 Hawai'i 425, 450 n. 43, 903 P.2d 1246, 1271 n. 43 (1995). In 2000, in the Ka Pa'akai decision, the Court established a framework "to help ensure the enforcement of traditional and customary Native Hawaiian rights while reasonably accommodating competition private development interests." 94 Hawai'i 31, 35, 7 P.3d 1068, 1972 (2000). This analysis is used here to fulfill this obligation. Based on the guidelines set forth in Ka Pa'akai, the Hawai'i Supreme Court provided government agencies an analytical framework to ensure the protection and preservation of traditional and customary Native Hawaiian rights while reasonably accommodating competing private development, or other, interests. The Court has stated: "that in order to fulfill its duty to preserve and protect customary and traditional Native Hawaiian rights to the extent feasible, as required by Article XII, Section 7 of the Hawai'i Constitution, an administrative agency must, at minimum, make specific findings of fact and conclusions of law as to the following: 1) the identification of valued cultural, historical, or natural resources in the project area, including the extent to which traditional and customary Native Hawaiian rights are exercised in the project area. 2) The extent to which those resources—including traditional and customary Native Hawaiian rights—will be affected or impaired by the proposed action; and 3) Thefeasibleaction,ifany,tobetakentoreasonablyprotectNativeHawaiianrightsif they are found to exist. Ka Pa'akai, 94, Hawaii at 47, 7 P.3d at 1084. Cited in Matter of Contested Case Hearing Re Conservation District Use Application (CDUA) HA-3568 for the Thirty Meter Telescope at the Mauna Kea Science Reserve, Ka'ohe Mauka, Hāmākua, Hawai'i, 143 Hawai'i 379, 431 P.3d 752 (2018) ("Mauna Kea II"). Again- to reiterate, the KWUDP is insufficient without a Ka Paakai Analysis. Because the KWUDP impacts Native Hawaiian's most precious resource- wai. So please include that analysis.	

215	2024-05-21	CWRM Public Hearing (Kauai Community College)	5 - Sherry Cummings	I want to mahalo the department of water and county council for making this happen so that DHHL became part of this conversation and we are at this point today. I speak on behalf of DHHL. I hope to god you input these comments into the water plan. The water rights and ahapuaa. I think that thru reservations that when we wanted water for our people. Reservations only came up 11 times. We all know that Anahola is a growing community, and that water is needed its crazy. We need to hold the chairman of DHHL accountable, this is an injustice to us as people. To ask for this silly amount of water is a gross neglect. This is for us to take up with the Commission. To me that is a gross neglect. It is the responsiblity of the Hawaiian Homelands and the COmission. we have first rights to water.	The water reservation process is separate from the Hawaii Water Plan, and therefore, from this KWUDP Update. With that said, existing DHHL water reservations are discussed in Chapter 2 of the KWUDP Update. There are four groundwater and two surface water reservations for DHHL for Kauai. In general, the reservation actions by CWRM were supported by findings regarding future DHHL water use in the 2017 SWPP.
216	2024-05-21	CWRM Public Hearing (Kauai Community College)	6 - Lanna Bilbo	I had a couple of questions. Slide 13, you are talking of all the diffent uses of the water but there is no number. The testimony for PMRF is coming up soon where is the data? The slide that talked about project AG water use, it seems like a weird bias on irrigated properties, that makes no sense. I saw the projections go out 10 years. If you are expected for projects to be built but they should be accounted for. My understanding is that DHHL received additional funding and new development agreements, can we finaly get those finished? Make sure the meeting minutes are reflected in the documents.	Slide 13 on the Public Hearing presentation provided an example of the existing water use by category for the Hanamaulu aquifer system area (ASYA). Quantities of ground and surface water were provided for each category as applicable. This table and graph was prepared for each ASYA. PMRF use is reflected in the tables and graphs in the 20301 Kekaha ASYA chapter. **CWRM - What testimony for PMRF?** The projected agricultural water use analysis was performed to provide a general comparison of agriculture demand to surface water based on the best available information. The agricultural demand was estimated by applying an industry standard rate of 3,400 gallons/acre/day (gpad) to all agricultural lands that scored ≥ 28 in the County of Kauai's Important Agricultural Lands Study. These agricultural lands may not necessarily be currently irrigated. Additional information on the agriculture analysis may be found in Section 2.2.2.5.4 of the report. Future developments are incorporated into the full build-out analysis, which analyzed the maximum water needs if <u>all</u> land is developed to the highest extent allowed by current land use plans and policies (General Plan and Zoning). Additional information in the full build-out analysis may be found in Section 2.2.2 of the report. DHHL has received $600 million from the legislature to reduce the DHHL homestead waitlist. A Strategic Plan to spend the $600 million allocation of funding is published on DHHL's website. DHHL will also be working with DOW to install infrastructure and expand water systems to serve beneficiaries. Appendix C includes the comments and responses for both rounds of public meetings. The meeting minutes for the March 2024 DHHL beneficiaries meetings have been added to Appendix C.
217	2024-05-21	CWRM Public Hearing (Kauai Community College)	7 - Bridget Hamm erquist	I live on the south shore of Kaua‘i and went thru a lot of water development. We used to have to boil our water. I think our water department is doing a wonderful job. What is missing is the ability to store and transmit the water in the Water Plan. They were relying on a 2000 general plan, and it still shows sustainable water with no delivery systems. Kauai is the wettest island. But we can't get it to our homes. There have been almost 3,000 approved units, each with 4 to 6 people living in it. There has to be infrastructure! How do we have a WUDP that doesn't consider transmission. We have development on the books but we can't get the water there.	The Department of Water is currently working on the Water Systems Investment Plan (WSIP), which is a separate planning document. The WSIP will evaluate DOW's water systems and recommend projects for infrastructure improvements, expansion, etc.

218	2024-05-21	CWRM Public Hearing (Kauai Community College)	8 - Megan Tully	There isn't a capital improvement plan that is in tandem with this plan. I'm seeing infrastructure going into Hanapēpē that will be coming up shortly. There are water tanks not in use right now but because the high cost they are not being addressed. In climate instances it is really important that all these tanks are filled to capacity.	The Department of Water is currently working on the Water Systems Investment Plan (WSIP), which is a separate planning document. The WSIP will evaluate DOW's water systems and recommend projects for infrastructure improvements, expansion, etc.
219	2024-05-21	CWRM Public Hearing (Kauai Community College)	9 - Alan Hoffman	Fresh water sources are really precious and valuable. All across the US, wells are depleting aquifers in places, the land that has natural springs is important for people to drink. After Hurricane Iniki our community was providing that water... With local communities being pushed out by big money... everyone should enjoy and have their water. It makes me sad that some people cannot.	The Commission on Water Resource Management's mission is to "protect and manage the waters of the State of Hawaii for present and future generations." This includes protecting the groundwater aquifers against depletion. **CWRM - feel free to revise this response.**
220	2024-05-21	CWRM Public Hearing (Kauai Community College)	10 - 2nd ROUND - Council member Cowden	Thanks to the water department. What have is that the foundational documents for the WUDP have not moved forward since 2004. I think what Bridget said is nice, that the policy makers should be able to look at this document and see what is our capacity. It seems like this plan should discuss why we are bringing such an excess amount of water from one side of the island to the other. As far as i know there are no IIFS... it is difficult for us policy makers to decide where to approve these subdivisions. We are approving subdivisions where there isn't enough water for the wells beneath. Its stressful when i see people running out of water or making choices for affordable housing when we cannot supply the water. Those are my challenges. What is the point of the plan if accuracy doesn't get updated?	Excess amount of water from one side of the island to the other? The IIFS for Kauai are listed in Table 1-21 of the report. The safe yield of an individual production well may be limited by localized ground water behavior near the well as a result of pumpage. Water supply reliability and quality, feasibility, environmental and cultural impacts, and water rights shall be considered as individual projects and programs develop. More detailed and site-specific evaluation of these impacts shall be required and accomplished through the environmental review process for projects that utilize public funding. The KWUDP Update provides a high-level, islandwide assessment of the sustainability of land use plans and policies in terms of water. This initial assessment provides guidance for future assessments to focus efforts on the more sensitive areas, if any. The Department of Water is currently working on the Water Systems Investment Plan (WSIP), which is a separate planning document. The WSIP will evaluate DOW's water systems and recommend projects for infrastructure improvements, expansion, etc.
221	2024-05-21	CWRM Public Hearing (Kauai Community College)	11 - 2nd ROUND - Sherry Cummings	Agribusiness Development Corporation. Where are they? Now they are taking away water and going west. We had the ditch system in Kekaha and our trustees don't have water. Robinson selling, Mcbryde selling, they are now coming south. I will be bringing in 8 people... there will be 4 more others as well. As native Hawaiians we have all these rules to protect us but if we don't know how to get people accountable for our rights we will just be people off the land. The presentation had just a blurp... but i dont' see anything more in developments.	
222	2024-05-21	CWRM Public Hearing (Kauai Community College)	12 - 2nd ROUND - Alan Hoffman	Along with Sherry and Roselin, the ahupuaa system… there was hundreds of thousands of people living off the land… I pray that you don't allow for those systems to be destroyed. Mahalo.	It is recommended that the AWUDP provide information on the rehabilitation and maintenance needs of large irrigation systems so that they may be able to convey surface water for irrigation

223	2024-05-21	CWRM Public Hearing (Kauai Community College)	13 - 2nd ROUND - Megan Tully	I think people understand but I think they want examples. Moowalahui, they were developed and built without infrastrure, water to go to their homes. The communities are beautiful… there are people that lost their life savings because the subdivions were put up and people believed they could have a house and farm. Someone had a heartattack because they were never able to build it, no water, no power, but allowed to be subdivided. We need to know if there is a delivery system to this area? If no water, there should be no development. In the mainland there is no development because there is no water available.	DOW reviews subdivision applications and if water infrastructure improvements are needed in order to get building permit or water meter approval, conditions are provided by DOW in order to approve a subdivision application. Depending on the infrastructure improvements needed, this may take a considerable amount of time.
224	2024-05-21	CWRM Public Hearing (Kauai Community College)	14 - 2nd ROUND - Roselin Cummings	To bring up my observation, Wahiawa not having water. I grew up in Koula. I just came out of a helicopter ride there is water, but several families complained to me that due to water diversions… ask for the permit. The BCP is diverting water that comes thru people's properties. If it rains consistantly and the dam will breach due to the water being diverted. How the heck are we allowed to... pipe an entire waterway above Lawai waterfall? These people believe that they can. From my own perspective please look in to this! I really hope the AG has someone that represents the State that knows law!	Users are not allowed to divert more water than what was declared in the 1989 IIFS without petitioning to amend the IIFS. CWRM is responsible to receive and process water-related citizen complaints.
225	2024-05-21	CWRM Public Hearing (Kauai Community College)	15 - Hope Kalai	There are many of us in this room that took part in the GP update, the SWPP, the AG WUDP, we are 10 years behind. There is no reason for us to accept plans that are behind because they have so many ommissions and flaws. There was one little reference in a 2015 document... we need to merit more than just one sentence to explain water being provided and diverted. Grove Farm, its an elephant in the closet. If we are going to pretend we are drinking groundwater and not surface water it's the States fault. CWRM was alerted of this. We cannot accept this plan for our future. We need to track how much water is being provided to what communities. The same thing happened to Maui, they fired their consultant because the plan was rejected. The numbers don't match! I can't make any sense of it and its an old document and we need to not use old data!	It is acknowledged that 10 years have passed since 2014. It takes time to gather information, determine an approach based on the best available information, and to assess the available data. When the analysis was completed, the first round of public meetings were held. Around that time, the sustainable yield values were being updated by CWRM, and CWRM advised not to use the new values until the WRPP was approved. Therefore, the decision was made to wait until the SY values were finalized in the WRPP before continuing with preparation of the KWUDP Update. Once the WRPP was approved, it took time to prepare the draft KWUDP Update which includes one chapter for each aquifer system area (13 total) instead of just one chapter for each aquifer sector area (3 total), resulting in a much longer document. Internal review, CWRM staff review, DOW review, and subsequent revisions also took time. The KWUDP Update used the best available information for its assessment and descriptions. The KWUDP Update provides a high-level, islandwide assessment of the sustainability of land use plans and policies in terms of water. This initial assessment provides guidance for future assessments to focus efforts on the more sensitive areas, if any. The KWUDP is a living document, and future updates will incorporate information from other updated documents.
226	2024-05-21	CWRM Public Hearing (Kauai Community College)	16 - Valerie Weiss (Wailua Homesteads	My main concern is agricultural water availability for food crops (not GMO) including reservoirs and accessibilty. This should be a priority.	Water availability for agriculture should come from the Agricultural Water Use and Development Plan.

227	2023-10-13	Letter to DOW	Hope Kallai	The KWUDP is a 20 year planning component of the State Water Plan. This dKWUDP is based on statistics from 2014 and must be updated to this decade. The 2015 WUDP considered only to 2035. This new dWUDP document must consider 2025-2045, based on current statistics, charts and projections. Please update the KWUDP.	Per the Framework, the KWUDP is to be treated as a "living document." The data analysis for this KWUDP Update was done in 2015 with 2014 data. Water demands were projected from 2015 to 2035 using the population projection rates from the Planning Department's Socioeconomic Analysis and Forecasts, dated February 2014. (It is noted that the population projection rates from this Planning Department study are until 2035 only.) Once analysis was completed, the preliminary results were presented to the stakeholders and public for input. Around that time, the sustainable yield values were being updated by CWRM, and CWRM advised not to use the new values until the WRPP was approved. Therefore, the decision was made to wait until the SY values were finalized in the WRPP before continuing with preparation of the KWUDP Update. Once the WRPP was approved, it took time to prepare the draft KWUDP Update which includes one chapter for each aquifer system area (13 total) instead of just one chapter for each aquifer sector area (3 total), resulting in a much longer document. Internal review, CWRM staff review, DOW review, and subsequent revisions also took time. Although the water demand projections do not extend beyond 2035, it is noted that extending the projections beyond 2035 at similar projection rates would not cause a large increase in future demand that would require a change to the findings or recommendations of the KWUDP Update. All 20-year demand projections are far below sustainable yield.
228	2023-10-13	Letter to DOW	Hope Kallai	Approximately 15,000 of 21,000 Kauai Dept of Water residential potable water accounts are supplied by surface ditch water from the Waiahi Surface Water Treatment Plant. The dKWUDP fails to include this discussion, the potential acquisition by KDOW of the SWTP, the litigation about this diversion, the consideration of the Instream Flow Standards for Wailua and the preparation of an EIS.	The number, 15,000, was taken from the Grove Farm newsletter that made reference to the approximately 15,000 customers (individuals) served by the Waiahi Surface Water Treatment Plant (SWTP). That number does not correspond to the number of residential potable water accounts serviced by the SWTP. On the assumption that there are four (4) individuals in an average residential household, the SWTP provides service to approximately 3,750, or 17%, of the residential potable water accounts (out of 22,000) that the DOW services island wide. The balance of the potable water accounts (83%) are serviced by ground water resources.
229	2023-10-13	Letter to DOW	Hope Kallai	The dKWUDP which considers ditch water as “secondary quality” water use depends on it as our island’s primary potable water source.	Surface water requires treatment before being used to meet potable water needs. Untreated ditch water or other surface water is considered a secondary or lower quality water source which should be used for landscaping and agriculture when available. The Recommended Alternatives paragraph in each ASYA chapter has been revised for clarification.
230	2023-10-13	Letter to DOW	Hope Kallai	The 2023 dWUDP considers impact to aquifers, but is majorly dependent on surface water and fails to consider the impacts of climate change on the corresponding surface waters and the surface water dependency.	Climate change impacts on ground water and surface water resources shall be taken into account in future updates of the WRPP and subsequently incorporated into future updates of the KWUDP.
231	2023-10-13	Letter to DOW	Hope Kallai	East Kauai Water User’s Co-op is pau. The status of East Kauai Irrigation Company and Kilauea Irrigation Company needs update.	General information about irrigation systems and their condition have been incorporated from the 2019 AWUDP (as CWRM staff advised that this information would be reasonable to include). Further updates should be incorporated into future updates of the AWUDP and subsequently incorporated into future updates of the KWUDP.
232	2023-10-13	Letter to DOW	Hope Kallai	Include reservoirs on maps. Ditches that feed reservoirs do not make any sense if the reservoirs are not included. Page 138 of dKWUDP should include all Koloa Reservoirs: Waita, Puu o Hewa, Mauka, Papuaa, Pia Mill, Omao, Huinawai, Aepo, Aepoalua, Aepoekolu, Aepoeha, Ipoilono.	Reservoirs have been added to each ASYA map, along with their status per the AWUDP maps. Note that a few reservoirs may be partially hidden under diversion symbols.
233	2023-10-13	Letter to DOW	Hope Kallai	Include Kaloko Reservoir on Kilauea maps. Pu’u Ka Ele ditch does not go to Lepeuli. This ditch needs to be removed from this map, makai of Kaloko (when added). Status of Waiakalua, Kalihiwai, StoneDam, and Pu’u Ka Ele need consideration.	Kaloko Reservoir has been added to Figure 20105-4. The Puu Ka Ele ditch system and status of the Waiakalua, Kalihiwai, and Stone Dam as shown on the figures are from the AWUDP maps. The AWUDP should update the irrigation systems. After the AWUDP has been updated and adopted, the updates can be incorporated into a future KWUDP update.
234	2023-10-13	Letter to DOW	Hope Kallai	Moloa’a Stream ditch diversion needs correction, clarification and discussion. As does Moloa’a Stream location, aquifer boundaries and updated well location and groundwater pumpage. I do not believe Moloa’a aquifer 2032 groundwater use is sustainable and there is no backup plan.	The diversions shown in the KWUDP Update are from the CWRM database. Verification and update of the database will require significant effort by CWRM. Information in the KWUDP Update is organized and presented by aquifer system areas (ASYA) which are delineated by CWRM. CWRM also maintains the well database and is responsible for enforcing compliance with reporting pumpage as well as obtaining well construction and pump installation permits.

235	2023-10-13	Letter to DOV	Hope Kallai	There needs to be a status update on Waiahi hydropower plants future use.	Information on the Waiahi Hydropower plant is based on discussion with KIUC in 2021. As of 2021, KIUC has not diverted water from the North Fork Wailua River or Waikoko Stream due to pending repairs to a portion of the siphon.
236	2023-10-13	Letter to DOV	Hope Kallai	Wailua 20103 Aquifer discussion does not include the use of surface water supplied to 15,000 water customers from this hydrologic unit.	See response above
237	2023-10-13	Letter to DOV	Hope Kallai	Out of ahupua'a export of surface water is mentioned, but the impacts are not considered, like Wailua and Moloa'a.	Ultimately, instream flow standards must be established and administered by CWRM. Instream flow standards (IFS) are essentially the amount of water that must remain in a stream to protect fishery, wildlife, recreational, aesthetic, scenic, and other beneficial instream uses. Until permanent IFS are established, interim IFS have been adopted. Further discussion of IFS, interim IFS, and instream uses can be found in Section 1.5.3.
238	2023-10-13	Letter to DOV	Hope Kallai	Much dependence upon "future" AWUP which was completed in 2019. As presented AWUP fails to address problems of inter-basin transfer of water and is missing much information and includes mis-information.	A public review draft of the AWUDP was published in 2019 but it was not formally adopted by CWRM. Therefore, analysis of surface water use and agriculture water use data was limited to being based on approved data. General information on the irrigation systems and their condition from the 2019 AWUDP Public Review Draft have been incorporated into this KWUDP Update (as CWRM staff advised that this information would be reasonable to include).
239	2023-10-13	Letter to DOV	Hope Kallai	dKWUDP recommends Wailua surface water be used for non-potable water needs, and that "lower quality water" surface water is not considered "potable water" for human consumption. Or for 15,000 residences.	Surface water requires treatment before being used to meet potable water needs. Untreated ditch water or other surface water is considered a secondary or lower quality water source which should be used for landscaping and agriculture when available. The Recommended Alternatives paragraph in each ASYA chapter has been revised for clarification.
240	2023-10-13	Letter to DOV	Hope Kallai	Under Recommended Alternatives 5.3, each aquifer discussion includes: "The highest quality of water shall be reserved for the most valuable end use. Potable water is considered the highest quality water, and the sustenance of life is the most valuable end use. Recycled water, brackish water, surface water, and other lower quality water sources should be used for landscaping and agriculture when available, thereby reserving potable water for human consumption."	Surface water requires treatment before being used to meet potable water needs. Untreated ditch water or other surface water is considered a secondary or lower quality water source which should be used for landscaping and agriculture when available. The Recommended Alternatives paragraph in each ASYA chapter has been revised for clarification.
241	2023-10-13	Letter to DOV	Hope Kallai	Pdf Page 135 Koloa Aquifer erroneously states: Waita Reservoir is actually fed by the Waiahi-Ku'ia Aqueduct, the Waiahi-'Illi'ili'ula ditch and the Koloa-Wilcox Ditch, all out-of-basin transfers of water into the Koloa hydrologic unit. This needs correction.	Paragraph revised to indicate that the Waita Reservoir is fed from the Waiahi-Kuia Aqueduct, Waiahi-Iliiliula ditch, and Koloa-Wilcox Ditch.
242	2023-10-13	Letter to DOV	Hope Kallai	Pdf page 280 Kilauea Aquifer 20105, describes the Kaloko Irrigation System: Ownership should be updated to include Zuckerberg. The Kalua'a/Moloa'a diversion is un-permitted and was recommended for discontinuation and removal in 2009. It should be removed from consideration here as it is the source of Moloa'a Stream in the Anahola Aquifer System Area.	General information on the Ka Loko Irrigation Ditch Subsystem was taken from the 2019 AWUDP, including ownership. Further updates should be incorporated into future updates of the AWUDP and subsequently incorporated into future updates of the KWUDP.

243	2023-10-13	Letter to DOW	Hope Kallai	Page 245 Anahola Aquifer describes Moloa'a as being perennial. Right now, it is so diverted it does not reach the ocean; it is not perennial anymore. The tributaries and headwaters of Moloa'a Stream in Anahola Aquifer are Kalua'a Stream, in the Kilauea Aquifer. Moloa'a, from 'Aliomanu to Waipake is the only developed area of Kauai without any county potable water available. Property owners were told decades ago that water would be available in 20 years. Now we are told there are no plans to supply potable water to this area. Wells are dropping and some wells are turning brackish by the bay. Moloa'a needs potable water and fire suppression water available, or an explanation why we do not deserve water or there should be a moritorium on residential development in this fire-climax grassland ecosystem. Moloa'a water should not be diverted to Kaloko reservoir and this use should not be considered in this WUDP. Moloa'a needs some serious water management, but this dWUDP fails to include consideration.	Stream classification is from the Hawaii Stream Assessment, which was published in 1990. It is acknowledged that the stream classification may be outdated but there is no updated information available. Unfortunately, due to competing financial obligations to maintain its current infrastructure, and the area being serviced by private wells and water system, the DOW did not plan for the development of a public water system for the Moloa'a area.