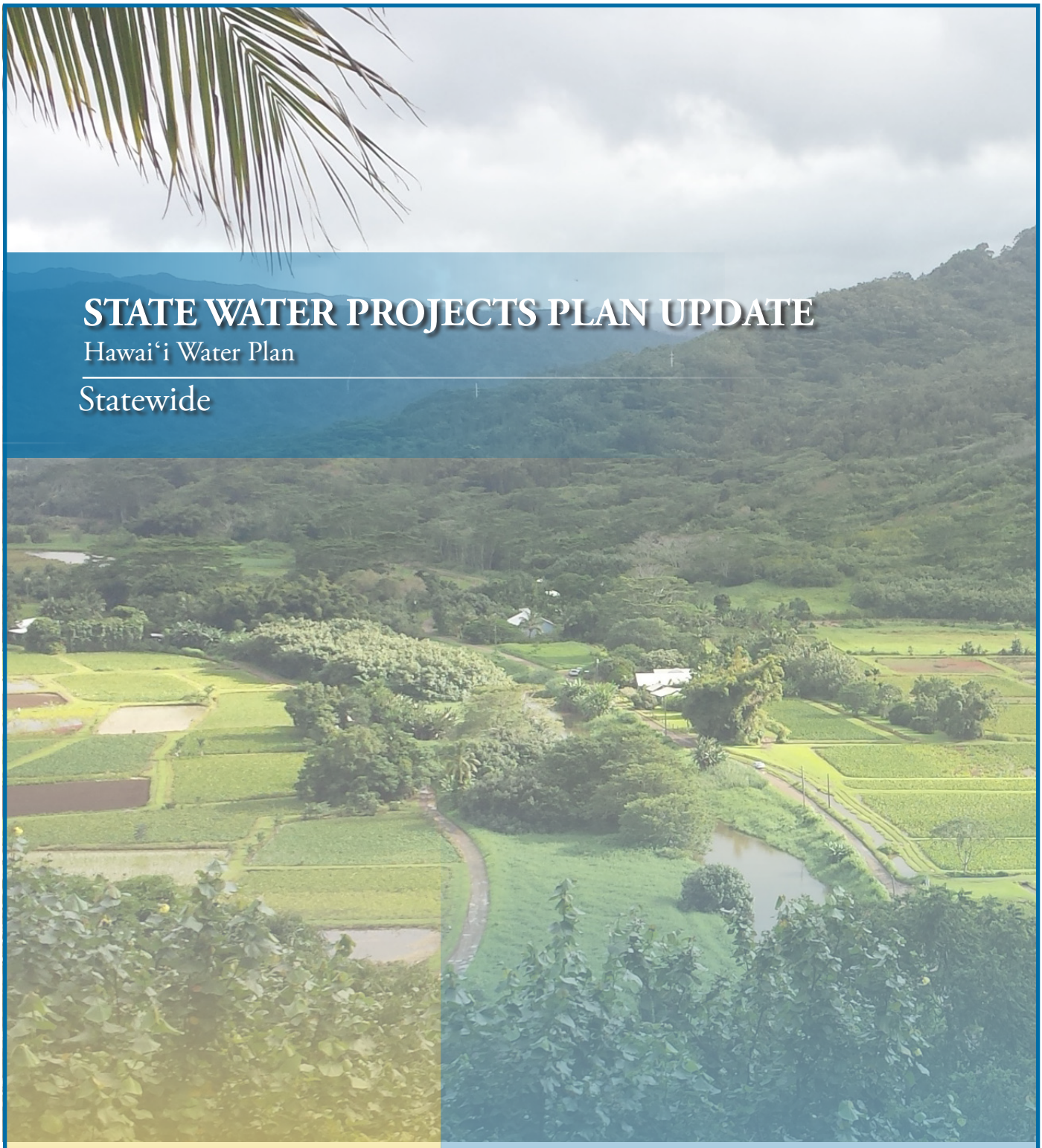

STATE WATER PROJECTS PLAN UPDATE

Hawai‘i Water Plan

Statewide

Prepared for the:

Department of Land and Natural Resources
State of Hawai‘i

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Final Report

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LIST OF ABBREVIATIONS

AASF	Army Aviation Support Facilities
ADC	State of Hawai‘i, Department of Agriculture, Agribusiness Development Corporation
ADD	Average Daily Demand
ARMD	Agribusiness Resource Management Division
AWUDP	Agricultural Water Use and Development Plan
AWWA	American Water Works Association
BPNAS	Barbers Point Naval Air Station
CIP	Capital Improvement Plan
CONRAC	Consolidated Rental Car Facilities
CTAHR	University of Hawai‘i, Mānoa College of Tropical Agriculture and Human Resources
CWRM	State of Hawai‘i, Commission on Water Resource Management
DAGS	State of Hawai‘i, Department of Accounting and General Services
DAR	State of Hawai‘i, Department of Land and Natural Resources, Division of Aquatic Resources
DBEDT	State of Hawai‘i, Department of Business, Economic Development & Tourism
DHHL	State of Hawai‘i, Department of Hawaiian Home Lands
DHS	State of Hawai‘i, Department of Human Services
DLNR	State of Hawai‘i, Department of Land and Natural Resources
DOA	State of Hawai‘i, Department of Agriculture
DOD	State of Hawai‘i, Department of Defense
DOE	State of Hawai‘i, Department of Education
DOFAW	State of Hawai‘i, Department of Land and Natural Resources, Division of Forestry and Wildlife
DOH	State of Hawai‘i, Department of Health
DOT	State of Hawai‘i, Department of Transportation
DOT-AIR	State of Hawai‘i, Department of Transportation, Airports Division
DOT-HAR	State of Hawai‘i, Department of Transportation, Harbors Division
DOT-HWY	State of Hawai‘i, Department of Transportation, Highways Division
DPS	State of Hawai‘i, Department of Public Safety
EKIS	East Kaua‘i Irrigation System
EKWUC	East Kaua‘i Water Users’ Cooperative
ERU	Equivalent Residential Unit
FC	Facilities Charge
FEIS	Final Environmental Impact Statement

FSMA	Food Safety Modernization Act
gal	Gallon, Gallons
GAL	Galbraith Agricultural Lands
GIS	Geographic Information System
GPM	Gallons per Minute
HBWS	Honolulu Board of Water Supply
HCDA	State of Hawai‘i, Department of Business, Economic Development & Tourism, Hawai‘i Community Development Authority
HDWS	County of Hawai‘i, Department of Water Supply
HHFDC	State of Hawai‘i, Department of Business, Economic Development & Tourism, Hawai‘i Housing Finance and Development Corporation
HIRANG	Hawai‘i Army National Guard
HOST	Hawai‘i Ocean, Science and Technology Park
HP	Horsepower
HPHA	State of Hawai‘i, Department of Public Safety; Hawai‘i Public Housing Authority
HRS	Hawai‘i Revised Statutes
HVAC	Heating, Ventilation, Air Conditioning
HWP	Hawai‘i Water Plan
HYCF	Hawai‘i Youth Correctional Facility
IC	Installation Charge
KAA	Kekaha Agriculture Association
KAIS	Kā‘u Irrigation System
KCDD	Kalaeloa Community Development District
KDOW	County of Kaua‘i, Department of Water
KEDIS	Kekaha Ditch Irrigation System
KODIS	Kōke‘e Ditch Irrigation System
KS	Kamehameha Schools
KSBE	Kamehameha Schools Bishop Estate
LEED	Leadership in Energy and Environmental Design
LHDIS	Lower Hāmākua Ditch Irrigation System
LPC	Līhu‘e Plantation Company
MDWS	Maui Department of Water Supply
MG	Million Gallons
MGD	Million Gallons per Day
MIS	Moloka‘i Irrigation System
MOU	Memorandum of Understanding
NAVFAC-HI	Naval Facilities Engineering Command Hawai‘i

NELHA	State of Hawai‘i, Department of Business, Economic Development & Tourism, Natural Energy Laboratory of Hawai‘i Authority
NPS	National Park Service
NRCS	Natural Resources Conservation Services
N/A	Not Available
N/R	Not Reported
OCCC	O‘ahu Community Correctional Facility
OHA	Office of Hawaiian Affairs
PRV	Pressure Reducing Valve
PSI	Pounds per Square Inch
PVC	Polyvinyl Chloride
QLT	Queen Lili‘uokalani Trust
SCADA	Supervisory Control and Data Acquisition
SDWB	State of Hawai‘i, Department of Health, Safe Drinking Water Branch
SF	Square Feet
SRA	State Recreation Area
SWMPO	State Water Master Plan for Oahu
SWPP	State Water Projects Plan
UH	University of Hawai‘i
UHD	Upper Hāmākua Ditch
UHH	University of Hawai‘i at Hilo
USEPA	United States Environmental Protection Agency
WDIS	Waiāhole Ditch Irrigation System
WIS	Waimea Irrigation System
WMP	Water Master Plan
WQP	Water Quality Plan
WRPP	Water Resources Protection Plan
WSS	State of Hawai‘i Water System Standards
WUDP	County Water Use and Development Plan
WWRF	Wastewater Reclamation Facility

EXECUTIVE SUMMARY

INTRODUCTION

In 1987, the State Legislature passed the State Water Code (Hawai‘i Revised Statues, Chapter 174C) to protect Hawai‘i’s surface and ground water resources and to ensure the maximum beneficial uses for its residents. The State Water Code (herein referred to as the “Code”) called for the establishment of a Commission on Water Resource Management (CWRM) that would be responsible to administer the Code, and for the formulation of a Hawai‘i Water Plan that would serve as a dynamic, long-range planning guide for the CWRM.

The Hawai‘i 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.

In February 2000, the CWRM developed and adopted a “Statewide Framework for Updating the Hawai‘i Water Plan” (herein referred to as the “Framework”). The Framework identifies the required interactions between the various plan components and charts the path that each responsible agency should follow over the established planning horizon. Under this Framework, the updating process calls for assessment of projections, planning principles, and strategies associated with water resource planning and development.

In compliance with the Code, the Department of Land and Natural Resources (DLNR), Engineering Division, is tasked with the responsibility to prepare the State Water Projects Plan. Its purpose is to provide a framework for planning and implementation of water development programs to meet projected water demands for State Projects. The SWPP shall be implemented in coordination with County’s WUDP to ensure orderly authorization and development. The SWPP was last updated in 2003, with a partial update for the Department of Hawaiian Home Lands (DHHL) projects in 2017.

METHODOLOGY

The initial phase of the SWPP involved the compilation of available information of existing wells, stream diversions and water systems owned and/or operated by the State of Hawai‘i (herein referred to as the “State”). Existing State water resources were inventoried to assess the extent of the State’s current water-related operations. Next, each State department was surveyed to inventory proposed State projects and their associated water requirements. A standard survey packet was distributed to each State department to facilitate the collection of SWPP data. A 20-year planning horizon between 2015 and 2034 was established for the data collection. The survey data and information gathered serves as the backbone of the SWPP report and the recommended development strategy.

INVENTORY OF WATER RESOURCES AND SWPP PROJECTED WATER DEMANDS

The results of the SWPP inventory showed that the State currently owns and/or operates 307 wells, 54 stream diversions, and 40 water systems (including 10 public water systems and 10 agricultural irrigation systems).

A total of 355 State projects were reported by the departments requiring water supply and/or service. For the designated 20-year planning horizon, agencies reported that an additional 34.147 million gallons per day (MGD) of potable water and 148.57 MGD of non-potable water would be needed to supply these State projects. Anticipated State project water demands are summarized below and have been categorized by department and island.

Total SWPP Potable Water Demands by State Department

State Department	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
DAGS	0	0	0.0075	0.0535	0.0681	0.5929	0.9225	0.9225
DOA	0	0	0	0	0	0	0	0
DBEDT	0	0	0.1251	0.1752	0.5109	1.9038	2.7977	3.6208
DOD	0.0070	0.0095	0.0095	0.0100	0.0100	0.0105	0.0105	0.0105
DOE	0	0	0	0.1000	0.1000	0.1763	1.2169	2.1570
DHHL	0.9039	5.3311	5.3311	5.3311	5.3311	8.4454	16.243	21.996
DOH	0	0.0190	0.0190	0.0190	0.0190	0.0190	0.0190	0.0190
DHS	0	0	0	0	0	0.3266	0.3946	0.3946
DLNR	0	0.0300	0.1600	0.1600	0.1637	0.8008	1.1071	1.4050
DOT	0	0.0235	0.0475	0.0929	0.1164	0.5434	0.8478	1.3788
Judiciary	0	0	0	0	0	0.0090	0.0090	0.0156
OHA	0	0.0045	0.0071	0.0107	0.0133	0.0595	0.0855	0.3623
UH	0.0304	0.0635	0.0970	0.1369	0.1693	0.3992	0.6192	1.8651
Total State	**0.9414**	**5.4812**	**5.8039**	**6.0894**	**6.5019**	**13.286**	**24.273**	**34.147**

Total SWPP Non-Potable Water Demands by State Department

State Department	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
DAGS	0	0	0	0	0.3100	0.3100	0.3100	0.3100
DOA	0	4.1690	4.1690	4.1690	4.1690	4.1690	4.1690	6.6040
DBEDT	0	0	3.3625	6.7006	10.018	13.318	35.956	35.956
DOD	0.0010	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
DHHL	0.9214	39.288	39.288	39.288	39.288	53.982	75.806	103.73
OHA	0	0.0025	0.0035	0.0035	0.0050	1.0050	1.0050	1.0050
UH	0	0	0	0	0	0	0	0.5000
Total State	**0.9224**	**43.461**	**46.824**	**50.162**	**53.791**	**73.079**	**117.60**	**148.57**

Total SWPP Potable Water Demands by Island

Island	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
Kauaʻi	0.0255	0.3545	0.3620	0.3821	0.3842	1.0007	2.2971	3.1805
Oʻahu	0.6160	0.8266	0.9855	1.1160	1.1673	2.7770	8.1613	10.995
Molokaʻi	0	0.2594	0.2594	0.2597	0.2597	0.6623	1.0911	1.0911
Lānaʻi	0	0	0	0	0	0	0	0.0672
Maui	0	2.2134	2.2139	2.2552	2.4010	3.8993	5.9148	7.0064
Hawaiʻi	0.2999	1.8273	1.9831	2.0764	2.2898	4.9472	6.8083	11.807
Total State	**0.9414**	**5.4812**	**5.8039**	**6.0894**	**6.5019**	**13.286**	**24.273**	**34.147**

Total SWPP Non-Potable Water Demands by Island

Island	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
Kauaʻi	0.8194	29.966	29.966	29.966	29.966	31.298	33.556	34.833
Oʻahu	0.0010	5.9702	5.9712	5.9712	5.9712	6.9848	24.674	25.771
Molokaʻi	0	4.7207	4.7207	4.7207	4.7207	5.3599	6.0915	6.0915
Lānaʻi	0	0	0	0	0	0	0	0
Maui	0	1.8724	1.8724	1.8724	1.8739	11.695	11.737	13.872
Hawaiʻi	0.1020	0.9319	4.2944	7.6325	11.260	17.741	41.545	67.999
Total State	**0.9224**	**43.461**	**46.824**	**50.162**	**53.791**	**73.079**	**117.60**	**148.57**

SWPP WATER DEVELOPMENT STRATEGY

A SWPP Water Development Strategy was formulated in the 2003 SWPP update to identify and evaluate source development options for proposed State projects. The strategy provides potential options and recommended actions which are intended to meet forecasted water demands from State projects on an individual project basis. Additional strategy options were developed in the 2017 DHHL SWPP for projects requiring non-potable water. The strategy objectives were to identify SWPP projects with potential source options that could supply SWPP project water needs, and to identify those projects without source options requiring additional source development. Strategy options and recommendations were organized into two time frames: Short-term (2015-2024) and Long-term (2025-2034).

Strategy options include existing and/or new State water sources/systems, existing master plans, existing County and private water agreements, and existing County water systems. Additional strategy options developed in the DHHL SWPP include catchment, stream diversions, spring sources, recycled water, seawater, and ambient rainfall. All of these strategy options were prioritized and assigned to individual SWPP projects

Notwithstanding these limitations, the strategy did provide for the determination of "remaining" SWPP project water demands, which did not have source options, but were within the service area of a County water system. Projects wholly without source options were classified as requiring a new water system to be developed and operated by the State.

It is noted that the SWPP project water demands with non-potable end uses that are anticipated to be met by potable sources, identified by "non-potable using potable" within the project name, are enumerated in the potable water development strategy and remaining balance of demands in the table below. Hence, the difference between the total potable water demand and the total demand using potable sources is represented by the "non-potable using potable" demands (compare the 2034 total potable water demand of 34.187 MGD to the 2034 total demand using potable sources of 35.438 MGD; the "non-potable using potable" demand of 1.251 MGD represents the difference).

Potable Water Development Strategy and Remaining Demands – State

State Water Demand Status	Cumulative Average Day Demand (MGD)							
	Short-Term						Long-Term	
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
Total Demand Using Potable Sources	0.9414	5.9021	6.2258	6.5113	6.9253	14.096	25.215	35.438
Demand Accounted for by Water Development Strategy	0.7401	3.7884	3.9439	4.0249	4.3804	8.2218	13.783	19.283
Remaining Balance of Demands								
Island of Kauaʻi	0	0.0655	0.0730	0.0931	0.0952	0.1457	0.9304	1.6213
Island of Oʻahu	0.0367	0.2073	0.3671	0.4971	0.5484	1.9223	4.5853	6.2819
Island of Molokaʻi	0	0	0	0.0003	0.0003	0.0285	0.2237	0.2237
Island of Lānaʻi	0	0	0	0	0	0	0	0
Island of Maui	0	0.0229	0.0234	0.0647	0.0662	0.4287	1.2865	1.5550
Island of Hawaiʻi	0.1647	1.8181	1.8184	1.8311	1.8349	3.3488	4.4057	6.4726
Remaining Balance of Demands (State)	**0.2013**	**2.1137**	**2.2819**	**2.4864**	**2.5450**	**5.8739**	**11.432**	**16.154**

Non-Potable Water Development Strategy – State

State Water Demand Status	Cumulative Average Day Demand (MGD)							
	Short-Term						Long-Term	
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
Total Demand Using Non-Potable Sources	0.9224	43.040	46.402	49.741	53.368	72.270	116.66	147.28
Demand Accounted for by Water Development Strategy	0.9224	40.274	43.636	46.975	50.602	66.461	109.70	129.29
No Water Development Strategy Required ("NONE")	0	2.7659	2.7659	2.7659	2.7659	5.8089	6.9615	17.994

CONCLUSION AND RECOMMENDATIONS

The recommended water development strategy accounts for over 19 MGD of the total 2034 anticipated potable water demand of approximately 35 MGD, which translates to 54 percent. Development of new sources and/or additional planning will be needed to supply the remaining demands for all islands, except Lānaʻi. The remaining demands, in order from largest to smallest, for each respective island are: 6.47 MGD for the island of Hawaiʻi, 6.28 MGD for the island of Oʻahu, 1.62 MGD for the island of Kauaʻi, 1.56 MGD for the island of Maui and 0.22 MGD for the island of Molokaʻi.

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CHAPTER 1 INTRODUCTION

1.1 BACKGROUND

1.1.1 Legislative History

The State Constitution, Article XI, Section 7, mandates that the State of Hawai‘i (State) is responsible to protect, control, and regulate the use of Hawai‘i’s water resources for the benefit of its people. The full language of Article XI, Section 7 is as follows:

> *“Section 7. The State has an obligation to protect, control, and regulate the use of Hawai‘i’s water resources for the benefit of its people.*
>
> *The legislature shall provide for a water resources agency which, as provided by law, shall set overall water conservation, quality and use policies; define beneficial and reasonable uses; protect ground and surface water resources, watersheds and natural stream environments; establish criteria for water use priorities while assuring appurtenant rights and existing correlative and riparian uses and establish procedures for regulating all uses of Hawai‘i’s water resources. [Add Const Con 1978 and election Nov 7, 1978]”*

Pursuant to this mandate the Fourteenth Legislature passed Act 45, the State Water Code, which was signed into law by the Governor on July 1, 1987. The Act is now codified as Chapter 174C, Hawai‘i Revised Statutes (HRS).

1.1.2 State Water Code

The State Water Code (herein after referred to as the “Code”) is divided into nine parts. The Code outlines administration structure, regulation of water use, water resources planning, and water rights. The Code policies ensure the maximum beneficial uses of State water for Hawai‘i residents. The Code mandates a program of comprehensive water resource planning to maintain the supply, conservation, and quality of State waters. The State Water Code calls for the establishment of a seven-member Commission on Water Resource Management (CWRM) to have exclusive jurisdiction and final authority relating to the implementation and administration of the Code. To guide the Commission in executing its general powers, duties, and responsibilities, the Code requires the formulation of a Hawai‘i Water Plan.

1.1.3 Hawai‘i Water Plan

The Hawai‘i Water Plan (HWP) serves as a dynamic, long-range planning guide for the CWRM for water resource management. The plan consists of five component parts:

1) Water Resource Protection Plan (WRPP)
2) Water Quality Plan (WQP)
3) State Water Projects Plan (SWPP)
4) Agricultural Water Use and Development Plan (AWUDP)
5) Water Use and Development Plans (WUDP) for each County

Table 1-1 – Hawai‘i Water Plan Summary

Hawai‘i Water Plan Document		**Objectives**	**Elements**	**Status**
Water Resource Protection Plan		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 • In-stream uses • Programs to conserve, augment and protect such resources	1st Update completed in 2008 Revised in 2019
Water Quality Plan		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 Hawai‘i.	• Water quality criteria and standards • Groundwater protection • Water quality problems • Existing water quality management programs and recommended policies and strategies	1st Update completed in 2019
State Water Projects Plan		Refer to Sections 1.2 and 1.3		
Agricultural Water Use and Development Plan		To assess State and private agricultural water use, supply and irrigation water systems through a long-range management plan.	• Master inventory of existing water systems • Existing statewide agricultural land uses, assessment of current and future water irrigation needs • Rehabilitation costs, prioritization and program for system repairs	Completed in 2003 Revised in 2004 2nd Update in Progress
Water Use and Development Plan	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
	Kaua‘i			1st Update in progress
	Hawai‘i			1st Update completed in 2011 2nd Partial Update in Progress
	O‘ahu			Update in progress

Source: Statewide Framework for Updating the Hawai‘i Water Plan, February 2000

The components of the HWP must be reviewed and updated on a regular basis to provide for effective coordination and long-range planning between State and County agencies. In order to effectively update each component of the HWP, the CWRM developed and adopted a "Statewide Framework for Updating the Hawai'i Water Plan" (herein referred to as the "Framework") in February 2000. The Framework identifies the required interactions between the various plan components and charts the path that each responsible agency should follow over the established planning horizon. Under this Framework, the updating process calls for assessment of projections, planning principles, and strategies associated with water resource planning and development. **Table 1-1** summarizes the objectives and elements of each component as outlined in the Framework, along with the current status of each of the components.

1.2 OBJECTIVE OF THE SWPP

The primary purpose of the SWPP is to provide a framework for planning and implementation of water development programs to meet projected water demands for State projects. The objective of the SWPP is to review current and future state water projects to ensure orderly authorization and development of the State's water resources. The Framework requires that the SWPP shall be implemented in coordination with County's WUDPs to ensure orderly authorization and development. Elements include:

1) An inventory of State water resources including wells, stream diversions and State water systems.
2) An inventory of State projects and water requirements.
3) An inventory of State department water conservation programs.
4) Development of a Water Development Strategy to meet the needs of proposed State projects.
5) Incorporation of the AWUDP.
6) Consistency with the WRPP and the WQP.
7) Coordination with each of the Counties' WUDPs. The State project demands are to be incorporated within the respective County WUDPs for comprehensive water planning.

The Department of Land and Natural Resources (DLNR), Engineering Division, has jurisdiction over State projects and, in conjunction with other State agencies, is responsible for the preparation of the SWPP. The first SWPP update was initiated in 1998, and a SWPP report was completed in 2003. In 2017, the SWPP was updated only for the Department of Hawaiian Home Lands (DHHL) projects due to budgetary constraints.

1.3 ELEMENTS OF STUDY

1.3.1 Inventory of Existing Water Resources

The initial phase of the SWPP involved the compilation of available information of existing wells, stream diversions and water systems owned and/or operated by the State. An inventory of existing State water resources was taken to assess the extent of the State's current water-related operations.

1.3.2 Inventory of Proposed State Projects

Each State department was surveyed to inventory future water requirements associated with proposed State projects. These water requirements were assessed over a 20-year planning horizon, in one-year increments for the period between 2015 and 2019, then in five-year increments between the years 2019 to 2034. As required by the Framework, a range of forecasts (high, medium, and low) was developed.

1.3.3 Assessment of Future Water Requirements

Upon completion of the State project inventory, an assessment of the future water requirements was performed. Estimated water demands were determined using the best available information. It should be noted that these demands are based on the projected future water requirements and the values derived herein should be re-evaluated as the specific projects become better defined.

1.3.4 SWPP Water Development Strategy

The SWPP Water Development Strategy was developed to identify and evaluate source development options for proposed State projects. The strategy provides potential options and recommended actions which are intended to meet anticipated water demands from State projects on an individual project basis. Strategy options and recommendations were organized into two time frames: Short-term (2015-2024) and Long-term (2025-2034).

The strategy objective was to provide more effective planning, coordination and development of water resources to meet anticipated State water demands. Strategy options include: existing and/or new State water sources/systems, existing master plans, existing County and private water agreements, existing County water systems, catchments, stream diversions, spring sources, recycled water, and ambient rainfall. These strategy options assigned to each project are preliminary in nature and must be further evaluated with regard to priority, funding, system operational parameters, coordination with other agencies and interested parties, and other planning considerations. This is described in greater detail in Chapter 5.

1.4 SWPP PROJECT DATA COLLECTION

1.4.1 Survey of State Departments

A standard survey packet was developed in cooperation with the DLNR and CWRM, and distributed to all State departments to facilitate the collection of information for the elements discussed above. The survey forms itself requested input in four areas of concern for this study, as listed below:

1) Inventory of State Water Systems, Wells, Stream Diversions
2) Water Conservation Program
3) Projected Water Demand for State Projects
    a. Water Source Development Plans – Primary Water Source
    b. Water Source Development Plans – Secondary Water Source

4) Projected Water Demand for Private Agricultural Projects (for completion by DOA only)
    a. Water Source Development Plans for Private Agricultural Projects – Primary Water Source
    b. Water Source Development Plans for Private Agricultural Projects – Secondary Water Source

To assist the various departments properly fill in the survey, the following reference materials from the 2003 SWPP were provided:

1) Existing Inventory of State Water Systems, Wells, Stream Diversions
2) 2003 SWPP Projected Water Requirements by Department

Follow-up interviews were conducted for most departments to verify the data provided on the survey forms. Copies of the survey forms are provided in **Appendix B**.

1.4.2 Update of SWPP Data

The information gathered from this survey was input into a database to allow for systematic sorting and extraction of data. The database is maintained in Microsoft Access by DLNR, Engineering Division. The stored data includes: projected water demands, project construction dates, type of water needed, and source water supply for each project. The updated SWPP project data represents the current status of projected water requirements for future State projects.

1.4.3 Verification of SWPP Data

SWPP project information was compiled through extensive coordination with each department's staff. To ensure the completeness and accuracy of the project data, the compiled SWPP project data was returned to the respective State departments for their final review and verification.

1.4.4 Evaluation of Project Data

The project data was evaluated to confirm that the technical approach and methodology used to develop water demand forecasts followed standard engineering practices and that the project data conforms to State and County standards. The SWPP project water demand calculations were reviewed and modified to conform to County Water System Standards (WSS) methodology to provide for consistency with other parts of the Hawai‘i Water Plan. However, some projects did not fall within standard categories of water use. This is described in greater detail in Chapter 3.

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CHAPTER 2 EXISTING STATE WATER RESOURCES

2.1 GENERAL

The vast majority of existing State facilities including, but not limited to, schools, office buildings, airports, harbors, housing projects, institutions and commercial and industrial developments are served by water systems owned and operated by their respective Counties. The County water departments are specifically organized to manage, maintain, and operate water systems and are usually more capable of efficiently providing water service. However, in areas where the Counties do not have distribution systems, other purveyors, including State, Federal, or private agencies, must provide water service to their respective facilities.

An inventory of existing State-owned and operated water systems was conducted to assess the extent of the State's current water-related operations. Information on existing water uses and available sources registered with the Commission on Water Resource Management (CWRM) were also compiled.

2.2 STATE WATER RESOURCES

2.2.1 Wells

A "Well" is defined as "any excavation or opening in the ground, or an artificial enlargement of a natural opening drilled, tunneled, dug, or otherwise constructed for the location, exploration, development, injection, or recharge of ground water and by which ground water is drawn or is capable of being withdrawn or made to flow." According to the CWRM database, the State currently owns 307 existing wells. Maps showing the locations of registered State wells are provided in each island chapter and a listing of all State-owned wells is provided in **Appendix C**. State well data and location was referenced from CWRM databases.

Water from the State wells is used for various applications. Principal uses of water from production wells include potable water supply and irrigation. State wells categorized as non-production include those that are considered abandoned or used only for observation purposes. There are 83 production wells and 224 non-production wells owned by the State.

2.2.2 Stream Diversions

A "Stream Diversion" is defined as "the act of diverting, pumping or otherwise removing water from a stream into a channel, ditch, pipeline, or other conduit." Based on CWRM registered stream diversion records, the State currently owns and/or operates 54 stream diversions. Maps showing the locations of the various stream diversions are provided in each respective island chapter and a listing of State owned/operated diversions is summarized in **Appendix D.** The water collected from existing State diversions is used primarily for agricultural operations. Other uses include potable water supply, generally for remote areas, e.g. parks and recreation areas. Since diversions are located on surface water sources, the collected water generally requires treatment before it is considered safe for human consumption.

2.2.3 State Owned and/or Operated Water Systems

A State water system is defined as a water system owned and/or operated by a State department that provides water service to State and/or other State, County, or private facilities or subdivisions; provides source water and treatment of source water; stores water in storage reservoirs; provides booster pump capacity; conveys water through a distribution system and distributes water to service connections. A State water system is also defined when a County or private source supplies a State-owned and/or operated water service serving State facilities or subdivisions. Public water systems (PWS) are defined as water systems registered with the Department of Health (DOH), Safe Drinking Water Branch (SDWB) having at least 15 service connections or regularly serving an average of at least 25 individuals daily at least 60 days of the year.

An inventory of State-owned and/or operated water systems was compiled as part of the SWPP data survey. The most recent DOH SDWB Sanitary Surveys for PWS were also referenced for State-owned water system information.

The objectives of the State water system inventory were to provide the following:

1) A comprehensive list of State water systems;
2) Description of water system components and service areas including: source, storage, booster pump, distribution, service connections, service area, primary water use, existing consumption and future water demand, schematic layout for each water system and Geographic Information System (GIS) mapping;
3) Identification of water systems that contain surplus system facility capacity. Surplus system facility capacity was determined by comparing the capacity of selected water system facilities with existing average day and maximum day consumption;
4) Determination if water systems with surplus capacity potentially could accommodate future State project water demands.

There are forty (40) State water systems: ten (10) on the island of Kaua‘i, fifteen (15) on the island of O‘ahu, three (3) on the island of Moloka‘i, five (5) on the island of Maui, and seven (7) on the island of Hawai‘i. Of the forty (40) State water systems, ten (10) are registered with the DOH SDWB as PWS, and ten (10) were identified as non-potable agricultural irrigation systems. A summary list of the State water systems is provided in **Table 2-1**. Descriptions and locations of these State water systems are included in each respective island chapter. Schematic line diagrams for each State water system showing existing water systems components, end users and existing/future water demands, are provided in **Appendix E**.

Table 2-1 – Summary of State Water Systems

Water System Name	State Agency	Island	Primary Use	PWS No.	State Owned	State Operated
East Kauaʻi Irrigation System	ADC	Kauaʻi	Irrigation		On State & private lands	No, ag co-op
Kekaha Ditch Irrigation System	ADC	Kauaʻi	Irrigation		Yes	No, ag co-op
Kōkeʻe Ditch Irrigation System	ADC	Kauaʻi	Irrigation		Yes	No, ag co-op
Kahuku Irrigation System	DOA	Oʻahu	Irrigation		Yes	No, private contractor
Waiāhole Ditch Irrigation System	ADC	Oʻahu	Non-Potable		Yes	Yes
Waimānalo Irrigation System	DOA	Oʻahu	Irrigation		Yes	Yes
Molokaʻi Irrigation System	DOA	Molokaʻi	Irrigation		Yes	Yes
Upcountry Maui Irrigation System	DOA	Maui	Irrigation		Yes	No, MDWS
Lower Hāmākua Ditch Irrigation System	DOA	Hawaiʻi	Irrigation		No, KSBE & private	Yes
Waimea Irrigation System	DOA	Hawaiʻi	Irrigation		Yes	Yes
Waiāhole Water System	DBEDT	Oʻahu	Potable	368	Yes	No, private contractor
Natural Energy Laboratory of Hawaiʻi Authority (NELHA) Water System	DBEDT	Hawaiʻi	Potable	153	Yes	Yes
Anahola Farm Lots Water System	DHHL	Kauaʻi	Potable	432	Yes	No, private contractor
Hoʻolehua Water System	DHHL	Molokaʻi	Potable	230	Yes	Yes
Kawaihae Unit #1 Water System	DHHL	Hawaiʻi	Potable	164	Yes	No, private contractor
Puʻukapu Hybid Water System	DHHL	Hawaiʻi	Non-Potable		Yes	Yes
Hawaiʻi State Hospital Water System	DOH	Oʻahu	Potable		Yes	Yes
Waimano Ridge Water System	DOH	Oʻahu	Potable	306	Yes	No, HBWS
Hawaiʻi Youth Correctional Facility Water System	DHS	Oʻahu	Potable		Yes	Yes
Hāʻena State Park Water System	DLNR	Kauaʻi	Non-Potable		Yes	Yes
Kōkeʻe State Park Water System	DLNR	Kauaʻi	Potable	425	Yes	No, private contractor
Nā Pali Coast State Wilderness Park Water System	DLNR	Kauaʻi	Non-Potable		Yes	Yes

Table 2-1 – Summary of State Water Systems (Continued)

Water System Name	State Agency	Island	Primary Use	PWS No.	State Owned	State Operated
Polihale State Park Water System	DLNR	Kaua‘i	Potable	426	Yes	Yes
Wailua River State Park Water System	DLNR	Kaua‘i	Non-Potable		Yes	Yes
Waimea Canyon State Park Water System	DLNR	Kaua‘i	Non-Potable		Yes	Yes
Ahupua‘a ‘O Kahana State Park Water System	DLNR	O‘ahu	Potable		Yes	No, HBWS
Ka‘ena Point State Park – Keawaula Section Water System	DLNR	O‘ahu	Non-Potable		Yes	Yes
Keaīwa Heiau State Recreation Area Water System	DLNR	O‘ahu	Potable		Yes	Yes
Pu‘u ‘Ualaka‘a State Wayside Water System	DLNR	O‘ahu	Potable		Yes	Yes
Wa‘ahila Ridge State Recreation Area Water System	DLNR	O‘ahu	Potable		Yes	Yes
Wai‘alalā State Park Water System	DLNR	Moloka‘i	Potable		Yes	Yes
‘Īao Valley State Monument Water System	DLNR	Maui	Non-Potable		Yes	Yes
Kaumahina State Wayside Water System	DLNR	Maui	Non-Potable		Yes	Yes
Polipoli Springs State Recreation Area Water System	DLNR	Maui	Non-Potable		Yes	Yes
Pua‘a Ka‘a State Wayside Water System	DLNR	Maui	Non-Potable		Yes	Yes
Hāpuna Beach State Recreation Area Water System	DLNR	Hawai‘i	Non-Potable		Yes	Yes
Waiawa Correctional Facility Water System	DPS	O‘ahu	Potable	348	Yes	No, private contractor
Kūlani Correctional Facility Water System	DPS	Hawai‘i	Potable		Yes	Yes
Dillingham Airfield Water System	DOT	O‘ahu	Potable	338	No, U.S. Army	No, private contractor
Waiale‘e Livestock Experiment Station Water System	UH	O‘ahu	Irrigation		Yes	Yes

2.3 CAPACITY OF STATE WATER SYSTEMS

2.3.1 General

The water system facility capacity is defined as the ability of a water system to supply water based on the capacity of system facilities at the water source. This is differentiated from the capacity of the water source itself. Water system facilities include well and booster pumps, stream diversion structures, transmission mains, and storage reservoirs. A detailed capacity analysis of a water system that considers all system facilities is typically conducted at the master plan level. For the purpose of comparing water system capacity to demand in this SWPP, the water system facility capacity (hereafter called "system facility capacity") is approximated as the capacity of the well pumps and/or stream diversion structures supplying the water system.

2.3.2 Determine the System Facility Capacity

Water systems can be supplied by a single a single source (groundwater well, stream diversion) or a combination of multiple sources. The system facility capacity was calculated based on the facilities at its source(s):

1) For water systems served by a single groundwater well, the system facility capacity was based on a well pump operating 16 hours a day, allowing for 8 hours of down time per day. The system facility capacity is therefore calculated by multiplying the well pump capacity by a factor of 16 hours divided by 24 hours per day, or two-thirds of the well pump capacity.
2) For water systems served by a single stream diversion, the system facility capacity was based on the design stream diversion capacity, if available.
3) For water systems served by multiple groundwater wells, the cumulative system facility capacity was based on the cumulative well pump capacities with well pumps operating 16 hours a day and the largest well pump on stand-by.
4) For water systems served by multiple stream diversions, the system facility capacity was based on the cumulative design stream diversion capacities, if available.
5) If the design stream diversion capacity was not known, the average intake capacity was used as the water system facility capacity.
6) For water systems supplied by stream diversions with no information concerning the stream diversion capacity, the evaluation of system facility capacity adequacy could not be performed.
7) For water systems served by a County or private source, whether groundwater well(s) and/or stream diversion(s), the system facility capacity was based on the capacity of the first booster pump station downstream of the connection to the source water system. Booster pump capacity was determined using the methodology described in 1) or 3) above, depending on the number of pumps.

The calculations described in items 1) and 3) above were based on a conservative interpretation of the Water System Standards (WSS) criteria for determining pump capacity.

2.3.3 Determine the Existing Average Day and Maximum Day Demand

For each State water system, existing consumption data was obtained from the respective State agencies, if available. Alternatively, records from the DOH SDWB Sanitary Surveys were also used as applicable. The CWRM also provided reported water use data for certain water systems. The maximum day demand was then calculated by multiplying the average day demand by a demand factor of 1.5 in accordance with the WSS. Principal use(s) of the water was also identified.

Existing Maximum Day Demand **=** Existing Average Day Demand **x** 1.5

2.3.4 Determine Surplus System Facility Capacity

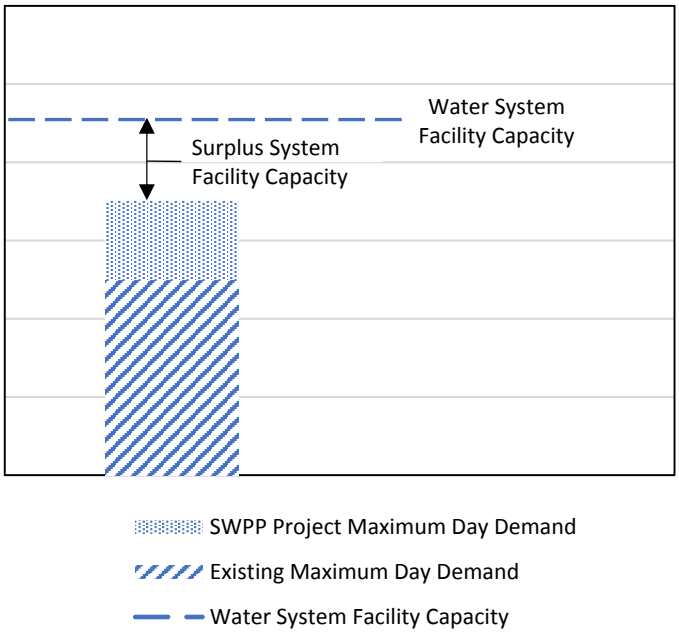
A comparison of the system facility capacity to the existing maximum day demand was performed to evaluate the adequacy of the existing water system. The WSS identifies the ability to meet maximum day demands as a criterion for assessing pump capacity. Water systems where system facility capacity was greater than existing maximum day demand were identified as water systems with surplus system facility capacity.

Surplus System Facility Capacity **=** System Facility Capacity **-** Existing Maximum Day Demand

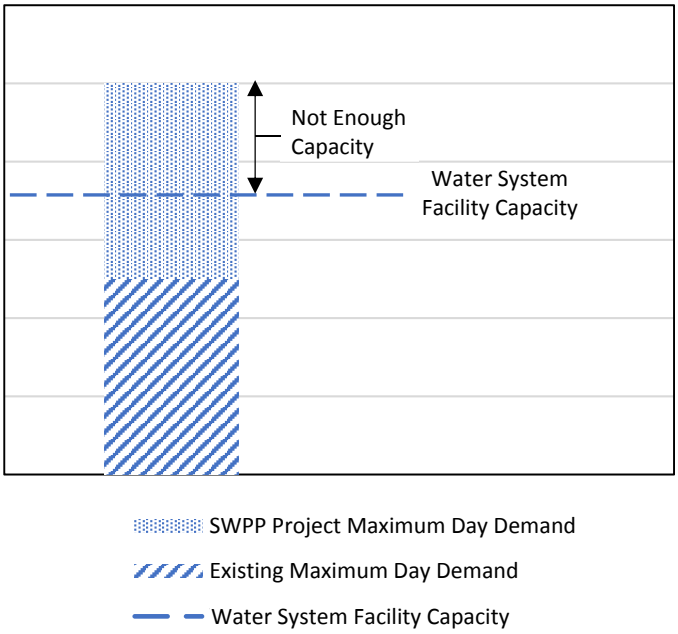
The surplus system facility capacity can then be compared to the maximum day demand required by all SWPP projects in the water system service area to determine if the water system has adequate capacity to meet future demand conditions.

SWPP Project Maximum Day Demand **=** SWPP Project Average Day Demand **x** 1.5

If Surplus System Facility Capacity ≥ SWPP Project Maximum Day Demand, then water system has capacity to meet future demand conditions



If Surplus System Facility Capacity < SWPP Project Maximum Day Demand, then water system may not have capacity to meet future demand conditions



The water systems, existing maximum day demands, and surplus system facility capacities (if available) are summarized in **Table 2-2**.

Table 2-2 – State Water Systems with Surplus System Facility Capacity

Water System Name	State Agency	System Facility Capacity (MGD)	Existing Max Day Demand (MGD)	Surplus System Facility Capacity (MGD)
Kekaha Ditch Irrigation System	ADC	0.816	0	0.816
Kahuku Irrigation System	DOA	2.688	0.098	2.590
Waiāhole Water System	DBEDT	0.883	0.114	0.769
Natural Energy Laboratory of Hawai‘i Authority (NELHA) Water System	DBEDT	N/A	N/R	N/A
Anahola Farm Lots Water System	DHHL	0.672	0.147	0.526
Ho‘olehua Water System	DHHL	0.576	0.635	0
Kawaihae Water System	DHHL	0.115	0.081	0.034
Pu‘ukapu Hybid Water System	DHHL	0.120	0	0.120
Hawai‘i State Hospital Water System	DOH	N/A	0.489	N/A
Waimano Ridge Water System	DOH	0.240	0.033	0.207
Hawai‘i Youth Correctional Facility Water System	DHS	N/A	N/R	N/A
Hā‘ena State Park Water System	DLNR	N/A	0.003	N/A
Kōke‘e State Park Water System	DLNR	0.029	0.063	0
Nāpali Coast State Wilderness Park Water System	DLNR	N/A	0.003	N/A
Polihale State Park Water System	DLNR	0.336	0.009	0.327
Wailua River State Park Water System	DLNR	0.019	0.012	0.007
Waimea Canyon State Park Water System	DLNR	0.029	0.012	0.017
Ahupua‘a ‘O Kahana State Park Water System	DLNR	N/A	0.012	N/A
Ka‘ena Point State Park – Keawaula Section Water System	DLNR	0.086	0.012	0.074
Keaīwa Heiau State Recreation Area Water System	DLNR	N/A	0.003	N/A
Pu‘u ‘Ualaka‘a State Wayside Water System	DLNR	N/A	0.002	N/A
Wa‘ahila Ridge State Recreation Area Water System	DLNR	N/A	0.003	N/A
Wai‘alalā State Park Water System	DLNR	N/A	0.005	N/A

Table 2-2 – State Water Systems with Surplus System Facility Capacity (Continued)

Water System Name	State Agency	System Facility Capacity (MGD)	Existing Max Day Demand (MGD)	Surplus System Facility Capacity (MGD)
ʻĪao Valley State Monument Water System	DLNR	N/A	N/R	N/A
Kaumahina State Wayside Water System	DLNR	N/A	0.012	N/A
Polipoli Springs State Recreation Area Water System	DLNR	N/A	0.003	N/A
Puaʻa Kaʻa State Wayside Water System	DLNR	N/A	0.009	N/A
Hāpuna Beach State Recreation Area Water System	DLNR	0.336	0.042	0.294
Waiawa Correctional Facility Water System	DPS	0.050	0.075	0
Kulani Correctional Facility Water System	DPS	0.140	0.041	0.100
Dillingham Airfield Water System	DOT	0.480	0.198	0.282
Waialeʻe Livestock Experiment Station Water System	UH	0.211	0.035	0.177

N/A – Not available; not enough information was provided to determine the system facility capacity and surplus system facility capacity.
N/R – Not reported; demand was not provided.

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CHAPTER 3 SWPP PROJECT WATER DEMAND

3.1 GENERAL

The State, in its effort to satisfy the many needs of the public, has numerous projects scheduled for implementation by the various State departments. In order to assess the impacts on future water requirements associated with these proposed State projects, an inventory of State projects requiring water was compiled. State departments were contacted and asked to provide information on their proposed future projects along with associated project schedules. The collected data was reviewed, compiled, and sorted to obtain a comprehensive list of future State projects. This data was used as the basis for water resource planning, water system improvements and source development. In general, projects involving new housing developments, agriculture/irrigation projects, major facilities or major expansions were considered as having significant impact on water resources.

3.2 METHODOLOGY OF SWPP PROJECT WATER DEMAND

3.2.1 Evaluation of SWPP Project Information

The status and stage of development of State projects varied; therefore, the level of detail of information submitted during the survey process also varied. The majority of the projects were in the planning stage and some projects were in the engineering stage. Project information in the planning stage generally remained conceptual and schematic, with unit counts or areas grossly estimated. Information for some projects later in the planning stage was based on reports such as master plans, Environmental Impact Statements or water servicing studies. Project information in the engineering stage was typically prepared by a consultant with no details provided on the design.

Project information received through the SWPP survey forms were reviewed for completeness and accuracy. Generally, SWPP project water demand calculations were made to conform to Water System Standards domestic consumption guidelines (**Table 3-1**) to determine average day water demands. The use of standard guidelines to compute water demands allows consistency of SWPP project water demands among all State departments and other components of the Hawai‘i Water Plan.

3.2.2 Calculation of SWPP Project Water Demand

SWPP project water demands were calculated using the following methodology:

1) Demands for projects that conform to the Water System Standards Land Use Types were based on project units or areas, then multiplied by the standard unit rates (refer to **Table 3-1**) to determine the average day demand.

2) Other references and assumptions to determine unit rates and method of demand calculations were used for projects that do not conform to Water System Standard Land Use Types (see **Table 3-1**). For many new development projects, either an engineering consultant determined

the SWPP project water demand or an existing demand from a similar project was used to estimate SWPP project water demand. For many projects involving expansions, the existing demand was used to estimate SWPP project water demand.

3) The average day demand was provided by the State Department with no explanation of the methodology used to develop the demand.

3.2.2.1 Non-Standard Guidelines and Methods

The following guidelines and methods were provided by the State agencies to calculate and verify SWPP project water demand for projects with land use types not specified in the Water System Standards:

1) New Medium Security Housing (for Correctional Facilities): Determine the number of beds, and then multiply by 75 gallons per bed to determine SWPP project water demand.

2) New Public Library: Determine the library footprint, then multiply by 3,400 gallons per acre to determine SWPP project water demand.

3) New Hawai‘i State Hospital Patient Facility: Determine the number of beds, then multiply by 375 gallons per bed to determine SWPP project water demand.

4) Highway Landscaping: Determine the acreage of the landscaping and then multiply by 6,000 gallons per acre to determine SWPP project water demand. The basis on the unit rate was not provided.

5) Kona Airport Office Building: Determine the projected increase in employees and multiply by 25 gallons per employee to determine SWPP project water demand.

6) Liliha Civic Center: Determine the projected increase in employees and multiply by 30 gallons per employee to determine SWPP project water demand.

7) DHHL Land Use Designations: For agricultural, pastoral and lo‘i kalo land use designations, determine the project area, then multiply by the respective unit rate determined in the 2017 DHHL SWPP to determine the non-potable water demand.

Table 3-1 – Domestic Consumption Guidelines Average Daily Demand*				
ZONING DESIGNATION	HAWAI'I	KAUA'I	MAUI	O'AHU
RESIDENTIAL				
Single Family or Duplex	400 gal/unit	500 gal/unit	600 gal/unit or 3,000 gal/acre	500 gal/unit or 2,500 gal/acre
Multi-Family Low Rise	400 gal/unit	350 gal/unit	560 gal/unit or 5,000 gal/acre	400 gal/unit or 4,000 gal/acre
Multi-Family High Rise	400 gal/unit	350 gal/unit	560 gal/unit	300 gal/unit
COMMERCIAL				
Commercial Only	3,000 gal/acre	3,000 gal/acre	6,000 gal/acre	3,000 gal/acre
Commercial/Industrial Mix	--	5,000 gal/acre	140 gal/1,000 sq. ft.	100 gal/1,000 sq. ft.
Commercial/Residential Mix	--	3,000 gal/acre	140 gal/1,000 sq. ft.	120 gal/1,000 sq. ft.
RESORT (to include hotel for Maui only)	400 gal/unit (1)	350 gal/unit	350 gal/unit or 17,000 gal/acre	350 gal/unit or 4,000 gal/acre
LIGHT INDUSTRY	4,000 gal/acre	4,000 gal/acre	6,000 gal/acre	4,000 gal/acre
SCHOOLS, PARKS	4,000 gal/acre or 60 gal/student	4,000 gal/acre or 60 gal/student	1,700 gal/acre or 60 gal/student	4,000 gal/acre or 60 gal/student
AGRICULTURE		2,500 gal/acre	5,000 gal/acre	4,000 gal/acre

*Where two or more figures are listed for the same zoning, the daily demand resulting in higher consumption use shall govern the design unless specified otherwise.

(1) Subject to special review and control by the Manager.

Note: **Table 3-1** is taken from Table 100-18, Domestic Consumption Guideline Average Daily Demand, Water System Standards, State of Hawai'i, 2002, as amended. The O'ahu residential domestic consumption guidelines are in the process of being updated by BWS.

3.3 SWPP PROJECT WATER DEMAND BY STATE DEPARTMENT

The various State projects with their associated water demands are summarized in tabular form separated by State Department in **Appendix F** (potable) and **Appendix G** (non-potable). As discussed, the water requirements were assessed over a 20-year planning horizon, in one-year increments for the period between 2015 and 2019, then in five-year increments between the years 2019 to 2034. The data is represented as cumulative water demands for each year in the SWPP timeline.

The total SWPP project water demands for each State department are summarized in **Table 3-2** and **Table 3-3** provided at the end of Section 3.3. General descriptions of SWPP projects proposed by the State departments, water demand calculation methodology, schedules and status of projects are detailed below.

3.3.1 Department of Accounting and General Services

The Department of Accounting and General Services (DAGS) is responsible for the management and supervision of a wide range of State programs and activities. The DAGS Public Works Division, Planning Branch and Project Management Branch were contacted to obtain project information. The Public Works Division plans and organizes a variety of engineering and architectural services for the State including land acquisition, planning, and managing construction projects for State agencies.

In addition to their own projects, DAGS also manages projects owned by different State agencies. For the purposes of the SWPP, if the project is an active project that is currently being managed by DAGS, then the project was submitted by DAGS. However, if the project is a part of a long-range plan, then it was submitted by the initiating State department.

Upon review of all DAGS submitted projects, the only DAGS-owned project was the Liliha Civic Center project, and is part of a long-range plan. The SWPP project water demands for the Liliha Civic Center was calculated based on a unit rate provided by DAGS of 30 gallons/employee/day and is scheduled in the latter half of the SWPP planning period. All other projects submitted by DAGS were on behalf of other State agencies and include public libraries, correctional facility expansions and housing, and judiciary centers.

3.3.2 Department of Agriculture

The Department of Agriculture (DOA) is tasked with ensuring the viability of Hawai‘i’s diversified agriculture industry. The DOA Agricultural Resource Management Division (ARMD) operates the State’s Agricultural Park Program, which consists of 10 agricultural parks and provides farmers with reasonably priced farm land and irrigation water to encourage competition within the farming industry. The Agribusiness Development Corporation (ADC) is administratively attached to DOA and was established in 1994 to facilitate and provide direction for the transition from the production of pineapple and sugar to that of diversified agriculture crops.

The ARMD and ADC irrigation system field operators were contacted for project information. EKNA Services, Incorporated also provided project information as they are the consultant to DOA for the AWUDP update. DOA has three proposed projects involving irrigation improvements and agricultural park expansions that will require non-potable water. The project timelines vary throughout the entire 20-year planning period.

3.3.3 Department of Business, Economic Development & Tourism

The Department of Business, Economic Development and Tourism (DBEDT) is Hawai‘i’s resource center for economic and statistical data, business development opportunities, energy and conservation information, and foreign trade advantages.

3.3.3.1 Hawai‘i Community Development Authority

DBEDT is partnered with the Hawai‘i Community Development Authority (HCDA), which was created in 1976 as a way to plan for the future development of under-utilized urban areas in Hawai‘i, called “Community Development Districts.” Once redeveloped, these districts could potentially provide great economic opportunities to the State. The newly redeveloped Kaka‘ako area was HCDA’s first Community Development District. Three projects in Kaka‘ako have been proposed. Water demands were calculated using the Water System Standards and are scheduled for the latter half of the planning period.

3.3.3.2 Hawai‘i Housing Finance and Development Corporation

The Hawai‘i Housing Finance and Development Corporation (HHFDC) is an agency attached to the DBEDT that is tasked with developing and financing affordable housing projects for low- and moderate-income families. HHFDC has proposed two projects; Villages of Leali‘i in Lahaina, Maui, and Kamakana Villages in Keauhou, Hawai‘i. Project water demands were calculated using the Water System Standards and are scheduled throughout the entire planning period.

3.3.3.3 Natural Energy Laboratory of Hawai‘i Authority

The Natural Energy Laboratory of Hawai‘i Authority (NELHA) is also an attached agency that provides resources and facilities for energy and ocean related research, education, and commercial activities. NELHA has three sets of pipelines that delivers sea water from depths up to 3,000 feet to its tenants for their use in aquaculture, marine biotechnology, commercial and research purposes. NELHA submitted information regarding their ongoing expansion that is expected to continue throughout the entire 20-year planning period. The project demand methodology was not provided.

3.3.4 Department of Defense

The mission of the Department of Defense (DOD) is to assist authorities in providing for the safety, welfare, and defense of the people of Hawai‘i. The DOD Engineering Office was contacted to obtain project information. The DOD has three proposed projects in the Hawai‘i Army National Guard Division (HIARNG), which include the Kalaeloa Brigade Readiness Center, Kalaeloa Army

Aviation Support Facilities (AASF), and the Kalaeloa B117 Combined Support Maintenance Shop. The project water demands were based on the existing peak demand and the project timelines vary throughout the planning period.

3.3.5 Department of Education

The Department of Education (DOE) is comprised of 256 public schools and 34 charter schools for the children of Hawai‘i to attend. Personnel from the DOE Facilities Development Branch were contacted for project information. The DOE is proposing over 180 projects on Kaua‘i, O‘ahu, Moloka‘i, Maui, and Hawai‘i. The majority of the projects are at the planning level; however, some of the projects are in the engineering design phase. Proposed projects include new schools, expansions to existing schools, and various support facilities such as libraries, cafeterias, and administration buildings. SWPP project water demands for new schools were provided to DOE by a consultant. SWPP project water demands for the remainder of the projects were based on existing demands. Project timelines vary throughout the planning period .

3.3.6 Department of Hawaiian Home Lands

The function of the Department of Hawaiian Home Lands (DHHL) is to serve native Hawaiians and to administer its land trust throughout the State. The DHHL Planning Office, Land Development Division, and the Land Management Division were consulted for the 2017 DHHL SWPP update. Project types include development of new residential subdivisions and associated community facilities, agricultural homestead subdivisions, new commercial or industrial-commercial mixed-use areas, and general agricultural use areas. DHHL project demands were generally calculated using the Water System Standards. Agricultural non-potable demands were calculated using a unit rate of 3,400 gallons/acre/day from the 2004 AWUDP update. Non-potable demands for lo‘i kalo and pastoral land use areas were calculated using specific rates as described in the 2017 DHHL SWPP Report. Project timelines vary throughout the SWPP planning period.

3.3.7 Department of Health

The Department of Health’s (DOH) mission is to protect and improve the health and environment for all of the people in Hawai‘i. The DOH Capital Improvements Coordinator was contacted for the project information. The DOH submitted two projects involving relocation of existing facilities to Pearl City – the Hālawa Vector Control Facility and the Uluakupu Building Interior Renovation. These two projects were scheduled within the first year of the planning period. SWPP project water demands were calculated using the Water System Standards. The DOH also submitted another project, the Hawai‘i State Hospital Patient Facility, under DAGS. Project demands were estimated using a rate of 375 gallons per bed and is scheduled in the latter half of the planning period.

3.3.8 Department of Human Services

The Department of Human Services’ (DHS) Hawai‘i Public Housing Authority (HPHA) and Office of Youth Services were contacted for project information. The HPHA helps to provide low- and moderate-income housing and shelter without discrimination. The HPHA is planning

three projects – Mayor Wright Homes redevelopment, Kūhiō Park Terrace redevelopment, and HPHA School Street Campus redevelopment, all on Oʻahu. SWPP project water demands for all three projects were calculated using the Water System Standards. The project schedules are based on the need for Master Plans and/or Environmental Impact Statements. The Office of Youth Services currently does not have any projects within the planning timeline.

3.3.9 Judiciary

The Judiciary operates the State's court system. The Judiciary Capital Improvements Coordinator was contacted for project information. The Judiciary is planning four projects - the Maui Judiciary Complex, Oʻahu Judiciary Proxy, the Kona Judiciary Complex, and the Judiciary Multi-Use and HHFDC Housing Joint Development. The latter two projects were submitted by DAGS. The SWPP project water demands for the Kona Judiciary Complex and the Judiciary Multi-Use projects were provided by a consultant. The water demands for the Maui Judiciary Complex and the Oʻahu Judiciary Proxy were grossly extrapolated from a similar project, the Kona Judiciary Complex. Project timelines vary throughout the planning period.

3.3.10 Department of Land and Natural Resources

The various divisions and branches within the Department of Land and Natural Resources (DLNR) were contacted for future projects requiring water. The four divisions responding with projects were the Division of Forestry and Wildlife (DOFAW), Division of State Parks, Engineering Division, and Land Division. The Division of Aquatic Resources and Division of Boating and Ocean Recreation had no projects to report within the planning timeline.

3.3.10.1 Division of Forestry and Wildlife

DOFAW is responsible for the management of State-owned forests, natural areas, public hunting areas, and plant and wildlife sanctuaries. DOFAW is planning three projects, all involving the expansion of facility baseyards. The West Kauaʻi Field Operations Facility and the Pūlehunui Baseyard were in the preliminary/planning stage and the Kawainui Baseyard was in the design phase at the time of submittal. The West Kauaʻi Field Operations Facility project will be managed by the Engineering Division and the SWPP project water demand methodology was not specified.

3.3.10.2 Division of State Parks

The Division of State Parks manages 52 state parks. State Parks is proposing improvements to two existing parks – the Kealakekua Bay State Historic Park and the Mālaekahana State Recreation Area (SRA), with the latter being managed by the Engineering Division. SWPP project water demands for the Kealakekua Bay State Historic Park were calculated based on a landscape irrigation rate of 1.25 inches/week and is in the planning stage. SWPP project water demands for the Mālaekahana SRA are based on the existing demand.

3.3.10.3 Engineering Division

The Engineering Division provides engineering services and technical assistance to other Departmental divisions and State agencies. The Engineering division is proposing one project, the DLNR Community Center & Administration Facility in addition to the two projects that they are managing. The SWPP project water demands for the Community Center & Administration Facility were based on fixture units and is scheduled within the next two years.

3.3.10.4 Land Division

The Land Division manages the State-owned lands across the State of Hawai‘i. The Land division is proposing two projects – the DLNR Industrial and Business Park in Maui and the DLNR East Kapolei Lands project. The SWPP project water demands for the park were taken from an Infrastructure Mater Plan and the water demands for the East Kapolei Lands project were taken from an Infrastructure Study prepared for the project. The project are scheduled for the latter half of the planning period.

3.3.11 Department of Public Safety

The Department of Public Safety (DPS) is in charge of providing correctional and law enforcement services to Hawai‘i. All of the DPS projects were submitted by DAGS and include the relocation and expansion of the O‘ahu Community Correctional Center (OCCC) and new housing, and improvements for the Hawai‘i, Kaua‘i, and Maui Community Correctional Centers. The SWPP project water demands for the correctional facility new medium security housing projects were calculated based on a unit rate of 75 gpd/bed. The project demand for OCCC was based on existing demand. The project timelines vary throughout the SWPP planning period.

3.3.12 Department of Transportation

The Department of Transportation (DOT) is responsible for all State-owned transportation facilities involving airports, harbors, and highways. Accordingly, its operations are subdivided into three divisions. The Statewide Transportation Planning Office was contacted for project information and to coordinate the project information between all three divisions.

3.3.12.1 Airports Division

The Airports Division (DOT-AIR) operates and maintains fifteen (15) commercial and general aviation airports across the State. DOT-AIR is proposing nine projects including airport expansions at the Daniel K. Inouye International Airport, Kalaeloa Airport, and Kona Airport, and new Consolidated Rental Car Facilities (CONRAC) for the Daniel K. Inouye International Airport, Līhu‘e Airport, and Kahului Airport. The SWPP project water demand methodology was not provided and the project timelines vary throughout the SWPP planning period.

3.3.12.2 Harbors Division

The Harbors Division (DOT-HAR) manages the ten (10) commercial harbors that facilitate operations of commercial cargo, passenger, fishing, and other commercial maritime-related services. DOT-HAR is proposing fifteen (15) projects across the state including pier extensions, cargo yards, fuel terminals, and new offices. Half of the SWPP project water demands were calculated using the Water System Standards. The project demand methodology was not provided for the other half of the project demands. Some projects are at a conceptual level and their timelines vary throughout the planning period.

3.3.12.3 Highways Division

The Highways Division (DOT-HWY) manages approximately 2,433 lane miles of paved freeways, highways, and roadways on six of Hawai‘i’s main islands. DOT-HWY reported three (3) projects – Lahaina Bypass, Hāna Highway Pā‘ia Bypass, and Saddle Road Baseyard. The SWPP project water demands for the bypass projects were calculated using a landscaping irrigation rate of 6,000 gallons per acre. The SWPP project water demands for the baseyard was calculated using the Water System Standards. Projects are scheduled within the next five years.

Water requirements for these projects are generally associated with landscaping of roadside or median areas. Although drought-tolerant plant materials are typically used, irrigation is required to initially establish the landscaping. Discussions with DOT-HWY staff revealed that most permanent irrigation systems are not regularly maintained and thus cease functioning within a few years.

3.3.13 Office of Hawaiian Affairs

The Office of Hawaiian Affairs (OHA) was established in 1978 to enhance the well-being of Native Hawaiians by providing resources and distributing funds from revenues of ceded state lands. OHA also manages more than 27,000 acres of land that is set aside largely for cultural and agricultural endeavors. The OHA Land Management Division was contacted for project information. Proposed projects include development at Kaka‘ako Makai, and improvements at various cultural sites. The SWPP project water demand methodology was not provided and the projects timelines vary throughout the planning period.

3.3.14 University of Hawai‘i

The University of Hawai‘i (UH) encompasses 10 campuses across the State including UH Mānoa, UH West O‘ahu, UH Hilo, and Community Colleges. UH is the public system of higher education in Hawai‘i with an enrollment of more than 55,000 students. Each campus’ facilities planning coordinator was contacted for project information including the Director of Facilities and Environmental Health for UH Community Colleges, the Director of Campus Operations and Facilities for UH West O‘ahu, the Campus Planning Architect for UH Mānoa, and the Director of Facilities, Planning, and Construction for UH Hilo. Projects associated with the UH system include expansion and improvements to all of the UH campuses. The SWPP project water demands for the West O‘ahu and Hilo campuses were computed using the Water System

Standards. The SWPP project water demands for UH Mānoa were provided by a consultant for their Long-Range Master Plan. The SWPP project water demand methodology was not provided for the community colleges' projects.

3.3.15 Other State Departments

As part of the SWPP survey, all State agencies were contacted and asked to report future projects requiring water; however, several departments did not have any projects to report at the time. Those departments included:

1) Department of the Attorney General
2) Department of Budget and Finance
3) Department of Commerce and Consumer Affairs
4) Department of Human Resources Development
5) Department of Labor and Industrial Relations
6) Department of Taxation

Table 3-2 – Total SWPP Potable Water Demands by State Department

State Department	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
DAGS	0	0	0.0075	0.0535	0.0681	0.5929	0.9225	0.9225
DOA	0	0	0	0	0	0	0	0
DBEDT	0	0	0.1251	0.1752	0.5109	1.9038	2.7977	3.6208
DOD	0.0070	0.0095	0.0095	0.0100	0.0100	0.0105	0.0105	0.0105
DOE	0	0	0	0.1000	0.1000	0.1763	1.2169	2.1570
DHHL	0.9039	5.3311	5.3311	5.3311	5.3311	8.4454	16.243	21.996
DOH	0	0.0190	0.0190	0.0190	0.0190	0.0190	0.0190	0.0190
DHS	0	0	0	0	0	0.3266	0.3946	0.3946
DLNR	0	0.0300	0.1600	0.1600	0.1637	0.8008	1.1071	1.4050
DOT	0	0.0235	0.0475	0.0929	0.1164	0.5434	0.8478	1.3788
Judiciary	0	0	0	0	0	0.0090	0.0090	0.0156
OHA	0	0.0045	0.0071	0.0107	0.0133	0.0595	0.0855	0.3623
UH	0.0304	0.0635	0.0970	0.1369	0.1693	0.3992	0.6192	1.8651
Total State	**0.9414**	**5.4812**	**5.8039**	**6.0894**	**6.5019**	**13.286**	**24.273**	**34.147**

Table 3-3 – Total SWPP Non-Potable Water Demands by State Department

State Department	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
DAGS	0	0	0	0	0.3100	0.3100	0.3100	0.3100
DOA	0	4.1690	4.1690	4.1690	4.1690	4.1690	4.1690	6.6040
DBEDT	0	0	3.3625	6.7006	10.018	13.318	35.956	35.956
DOD	0.0010	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
DHHL	0.9214	39.288	39.288	39.288	39.288	53.982	75.806	103.73
OHA	0	0.0025	0.0035	0.0035	0.0050	1.0050	1.0050	1.0050
UH	0	0	0	0	0	0	0	0
Total State	**0.9224**	**43.461**	**46.824**	**50.162**	**53.791**	**73.079**	**117.60**	**148.57**

3.4 SWPP PROJECT WATER DEMAND BY ISLAND

The individual State projects and SWPP project water demands are provided in tabular form sorted first by island, then by State department in **Appendix H** (potable) and **Appendix I** (non-potable) and are summarized for each island in **Table 3-4** and **Table 3-5**. The data is represented as cumulative water demands for each year in the SWPP timeline.

Table 3-4 – Total SWPP Potable Water Demands by Island

Island	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
Kauaʻi	0.0255	0.3545	0.3620	0.3821	0.3842	1.0007	2.2971	3.1805
Oʻahu	0.6160	0.8266	0.9855	1.1160	1.1673	2.7770	8.1613	10.995
Maui	0	0.2594	0.2594	0.2597	0.2597	0.6623	1.0911	1.0911
Molokaʻi	0	0	0	0	0	0	0	0.0672
Lānaʻi	0	2.2134	2.2139	2.2552	2.4010	3.8993	5.9148	7.0064
Hawaiʻi	0.2999	1.8273	1.9831	2.0764	2.2898	4.9472	6.8083	11.807
Total State	**0.9414**	**5.4812**	**5.8039**	**6.0894**	**6.5019**	**13.286**	**24.273**	**34.147**

Table 3-5 – Total SWPP Non-Potable Water Demands by Island

Island	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
Kauaʻi	0.8194	29.966	29.966	29.966	29.966	31.298	33.556	34.833
Oʻahu	0.0010	5.9702	5.9712	5.9712	5.9712	6.9848	24.674	25.771
Molokaʻi	0	4.7207	4.7207	4.7207	4.7207	5.3599	6.0915	6.0915
Lānaʻi	0	0	0	0	0	0	0	0
Maui	0	1.8724	1.8724	1.8724	1.8739	11.695	11.737	13.872
Hawaiʻi	0.1020	0.9319	4.2944	7.6325	11.260	17.741	41.545	67.999
Total State	**0.9224**	**43.461**	**46.824**	**50.162**	**53.791**	**73.079**	**117.60**	**148.57**

3.5 SWPP PROJECT WATER DEMAND BY HYDROLOGICAL UNITS

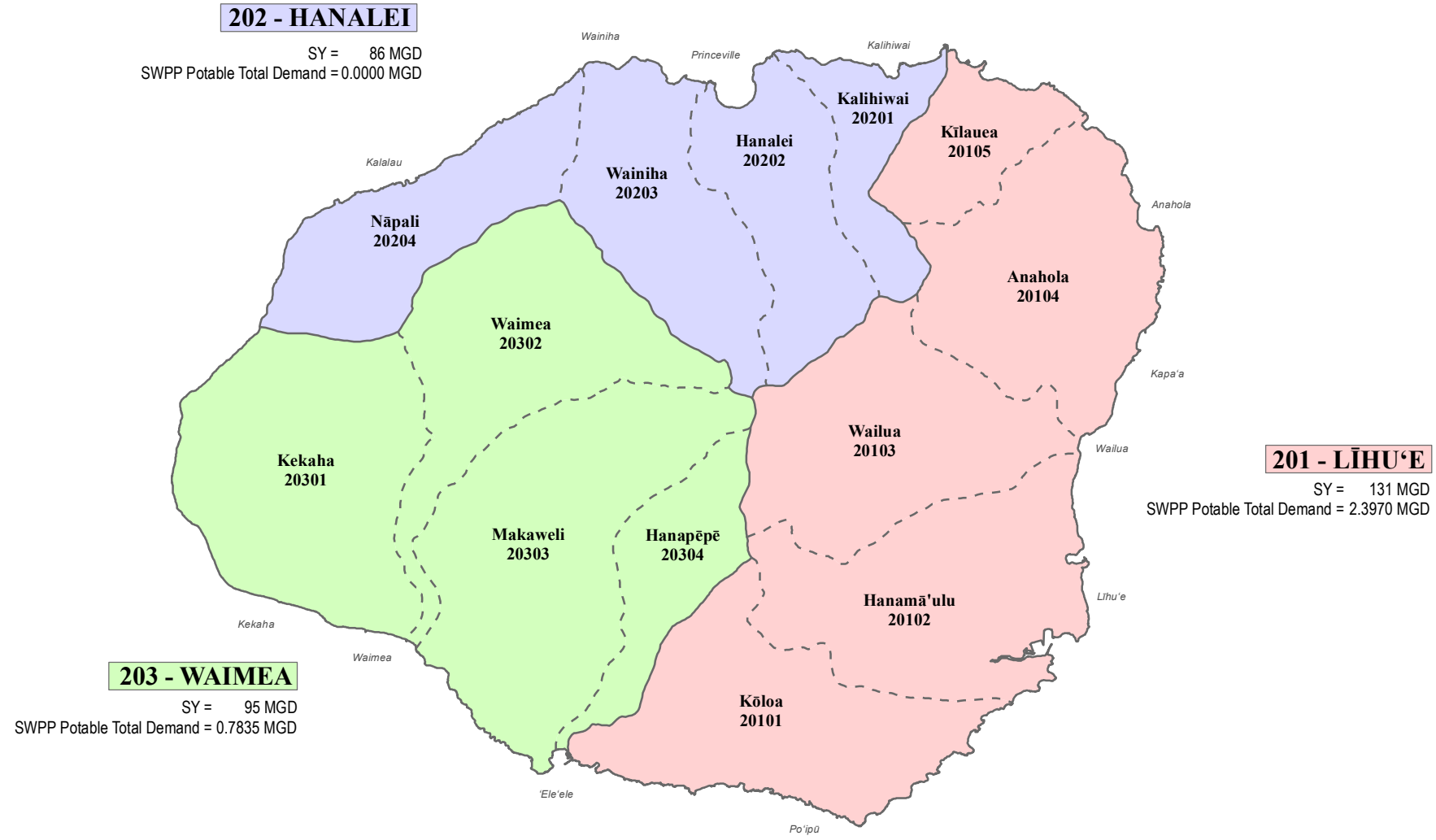
As outlined in the Code, the geographical boundaries for the development of regional plans coincide with the hydrological units established in the Water Resources Protection Plan. Figures showing the boundaries of the groundwater hydrologic sectors and aquifer systems for each island are provided in **Figures 3-1** through **3-6**.

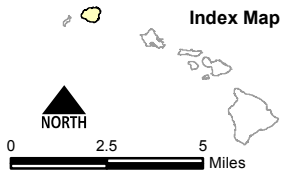
These hydrological maps identify the sustainable yields. Each individual SWPP project and associated water demand was assigned to a Hydrologic Unit based on end use location. For a limited number of DHHL and DOA projects where the specific source was known, the water demand was assigned to a Hydrologic Unit based on source location. The SWPP projects and water demands are summarized in tabular form and separated by Hydrologic Unit in **Appendix J** (potable) and **Appendix K** (non-potable). Each island chapter includes a table summarizing sustainable yields and SWPP project 2034 potable water demands for each aquifer sector and system. These tables provide an overview of future State water requirements in relation with available sustainable yields. Each island chapter also includes a table that summarizes the surface

water declared use and SWPP project 2034 non-potable water demands for each surface water hydrologic unit. Note that surface water hydrologic units in which there is no declared use and no projected demand are not shown in the table. Surface water declared use is based on the Commission on Water Resources Management's (CWRM) declaration files. The CWRM describes their surface water program as:

> In order to develop an inventory of water use across the State, §174C-26 of the Hawai'i Revised Statutes and §13-168-5 of the Hawai'i Administrative Rules require anyone making a use of water from a well or stream diversion to file a declaration of use of water within one year of the effective date of the rule (May 27, 1988). Among other things, the declaration forms requested information on monthly water use for the prior five year period. Due to the historic and current lack of meters or stream flow gages, the declared uses are considered the best surrogate for estimating the amount of flow in streams.
>
> The Commission began implementing its declaration of water use program in 1988, which resulted in the filing of approximately 7,370 declaration forms by 2,580 declarants from across the state of Hawai'i. This included use from wells, streams, springs, and other non-consumptive uses of water. This process took approximately three years to complete. The Commission field verified declarations from O'ahu, Moloka'i, and parts of Maui, Kaua'i, Lāna'i and Hawai'i Island. Any new wells or stream diversions subsequent to this program require permits from the Commission.

It should be noted that the presentation of water demands in these tables does not imply that all SWPP project potable water demands are to be supplied by ground water or that all SWPP project non-potable water demands are to be supplied by surface water. Furthermore, it should be noted that the declared surface water use does not reflect the actual amount of surface water available. Also, because the majority of SWPP project demands are assigned to Hydrologic Units based on end use location, water transfer between units is not accounted for. Therefore, the values in these tables should not be taken as a rigid comparison of SWPP project water requirements and available source water, rather, should be utilized as a guide to identify areas on which to prioritize greater focus.





Legend

201 - LĪHU'E Hydrological Sector No.

Koloa 20101 Aquifer System No.

State Water Projects Plan Update - Statewide

Hydrologic Units - Kaua'i

FIGURE 3-1

Fukunaga & Associates, Inc., *Consulting Engineers*

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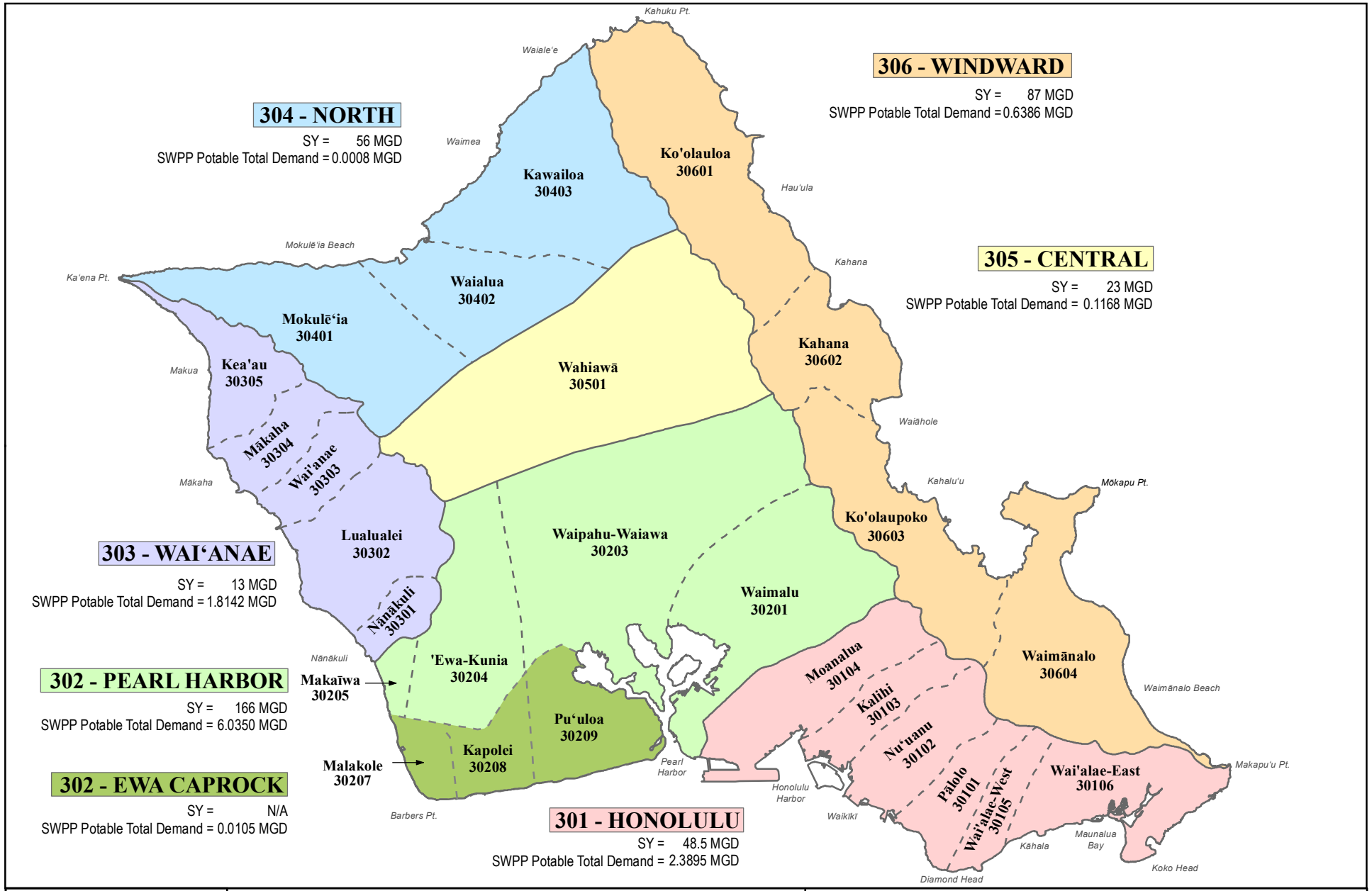


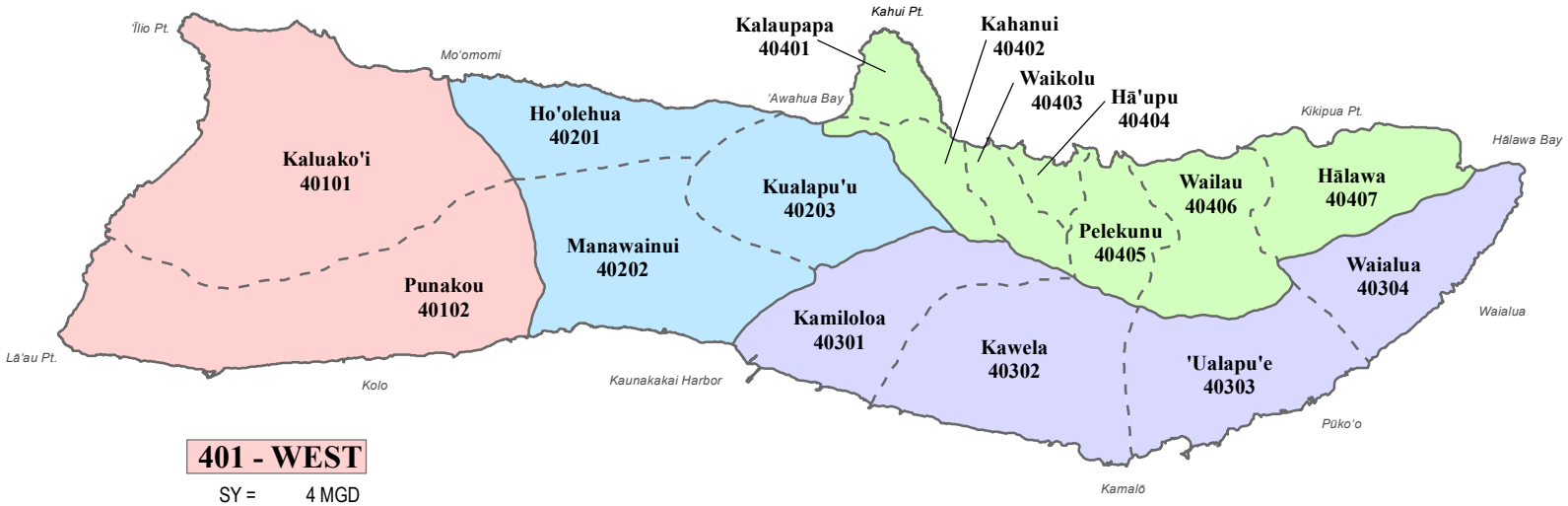
State Water Projects Plan Update - Statewide

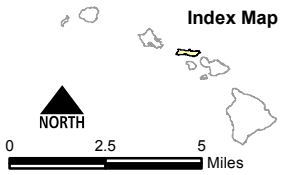
Hydrologic Units - O'ahu

FIGURE 3-2

Fukunaga & Associates, Inc., *Consulting Engineers*

JUNE 2020





Legend

401 - WEST — Hydrological Sector No.

Ho'olehua 40201 — Aquifer System No.

State Water Projects Plan Update - Statewide

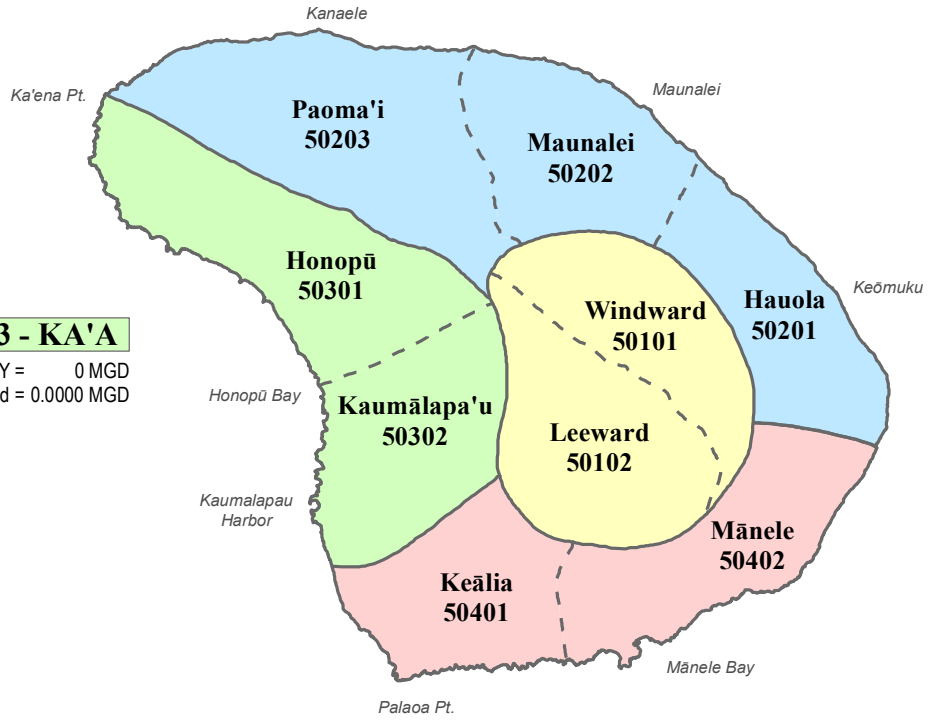
Hydrologic Units - Moloka'i

FIGURE 3-3

Fukunaga & Associates, Inc., *Consulting Engineers*

JUNE 2020

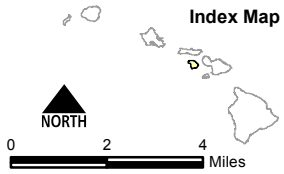
502 - MAHANA
SY = 0 MGD
SWPP Potable Total Demand = 0.0000 MGD



503 - KA'A
SY = 0 MGD
SWPP Potable Total Demand = 0.0000 MGD

501 - CENTRAL
SY = 6 MGD
SWPP Potable Total Demand = 0.0672 MGD

504 - KAMAO
SY = 0 MGD
SWPP Potable Total Demand = 0.0000 MGD



Legend

501 - CENTRAL — Hydrological Sector No.

Windward 50101 — Aquifer System No.

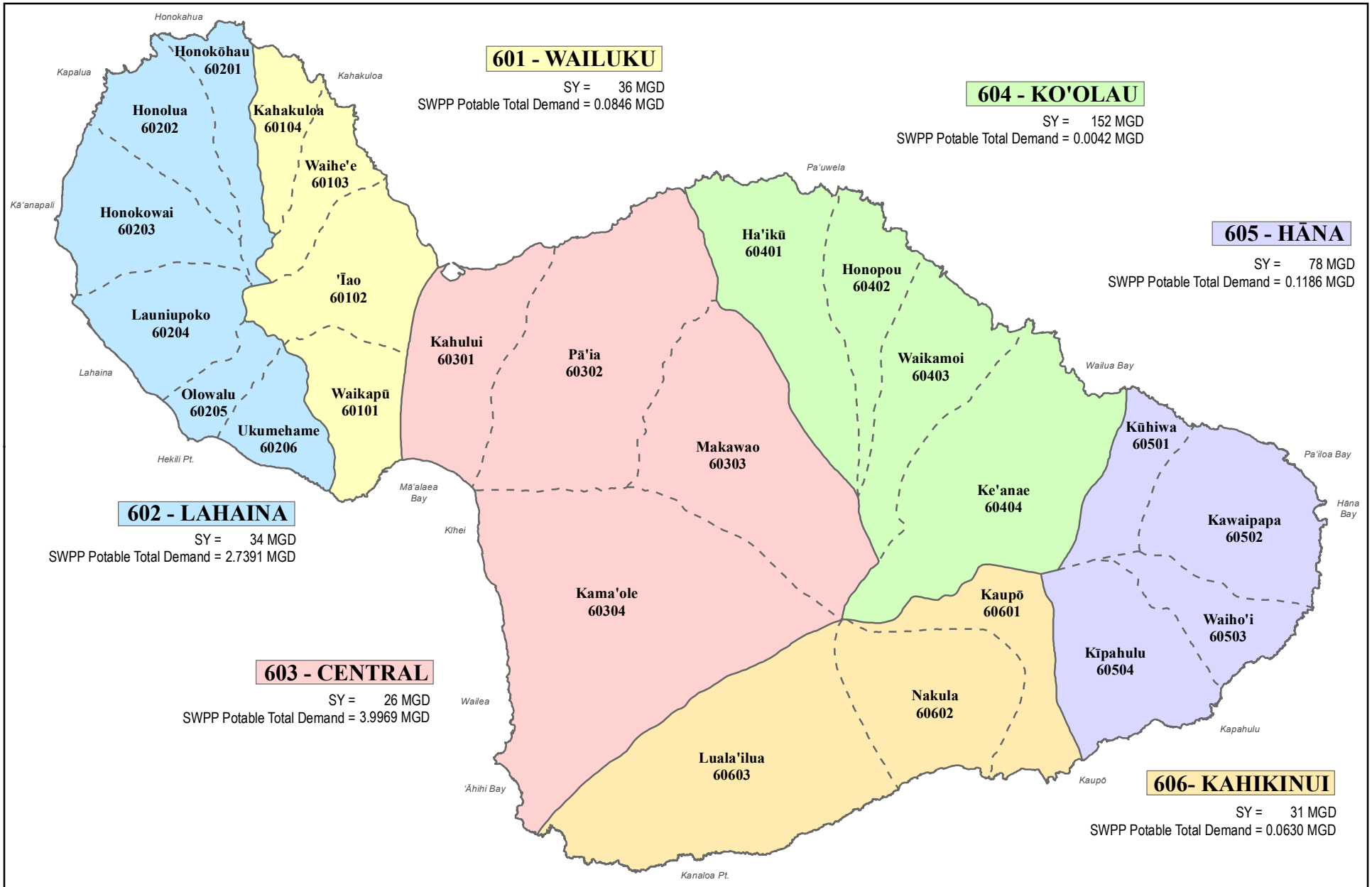
State Water Projects Plan Update - Statewide

Hydrologic Units - Lānaʻi

FIGURE 3-4

Fukunaga & Associates, Inc., *Consulting Engineers*

JUNE 2020



Index Map

NORTH

0 2.5 5 Miles

Legend

601 - WAILUKU — Hydrological Sector No.

Waikapū 60101 — Aquifer System No.

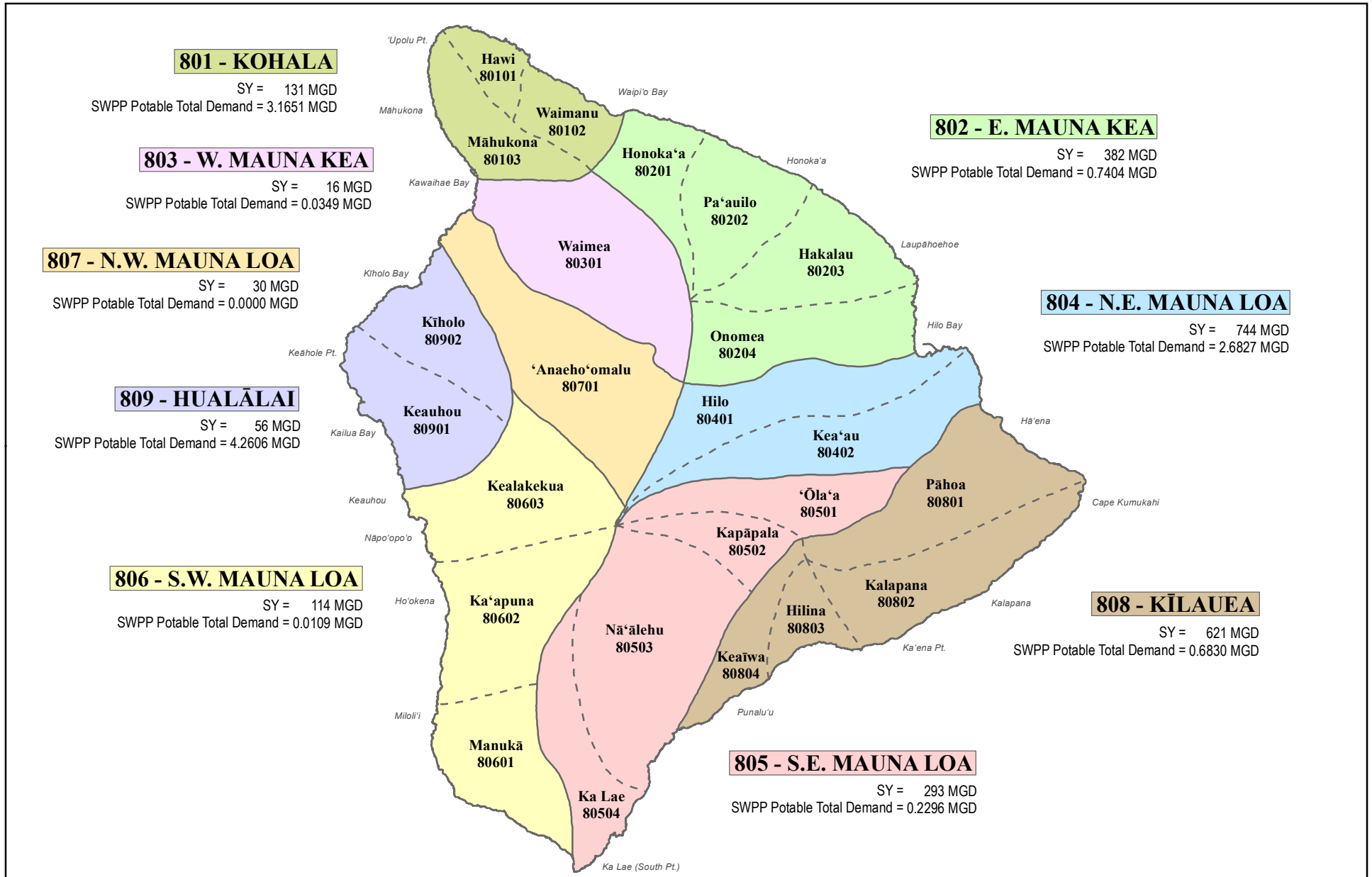
State Water Projects Plan Update - Statewide

Hydrologic Units - Maui

FIGURE 3-5

Fukunaga & Associates, Inc., *Consulting Engineers*

JUNE 2020



Index Map

NORTH

0 7.5 15 Miles

Legend

801 - KOHALA — Hydrological Sector No.

Hawi 80101 — Aquifer System No.

State Water Projects Plan Update - Statewide

Hydrologic Units - Hawai'i

FIGURE 3-6

Fukunaga & Associates, Inc., *Consulting Engineers*

JUNE 2020

3.6 ISSUES, CONCERNS AND UNCERTAINTIES RELATED TO SWPP PROJECT WATER DEMANDS

The issues, concerns and uncertainties raised in this section are based on discussions with departmental contacts, evaluation of SWPP survey data and calculation of SWPP project water demands. The comments and recommendations are provided for discussion purposes only and suggest ways of improving the gathering of more accurate SWPP data in the future.

Identifying and Maintaining Designated Points of Contact:

Coordination among the various divisions and branches within the departments should be improved. Establishment of an accountable/responsible point of contact within each agency is critical. Many agency points of contact changed throughout the data collection process, from the initial kickoff meeting to completing the survey packet. This hindered the consistent flow of information and extended the data collection phase. In addition, State project information is constantly changing. Projects are added, deleted and are chronologically shifted based on prioritization and available funding. Projects also change throughout the phasing process from conceptual level to design level and finally to construction. Although the "moving window" effect cannot be fully mitigated, efforts to maintain regular updates of State agency contacts and project information will help reduce some of the uncertainty.

Survey Forms:

The survey forms should be more user-friendly. Many agency contacts were unsure how to properly fill out the survey forms or did not understand what information needed to be provided and constantly sought assistance. In many instances, the agency forwarded Environmental Impact Statements, Environmental Assessments, Water Master Plans, or Master Plans for projects rather than filling out the survey forms.

The survey form format should be revisited. Microsoft Excel survey forms were provided to the agencies; however, several agencies submitted survey packets in PDF or hard-copy format. Moreover, the exchange of data between the survey forms and the Microsoft Access master database was difficult.

Guidelines for Calculating SWPP Project Water Demands:

The SWPP established guidelines for calculating projected water demand based on the nature of the project information provided. Generally, these guidelines were planning level unit rates, which are typically based on a limited range of land uses and are overly conservative. Actual water consumption can vary considerably from planning level estimates. Water project planning is a sequential process whereby initial estimates are typically near the higher end of the range and demands decrease with future iterations as more detail becomes available. Therefore, it is emphasized that project demands should be re-evaluated as more detailed and/or additional information becomes available.

3.7 RANGE OF SWPP WATER DEMANDS

The total SWPP project water demands were formulated into low, medium, and high demand scenarios, which will be used in the updating the other components in the Hawai‘i Water Plan to coordinate statewide source planning strategies. The medium forecast is composed from the SWPP project water demands that were reported by the State departments. The low range forecast was developed by reducing the base (medium forecast) demands by 20 percent and the high range forecast was determined by increasing the base demands by 20 percent, except for DHHL demands. The DHHL demand forecast ranges were determined based on land use areas in each tract. The methodology is explained in the 2017 DHHL SWPP. The 20 percent factor was selected as it is typically used as an uncertainty factor.

The low range forecast accounts for demand side management measures, savings from water conservation, conservatism within the Water System Standard unit rates and uncertainties with project funding, construction of projects, and project delays. The high range forecast provides a contingency to the medium demand forecast to account for future State projects or modifications to SWPP projects. See **Table 3-6** and **Table 3-7** for the range of demands.

Table 3-6 – Forecast Scenarios for Total SWPP Potable Water Demands – State

Scenario	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
Low	0.8569	4.9441	5.2022	5.4306	5.7607	11.448	21.517	30.517
Medium	0.9414	5.4812	5.8039	6.0894	6.5019	13.286	24.273	34.147
High	0.9999	6.3611	6.7483	7.0910	7.5860	15.581	27.330	38.118

Table 3-7 – Forecast Scenarios for Total SWPP Non-Potable Water Demands – State

Scenario	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
Low	0.5818	31.446	34.137	36.807	39.710	53.355	83.569	107.50
Medium	0.9224	43.461	46.824	50.162	53.791	73.079	117.60	148.57
High	1.7012	56.084	60.120	64.126	68.481	92.593	150.40	189.47

CHAPTER 4 WATER CONSERVATION PROGRAMS FOR STATE DEPARTMENTS

4.1 GENERAL

Water conservation for the State could play an important role in the management and budgeting of the State's water resources as it can be considered as a strategy to satisfy part of the demand for future projects. According to the United States Environmental Protection Agency (USEPA) Water Conservation Plan Guidelines, water conservation measures include, but are not limited to the following:

Level 1 Measures:

1) Universal Metering
2) Water Accounting and Loss Control
3) Costing and Pricing
4) Information and Education
5) Water Use Audits

Level 2 Measures:

1) Retrofits
2) Pressure Management
3) Landscape Efficiency

Level 3 Measures:

1) Replacement and Promotions
2) Reuse and Recycling
3) Water Use Regulation
4) Integrated Resource Management

4.2 USEPA CONSERVATION MEASURES

The following are brief descriptions of the USEPA conservation measures. For more details on each measure, refer to Appendix A of the USEPA Water Conservation Plan Guidelines, August 6, 1998.

4.2.1 Level 1 Measures

4.2.1.1 Universal Metering

Metering is important in managing and accounting of water supplies. Components of universal metering are as follows:

1) Source-water metering

2) Service-connection metering
3) Public-use water metering
4) Fixed-interval meter reading
5) Checking meter condition and accuracy
6) Meter testing, calibration, repair, and replacement

4.2.1.2 Water Accounting and Loss Control

A water accounting system can help to track water throughout a system, and identify areas that may require attention for problems such as large volumes of non-account water (metered but not billed, or unmetered). Components of water accounting and loss control are as follows:

1) Account for water
2) Repair of known leaks
3) Analysis of non-account water
4) System audit
5) Leak detection and repair strategy
6) Automated sensors/telemetry
7) Loss-prevention program

4.2.1.3 Costing and Pricing

Costing and pricing are considered conservation strategies because they involve an understanding the true value of water and conveying information about that value, through prices, to the water customers. Components of costing and pricing are as follows:

1) Cost-of-service accounting
2) User charges
3) Metered rates
4) Cost analysis
5) Non-promotional rates
6) Advanced pricing methods

4.2.1.4 Information and Education

The goal of information and education is to produce water savings when customers change their water-use habits. Components of information and education are as follows:

1) Understandable water bill
2) Information available
3) Informative water bill
4) Water bill inserts
5) School program
6) Public education program
7) Workshops
8) Advisory committee

4.2.2 Level 2 Measures

4.2.2.1 Water-Use Audits

An audit can provide valuable information on how the water is used, and how to reduce the usage through specific conservation measures. Components of water-use audits are as follows:

1) Audits of large-volume users
2) Large-landscape audits
3) Selective end-use audits

4.2.2.2 Retrofits

Retrofitting involves replacing existing fixtures with more efficient water-use fixtures. Components of retrofits are as follows:

1) Retrofit kits available
2) Distribution of retrofit kits
3) Targeted programs

4.2.2.3 Pressure Management

Reducing water pressure in the system can decrease items such as leakage, flow through fixtures, and stresses on pipes and joints, which may lead to leaks. Lower pressures can also decrease system deterioration, and end-use fixtures and appliances. Components of pressure management are as follows:

1) System wide pressure management
2) Pressure-reducing valves

4.2.2.4 Landscape Efficiency

Outdoor water usage can be a major component of daily consumption. Reducing the outdoor usage can be accomplished with the efficiency-oriented landscape principles listed below:

1) Promotion of landscape efficiency
2) Selective irrigation submetering
3) Landscape planning and renovation
4) Irrigation management

4.2.3 Level 3 Measures

4.2.3.1 Replacements and Promotions

Programs may be developed to encourage replacement of old fixtures with new water efficient fixtures and appliances. This can be accomplished with the following:

1) Rebates and incentives
2) Promotion of new technologies

4.2.3.2 Reuse and Recycling

This involves the use of recycled water for non-potable purposes, thus reducing the amount of potable water used in non-potable applications. These include the following:

1) Industrial applications
2) Large-volume irrigation applications
3) Selective residential applications

4.2.3.3 Water-Use Regulation

Regulations can be used to manage water use during droughts or other water-supply emergency situations, or to control and regulate new developments with regard to water conservation measures and practices. The components of water-use regulation are as follows:

1) Water-use standards and regulations
2) Requirements for new developments

4.2.3.4 Integrated Resource Management

Integrated resource management involves the management of water along with other resources, where water conservation can be jointly accomplished with the conservation of these other resources. This can be accomplished through two areas of technologies:

1) Supply-side technologies
2) Demand-side technologies

4.3 OTHER WATER CONSERVATION MEASURES

In addition to the guidelines issued by the USEPA, the following water conservation measures were included in the survey form to the State departments:

- Alternative Water Resource Enhancement Measures
    - Wastewater recycling
    - Rainwater catchment

  - Desalination
- Water Saving Components/Habits
  - Faucets (low-flow features, aeration devices)
  - Dishwashers (set to minimum low flow, wash full loads)
  - Garbage Disposals (set to minimum low flow)
  - Ice Machines (Taps to another chilled water system, relies on air cooling, produces ice flakes, adjusted to dispense appropriate quantity)
  - Laundry Facilities (wash full loads, rinse using reclaimed water, continuous batch option, utilize chemicals allowing fewer wash/rinse cycles)
- Maintenance Work
  - Fixtures checked regularly for leaks
  - Toilets checked for extended flush times
  - Valves to unneeded water fixtures are closed
  - Dry clean-up procedures are utilized when possible (sweeping, vacuuming, carpet cleaning powders, dry absorbents)

4.4 DESCRIPTION OF STATE WATER CONSERVATION PROGRAMS

During the SWPP survey, each department was asked to report any water conservation programs they may have, indicate the objectives of their water conservation program (if applicable), and to identify the specific measures used. A checklist of water conservation measures from the USEPA and other water conservation measures from Section 4.3 were included in the Water Conservation Program form in the survey packet, see **Appendix B**. Agencies were also given the option to report other water conservation measures that were not included in the survey form.

4.4.1 Inventory of Existing Water Conservation Programs

Only the Department of Defense reported having a department-wide water conservation program. However, a few departments and divisions reported some water conservation efforts in their responses to the survey, as described in the following section.

4.4.2 State Department Responses to Survey

Of the twenty (20) State departments surveyed, seven (7) provided responses to the water conservation portion of the survey. The response for each department is summarized below.

4.4.2.1 Department of Agriculture, Agricultural Resource Management Division

The Department of Agriculture, Agricultural Resource Management Division indicated the following objectives of their water conservation program:

1) Educate customers about the value of water
2) Improve the utilization and extend the life of existing facilities
3) Improve drought or emergency preparedness
4) Improve reliability, margins of safe and dependable yields

5) Protect and preserve environmental resources

The conservation measures that they are implementing include to achieve the objectives include the following:

1) Universal Metering: source-water metering, service-connection metering, meter public-use water metering, meter maintenance
2) Water Accounting and Loss Control: account for water, repair known leaks, automated sensors/technology
3) Costing and Pricing Strategies: user charges, metered rates, advanced pricing methods

4.4.2.2 Department of Business, Economic Development & Tourism, HCDA

The Hawai‘i Community Development Authority (HCDA) does not have a water conservation program.

4.4.2.3 Department of Business, Economic Development & Tourism, NELHA

The Natural Energy Laboratory of Hawai‘i Authority (NELHA) does not have a department-wide program. However, existing water conservation measures include:

1) Universal Metering: service-connection metering, meter public-use water metering, meter maintenance
2) Water Accounting and Loss Control: account for water, repair known leaks, leak detection and repair strategy
3) Costing and Pricing Strategies: cost-of-service accounting, user charges, metered rates
4) Information and Education: information available
5) Landscape Efficiency: promotion of landscape efficiency, selective irrigation submetering
6) Maintenance Work: valves to unneeded water fixtures are closed, dry clean-up procedures are utilized when possible

4.4.2.4 Department of Defense

The Department of Defense reported that their water conservation program is based on Federal Army National Guard guidance and requirements, Leadership in Energy and Environmental Design (LEED) construction, and State recommendations with the following objectives:

1) Reduce water demand and water usage
2) Substitute use of non-potable water for potable water
3) Improve the utilization and extend the life of existing facilities

In addition, conservation measures that they are currently implementing include:

1) Universal Metering: service-connection metering

2) Water Accounting and Loss Control: account for water, repair known leaks, loss prevention program
3) Costing and Pricing Strategies: user charges, metered rates, cost analysis
4) Information and Education: information available
5) Water Use Audits: Selective end-use audits
6) Retrofits: targeted programs
7) Pressure Management: selective use of pressure-reducing valves
8) Landscape Efficiency: promotion of landscape efficiency, landscape planning and renovation, selective irrigation submetering, irrigation management
9) Reuse and Recycling Applications: Heating, Ventilation, and Air Conditioning (HVAC) condensate water reclaimed for irrigation use
10) Water Use Regulation: water-use standards and regulations, requirements for new developments
11) Integrated Resource Management: demand-side technologies
12) Water Saving Components/Habits: faucets
13) Maintenance Work: fixtures checked regularly for leaks, toilets checked for extended flush times

4.4.2.5 Department of Land and Natural Resources, Division of Forestry and Wildlife

The Department of Land and Natural Resources (DLNR), Division of Forestry and Wildlife (DOFAW) has a Watershed Partnerships Program that helps coordinate statewide watershed protection efforts with the help of the Watershed Partnerships. Today, there are a total of ten (10) Watershed Partnerships. Each partnership is engaged in work that protects Hawai‘i’s forested watersheds to enhance water recharge and mauka to makai water resource connectivity. This work includes removing invasive plants and ungulates from areas with the highest recharge potential, fencing-in remote areas to protect intact native forests and to ensure the services they provide remain viable into the future, monitoring stream health and water quality, and more. Objectives of DOFAW’s Watershed Partnerships Program includes:

1) Educating customers about the value of water
2) Protecting and preserving environmental resources

Existing conservation measures also include:

1) Information and Education: education offered

By protecting the forests, we are protecting the “sponge” that allows rain, fog drop, and water to be captured and stored to replenish our aquifers and streams.

4.4.2.6 Judiciary

The Judiciary does not have a system-wide water conservation program. The Department of Accounting and General Services – Public Works Division is currently managing a Conditions Assessment system-wide. This evaluation includes a water use audit, which is expected to

generate a list of water conservation improvements that Judiciary can implement as capital becomes available.

4.4.2.7 Office of Hawaiian Affairs

The Office of Hawaiian Affairs (OHA) does not have a department-wide program. However, OHA is looking at using R-1 water for agriculture use to:

1) Lower variable operating costs
2) Avoid new source development costs
3) Protect and preserve environmental resources

4.4.2.8 Department of Hawaiian Home Lands

On July 22, 2014, the Hawaiian Homes Commission approved the Final Water Policy Plan, which contains policies and goals related to water conservation as follows:

Policy No. 10: Affirmatively consider the development and use of alternative sources of water and efficiency measures in water decision-making.

Additional goals, Part II: Plan for our water needs

4. Determine current and foreseeable future needs based upon periodic reviews of water availability projections that incorporate climate change, projected beneficiary demand, alternative sources and efficiency measures.
5. Design homesteads and manage lands to create and enhance water availability, optimizing costs, use of alternative sources and efficiency measures.

The Hawaiian Homes Commission and the Department of Hawaiian Home Lands (DHHL) have adopted fiscal policies for the Water Systems owned and operated by DHHL. The DHHL contracts and works with certified water system operators to manage and maintain these water systems, whereby routine maintenance, including leak detection, are required to ensure optimal system efficiency. The DHHL is also assessing the current rate structure that will include incentives for conservation efforts. Outreach and education is undertaken through DHHL's billing system, planning processes, and community meetings to engage beneficiaries about the importance of water and responsible stewardship of the resource.

In addition to conservation efforts on its own water systems, the DHHL works closely with and coordinates with the various Departments and Boards of Water Supply in their conservation programs in those communities serviced by those municipal water systems. The DHHL is also an active member of the Water Conservation Advisory Group organized by the Commission on Water Resource Management.

4.5 WATER CONSERVATION PROGRAM RECOMMENDATIONS

Majority of the departments surveyed did not return the water conservation form so it is unclear whether those departments participate in any water conservation program. Of the departments that did respond, however, majority are currently implementing water conservation measures.

The Commission on Water Resource Management (CWRM) and Army Corps of Engineers developed a Hawai‘i Water Conservation Plan Report in 2013. The Plan serves as an initial roadmap for CWRM to follow in implementing a Statewide Water Conservation Program over a ten-year planning horizon. Although the CWRM cannot directly implement water efficiency programs, as it is not a water purveyor, it can lead by example and provide technical assistance and incentives where possible to assist agencies in developing or expanding their water conservation programs. The CWRM has already begun implementing the Hawai‘i Water Conservation Plan by conducting outreach and education on surface water use reporting for irrigation water users and by developing and implementing a water audit program for public water systems per Act 169, Session Laws of Hawai‘i 2016, which was signed into law by Governor David Ige in June 2016.

The CWRM should continue implementing the Hawai‘i Water Conservation Plan and should consider updating the Plan based on the effectiveness of its current measures in increasing the efficiency of water use and on the evaluation of new technologies.

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CHAPTER 5 SWPP WATER DEVELOPMENT STRATEGY

5.1 GENERAL

The SWPP Water Development Strategy was formulated in the 2003 SWPP update to identify and evaluate source development options for proposed State projects. The strategy provides potential options and recommended actions which are intended to meet forecasted water demands from State projects on an individual project basis. Additional strategy options were developed in the 2017 DHHL SWPP for projects requiring non-potable water. The options utilize existing and proposed water resources. The strategy objectives were to identify SWPP projects with potential source options that could supply SWPP project water needs, and to identify those projects without source options requiring additional source development.

For this update, strategy options and recommendations are categorized into two time frames: Short-term and Long-term. Short-term strategy options are targeted for implementation in the first 10 years of the SWPP planning horizon, between 2015 and 2024. Long-term strategy options are targeted for implementation in the final 10 years, between 2025 and 2034. Proposed strategy options, however, may overlap between Short-term and Long-term time frames. The strategy options assigned to each project are preliminary in nature and must be further evaluated with regard to priority, funding, system operational parameters, coordination with other agencies and interested parties, and other planning considerations.

5.2 SWPP WATER DEVELOPMENT STRATEGY OPTIONS DESCRIPTION AND METHODOLOGY

The Water Development Strategy utilized both potable and non-potable source development options, including, but not limited to, existing and/or new State water sources/systems, existing master plans, existing County and private water agreements, existing County water systems, catchment, stream diversions, spring sources, recycled water, and ambient rainfall. The water development strategy options (hereafter called "strategy options") applicable to SWPP projects are listed in **Table 5-1** and described in the following sections.

Table 5-1 – Water Development Strategy Option Codes

Abbreviation Code	Water Development Strategy Option	Water Type
EXSWS	Existing State Water Systems	Potable & Non-Potable
EXSS	Existing State or private sources	Potable & Non-Potable
MASTERPLAN	Existing and planned water master plans	Potable & Non-Potable
COUNTY-CREDIT	Credit for County Water Department facilities charges	Potable
COUNTY-BWSALL	Water allocation credits with Honolulu Board of Water Supply reserved for specific agencies	Potable
COUNTY-EXWALL	Water allocation credits with Honolulu Board of Water Supply	Potable
COUNTY-EXEMPT	Exempt from County Water Department facilities charges	Potable
COUNTY-PRIVATEAGREE	Agreements for provision of water service by private purveyor	Potable
NEWSWS	New State Water Systems	Potable & Non-Potable
NEWSS	New and/or planned State wells	Potable
PLANPS	Planned private sources	Potable
REMAIN	Remaining balance of water demand to be supplied by County Water Systems	Potable
OTHER – CATCHMENT	Rain water catchment systems	Potable & Non-Potable
OTHER – STREAM DIVERSION	Potential stream diversions	Non-Potable
OTHER – SPRING SOURCES	Potential spring sources	Non-Potable
OTHER – RECYCLED	Recycled wastewater	Non-Potable
OTHER – SEAWATER	Deep sea ocean saltwater	Non-Potable
NONE	Ambient rainfall sufficient to sustain agricultural demands	Non-Potable

The strategy applied a planning process which accounted for SWPP project water demands through assignment of strategy options to each individual SWPP project. The strategy followed a guiding principle of using existing resources before developing and expending new resources. The steps in this process, in order, are described below.

1) Identification of potential strategy options to serve SWPP projects on an individual project basis and assignment of a preferred strategy option to each project. Strategy options for most projects were identified through the survey process.
2) Identification of SWPP projects without strategy options but within the service area of a County water system. Water demands associated with these projects were classified as "remaining SWPP project water demands".
3) Identification of SWPP projects wholly without strategy options and not within the service area of a County water system. These projects will require a new water system to be developed and operated by the State.

5.2.1 Existing State Water Systems

Abbreviation code: EXSWS. Existing State water systems capable of providing water service to State projects were evaluated for availability of supply and system facility capacity. For potable water systems, evaluations were used to determine potential impacts and required improvements necessary to provide adequate source, storage, transmission and distribution components for planned State projects.

As discussed in Chapter 2, there are forty (40) State water systems. Ten (10) water systems were registered with the DOH Safe Drinking Water Branch (SDWB) as public water systems. Public water systems are defined as potable water systems having at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days of the year. There are also ten (10) existing operational State non-potable agricultural irrigation systems. For many of the State water systems, analysis to determine supply and system facility capacity could not be completed due to the lack of available data.

5.2.2 Existing State Sources

Abbreviation code: EXSS. Existing State-owned and private sources include potable ground water sources, non-potable ground water sources and surface water sources. These resources are distinguished from State or private water systems since they are as standalone sources (not associated with any existing State water system). Information related to any storage and distribution systems associated with these sources need to be identified.

5.2.3 Existing and Planned Water Master Plans

Abbreviation code: MASTERPLAN. Master plan reports evaluate and recommend on-site and off-site water system improvements based on projected water demands. Those which have secured adequate wells or sources for the project and future master plan reports were considered as a viable option to meet SWPP project requirements. However, these master plan reports should be

monitored as the project is further developed. This is recommended to identify updated project conditions to ensure that SWPP project demands can still be supplied.

5.2.4 County and Private Water Agreements

Abbreviation code: COUNTY-CREDIT. As part of project requirements, State agencies often provide capital improvements for off-site water system improvements, which are then turned over to County Water Departments in exchange for County facilities charge credits or source water agreements. It is noted that due to the type and amount of infrastructure improvements provided by a project, the amount of facilities charge credit granted by each County water department varies. Therefore, a portion of the project's facilities charge, or other charges, may still apply.

Abbreviation code: COUNTY-EXEMPT. SWPP projects involving renovation or replacement of existing facilities where the net balance of installed fixture units result in no increase in existing total fixture units are exempted from County water system facilities charges.

Abbreviation code: COUNTY-EXWALL. The State has acquired O'ahu-specific water allocation credits from the Honolulu Board of Water Supply (HBWS) through payment agreements or as compensation to the State for other water system improvements funded or constructed by the State. These agreed upon water allocation credits, allow the State to obtain water service/supply from the HBWS water systems for their SWPP projects. However, it is noted that a facilities charge for water storage and transmission component(s) of the project may still be required.

Abbreviation code: COUNTY-BWSALL. Some of these O'ahu-specific credits, as described in the previous paragraph, have been designated for exclusive use by specific State agencies or HBWS projects. Such designated credits are not available for allocation sharing with other SWPP projects.

Abbreviation code: COUNTY-PRIVATEAGREE. State agencies have obtained water service agreements with private water purveyors which allow SWPP projects to obtain water service from private water systems.

5.2.5 New State Water Systems

Abbreviation code: NEWSWS. New State water systems that are constructed for selected SWPP projects located in areas without existing water service. These State water systems generally serve larger State facilities or projects on large land areas designated for various land uses. This strategy option was also utilized for projects within the service area of an abandoned water system or not that is not fully operational. Existing non-fully operational facilities considered are those with the potential to be reinstated, such as non-functional or partially functional irrigation systems. Source and infrastructure improvements or modifications required to reinstate the types of systems and the associated costs involved will require detailed condition assessments and potentially the preparation of Environmental Assessments. For these reasons, they will not be developed for the SWPP.

5.2.6 New/Planned State Wells

Abbreviation code: NEWSS. This strategy option assigns SWPP projects to new planned State wells. Generally, the DLNR serves as the lead State department for the development and coordination of new water resources for the State agencies; however, some agencies, such as the DHHL, also develop their own new sources and infrastructure for their projects independent of the DLNR. Source water and infrastructure development endeavors to support SWPP demands are often coordinated with County Water Departments.

5.2.7 Planned Private Sources

Abbreviation code: PLANPS. Planned private sources anticipated to serve SWPP projects. In these cases, there typically will be water service agreements established between the private water purveyor and the State department which would allow the proposed project to receive water from a planned private source.

5.2.8 Coordination of Remaining SWPP Water Demand with County Water Departments

Abbreviation code: REMAIN. This strategy implements a process of first assigning other strategy options to SWPP projects. After this is completed, the County water systems service areas are examined to identify projects that could potentially be serviced by these water systems. The total water demand for all projects within service areas of County water systems is the remaining balance of SWPP water demands which will be coordinated with the respective County water departments. The remaining projects not within the service area of a County water system will require the construction of a new State water system and are assigned the NEWSWS strategy option.

The DLNR, Engineering Division, is generally the State agency responsible for water source planning, exploration and development; however, some agencies also plan and develop their own sources and manage their own water systems. DLNR will initiate discussions with the respective County regarding the availability and feasibility of County water systems accommodating needed SWPP project water demands. Typically, projects with small demands can be supplied by County water systems without issue; however, projects with larger demands will be subject to water availability review by the respective water department and must be coordinated in greater detail. In the event County water systems are unable to supply remaining SWPP water demands, DLNR may be required to develop new State sources or propose a State-County joint venture to develop new sources. State agencies may also coordinate with County water departments to upgrade or improve County water system components in exchange for water allocation credits. SWPP project water demands and Water Development Strategy will also be coordinated with each County's WUDP.

5.2.8.1 Water System Development Cost Estimates

For larger scale water developments, County water departments generally require developers to develop their own source, storage, and transmission infrastructure and then, upon completion, dedicate these facilities to the County water department. The extent of required infrastructure

development will depend on the project's impact on the existing water system as determined through water models and County water department staff knowledge. Because these factors are difficult to predict, specific infrastructure requirements and associated cost estimates will not be developed for this SWPP. In its place, estimated up-front County connection fees will be used as an estimate of water system development costs.

It is noted that all County water departments levy initial charges to connect to their systems. These charges are required up front in order to allow their staff to perform advance planning and identify/implement system improvements to address anticipated project-related deficiencies. The fees collected represent the estimated amount available to the water department for infrastructure improvements and theoretically represents the minimum amount that should be spent by the developer for those improvements. Therefore, the fee amount can be considered as the estimated cost for construction of required infrastructure improvements for State projects. The initial County charges were calculated using the methodology described below and are summarized in **Appendix O**.

Each County water department has a different system structure in place to estimate and collect initial charges; however, all contain two components: Facilities Charges (FC) and Installation Charges (IC). Generally, FC are fees for source, storage, and transmission components; and IC are fees for meter and lateral installation costs.

The 2007 State Water Master Plan for O'ahu (SWMPO) developed a comprehensive methodology for determining FC and IC based on average daily demands for projects within the service area of the Honolulu Board of Water Supply (HBWS) on O'ahu. This methodology was also applied to all O'ahu projects for this SWPP update.

Unlike HBWS, each of the other three County water departments base their FC on meter size. The water rate structures for minimum FC are typically based on the following:

1) Establish a baseline FC of a meter (typically 5/8") for a single residential unit, or Equivalent Residential Unit (ERU).
2) Determine the number of ERUs for other meter sizes (many use AWWA Manual M1 meter capacities as a guideline).
3) Determine the FC for the other meter sizes by multiplying the baseline FC for 1 ERU by the number of ERUs.

As a conservative approach to estimate FC based on SWPP project water demand, a similar methodology was used for projects on Kaua'i, Moloka'i, Maui and Hawai'i. A Single Family Residential Unit was established as 1 ERU and was correlated to a 5/8" meter. The FC based on SWPP project water demand was then calculated using the following formula:

$$\textbf{FC for SWPP project} = \frac{\textbf{SWPP Project Water Demand}}{\textbf{A}} \times \textbf{B}$$

Where A is the average daily demand for 1 ERU per the WSS and B is the FC for 1 ERU (see **Table 5-2**).

Table 5-2 – ERU Average Daily Demand and Facilities Charges

County Water Department	Single Family Residential Unit Avg. Day Demand (A)	5/8" Meter FC (B)
Kaua'i	500 GPD	$14,115
Moloka'i	600 GPD	$12,060
Mau'i	600 GPD	$12,060
Hawai'i	400 GPD	$1,190[1] $5,500[2]

[1]first connection to pre-existing lot of record
[2]additional connections (subdivided lots)

Each County Water Department may grant different percentages of FC credit for installation of various water system improvement infrastructure; therefore, as discussed previously, projects assigned other water development strategy options (MASTERPLAN, COUNTY-CREDIT) may receive full or partial credit for payment of FC.

5.2.9 Water Catchment Systems

Abbreviation code: OTHER-CATCHMENT. In areas where ambient rainfall is greater than 60 inches per year, rainwater catchment systems can be used to supply potable water to residential developments. These systems utilize rainwater for potable water use by collecting rainwater that falls on large surfaces, typically a roof, and then diverting the water to a storage tank for future use. This strategy option is unique in that it does not draw water from surface or groundwater sources and thus is not associated with any State hydrologic unit. It is noted, however, that rainwater catchment systems are not bound by any government laws, rules or regulations. The maintenance of the system and safety of the water (e.g. for potable uses), is fully the responsibility of the end user. The UH College of Tropical Agriculture and Human Resources (CTAHR) prepared a document dated 2010 entitled, "Guidelines on Rainwater Catchment Systems for Hawai'i", which discusses topics such as water collection, storage, maintenance, treatment, testing and firefighting concerns. Prospective catchment system users should become familiar with the guidelines described in this document. Larger scale catchment systems can also be used to collect and supply untreated rainwater to non-potable uses.

5.2.10 Stream Diversions and Spring Sources

Abbreviation code: OTHER – STREAM DIVERSION; OTHER – SPRING SOURCES. These strategy options are utilized for areas in which a stream or spring source anticipated for cultivation of lo'i kalo. The DHHL has determined these areas based on historical past use records which show support of lo'i kalo cultivation. These historical past use records can be used to support whether the source has the potential to sufficient available surface water. Although current stream flow records are not readily available, DHHL has indicated that only the amount of water that is available and can be sustained by the existing streams or spring sources would be utilized. This may result in the area not being utilized to its full projection. DHHL has also indicated that farmers may utilize 'auwai or traditional infrastructure in close proximity to the stream to irrigate lo'i kalo and that some of this infrastructure may still exist. Demands associated with lo'i kalo have been

based on an estimated cultivated land area and not on the available water resources. This approach will be re-evaluated when the amount of available water resources are determined.

5.2.11 Recycled Water

Abbreviation code: OTHER-RECYCLED. The main source of recycled water is wastewater reclamation facilities; however, other sources, such as reclaimed air conditioning condensate, are available. Recycled water that has received a high level of treatment typically can be used for most landscaping applications.

5.2.12 Seawater

Abbreviation code: OTHER-SEAWATER. The NELHA utilizes sea water pumped from deep within the ocean for a variety of non-potable uses. These uses include aquaculture, water desalination, clean energy research and development such as solar thermal energy production, algae growth for biofuels, and seawater air conditioning.

5.2.13 No Water Development Strategy Assigned

Abbreviation code: NONE. Areas in which ambient conditions are anticipated to be sufficient to sustain projected non-potable agricultural demands require no further action. These include eleven (11) DHHL project areas that have historically received a large amount of ambient rainfall. While an exact number cannot be applied due to seasonal fluctuations, 60 inches of rainfall per year is typically considered to be sufficient to sustain agricultural demands of diversified crops. Also included in this strategy option is one (1) DHHL project area where, due to its location, soils are considered to be moist enough to sustain crops.

5.3 OTHER CONSIDERATIONS

5.3.1 Consistency with Applicable Hawai‘i Water Plans

Per the Framework, the SWPP shall incorporate the AWUDP and shall be consistent with the WRPP and WQP.

5.3.1.1 Water Resources Protection Plan

The ground water and surface water hydrologic units established by CWRM, and defined in the WRPP, provide a consistent basis for managing water resources. The intent of this hydrologic unit systems approach is to facilitate effective water resource management decisions. Water demands in this SWPP are separated into potable and non-potable water demands. Potable water demands are sorted by ground water aquifer sectors and systems and are presented in relation to the respective aquifer sector and system sustainable yields. Non-potable water demands are sorted by surface water hydrologic units. Presentation of water demands in this format does not imply that all potable demands are to be met by ground water or that all non-potable demands are to be met by surface water. However, it is consistent with the hydrologic unit systems approach promoted in the WRPP.

5.3.1.2 Water Quality Plan

A final update to the WQP was released by DOH in 2019. The WQP summarizes the water programs, categorized as either ground water quality programs or surface water quality programs, and administered by the DOH SDWB, CWB and Wastewater Branch. These programs provide guidance into the quality of water available from ground water and surface water sources to meet SWPP project water demands.

The WQP also describes DOH's water protection goals, one of which is the increase of water reuse statewide. The SWPP demonstrates consistency with this goal by incorporating reuse using recycled water as a water development strategy.

5.3.1.3 Agricultural Water Use and Development Plan

The AWUDP provides guidance into the quantity of non-potable water (e.g. ditch irrigation systems) available to meet SWPP project water demands.

The 2004 AWUDP assessed and recommended capital improvements for thirteen (13) irrigation systems throughout the State and identified eleven (11) private irrigation systems for future study. Nine (9) of the assessed systems were inventoried as part of the SWPP survey process and are summarized in Chapter 2 of this report and discussed in the individual island chapters. The AWUDP provided limited non-potable water system information, which was insufficient to assess whether the systems will be adequate to supply anticipated non-potable SWPP project water demands.

However, the DOA has initiated an update of the AWUDP, which was in a draft stage at the time of this report. DOA and AWUDP consultant staff have indicated that assessments would be completed on the eleven (11) previously unstudied systems. The extent of these assessments would depend on the condition of the systems and availability of record information. DOA has also indicated that they would attempt to include low, medium and high demand scenarios in the AWUDP update, as well as assess available sources, including the potential for reestablishing previously abandoned sources. In addition, and where possible, the AWUDP update would include recommendations for required infrastructure improvements. It is noted that DOA cannot commit that the AWUDP update will establish increased irrigation system demands; therefore, the SWPP project water demands anticipated to be supplied by these irrigation systems may need to be revisited at a later date and/or other water development strategies may need to be identified and pursued.

5.3.1.4 County Water Use and Development Plans

The SWPP and the County WUDPs are required to develop incremental water demand forecasts for a 20-year timeframe per the Framework. The forecasts developed in the SWPP are intended to be incorporated in each County WUDP, although it is the responsibility of the respective County to determine how information from the SWPP will be integrated and used in updating its WUDP.

As discussed, the REMAIN demand represents the SWPP project demand anticipated to be supplied by County water systems. A County WUDP may examine the REMAIN demand within a geographical area in conjunction with the County demand projections to identify potential capacity constraints for a County water system in that area, or within an aquifer system as a whole. This could provide the impetus for the County water department, DLNR, and other parties to coordinate the development of a new source. REMAIN demands are summarized by aquifer system in Section 5.4, and sorted by project in **Appendix M**, which may assist the County in such an endeavor.

5.3.2 Promote Use of Non-Potable Resources and House Bill No. 1749

In 2016, the Hawai‘i State Legislature passed House Bill No. 1749 (Act 170) which amends the Code to include an additional objective of the Hawaii Water Plan: –"the utilization of reclaimed water for uses other than drinking and for potable water needs in one hundred percent of State and County facilities by December 31, 2045."

As discussed, non-potable source strategies to satisfy non-potable SWPP water project demands were considered wherever possible. For the majority of these projects, a non-potable source strategy was determined to be available and recommended as the preferred strategy option. However, there are seventeen (17) projects that are proposed to utilize potable water to satisfy a non-potable end use demand, labeled by the identifier "non-potable using potable". Of these, nine (9) involve non-potable water requirements of State facilities and the remainder involve other purposes such as highway landscaping and DHHL subsistence farming and pastoral activities. Non-potable source supply alternatives including recycled water were examined for these State facilities, however, these options were cost-prohibitive and thus not considered feasible at this time. It is expected that future updates of the SWPP will revisit the feasibility of replacing potable water with non-potable source alternatives to supply non-potable end uses at these facilities.

5.3.3 Water Conservation

Demand side water conservation measures may provide significant reduction of project water requirements. As discussed in Chapter 4, the extent of State department participation in water conservation measures is not well defined; however, CWRM initiatives such as the 2013 Hawai‘i Water Conservation Plan Report, which set the groundwork for a statewide water conservation program, can promote State involvement in water conservation.

Water conservation is not explicitly included in this SWPP as a demand reduction on a project by project basis or as a water development strategy option. However, it is incorporated within the low demand forecast which reflects demands lower than the base (medium demand forecast) due to future water conservation measures and conservatism in the base calculation methodology.

5.3.4 Food Safety Modernization Act

The U.S. Food and Drug Administration, Food Safety Modernization Act (FSMA) Final Rule on Produce Safety sets out stringent water quality standards and testing requirements for agricultural water. Farmers utilizing untreated surface water to irrigate crops would be prohibited from using

the water during processing, and would be required undertake extensive testing procedures to ensure the water is safe to apply to growing produce. The cost impact to farmers could be significant. However, there is no requirement to test agricultural water that is received from public water systems.

The HBWS has proposed to drill four exploratory water wells at its Kunia Wells IV pumping station site to determine if adequate yield and quality is available for production to meet future potable water demands in the municipal water system, with the intent of providing discounted-rate potable water for diversified agriculture in the area. This will benefit those farmers with increased reliance on potable water due to the new FSMA rules. In 2019, the State appropriated $1 million in funds to DLNR for HBWS for the design construction of the first of these Kunia Wells IV.

Should this and similar sources become available, the water development strategies for future State agricultural projects in the vicinity of these sources may be re-examined.

5.4 WATER DEVELOPMENT STRATEGY OPTIONS OVERVIEW

The total water demands for SWPP projects accounted for by each potable water development strategy option are summarized in **Table 5-3**. These strategy options account for 54 percent of the total SWPP potable water demand by 2034.

The remaining balance of potable water demands constitutes those SWPP projects within or adjacent to the service area of a County water system but without a strategy option. 46 percent of SWPP project water demand is anticipated to be serviced by County water systems. Therefore, budgeting and appropriation of a large portion of the funding required to provide water for these projects will be allocated to the development of new sources and infrastructure, or towards payment of a proportional cost for new source development and infrastructure expansions and connection to County water systems. Extensive planning and coordination between the County water departments and the State agencies will be required.

SWPP projects where non-potable end uses are anticipated to be met by potable sources are identified by "non-potable using potable" within the project name. These SWPP project water demands are accounted in the respective potable water development strategy options and remaining balance of water demands summarized in **Table 5-3**. However, considering the non-potable end use, these demands were accounted as non-potable demands in the tables presented in Chapter 3. Hence, the total "non-potable using potable" demand represents the difference between the total potable water demand presented in Chapter 3 and the total demand using potable sources presented in **Table 5-3**.

The remaining balance of potable water demands was also formulated into high, medium and low demand ranges, summarized in **Table 5-4**. The demand forecast ranges will be integrated with other components of the HWP and further refined. As previously discussed, the high and low ranges were computed using a 20 percent adjustment factor to the medium range, except for DHHL demands. The low range forecast accounts for demand side management measures, savings from water conservation, conservatism within the Water System Standard unit rates and uncertainties with project funding, construction of projects, and project delays. The high range forecast provides

a contingency to the medium demand forecast to account for future State projects or modifications to SWPP projects.

The total water demands for SWPP projects accounted for by each non-potable water development strategy option are summarized in **Table 5-5**.

Table 5-3 – Summary of Potable Water Development Strategy and Remaining Demands – State

Potable Water Development Strategy Options	Cumulative Average Day Demand (MGD)							
	Short-Term						Long-Term	
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
COUNTY-BWSALL	0.0000	0.0000	0.0000	0.0000	0.0000	0.0660	0.0660	0.0660
COUNTY-CREDIT	0.0255	0.1215	0.1895	0.1895	0.3241	1.8527	2.1759	2.1759
COUNTY-EXEMPT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0540	0.0540	0.0540
COUNTY-EXWALL	0	0	0	0	0	0	0	0
COUNTY-PRIVATEAGREE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0146	0.0944	0.1616
EXSS	0	0	0	0	0	0	0	0
EXSWS	0.0085	0.0276	0.0276	0.0276	0.0276	0.0996	0.0996	0.0996
MASTERPLAN	0.6197	2.6492	2.6492	2.6497	2.6497	3.2404	6.1965	7.4545
NEWSS	0.0864	0.5724	0.6599	0.7404	0.9613	2.3589	3.7245	5.2771
NEWSWS	0.0000	0.2635	0.2635	0.2635	0.2635	0.3314	1.1332	3.5127
PLANPS	0	0	0	0	0	0	0	0
OTHER	0.0000	0.1542	0.1542	0.1542	0.1542	0.2042	0.2390	0.4821
Demand Accounted for by Water Development Strategy	**0.7401**	**3.7884**	**3.9439**	**4.0249**	**4.3804**	**8.2218**	**13.783**	**19.283**
REMAIN – KDOW (Kauaʻi)	0.0000	0.0655	0.0730	0.0931	0.0952	0.1457	0.9304	1.6213
REMAIN – HBWS (Honolulu)	0.0367	0.2073	0.3671	0.4971	0.5484	1.9223	4.5853	6.2819
REMAIN – MDWS (Maui, Molokaʻi)	0.0000	0.0229	0.0234	0.0650	0.0665	0.4572	1.5102	1.7787
REMAIN – HDWS (Hawaiʻi)	0.1647	1.8181	1.8184	1.8311	1.8349	3.3488	4.4057	6.4726
Remaining Balance of Demands (State)	**0.2013**	**2.1137**	**2.2819**	**2.4864**	**2.5450**	**5.8739**	**11.432**	**16.154**
Total Demand Using Potable Sources	**0.9414**	**5.9021**	**6.2258**	**6.5113**	**6.9253**	**14.096**	**25.215**	**35.438**

Table 5-4 – Forecast Scenarios for Remaining Potable Demands – State

Scenario	Cumulative Average Day Demand (MGD)							
	Short-Term						Long-Term	
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
High Demand Scenario	0.2413	2.9613	3.1631	3.4084	3.4787	4.8322	9.8671	14.177
Medium Demand Scenario	0.2013	2.1137	2.2819	2.4864	2.5450	5.8739	11.432	16.154
Low Demand Scenario	0.1613	1.6371	1.7717	1.9352	1.9821	7.2495	13.208	18.382

Table 5-5 – Summary of Non-Potable Water Development Strategy – State

Non-Potable Water Development Strategy Options	Cumulative Average Day Demand (MGD)							
	Short-Term						Long-Term	
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
EXSWS	0.1020	17.278	17.278	17.278	17.278	20.947	21.747	24.857
MASTERPLAN	0	6.0254	6.0254	6.0254	6.0254	7.0254	7.0254	7.0254
NEWSS	0	0	0	0	0.3100	0.3100	0.3100	0.3100
NEWSWS	0.8194	1.8190	1.8190	1.8190	1.8190	3.3350	3.3350	3.3350
OTHER-CATCHMENT	0	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
OTHER-STREAM DIVERSION OTHER-SPRING SOURCES	0	15.150	15.150	15.150	15.150	21.525	41.325	57.297
OTHER-RECYCLED	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.5010
OTHER-SEWATER	0	0	3.3625	6.7006	10.018	13.318	35.956	35.956
Demand Accounted for by Water Development Strategy	0.9224	40.274	43.637	46.975	50.602	66.461	109.70	129.28
NONE	0	2.7659	2.7659	2.7659	2.7659	5.8089	6.9615	17.994
Total Demand Using Non-Potable Sources	0.9224	43.040	46.402	49.741	53.368	72.270	116.66	147.28

The remaining balance of potable water demands are summarized by ground water hydrologic unit in **Table 5-6**. As discussed in Section 3.5, SWPP project water demands were assigned to ground water hydrologic units based on end use location, and actual source location for each project is to be determined. Hence, it should be noted that remaining potable demand for each groundwater hydrologic unit may be subject to water transfer that is not reflected in the table.

Table 5-6 – Summary of Remaining Potable Demands by Groundwater Hydrologic Unit

Island	Groundwater Hydrologic Unit		Cumulative Average Day Demand (MGD)							
			Short-Term						Long-Term	
	Code	Name	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
Kauaʻi	20101	Kōloa	0	0	0	0	0	0	0.0111	0.0711
	20102	Hanamāʻulu	0	0	0.0075	0.0276	0.0297	0.0402	0.0405	0.1535
	20104	Anahola	0	0.0640	0.0640	0.0640	0.0640	0.0640	0.7870	1.2804
	20105	Kīlauea	0	0	0	0	0	0	0.0008	0.0008
	20301	Kekaha	0	0.0015	0.0015	0.0015	0.0015	0.0015	0.0495	0.0740
	20302	Waimea	0	0	0	0	0	0	0.0015	0.0015
	20303	Makaweli	0	0	0	0	0	0.0400	0.0400	0.0400
		Total Kauaʻi	**0**	**0.0655**	**0.0730**	**0.0931**	**0.0952**	**0.1457**	**0.9304**	**1.6213**
Oʻahu	30101	Pālolo	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.2144
	30102	Nuʻuanu	0	0.0547	0.0573	0.0599	0.0877	0.7415	0.9475	1.2347
	30103	Kalihi	0	0	0	0	0	0.0469	0.1155	0.1655
	30104	Moanalua	0.0040	0.0271	0.0502	0.0732	0.0963	0.3853	0.5022	0.7718
	30105	Waiʻalae-West	0	0.0027	0.0027	0.0055	0.0055	0.0055	0.0055	0.0055
	30106	Waiʻalae-East	0	0	0.0010	0.0010	0.0010	0.0010	0.0022	0.0022
	30201	Waimalu	0	0.0049	0.0049	0.0049	0.0049	0.1999	0.2043	0.2043
	30203	Waipahu-Waiawa	0	0	0	0.0503	0.0503	0.0503	0.2345	0.7045
	30204	ʻEwa-Kunia	0	0.0004	0.0008	0.0512	0.0516	0.1296	0.2915	0.4735
	30301	Nānākuli	0	0.0544	0.0544	0.0544	0.0544	0.0544	1.3213	1.3213
	30302	Lualualei	0	0	0.0027	0.0027	0.0027	0.0527	0.3439	0.3439

Table 5-6 – Summary of Remaining Potable Demands by Groundwater Hydrologic Unit (Continued)

Island	Groundwater Hydrologic Unit		Cumulative Average Day Demand (MGD)							
			Short-Term						Long-Term	
	Code	Name	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
Oʻahu (cont'd)	30303	Waiʻanae	0	0	0	0	0	0.0176	0.1672	0.1672
	30304	Mākaha	0	0	0	0	0	0	0.0007	0.0007
	30402	Waialua	0	0.0003	0.0003	0.0003	0.0003	0.0003	0.0008	0.0008
	30501	Wahiawā	0	0	0	0.0010	0.0010	0.0446	0.0561	0.1161
	30601	Koʻolauloa	0	0	0.1300	0.1300	0.1300	0.1300	0.1413	0.1793
	30602	Kahana	0	0	0	0	0	0	0.0017	0.0017
	30603	Koʻolaupoko	0	0	0	0	0	0	0.0071	0.0071
	30604	Waimānalo	0.0220	0.0520	0.0520	0.0520	0.0520	0.0520	0.2316	0.3676
		Total Oʻahu	**0.0367**	**0.2073**	**0.3671**	**0.4971**	**0.5484**	**1.9223**	**4.5853**	**6.2819**
Molokaʻi	40301	Kamiloloa	0	0	0	0.0003	0.0003	0.0003	0.0028	0.0028
	40302	Kawela	0	0	0	0	0	0	0.1716	0.1716
	40303	Ualapuʻe	0	0	0	0	0	0.0282	0.0493	0.0493
		Total Molokaʻi	**0**	**0**	**0**	**0.0003**	**0.0003**	**0.0285**	**0.2237**	**0.2237**
Maui	60102	ʻĪao	0	0.0204	0.0204	0.0204	0.0204	0.0420	0.0963	0.0963
	60203	Honokowai	0	0	0	0	0	0	0.0300	0.0900
	60204	Launipoko	0	0	0	0	0	0.0140	0.0978	0.0978
	60301	Kahului	0	0	0.0005	0.0018	0.0018	0.0048	0.4767	0.6206
	60302	Pāʻia	0	0	0	0	0	0.2880	0.2886	0.2886
	60303	Makawao	0	0	0	0.0400	0.0400	0.0400	0.0949	0.0949
	60304	Kamaʻole	0	0.0025	0.0025	0.0025	0.0040	0.0040	0.1406	0.1440
	60401	Haʻikū	0	0	0	0	0	0	0.0008	0.0008
	60404	Keʻanae	0	0	0	0	0	0.0034	0.0034	0.0034
	60502	Kawaipapa	0	0	0	0	0	0.0325	0.0574	0.1186
		Total Maui	**0**	**0.0229**	**0.0234**	**0.0647**	**0.0662**	**0.4287**	**1.2865**	**1.5550**
Hawaiʻi	80101	Hawi	0	0	0	0	0	0	0.1499	0.1499
	80103	Māhukona	0.0847	0.0847	0.0847	0.0847	0.0847	0.0939	0.5485	0.6072
	80201	Honokaʻa	0	0	0	0	0	0	0.0088	0.3100
	80203	Hakalau	0	0	0	0	0	0.0400	0.0836	0.0836
	80204	Onomea	0	0	0	0	0	0	0.0023	0.0024
	80301	Waimea	0	0	0	0.0040	0.0040	0.0190	0.0203	0.0203
	80401	Hilo	0	0	0.0003	0.0063	0.0063	0.3688	0.3868	0.5271
	80402	Keaʻau	0	0.0760	0.0760	0.0760	0.0760	0.0760	0.0836	1.3436
	80503	Nāʻālehu	0	0.4404	0.4404	0.4404	0.4404	0.5841	0.6035	0.6245
	80602	Kaʻapuna	0	0	0	0	0	0	0.0033	0.0033
	80603	Kealakekua	0	0	0	0	0	0	0.0064	0.0064
	80801	Pāhoa	0	0	0	0	0	0.0136	0.0230	0.0230
	80901	Keauhou	0.0800	1.2170	1.2170	1.2197	1.2235	2.1534	2.4858	2.7713
		Total Hawaiʻi	**0.1647**	**1.8181**	**1.8184**	**1.8311**	**1.8349**	**3.3488**	**4.4057**	**6.4726**
		Total State	**0.2013**	**2.1137**	**2.2819**	**2.4864**	**2.5450**	**5.8739**	**11.432**	**16.034**

The full list of SWPP projects and associated water development strategy options separated by potable, potable (REMAIN only) and non-potable strategy options is found in **Appendix L**, **Appendix M**, and **Appendix N**, respectively.

CHAPTER 6 SWPP FOR THE ISLAND OF KAUA'I

6.1 EXISTING STATE WATER RESOURCES

The State currently owns and/or operates 35 wells, 8 stream diversions, and 10 water systems on the island of Kauaʻi. The locations of the registered State wells are shown in **Figure 6-1**, the locations of the stream diversions are shown in **Figure 6-2**, and the locations of the water systems are shown in **Figure 6-3**.

6.1.1 Agribusiness Development Corporation

The Agribusiness Development Corporation (ADC) owns, operates, and/or manages the following three (3) water systems on the island of Kauaʻi:

- East Kauaʻi Irrigation System
- Kekaha Ditch Irrigation System
- Kōkeʻe Ditch Irrigation System

6.1.1.1 East Kauaʻi Irrigation System

The East Kauaʻi Irrigation System (EKIS) is located upland of Wailua and Kapaʻa on the island of Kauaʻi. The system is located in the Līhuʻe Aquifer Sector Area [201], and Hanamāʻulu [20102], Wailua [20103] and Anahola [20104] Aquifer System Areas. The majority of the EKIS system infrastructure is located on State-owned lands; however, some sections are still under private ownership or, in some cases, dual owners and are operated under existing agreements carried over from the plantation period. The EKIS is operated and maintained by the East Kauaʻi Water Users' Cooperative. According to CWRM records, a gage in the Hanamāʻulu Ditch upstream of the Kapaia Reservoir measured average flows of 5.22 MGD between July 2017 and March 2018.

The EKIS was built in the 1920s by the Līhuʻe Plantation Company and the East Kauaʻi Water Company for the purposes of irrigating sugarcane in the Kapaʻa, Kālepa and Līhuʻe-Hanamāʻulu areas. The system consisted of three interrelated systems that collected surface waters from the Hanalei and Wailua Rivers. Its infrastructure consisted of 51 miles of ditches and tunnels, flumes, 18 stream intakes, three major reservoirs, and two hydropower plants. The EKIS currently remains mostly intact and is composed primarily of the Hanamāʻulu Ditch and the Wailua-Kapahi Ditch systems. Closure of the sugar plantation resulted in over 1,400 acres of fallow agricultural land in the Kapaʻa area and 6,500 acres in the Kālepa area inland of Kālepa Ridge. In 2010, the Kālepa agricultural lands were turned over to the ADC by executive order. Land use is slowly evolving to diversified agriculture.

Part of the DHHL Wailua tract is within the service area of the EKIS. The Hanamāʻulu Ditch, part of the Kapaʻa section, ends at Reservoir 21 along the Kālepa Ridge mauka of the tract, and the Department of Agriculture (DOA) has indicated that a tunnel through the ridge extends to the tract.

GIS data indicates that there are several ditches within the tract. Although the current condition of the ditches within the tract is not known, indications are that the irrigation water for agricultural area could be supplied by the ditch. The 2017 DHHL SWPP estimated a non-potable demand of 0.3366 MGD. Future water demands for the ADC's Kālepa agricultural area were not reported.

6.1.1.2 Kekaha Ditch Irrigation System

The Kekaha Ditch Irrigation System (KEDIS) is located above Waimea, Kekaha and the Mana plain on the island of Kauaʻi. The system is located in the Waimea Aquifer Sector Area [203], and Kekaha Aquifer System Area [20301]. The KEDIS is owned by the State and managed, operated and maintained by the ADC and the Kekaha Agriculture Association (KAA). The KAA monitors flow in the KEDIS at the Hukipo flume. According to the CWRM records, the average daily flow was 28.5 MGD between January 2010 and December 2014.

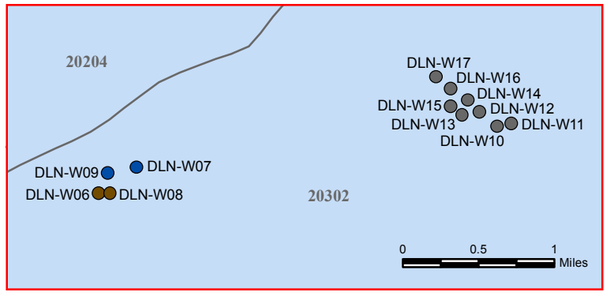
The KEDIS water originates from stream diversions on the Koaiʻe and Waiahulu Streams and the Waimea River. The system consists of approximately 27 miles of ditches, tunnels, steel siphons, wooden flumes, and two hydropower plants. As of 2015, the KAA had spent approximately $8 million on ditch system and agricultural infrastructure improvements, and several additional system improvements are planned.

The distribution system that supplies State lands is fed by water from the KEDIS, through two intake pumps with pump capacities of 1.22 MGD for each pump. The system facility capacity is 0.81 MGD. The water is pumped into a 0.75 million gallon (MG) steel reservoir tank. From the reservoir tank, two (2) irrigation pumps maintain pressure to the individual farm lots. The distribution system was designed to serve 19 farm lots with 150 usable acres for irrigation purposes. Currently, no irrigation water is being withdrawn from this system for consumption. The two (2) existing tenants do not use irrigation water from the KEDIS.

Future water demands were not reported.

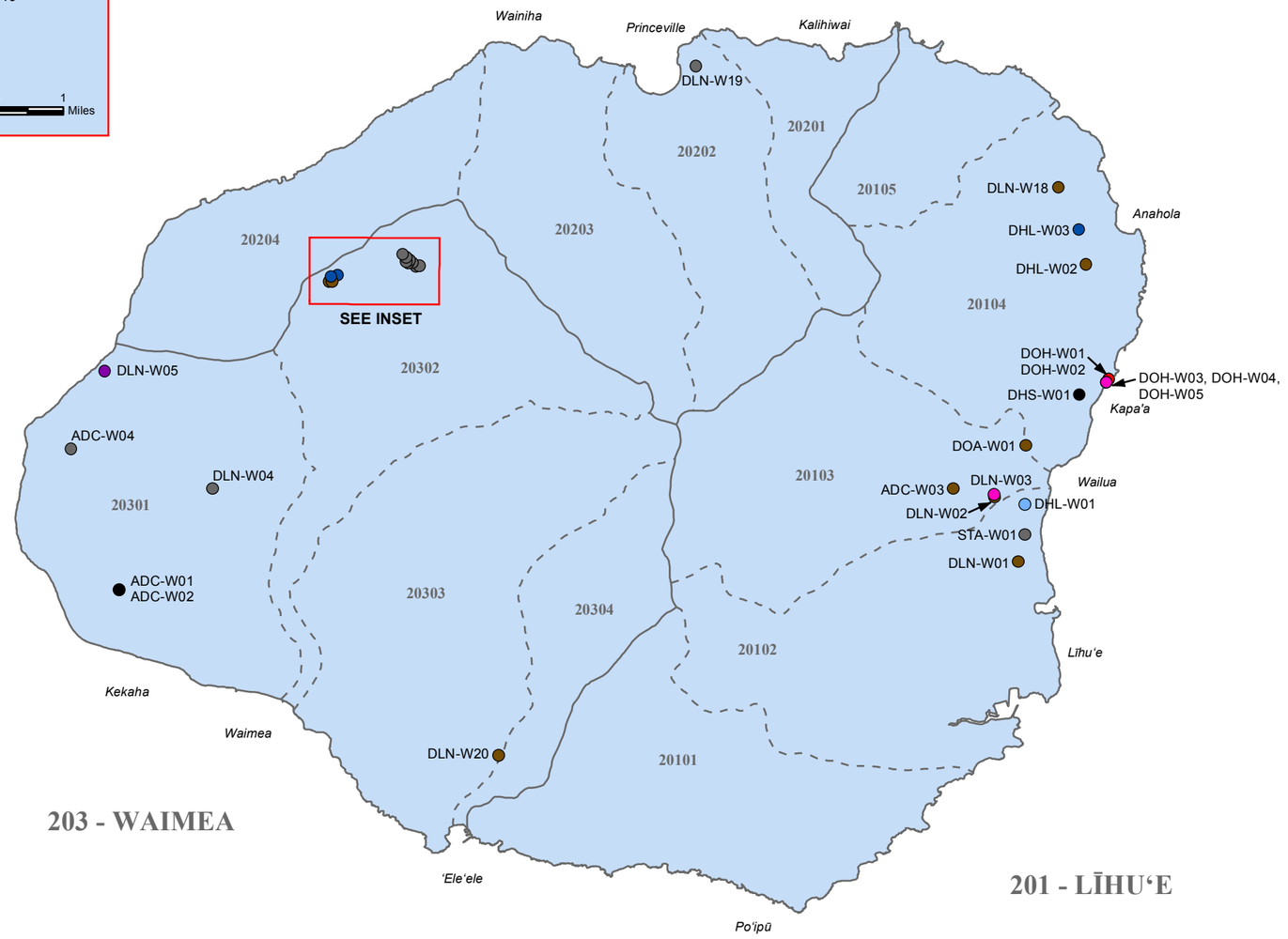
6.1.1.3 Kōkeʻe Ditch Irrigation System

The Kōkeʻe Ditch Irrigation System (KODIS) is located in the vicinity of Kōkeʻe Road and the areas upland of the Kekaha coastal plain on the island of Kauaʻi. The system is located in the Waimea Aquifer Sector Area [203], and Kekaha Aquifer System Area [20301]. The KODIS is owned by the State and managed, operated and maintained by the ADC and the KAA. According to CWRM records, a gage on the upstream side of Puʻu Lua Reservoir measured average daily flows of 5.75 MGD between January 2010 and December 2014.



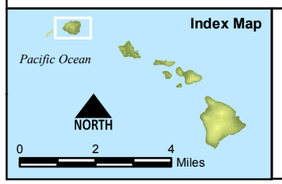
INSET

202 - HANALEI



203 - WAIMEA

201 - LĪHU'E



LEGEND:

ABN	AGRAQ	DOM	IRRGC	IRRSC	OBSDM	UNU	
ABNLOS	AGRCP	DOMNSC	IRRHM	MUN	OBSWL		
ABNSLD	AGRLI	INDEL	IRRLA	MUNST	OTH		
AGR	AGROTH	IRR	IRRPA	OBS	UNK		

—— Aquifer Sector Areas
– – Aquifer System Areas
301 Aquifer Sector Code
30101 Aquifer System Code

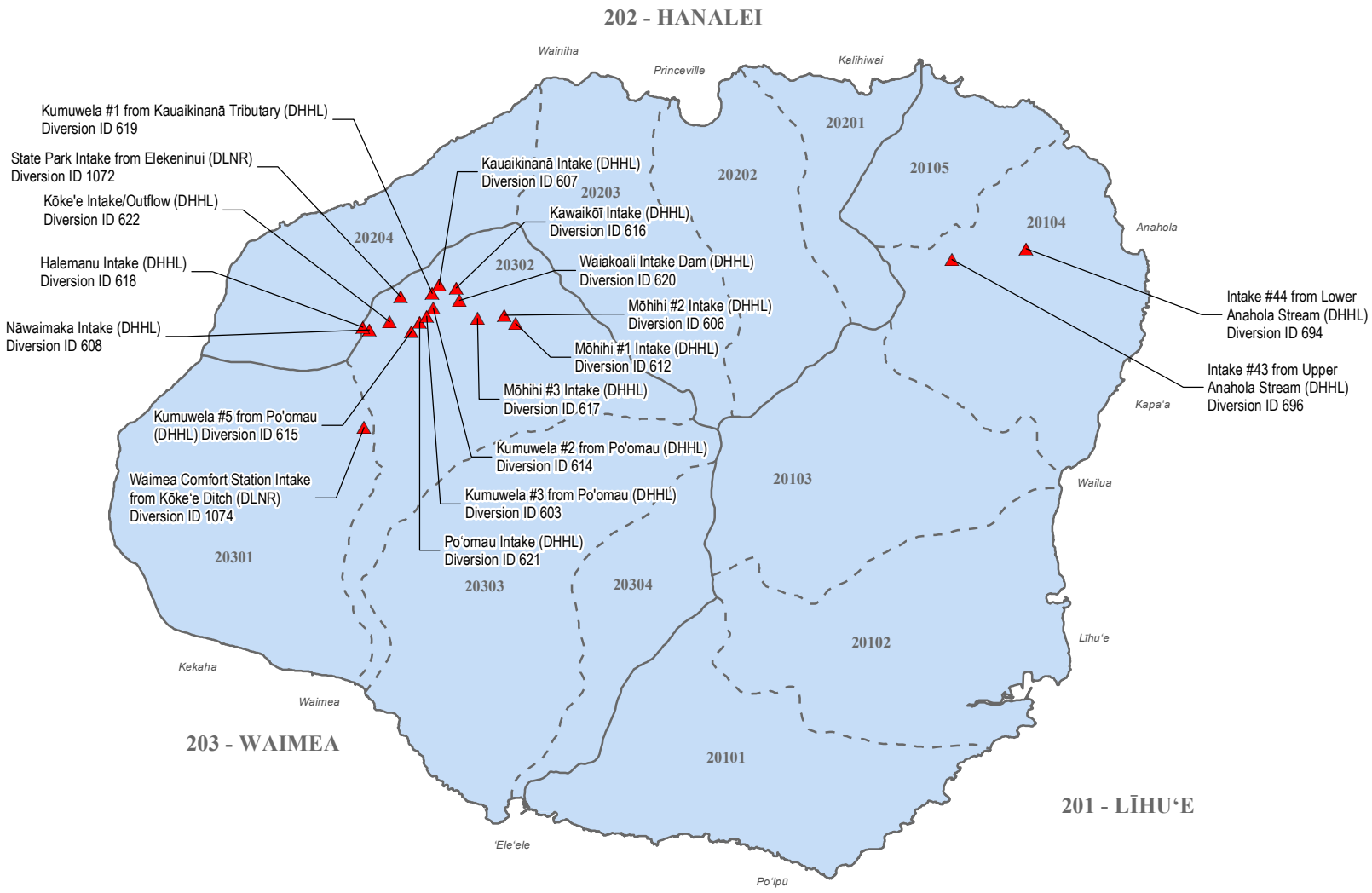
State Water Projects Plan Update - Statewide

Existing Registered State Wells - Kaua'i

FIGURE 6-1

Fukunaga & Associates, Inc., *Consulting Engineers*

JUNE 2020



Index Map

NORTH

0 2.5 5 Miles

Legend

- State Stream Diversions
- Aquifer Sector Areas
- Aquifer System Areas
- 201 Aquifer Sector Code
- 20101 Aquifer System Code

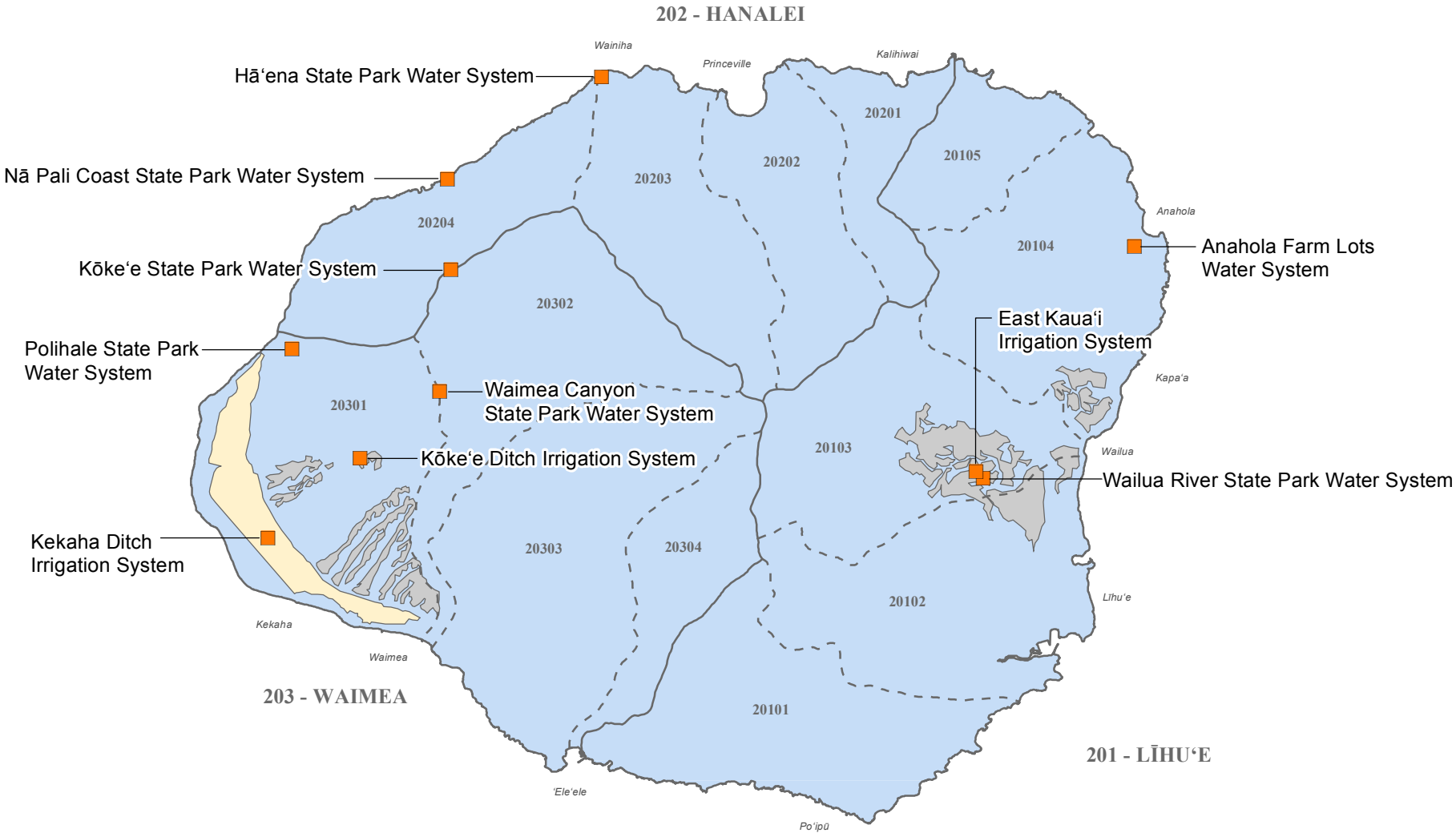
State Water Projects Plan Update - Statewide

Existing State Stream Diversions - Kaua'i

FIGURE 6-2

Fukunaga & Associates, Inc., *Consulting Engineers*

JUNE 2020



State Water Projects Plan Update - Statewide

Existing State Water Systems - Kaua'i

FIGURE 6-3

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The system obtains source water from four sequential intakes on headwaters of the Waimea River deep within the Waimea Surface Water Hydrologic Unit and transports water through seven miles of tunnels and ditches to the 260 MG Puʻu Lua Reservoir at 3,260 foot elevation. Water is transported from the reservoir to the Puʻu Moe Divide, which splits the system to the 88 MG Puʻu ʻŌpae Reservoir, located approximately at the 1,600 foot elevation above Mānā plain, and the abandoned 36 MG Kitano Reservoir, located near the junction of Kōkeʻe Road and Waimea Canyon Drive. At the time of this report, the DLNR Dam Safety Division indicated that the Puʻu ʻŌpae Reservoir was dry and unable to safely hold water.

Part of the DHHL Waimea tract is within the service area of the KODIS; however, several significant rehabilitation projects, including restoration of both the Kitano and Puʻu ʻŌpae Reservoirs into service, would need to be completed to provide agricultural irrigation water to the tract. The 2017 DHHL SWPP estimated a non-potable demand of 12.456 MGD for these agricultural areas. Per the 2004 Agricultural Water Use and Development Plan (AWUDP), the KODIS is also intended to supply agricultural water to State-owned lands; however, current and future water needs were not reported.

6.1.2 Department of Hawaiian Home Lands

The DHHL owns one (1) water system on the island of Kauaʻi: Anahola Farm Lots Water System.

6.1.2.1 Anahola Farm Lots Water System

The Anahola Farm Lots Water System is located within the Līhuʻe Aquifer Sector [201] and the Anahola Aquifer System [20104] on the island of Kauaʻi. The water system is Department of Health (DOH) Public Water System No. 432 and is owned by DHHL and operated by Aqua Engineers, Incorporated. The water system serves 385 people through 77 service connections. 50 of the service connections supply the Anahola Farm Lots Subdivision and the remaining 27 supply the adjacent Bay View Subdivision. Average day demand is approximately 0.098 MGD.

The source is a groundwater well, State Well No. 0919-03, with a pumping capacity of 1.01 MGD. There is also a backup pump that is exercised several times per week. The system facility capacity of the well is 0.672 MGD. There is no available backup power source. Water is pumped from the wells to a 0.5 MG steel storage tank at elevation 353 feet. The water is disinfected using chemical metering injection pumps to dispense a sodium hypochlorite solution into the water prior to it entering the tank. The distribution system is comprised of 6-inch and 8-inch asbestos-cement pipes, and each user connection is metered. The pressures within the system range between 40 and 80 pounds per square inch (psi). There is also an interconnection with the adjacent County of Kauaʻi Department of Water (KDOW) Anahola Water System. It is noted that this interconnection between systems allows both systems to serve as emergency back-up to each other.

Based on the average existing water use for this system, the maximum day demand is 0.147 MGD. Part of the DHHL Anahola tract is within the service area of the water system. The SWPP project average day demand is 0.0585 MGD, and the maximum day demand is 0.088 MGD. The total existing and SWPP project maximum day demand is 0.235 MGD. The system facility capacity

for the Anahola Farm Lots Water System is adequate to meet the existing and SWPP project water demands.

System Facility Capacity (MGD)	Existing Avg Day Demand (MGD)	Existing Max Day Demand (MGD)	Surplus System Facility Capacity (MGD)	2034 SWPP Avg Day Dmd (MGD)	2034 SWPP Max Day Dmd (MGD)	Adequate to meet future demands?	Primary Use
0.672	0.098	0.147	0.526	0.059	0.088	Yes	Potable

6.1.3 Department of Land and Natural Resources

The Department of Land and Natural Resources (DLNR) owns six (6) water systems on the island of Kauaʻi:

- Hāʻena State Park Water System
- Kōkeʻe State Park Water System
- Nā Pali Coast State Wilderness Park Water System
- Polihale State Park Water System
- Wailua River State Park Water System
- Waimea Canyon State Park Water System

6.1.3.1 Hāʻena State Park Water System

The Hāʻena State Park Water System is located at the end of Kūhiō Highway in Hāʻena on the island of Kauaʻi. The system is located in the Hanalei Aquifer Sector Area [202], Wainiha Aquifer System Area [20203]. The water system is owned and operated by the State and managed by the DLNR, Division of State Parks. The water system serves two (2) dwelling units within the park. The current average day consumption is estimated at 0.002 MGD.

The source for the water system is a stream diversion from an unnamed stream. Stream water is diverted through a 2-inch pipe and flows by gravity to the dwelling units.

The future park expansion includes 13.6 acres of landscaping and three new restrooms. The estimated increased future irrigation demand is 0.034 MGD and 0.020 MGD for three new restrooms for a total demand of 0.054 MGD. Information to determine the stream diversion capacity is not available and flow measurements are not recorded. System facility capacity adequacy could not be determined.

6.1.3.2 Kōkeʻe State Park Water System

The Kōkeʻe State Park Water System is located in Waimea Canyon 15 miles North of Kekaha on Kōkeʻe Road on the island of Kauaʻi. The system is located in the Waimea Aquifer Sector Area [203], and Waimea Aquifer System Area [20302]. The water system is owned by the State, managed by the DLNR, Division of State Parks, and operated by Aqua Engineers, a private contractor. It is classified as DOH Public Water System number 425. The Kōkeʻe State Park

Water System services approximately 2,000 people and 93 service connections. According to CWRM records, the average daily water use is 0.042 MGD.

The primary source is two groundwater wells, State Well numbers 0739-01 (Well A) and 0739-03 (Noe Well), with pumping capacities of 0.043 and 0.058 MGD, respectively. The system facility capacity is 0.029 MGD. A gas chlorinator is located at the Well A site to disinfect the water, and the Noe Well water is disinfected with sodium hypochlorite. The water is boosted and stored in three storage reservoir tanks: a 200,000 gallon steel tank at elevation 3,760 feet; Mākaha 50,000 gallon redwood tank at elevation 3,580 feet; and the Puʻu Hinahina 5,000 gallon steel tank at elevation 3,500 feet. The distribution system from the three reservoirs services leasehold residences, Kōkeʻe Lodge restaurant, Kōkeʻe Museum, Navy Mākaha Ridge facility and the Kōkeʻe State Park.

The estimated maximum day demand is 0.063 MGD. The system facility capacity is not adequate to meet the existing maximum day demand. An increase to the system facility capacity is recommended to meet the existing maximum day consumption and future uses. Future water demands for the park were estimated at 0.050 MGD.

System Facility Capacity (MGD)	Existing Avg Day Demand (MGD)	Existing Max Day Demand (MGD)	Surplus System Facility Capacity (MGD)	2034 SWPP Avg Day Dmd (MGD)	2034 SWPP Max Day Dmd (MGD)	Adequate to meet future demands?	Primary Use
0.029	0.042	0.063	0	0.050	0.075	No	Irrigation

6.1.3.3 Nā Pali Coast State Wilderness Park Water System

The Nā Pali Coast State Wilderness Park Water System is located at the end of Kūhiō Highway in Hāʻena State Park on the island of Kauaʻi. The system is located in the Hanalei Aquifer Sector Area [202], and Nā Pali Aquifer System Area [20204]. The water system is owned and operated by the State and managed by the DLNR, Division of State Parks. The water system serves maintenance and campground facilities within the park with an estimated existing average day water demand of 0.002 MGD.

The non-potable source for the water system is a stream diversion from the Miloliʻi stream. Stream water is diverted through a 2-inch pipe and flows by gravity to the park facilities. Information to determine the stream diversion capacity is not available and flow measurements are not recorded. System facility capacity adequacy could not be determined. Future water demands for the park were not reported.

6.1.3.4 Polihale State Park Water System

The Polihale State Park Water System is located at the end of a 5 mile dirt road off Kaumualiʻi Highway past the Pacific Missile Range Facility on the island of Kauaʻi. The system is located in the Waimea Aquifer Sector Area [203], and Kekaha Aquifer System Area [20301]. The water system is owned and operated by the State and managed by the DLNR, Division of State Parks.

The Polihale State Park Water System is DOH Public Water System No. 426. The estimated average day demand from approximately 300 seasonal transient park visitors a day is 0.006 MGD.

The source water is obtained from the Polihale (Kaʻulaʻula) well, State Well number 0545-01, with a pumping capacity of 0.50 MGD. The system facility capacity is 0.33 MGD. The water is disinfected by sodium hypochlorite at the wellhead. Well water is pumped to a 10,000 gallon fiberglass reservoir at elevation 110 feet and into the distribution system which serves park comfort stations and outdoor shower facilities.

The estimated maximum day demand is 0.009 MGD. The system facility capacity is adequate to meet the existing maximum day demand. Future water demands for the park were not reported.

System Facility Capacity (MGD)	Existing Avg Day Demand (MGD)	Existing Max Day Demand (MGD)	Surplus System Facility Capacity (MGD)	2034 SWPP Avg Day Dmd (MGD)	2034 SWPP Max Day Dmd (MGD)	Adequate to meet future demands?	Primary Use
0.336	0.006	0.009	0.327	N/R	-	N/A	Potable

6.1.3.5 Wailua River State Park Water System

The Wailua River State Park Water System is located off Kūhiō Highway along Wailua River, outside Wailua on the island of Kauaʻi. The system is located in the Līhuʻe Aquifer Sector Area [201], and Wailua Aquifer System Area [20103]. The water system is owned and operated by the State and managed by the DLNR, Division of State Parks. The water system serves a comfort station within the park with an estimated average day demand of 0.008 MGD.

The non-potable water source for the water system is the Wailua River using a 0.03 MGD pump to supply the comfort station. The system facility capacity is 0.02 MGD. The estimated maximum day demand is 0.012 MGD. The average day demand from future park irrigation expansion is 0.003 MGD and a maximum day demand of 0.005 MGD. The system facility capacity is adequate to meet the estimated existing and future maximum day demands. The future potable demand projected by State Parks is 0.003 MGD. The KDOW water system is anticipated to serve both existing and future potable demands.

System Facility Capacity (MGD)	Existing Avg Day Demand (MGD)	Existing Max Day Demand (MGD)	Surplus System Facility Capacity (MGD)	2034 SWPP Avg Day Dmd (MGD)	2034 SWPP Max Day Dmd (MGD)	Adequate to meet future demands?	Primary Use
0.019	0.008	0.012	0.007	0.003	0.005	Yes	Non-Potable

6.1.3.6 Waimea Canyon State Park Water System

The Waimea Canyon State Park Water System is located 11.1 miles North of Kekaha on Kōkeʻe Road within Waimea Canyon on the island of Kauaʻi. The system is located in the Waimea

Aquifer Sector Area [203], and Waimea Aquifer System Area [20302]. The water system is owned and operated by the State and managed by the DLNR, Division of State Parks. The water system serves a comfort station within the park with an estimated water average day demand of 0.008 MGD.

The non-potable source for the water system is a stream diversion from the Kōkeʻe Ditch. Stream water is pumped to the comfort station using a 0.04 MGD pump. The system facility capacity is 0.03 MGD. The estimated maximum day demand is 0.012 MGD. The system facility capacity is adequate to meet current maximum day demand. Future water demands for the park were not reported.

System Facility Capacity (MGD)	Existing Avg Day Demand (MGD)	Existing Max Day Demand (MGD)	Surplus System Facility Capacity (MGD)	2034 SWPP Avg Day Dmd (MGD)	2034 SWPP Max Day Dmd (MGD)	Adequate to meet future demands?	Primary Use
0.029	0.008	0.012	0.017	N/R	-	N/A	Non-Potable

6.2 SWPP PROJECT WATER DEMAND

6.2.1 SWPP Project Water Demand Overview

The individual SWPP projects and associated water demands located on the island of Kauaʻi are listed in tabular form separated by Department in **Appendix F** (potable) and **Appendix G** (non-potable) and by Island in **Appendix H** (potable) and **Appendix I** (non-potable). The total SWPP water demands were sorted to summarize the yearly cumulative average day demands throughout the 20-year planning period. **Table 6-1** and **Table 6-2** summarize the SWPP project potable and non-potable water demands by State department, respectively. **Figure 6-4** shows the map of the SWPP project water demands on the island of Kauaʻi.

Table 6-1 – SWPP Potable Water Demands by State Department – Kauaʻi

State Department	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
DAGS	0	0	0.0075	0.0075	0.0075	0.0180	0.0180	0.0180
DHHL	0.0255	0.3530	0.3530	0.3530	0.3530	0.9190	2.2080	2.9184
DLNR	0	0	0	0	0	0.0400	0.0400	0.0400
DOE	0	0	0	0	0	0	0.0074	0.1274
DOT	0	0	0	0.0180	0.0180	0.0180	0.0180	0.0710
OHA	0	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
UH	0	0	0	0.0021	0.0042	0.0042	0.0042	0.0042
Total Kauaʻi	**0.0255**	**0.3545**	**0.3620**	**0.3821**	**0.3842**	**1.0007**	**2.2971**	**3.1805**
Total State	**0.9414**	**5.4812**	**5.8039**	**6.0894**	**6.5019**	**13.286**	**24.273**	**34.147**

Table 6-2 – SWPP Non-Potable Water Demands by State Department – Kauaʻi

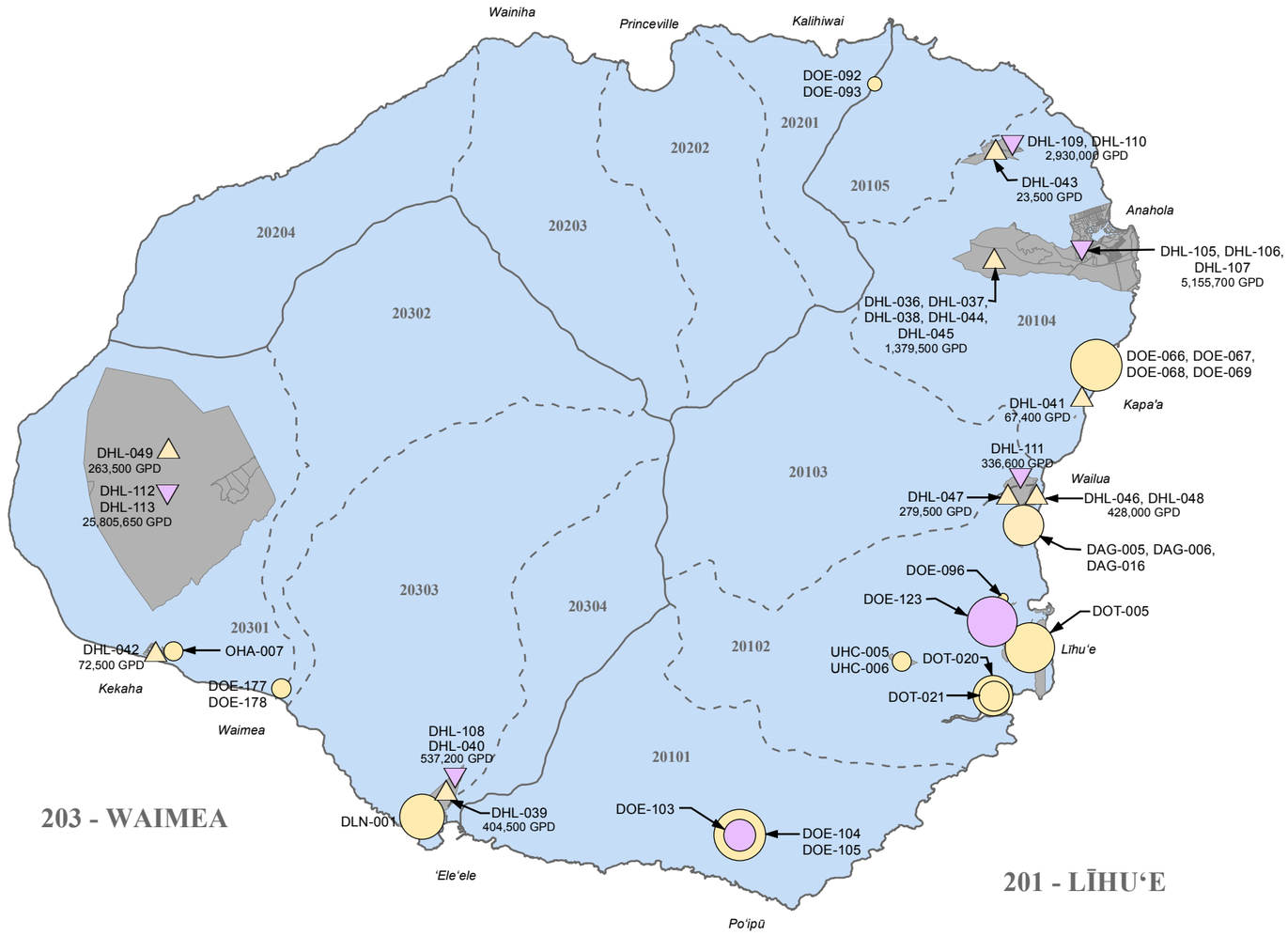
State Department	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
DHHL	0.8194	29.966	29.966	29.966	29.966	31.298	33.548	34.765
DOE	0	0	0	0	0	0	0.0075	0.0675
Total Kauaʻi	**0.8194**	**29.966**	**29.966**	**29.966**	**29.966**	**31.298**	**33.556**	**34.833**
Total State	**0.9224**	**43.461**	**46.824**	**50.162**	**53.791**	**73.079**	**117.60**	**148.57**

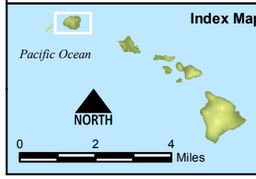
The individual SWPP projects and associated water demands located on the island of Kauaʻi are listed in tabular form separated by Hydrologic Unit in **Appendix J** (potable) and **Appendix K** (non-potable). **Table 6-3** and **Table 6-4** summarize the potable and non-potable water demand for SWPP projects by groundwater and surface water hydrologic unit, respectively.

Table 6-3 – SWPP Potable Water Demands by Groundwater Hydrologic Unit – Kauaʻi

Groundwater Hydrologic Unit		**Sustainable Yield (MGD)**	**SWPP 2034 Potable Demand (MGD)**
Code	**Name**		
20101	Kōloa	29	0.0636
20102	Hanamāʻulu	27	0.0935
20103	Wailua	51	0.7075
20104	Anahola	21	1.5316
20105	Kīlauea	10	0.0008
201	**Subtotal Līhuʻe**	**138**	**2.3970**
20201	Kalihiwai	16	0
20202	Hanalei	35	0
20203	Wainiha	24	0
20204	Nāpali	20	0
202	**Subtotal Hanalei**	**95**	**0**
20301	Kekaha	10	0.3375
20302	Waimea	37	0.0015
20303	Makaweli	26	0.4445
20304	Hanapēpē	22	0
203	**Subtotal Waimea**	**95**	**0.7835**
	Total Kauaʻi	**328**	**3.1805**
	Total State	**3,556.5**	**34.147**

202 - HANALEI





LEGEND:

- Project TMK
- Aquifer Sector Areas
- Aquifer System Areas
- 301 Aquifer Sector Code
- 30101 Aquifer System Code

Potable Project Water Demand (GPD)

100 1000 10,000 100,000

Non-Potable Project Water Demand (GPD)

100 1000 10,000 100,000

DHL Potable Water

DHL Non-Potable Water

State Water Projects Plan Update - Statewide

State Project Demands - Kaua'i

FIGURE 6-4

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Table 6-4 – SWPP Non-Potable Water Demands by Surface Water Hydrologic Unit – Kauaʻi

Surface Water Hydrologic Unit		Declared Use (MGD)	SWPP 2034 Non-Potable Demand (MGD)
Code	Name		
2012	Limahuli	0.649	0
2019	Hanalei	0.026	0
2021	ʻAnini	0.092	0
2026	Puʻukumu	0.002	0
2030	Pīlaʻa	0.159	0
2031	Waipake	0.164	0
2032	Moloaʻa	0.001	2.930
2033	Pāpaʻa	0.013	0
2035	Anahola	0.001	3.876
2037	Kapaʻa	2.793	1.280
2038	Moikeha	0.053	0
2039	Waikaʻea	0.100	0
2040	Wailua	7.564	0.334
2041	Kawailoa	0.000	0
2042	Hanamāʻulu	0.004	0.060
2044	Nāwiliwili	0.004	0
2045	Pūʻali	1.637	0
2046	Huleʻia	5.228	0
2047	Kīpū Kai	0.018	0
2049	Waikomo	1.000	0.008
2051	Lāwai	1.739	0
2053	Wahiawā	7.175	0
2054	Hanapēpē	19.820	0
2055	Kukamahu	0.000	0.537
2058	Aʻakukui	0.216	0
2060	Waimea	17.693	12.456
2061	Kapilimao	32.847	0
2062	Paua	0.000	0
2063	Hōʻea	0.000	13.350
2071	Kauhao	19.010	0
	Total Kauaʻi	**118.008**	**34.833**
	Total State	**390.149**	**148.57**

6.3 SWPP WATER DEVELOPMENT STRATEGY

Water Development Strategy options were assigned to each SWPP project on the island of Kauaʻi as described in Chapter 5. Projects without strategy options but within the service area of the KDOW water system were then identified. The locations of these projects are shown on **Figure 6-5**. As previously discussed, project demands that are anticipated to require potable water to satisfy a non-potable end use demand have been included in the potable water development strategy options and remaining demands.

6.3.1 Water Development Strategy Options Overview

The SWPP water development strategy options account for 54 percent of the total Kaua‘i SWPP potable project water demand for the year 2034. The total water demands for SWPP projects accounted for by each potable water development strategy option for the island of Kaua‘i are summarized in **Table 6-5**. The remaining balance of potable water demands constitutes those projects within or adjacent to the service area of the KDOW water system but without a strategy option. The total water demands for SWPP projects accounted for by each non-potable water development strategy option for the island of Kaua‘i are summarized in **Table 6-6**. Demands met by ambient conditions and not requiring a strategy option are also listed.

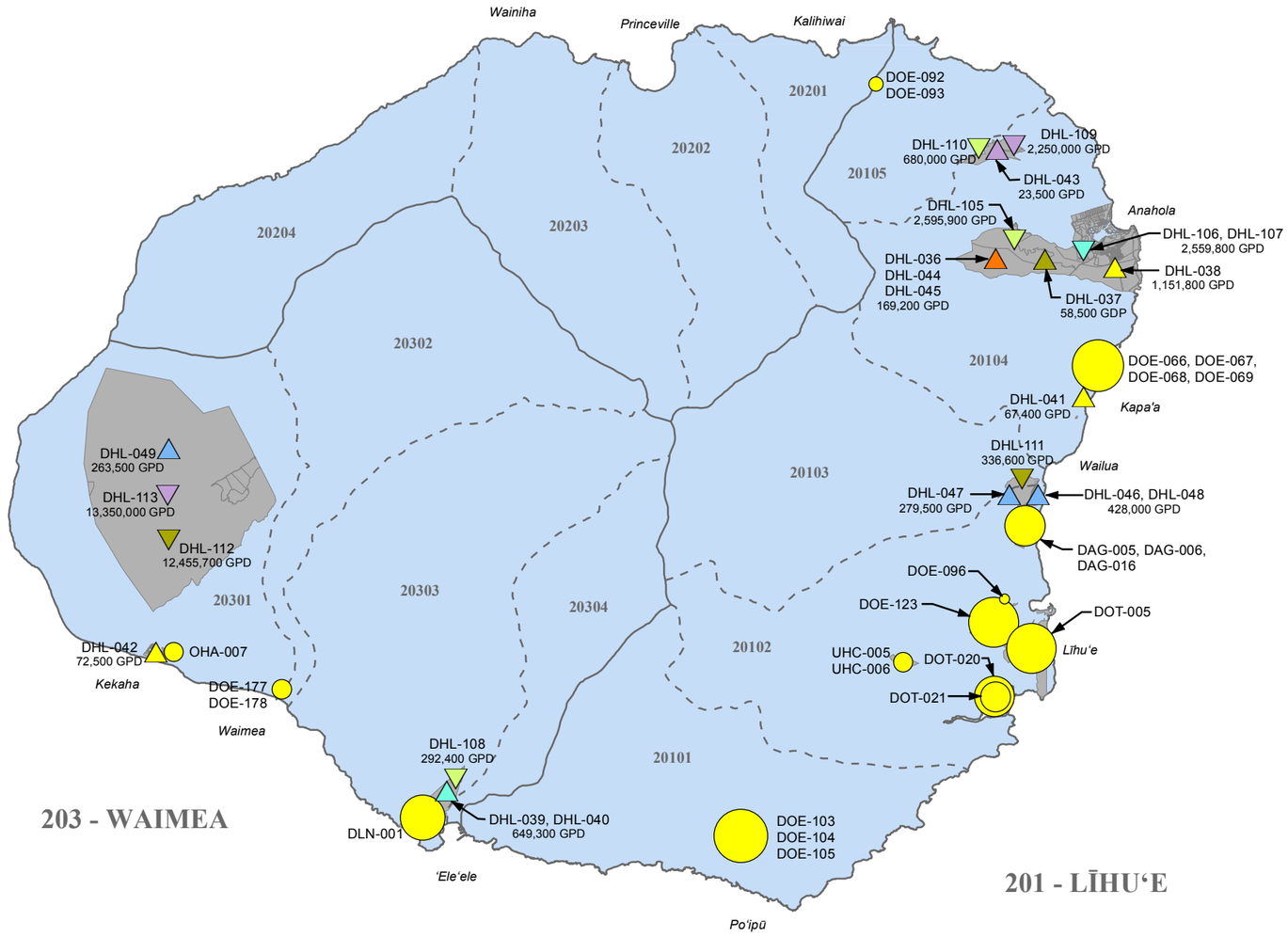
Table 6-5 – Summary of Potable Water Development Strategy and Remaining Demands – Kaua‘i

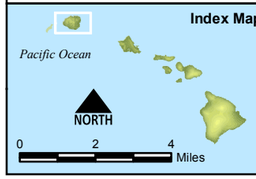
Potable Water Development Strategy Options	Cumulative Average Day Demand (MGD)							
	Short-Term						Long-Term	
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
COUNTY-CREDIT	0.0255	0.0255	0.0255	0.0255	0.0255	0.0760	0.1692	0.1692
EXSWS	0	0	0	0	0	0.0585	0.0585	0.0585
NEWSS	0	0	0	0	0	0.4570	0.5820	0.7075
NEWSWS	0	0.2635	0.2635	0.2635	0.2635	0.2635	0.5645	0.9128
OTHER-CATCHMENT	0	0	0	0	0	0	0	0.0235
Demand Accounted for by Water Development Strategy	**0.0255**	**0.2890**	**0.2890**	**0.2890**	**0.2890**	**0.8550**	**1.3742**	**1.8715**
REMAIN – KDOW	0	0.0655	0.0730	0.0931	0.0952	0.1457	0.9304	1.6213
Total Demand Using Potable Sources	**0.0255**	**0.3545**	**0.3620**	**0.3821**	**0.3842**	**1.0007**	**2.3046**	**3.4928**

Table 6-6 – Summary of Non-Potable Water Development Strategy – Kaua‘i

Non-Potable Water Development Strategy Options	Cumulative Average Day Demand (MGD)							
	Short-Term						Long-Term	
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
EXSWS	0	12.456	12.456	12.456	12.456	12.792	12.792	12.792
NEWSWS	0.8194	1.5640	1.5640	1.5640	1.5640	2.5598	2.5598	2.5598
OTHER-STREAM DIVERSION	0	13.350	13.350	13.350	13.350	13.350	15.600	15.600
Demand Accounted for by Water Development Strategy	**0.8194**	**27.370**	**27.370**	**27.370**	**27.370**	**28.702**	**30.952**	**30.952**
NONE-AMBIENT MOISTURE	0	0	0	0	0	0	0	0.2924
NONE-AMBIENT RAINFALL	0	2.5959	2.5959	2.5959	2.5959	2.5959	2.5959	3.2759
Total Demand Using Non-Potable Sources	**0.8194**	**29.966**	**29.966**	**29.966**	**29.966**	**31.298**	**33.548**	**34.520**

202 - HANALEI





LEGEND:

- Project TMK
- Aquifer Sector Areas
- Aquifer System Areas
- 301 Aquifer Sector Code
- 30101 Aquifer System Code

Potable Water Development Strategy (GPD)

100 1000 10,000 100,000

Non-Potable Water Development Strategy (GPD)

100 1000 10,000 100,000

DHL Potable Water

DHL Non-Potable Water

Strategy Option

- Remain
- County - Credit
- County - Exempt
- County - Privateagree
- County - BWSALL
- None - Ambient Rainfall/Moisture
- EXSWS
- Masterplan
- NEWSS
- NEWSWS
- Other

State Water Projects Plan Update - Statewide

Water Development Strategy - Kaua'i

FIGURE 6-5

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6.3.2 Evaluation of Water Development Strategy Options

6.3.2.1 Existing State Water Systems (EXSWS)

Anahola Farm Lots Water System (DHHL)

The DHHL Anahola Farm Lots Water System is anticipated to supply a portion of DHHL's future homestead area within its Anahola tract (SWPP Project: Anahola 2, DHL-037). As discussed, the system has adequate system facility capacity to supply the existing demand plus the SWPP project potable water demand of 0.0585 MGD.

Kōkeʻe Ditch Irrigation System (ADC)

The 2017 DHHL SWPP identified the KODIS as a potential non-potable water source for the DHHL Waimea tract. The ditch traverses through DHHL's pastoral and Puʻu ʻŌpae Mauka agriculture areas (SWPP project: Waimea (Non-Potable 1), DHL-112) and terminates at the Puʻu ʻŌpae Reservoir. DOA has indicated that this reservoir is not currently in operation; therefore, the reservoir would need to be restored in order to provide the needed irrigation water. The anticipated SWPP project non-potable water demand is 12.456 MGD. The 2017 DHHL SWPP noted that because of the large land area involved and the associated water demands and recent litigation, special attention should be given to this project. Water supply options should therefore be thoroughly planned and coordinated in a collaborative effort between several agencies, including DHHL, DOA, ADC, KDOW and CWRM.

East Kauaʻi Irrigation System (ADC)

As discussed, the majority of the DHHL Wailua tract is within the service area of the Hanamāʻulu Ditch portion of the EKIS. The 2017 DHHL SWPP reported that, although the present condition of the existing ditches within the Wailua tract is not known, based on available information, indications are that the EKIS could provide non-potable water to the DHHL subsistence farming area within the tract (SWPP Project: Wailua Residential (Non-Potable), DHL-111). The anticipated SWPP project non-potable water demand is 0.3366 MGD.

6.3.2.2 Existing State Sources (EXSS)

There are no existing State sources serving SWPP projects.

6.3.2.3 Existing and Planned Water Master Plans (MASTERPLAN)

There are no existing master plans serving SWPP projects.

6.3.2.4 County and Private Water Agreements (COUNTY-CREDIT)

A water credits agreement between the DHHL and the KDOW was signed in 2002. Under this agreement, KDOW would provide 0.4 MGD maximum day demand or a total of 533 in 5/8" water

meter credits for use from the KDOW system in exchange for various water facilities installed by KDOW within the DHHL Anahola tract. The Pi‘ilani Mai Ke Kai Phases 2 and 3 residential developments (SWPP projects: DHL-044 and DHL-045, respectively) within the Anahola tract have already been allocated credits from this agreement. The remaining available balance has been applied to part of the proposed DHHL development within the Anahola tract (SWPP project: Anahola 1, DHL-036), which will exhaust the water credits by 2026. The total SWPP project potable water demand satisfied by these water credits is 0.1692 MGD.

6.3.2.5 New State Water Systems (NEWSWS)

Mauka Village Water System (DHHL)

The DHHL Mauka Village (SWPP Project: Waimea – Mauka Village, DHL-049) is a part of its expansive Waimea tract proposed to be developed for residential and subsistence farming land use. There are no public or private potable water systems in the area. Due to the high elevation, development of groundwater sources is not considered to be a feasible option. The 2017 DHHL SWPP indicated that the KODIS could potentially be the source of potable water for the area with the use of the Kitano Reservoir in conjunction with a surface water treatment plant. The Kitano Reservoir is currently abandoned; therefore, it would need to be restored. The treated water would need to be pumped to a new reservoir which would serve the upper elevations. Extensive transmission mains, pressure reducing valves (PRV), and a second reservoir to supply the lower elevations would also be required. Due to the stringent surface water treatment regulations, substantial monitoring efforts would be necessary. The SWPP project potable water demand is 0.2635 MGD.

Hanapēpē Water System (DHHL)

The DHHL Hanapēpē tract is located outside the service area of the KDOW Hanapēpē Water System. Extension of the water system would require additional sources, a booster pumping station, and extensive infrastructure, which may be excessively costly. DHHL has information on a non-production exploratory well that may lead to development of a potable water source. The 2017 DHHL SWPP indicated that DHHL could construct its own water system to supply the tract, but noted that further studies are needed to determine the best location for a well. Water requirements for the tract include potable water for proposed residential and subsistence farming community (SWPP Project: Hanapepe, DHL-039) and associated irrigation water (SWPP Project: Hanapepe (Non-Potable Using Potable), DHL-040). The total SWPP project water demand is 0.6493 MGD.

Anahola Ditch Irrigation System (DHHL)

The 2017 DHHL SWPP indicated that the non-potable irrigation requirements for the Kamalomalo‘o Valley subsistence farming lands (SWPP Projects: Anahola (Non-Potable 2), DHL-106; and Anahola (Non-Potable 3), DHL-107) within the Anahola tract could possibly be supplied by reinstating the Anahola Ditch Irrigation System (ADIS). DHHL has indicated that there are existing ADIS ditches and a reservoir situated throughout its lands that can divert water from Anahola Stream; however, the 2004 AWUDP acknowledged that the ADIS has essentially

already been abandoned. DHHL has already initiated studies and beneficiary consultation on this matter. The anticipated SWPP project non-potable water demand is 2.5598 MGD.

6.3.2.6 New/Planned State Wells (NEWSS)

An exploratory well on DHHL lands was drilled and tested in 2009 with the intent of servicing its Wailua tract. Preliminary test results indicate that the well has the capability to produce potable water. At the time of the 2017 DHHL SWPP update, DHHL was in the process of procuring a consultant to complete an Environmental Assessment to convert the exploratory well into a production well. Development of a new State well would not absolve DHHL from all facilities charges, and it is expected that storage and transmission components would still apply. DHHL's developable areas within the Wailua tract requiring potable water include residential and subsistence farming communities (SWPP Projects: Wailua, DHL-046; and Wailua Residential, DHL-047), and commercial and resort developments (SWPP Project: Wailua Commercial & Resort, DHL-048). The existing KDOW Kapa'a Water System extends to the area; however, source and storage capacities are insufficient to satisfy the total SWPP project potable water demand of 0.7075 MGD.

6.3.2.7 Planned Private Sources (PLANPS)

There were no reported planned private sources available for SWPP projects.

6.3.2.8 Coordination of Remaining SWPP Project Demands with County Water Department (REMAIN)

The remaining balance of potable water demands are summarized by groundwater hydrologic unit in **Table 6-7**.

Table 6-7 – Summary of Remaining Potable Demands by Groundwater Hydrologic Unit – Kaua'i

Groundwater Hydrologic Unit		Cumulative Average Day Demand (MGD)							
		Short-Term						Long-Term	
Code	Name	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
20101	Kōloa	0	0	0	0	0	0	0.0111	0.0711
20102	Hanamā'ulu	0	0	0.0075	0.0276	0.0297	0.0402	0.0405	0.1535
20104	Anahola	0	0.0640	0.0640	0.0640	0.0640	0.0640	0.7870	1.2804
20105	Kīlauea	0	0	0	0	0	0	0.0008	0.0008
201	**Subtotal Līhu'e**	**0**	**0.064**	**0.0715**	**0.0916**	**0.0937**	**0.1042**	**0.8394**	**1.5058**
20301	Kekaha	0	0.0015	0.0015	0.0015	0.0015	0.0015	0.0495	0.0740
20302	Waimea	0	0	0	0	0	0	0.0015	0.0015
20303	Makaweli	0	0	0	0	0	0.0400	0.0400	0.0400
203	**Subtotal Waimea**	**0**	**0.0015**	**0.0015**	**0.0015**	**0.0015**	**0.0415**	**0.091**	**0.1155**
	Total Kaua'i	**0**	**0.0655**	**0.0730**	**0.0931**	**0.0952**	**0.1457**	**0.9304**	**1.6213**

The Kaua'i Department of Water remains the first strategy option to serve remaining SWPP project water demands on the island of Kaua'i. DLNR will coordinate the availability of water system

capacity with the KDOW to meet these water demands. KDOW and DLNR should note that a remaining potable water demand of 1.28 MGD is anticipated in the Anahola Aquifer System by 2034. A planning level estimate to determine the anticipated cost to connect to the KDOW water system is provided in **Appendix O**. These planning level cost estimates are for budgetary purposes only.

6.3.2.9 Water Catchment Systems

The KDOW Moloaʻa Water System is located in the general area of the DHHL Moloaʻa tract; however, connecting to this existing water system is not considered a feasible supply option. This is because extending service to the proposed Moloaʻa tract site would likely require installation of a new booster pumping station and an addition of a significant length of pipeline. In lieu of acquiring water from the existing KDOW water system, it is anticipated that including catchment systems in DHHL's subsistence farming homesteads (SWPP project: Moloaʻa, DHL-043) could adequately provide the projected water required. It is noted that ambient annual rainfall within the tract ranges between 80 and 120 inches. The SWPP project potable water demand is 0.0235 MGD.

6.3.2.10 Stream Diversions

There are two DHHL areas anticipated for loʻi kalo cultivation that could potentially use this strategy option to provide needed irrigation water. The Kinekine Ditch flows through the Waiawa Valley area within the Waimea tract (SWPP project: Waimea (Non-Potable 2), DHL-113), and the perennial Moloaʻa Stream flows through the Moloaʻa tract (SWPP project: Moloaʻa (Non-Potable 1), DHL-109). Although these streams flow through these project locations, as discussed in the 2017 DHHL SWPP, further studies will need to be completed to determine the amount of water that can be supplied. The anticipated SWPP project non-potable water demand is 15.6 MGD.

6.3.2.11 No Water Development Strategy Assigned

The DHHL Anahola and Moloaʻa tracts are located in areas characterized with high ambient rainfall. The Moloaʻa tract receives between 80 and 120 inches of rainfall annually. DHHL anticipates that the ambient rainfall should be sufficient to satisfy the non-potable requirements for subsistence farming with these tracts. The SWPP projects are:

- Anahola (Non-Potable 1), DHL-105
- Moloaʻa (Non-Potable 2), DHL-110

The total SWPP non-potable water demand anticipated to be supplied by ambient rainfall is 3.2759 MGD.

CHAPTER 7 SWPP FOR THE ISLAND OF O'AHU

7.1 EXISTING STATE WATER RESOURCES

The State currently owns and/or operates 124 wells, 4 stream diversions, and 15 water systems on the island of Oʻahu. The locations of the registered State wells are shown in **Figure 7-1**, the locations of the stream diversions are shown in **Figure 7-2**, and the locations of the water systems are shown in **Figure 7-3**.

7.1.1 Department of Agriculture and Agribusiness Development Corporation

The Department of Agriculture (DOA) owns, operates, and/or manages the following three water systems:

- Kahuku Irrigation System
- Waimānalo Irrigation System

The Agribusiness Development Corporation (ADC) operates and/or manages; or controls land supplied by the following water system: Waiāhole Ditch Irrigation System.

7.1.1.1 Kahuku Irrigation System

The Kahuku Irrigation System is located in Kahuku within the Koʻolauloa District on the island of Oʻahu. The system is located in the Windward Aquifer Sector Area [306], and Koʻolauloa Aquifer System Area [30601]. The irrigation system is owned by the State and managed by the DOA, Agricultural Resource Management Division (ARMD), and is operated and maintained by Pacific Electro-Mechanical, a private contractor. This irrigation system serves the existing Kahuku Agricultural Park, which consists of 24 farm lots of 213 usable farming acres, and one additional lot leased and occupied by the Kahuku Farmers Association. According to DOA metering records, the average daily quantity of water provided to lands under DOA control was 0.065 MGD in fiscal years 2014 and 2015.

The Kahuku Irrigation System is supplied by non-potable water from the Pump 1 Battery, State Well No. 4057-01. There are six pumps: 3 – 50 horsepower (HP) pumps with capacities of 0.72 MGD, 0.72 MGD and 0.86 MGD respectively; and 3 – 100 HP pumps with capacities of 0.86 MGD for each pump. The Pump 1 Battery has a total pumping capacity of 4.03 MGD and a cumulative system facility capacity of 2.69 MGD. A Supervisory Control and Data Acquisition (SCADA) system has been installed in the system, and future improvements to the pump house and replacement of the pumps are already scheduled for this system. The Kahuku Farmers Association (lot number 25) obtains source water directly from the well site (with 3 – 50 HP pumps), and the other 24 farm lots receive water from the 3 – 100 HP pumps which convey the irrigation water to a 0.1 million-gallon (MG) steel reservoir tank situated at the 300-foot elevation. The transmission and distribution system from the reservoir tank to the 24 individual farm lots is comprised of 12-inch and 8-inch ductile iron pipes. According to the 2015 Statewide Agricultural Land Use Baseline, the types of crops grown in the area include diversified crops and aquaculture.

The system facility capacity is adequate to meet existing consumption.

System Facility Capacity (MGD)	Existing Avg Day Demand (MGD)	Existing Max Day Demand (MGD)	Surplus System Facility Capacity (MGD)	2034 SWPP Avg Day Dmd (MGD)	2034 SWPP Max Day Dmd (MGD)	Adequate to meet future demands?	Primary Use
2.688	0.065	0.098	2.590	N/R	-	N/A	Irrigation

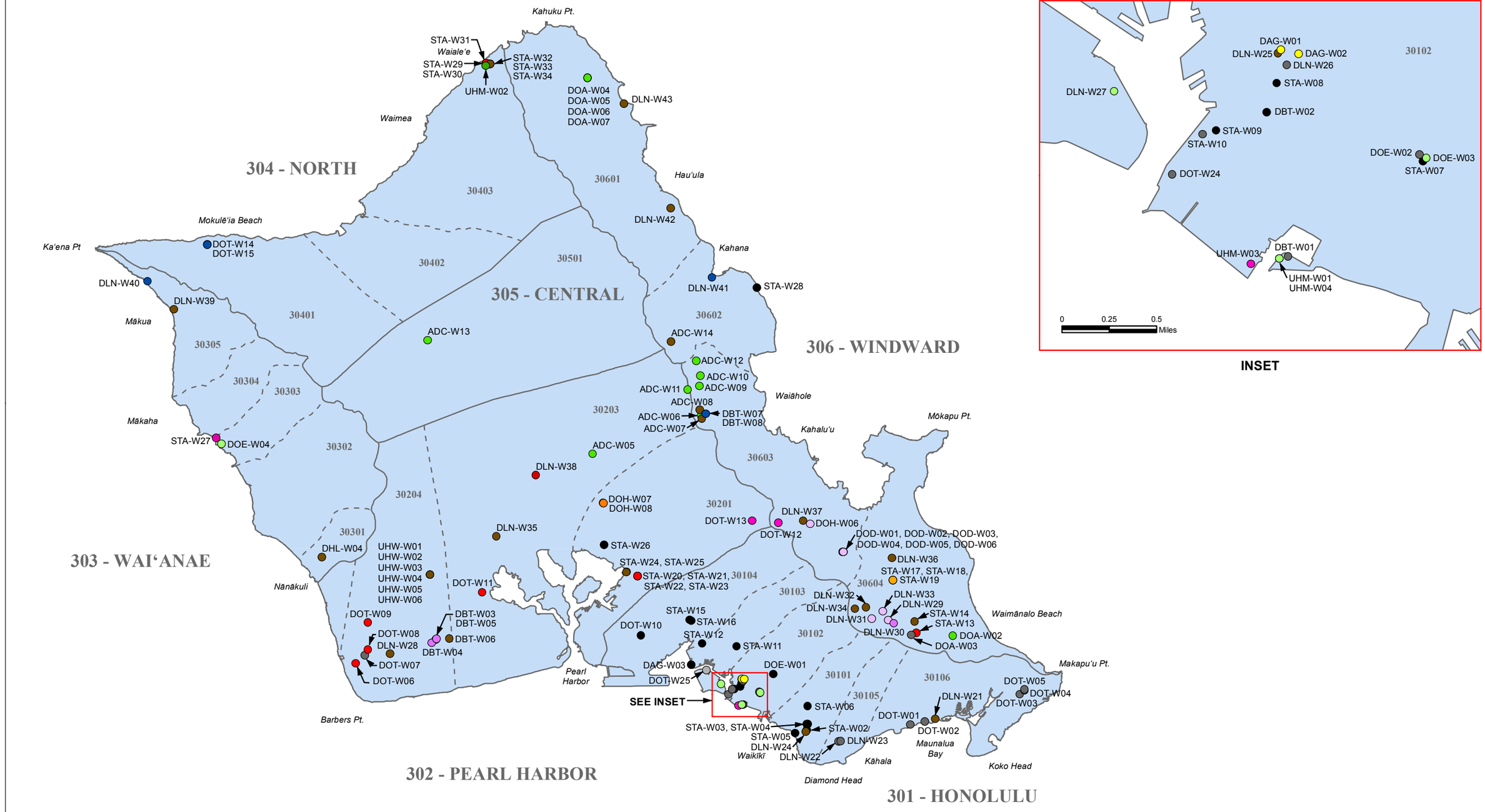
7.1.1.2 Waimānalo Irrigation System

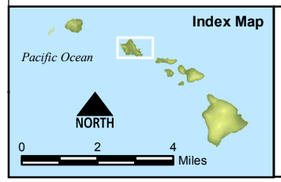
The Waimānalo Irrigation System is located in Waimānalo on the windward coast of the island of O‘ahu. The system is located in the Windward Aquifer Sector Area [306], and Waimānalo Aquifer System Area [30604]. The irrigation system is owned by the State, managed by the DOA and operated and maintained by the ARMD. The system currently serves approximately 1,027 acres, with 157 metered service connections. According to DOA metering records, the average daily quantity of water provided to lands under DOA control was 0.158 MGD in fiscal years 2014 through 2016.

The Waimānalo Irrigation System was constructed in 1878 by the Waimānalo Sugar Company for sugar cane irrigation. The sources for the system include five intake structures: intake structure number 1 diverts water from Clark Tunnel; intake structure number 3 diverts stream water from Maunawili Stream; intake structure number 10 diverts stream water from ‘Ainoni Stream; intake structure number 16 diverts water from Fault Tunnel; and intake structure number 17 diverts stream water from Makawao Stream. These intake structures are located in the Waimānalo Forest Reserve in Maunawili Valley. Water is transmitted from the intake structures to a 60 MG lined reservoir in Waimānalo via an open ditch and tunnel system composed of concrete lined ditches, open ditches, siphons, flumes and Aniani Nui Tunnel, and is approximately four miles in length. The 60 MG reservoir is located at the end of Mahailua Street at an elevation of approximately 300 feet. From the reservoir, a distribution system composed of 6-inch to 24-inch transmission lines services the farm lots. Improvements to the reservoir and pipeline transmission system have been completed, and upgrades to the ditch system and replacement of portions of the open ditch with pipeline are planned. The distribution system serves smaller diversified agricultural farms in the Waimānalo Agricultural Farm lot Subdivisions. According to the 2015 Statewide Agricultural Land Use Baseline, the types of crops grown in the area include flowers/foliage/landscape, diversified crops, banana, tropical fruits and seed production; pasture lands are also supported. Potable water and fire protection for the Waimānalo Agricultural Farm Lot Subdivision is provided by a separate Honolulu Board of Water Supply (HBWS) system.

7.1.1.3 Waiāhole Ditch Irrigation System

The Waiāhole Ditch Irrigation System (WDIS) is located on the island of O‘ahu. The system is owned by the State and operated by the ADC. The system is located in the Windward [306], Central [305] and Pearl Harbor [302] Aquifer Sector Areas and Kahana [30602], Ko‘olaupoko [30603], Wahiawā [30501] and Waipahu-Waiawa [30203] Aquifer System Areas. At the time of this report, the CWRM indicated that the water allocation from the WDIS was 12.24 MGD.





LEGEND:

ABN	AGRAQ	DOM	IRRGC	IRRSC	OBSDM	UNU	
ABNLOS	AGRCP	DOMNSC	IRRHM	MUN	OBSWL		
ABNSLD	AGRLI	INDEL	IRRLA	MUNST	OTH		
AGR	AGROTH	IRR	IRRPA	OBS	UNK		

Aquifer Sector Areas
Aquifer System Areas
301 Aquifer Sector Code
30101 Aquifer System Code

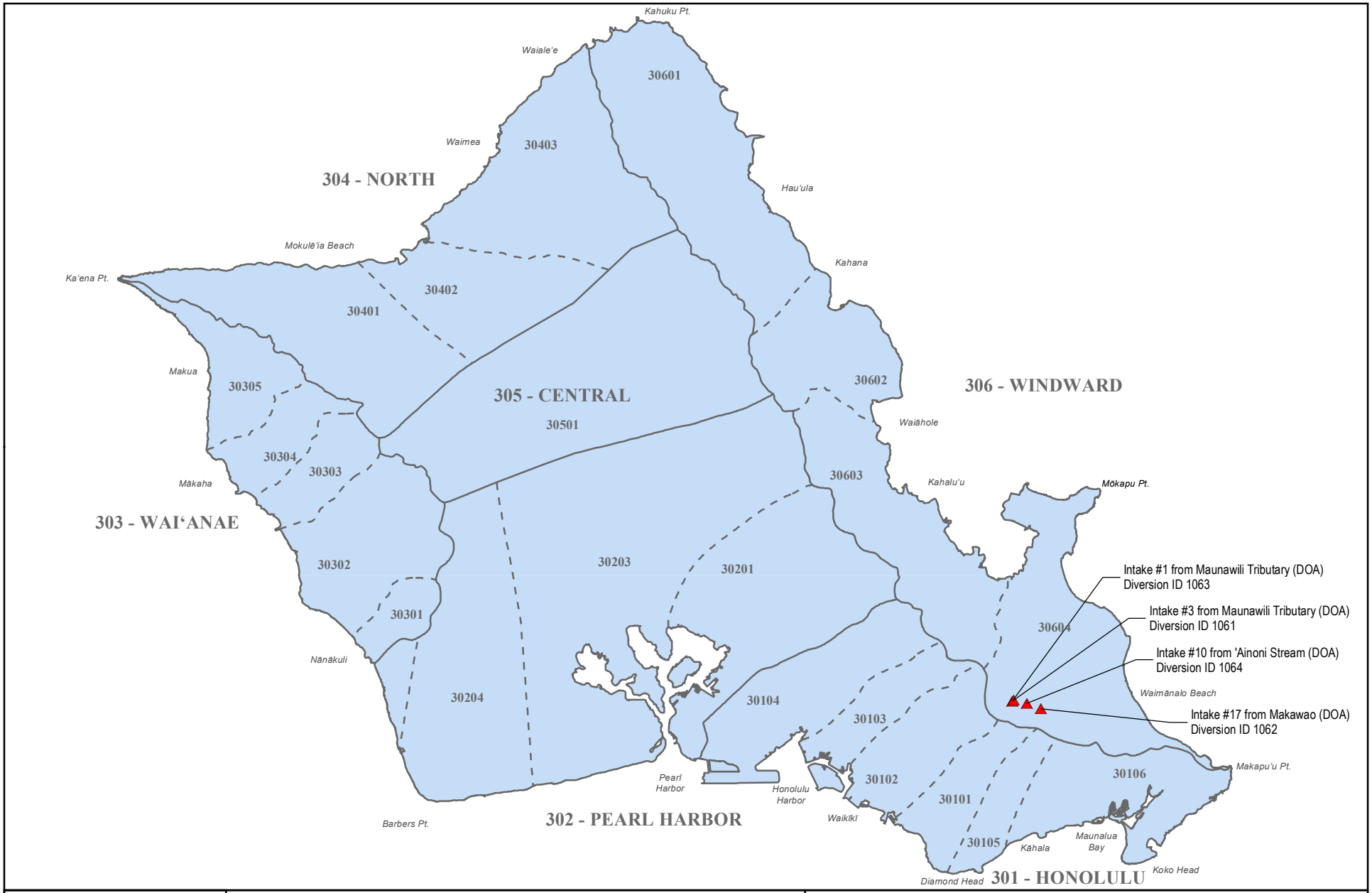
State Water Projects Plan Update - Statewide

Existing Registered State Wells - O'ahu

FIGURE 7-1

Fukunaga & Associates, Inc., *Consulting Engineers*

JUNE 2020



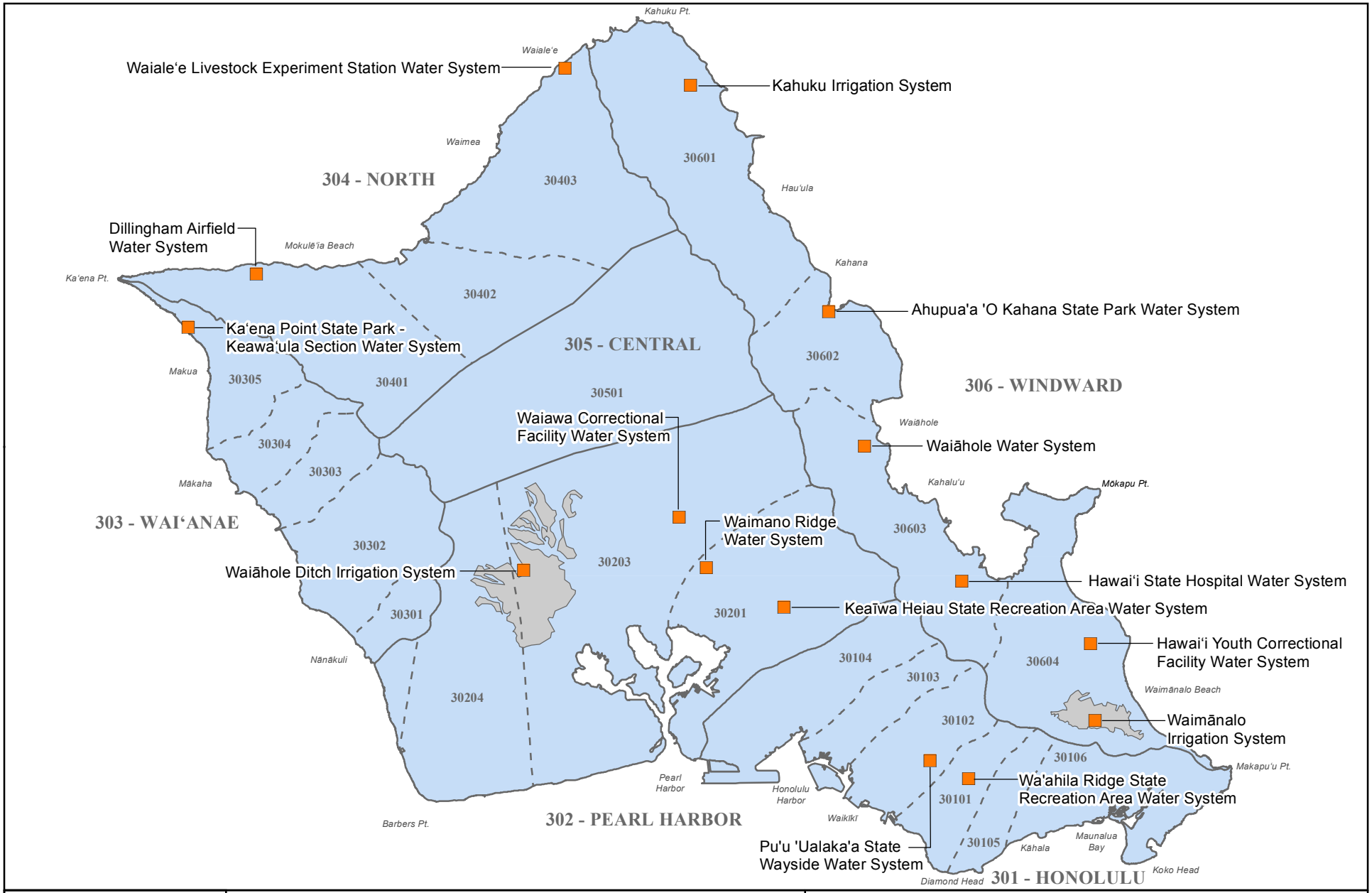
State Water Projects Plan Update - Statewide

Existing State Stream Diversions - Oʻahu

FIGURE 7-2

Fukunaga & Associates, Inc., *Consulting Engineers*

JUNE 2020



State Water Projects Plan Update - Statewide

Existing State Water Systems - O'ahu

FIGURE 7-3

Fukunaga & Associates, Inc., *Consulting Engineers*

JUNE 2020

The WDIS was constructed between 1913 and 1916, as a means of transporting water from the windward side of O‘ahu through the Ko‘olau Mountains to the central and leeward areas, primarily for sugarcane irrigation. Beginning in 1925, six high-level groundwater development tunnels were constructed over a period of several years; however, only four were productive: Kahala, Waikāne I, Waikāne II and Uwau Tunnels, with the Uwau Tunnel being the most productive. All of the system’s 37 stream intakes have been abandoned, but the four groundwater development tunnels have remained unchanged. The WDIS currently consists of approximately 22 miles of open/concrete lined ditches, tunnels, gates, flumes and siphons with a transmission capacity of approximately 100 MGD. The system also includes Reservoir 225 (10 MG) and terminal Reservoir 155 (15 MG), which are old, unlined earthen reservoirs afflicted by seepage losses and diminished storage capacity due to years of siltation.

The rulings of the Hawai‘i Supreme Court in the Waiāhole Ditch Contested Case Hearing and the subsequent water allocations set by CWRM placed a water use limitation on the WDIS and thus the agricultural use and the availability of water during drought or low rainfall periods are severely restricted. The potential for expansion of agricultural use will be contingent on improvements to the system’s efficiency to reduce water losses.

7.1.2 Department of Business, Economic Development and Tourism

There is one water system under the Department of Business, Economic Development and Tourism (DBEDT) on the island of O‘ahu: Waiāhole Water System.

7.1.2.1 Waiāhole Water System

The Waiāhole Water System is located in Waiāhole Valley on O‘ahu. The system is located in the Windward Aquifer Sector Area [306], and Ko‘olaupoko Aquifer System Area [30603]. The water system is owned by the State and managed by the Hawai‘i Housing Finance & Development Corporation (HHFDC) within the DBEDT. The Waiāhole Water System listed by the Department of Health (DOH) as Public Water System No. 368. The water system is operated by a private contractor, Doonwood Engineering, Inc. The water system serves 104 service connections with a residential population of 300 people. The existing average day demand is 0.076 MGD.

The source for the water system is two wells, State Well numbers 2853-04 and 2853-05, with a design pump capacity of 1.32 MGD for each well. The system facility capacity is 0.88 MGD. The Waiāhole well battery has a permitted water allocation of 0.075 MGD. The water is disinfected by applying sodium hypochlorite to the water at the well sites. The well water is pumped to a 1,500-gallon fiberglass tank, located at elevation 538 feet and gravity fed to a 1.0 MG steel reservoir at elevation 199 feet. The distribution system consists of 8-inch water lines. The water system also services the Waiāhole Elementary School. This system provides water for residential, diversified agriculture and elementary school uses.

The Department of Hawaiian Home Lands (DHHL) has proposed to add 27 homestead units in this Waiāhole area, which will increase the average day demand by 0.014 MGD. The total existing and SWPP project maximum day demand is 0.13 MGD. The system facility capacity for the Waiāhole Water System is adequate to meet existing and SWPP project water demands.

System Facility Capacity (MGD)	Existing Avg Day Demand (MGD)	Existing Max Day Demand (MGD)	Surplus System Facility Capacity (MGD)	2034 SWPP Avg Day Dmd (MGD)	2034 SWPP Max Day Dmd (MGD)	Adequate to meet future demands?	Primary Use
0.883	0.076	0.114	0.769	0.014	0.021	Yes	Non-Potable

7.1.3 Department of Health

The DOH owns two water systems, both located on the island of Oʻahu:

- Hawaiʻi State Hospital Water System
- Waimano Ridge Water System

7.1.3.1 Hawaiʻi State Hospital Water System

The Hawaiʻi State Hospital Water System is located in Kāneʻohe, Oʻahu. The system is located in the Windward Aquifer Sector Area [306], and Koʻolaupoko Aquifer System Area [30603]. The water system is owned and operated by the State DOH. According to CWRM records, the average daily water use is 0.326 MGD.

The water system is currently supplied by the HBWS water system through a 4-inch meter. The source for the water system formerly was a DOH groundwater well, State Well number 2448-01; however, the water does not meet DOH drinking water standards. The pumping capacity of the well was 0.65 MGD. The well had a permitted water allocation of 0.088 MGD. The well water was treated using salt pellets at the well site. The well water was pumped to a 0.60 MG above-ground steel tank at elevation 427 feet. In 1997, the treatment process and tank were taken out of service; however, this led to high pressures in the system with numerous leaks and failures occurring, and the tank was put back into service. The tank also provides emergency back-up water supply and surge protection. The distribution system serves the Hawaiʻi State Hospital. The buildings at Windward Community College are supplied by a separate HBWS connection and meter.

The DOH SWPP project, Hawaiʻi State Hospital Patient Facility, is proposed to be supplied by this water system. The SWPP project average day demand is 0.054 MGD, with a maximum day demand of 0.081 MGD. The total existing and SWPP maximum day demand is 0.57 MGD. DOH has indicated that water credits with HBWS will be claimed for the demolition of an existing building and applied to this project.

7.1.3.2 Waimano Ridge Water System

The Waimano Ridge Water System is located in Pearl City, Oʻahu at the end of Waimano Home Road. The system is located in the Pearl Harbor Aquifer Sector Area [302], and Waimalu Aquifer System Area [30201]. The water system is owned by the State DOH and operated by the HBWS. The water system is classified as DOH Public Water System No. 306. The system serves 400

people through 52 service connections. According to CWRM records, the average daily water use is 0.022 MGD.

The water supply consists of two groundwater wells, State Well numbers 2557-01 and 2557-02, with pumping capacities of 0.36 and 0.58 MGD, respectively. The system facility capacity is 0.24 MGD. The well battery has a permitted water allocation of 0.136 MGD. The raw water is chlorinated using sodium hypochlorite prior to being pumped to a buried 0.10 MG concrete reservoir at elevation 600 feet. The water is boosted by two booster pumps to two reservoirs: a 0.59 MG steel tank and a 0.10 MG steel tank located on a hill above the Waimano Home at an elevation of 860 feet. The water distribution system was upgraded in 2012 and includes waterlines ranging from 2-inch through 12-inch diameter to provide service to the Waimano Training School and Hospital, DOH Laboratory Facilities, Waimano Hale, Sun Project Facilities, Department of Public Safety (DPS) training facilities and Department of Land and Natural Resources (DLNR), Enforcement Division facilities.

The existing maximum day demand is 0.033 MGD. The DOH SWPP project, Uluakupu Building Interior Renovation, is proposed to be supplied by this water system. The SWPP project average day demand is at 0.014 MGD, with a maximum day demand of 0.021 MGD. The total existing and SWPP project maximum day demand is 0.054 MGD. The system facility capacity for the Waimano Ridge Water System is adequate to meet existing and SWPP project water demands.

System Facility Capacity (MGD)	Existing Avg Day Demand (MGD)	Existing Max Day Demand (MGD)	Surplus System Facility Capacity (MGD)	2034 SWPP Avg Day Dmd (MGD)	2034 SWPP Max Day Dmd (MGD)	Adequate to meet future demands?	Primary Use
0.240	0.022	0.033	0.207	0.014	0.021	Yes	Potable

7.1.4 Department of Human Services

The DHS owns one water system, located on the island of O‘ahu: Hawai‘i Youth Correctional Facility Water System.

7.1.4.1 Hawai‘i Youth Correctional Facility Water System

The Hawai‘i Youth Correctional Facility Water System is located in Kailua, O‘ahu. The system is located in the Windward Aquifer Sector Area [306], and Waimānalo Aquifer System Area [30604]. The water system is owned and operated by the State DHS, Office of Youth Services.

Water for this system is obtained from a connection to an 8-inch HBWS water line located on Kalaniana‘ole Highway. Water from HBWS connection services the makai and mauka sides of the correctional facility. The makai end includes the Women’s Correctional Facility. The water from the mauka side is pumped up to two reservoirs: a 0.5 MG reservoir and a 0.125 MG reservoir, which serves the Hawai‘i Youth Correctional Facility, Department of Education Olomana School and the DPS Officer Training Facility. The distribution system includes over 1,000 LF of 8-inch water line, a booster pump facility and storage reservoirs.

Future water demands were not reported.

7.1.5 Department of Land and Natural Resources

The DLNR owns five water systems on the island of Oʻahu:

- Ahupuaʻa ʻO Kahana State Park Water System
- Kaʻena Point State Park – Keawaʻula Section Water System
- Keaīwa Heiau State Recreation Area Water System
- Puʻu ʻUalakaʻa State Wayside Water System
- Waʻahila Ridge State Recreation Area Water System

7.1.5.1 Ahupuaʻa ʻO Kahana State Park Water System

The Ahupuaʻa ʻO Kahana State Park is located in Kahana Valley between Kaʻaʻawa and Punaluʻu, above Kamehameha Highway on the island of Oʻahu. The system is located in the Windward Aquifer Sector Area [306], and Kahana Aquifer System Area [30602]. The DLNR, Division of State Parks owns the water system, but does not maintain or operate the water system. The water system serves approximately six residential houses in the valley, and the average day water demand is estimated at 0.008 MGD.

The water system includes an artesian well, State Well number 3352-01 and a two-inch galvanized iron pipe water line. The well has a permitted water allocation of 0.008 MGD. The two-inch line extends from the well head into the valley. The Ahupuaʻa ʻO Kahana State Park facilities are served by the HBWS water system. The residential water use is not metered. There are no future expansion plans for the water system. Water levels in the artesian well have maintained to provide adequate capacity and water pressure to meet the current consumption.

7.1.5.2 Kaʻena Point State Park – Keawaʻula Section Water System

The Kaʻena Point State Park – Keawaʻula Section Water System is located at the end of Farrington Highway on the Waiʻanae Coast on the island of Oʻahu. The system is located in the Waiʻanae Aquifer Sector Area [303], and Keaʻau Aquifer System Area [30305]. The water system is owned and operated by the State and managed by the DLNR, Division of State Parks. The estimated existing irrigation demand for the park is 0.008 MGD.

The source for the non-potable water system are two groundwater wells, Keawaʻula Bay (State Well No. 3314-04), with a pump capacity of 0.13 MGD, and Kahanahāiki (State Well No. 3213-07), with a pump capacity of 0.14 MGD. The system facility capacity is 0.09 MGD. The non-potable water pressure is increased by booster pumps prior to being fed into the park irrigation system. The estimated increase future irrigation for the park is 0.024 MGD based on an expansion of 6 acres of park landscaping. Existing Kaʻena Point State Park – Keawaʻula Section non-potable groundwater sources are adequate to meet current irrigation consumption and projected future irrigation demands. The future potable average day demand projected by State Parks is 0.01 MGD, which is served by the HBWS water system.

System Facility Capacity (MGD)	Existing Avg Day Demand (MGD)	Existing Max Day Demand (MGD)	Surplus System Facility Capacity (MGD)	2034 SWPP Avg Day Dmd (MGD)	2034 SWPP Max Day Dmd (MGD)	Adequate to meet future demands?	Primary Use
0.086	0.008	0.012	0.074	0.024	0.036	Yes	Non-Potable

7.1.5.3 Keaīwa Heiau State Recreation Area Water System

The Keaīwa Heiau State Recreation Area Water System is located at the end of Aiea Heights Drive, in Aiea Heights on the island of O‘ahu. The system is located in the Pearl Harbor Aquifer Sector Area [302], and Waimalu Aquifer System Area [30201]. The water system is owned and operated by the State and managed by the DLNR, Division of State Parks. The potable water serving the park is obtained from the HBWS. A booster pump is used to convey the water into a 0.02 MG reservoir. Water from the reservoir is then distributed through the water system to park facilities. The park facilities include restrooms, caretaker residence and campground area. The existing metered average day consumption from park facilities is 0.002 MGD. Future water demands for the park were not reported.

7.1.5.4 Pu‘u ‘Ualaka‘a State Wayside Water System

The Pu‘u ‘Ualaka‘a State Wayside Water System is located in upper Makiki on the island of O‘ahu. The system is located in the Honolulu Aquifer Sector Area [301], and Nu‘uanu Aquifer System Area [30102]. The water system is owned and operated by the State and managed by the DLNR, Division of State Parks. The potable water serving the park is obtained from the HBWS. A booster pump conveys water into a 0.008 MG reservoir. Water from the reservoir is then distributed through the irrigation system to park facilities. The park facilities include restrooms, caretaker residence and campground area. The existing metered average day consumption from park facilities is 0.001 MGD. The future potable demand projected by State Parks is 0.03 MGD.

7.1.5.5 Wa‘ahila Ridge State Recreation Area Water System

The Wa‘ahila Ridge State Recreation Area Water System is located in St. Louis Heights on the island of O‘ahu. The system is located in the Honolulu Aquifer Sector Area [301], and Nu‘uanu Aquifer System Area [30102]. The water system is owned and operated by the State and managed by the DLNR, Division of State Parks. The potable water serving the park is obtained from the HBWS. Water for the park is stored in a 0.01 MG reservoir and distributed through an irrigation system to park facilities. The park facilities include a restroom and three pavilions. The existing metered average day consumption from park facilities is 0.002 MGD. Future water demands for the park were not reported.

7.1.6 Department of Public Safety

The DPS owns one water system on the island of O‘ahu: Waiawa Correctional Facility Water System.

7.1.6.1 Waiawa Correctional Facility Water System

The Waiawa Correctional Facility Water System is located in central Oʻahu, approximately 2-1/2 miles east of the H-2 Freeway and Mililani Memorial Cemetery Road interchange. The system is located in the Pearl Harbor Aquifer Sector Area [302], and Waipahu-Waiawa Aquifer System Area [30203]. The water system is owned by the State DPS and is operated by Pural Water Specialty Company, Incorporated. The correctional facility was originally a U.S. Army radio station facility. The State acquired the facility in 1985. The water system is classified as DOH Public Water System No. 348 and serves 334 people through 12 service connections. The estimated existing average day demand is 0.05 MGD.

Source water for the correctional facility is obtained from the Waiāhole Ditch through two intake water lines. The design diversion capacity is 37.50 gallons per minute (GPM) (0.05 MGD). The permitted water allocation from the Waiāhole Ditch system is 0.15 MGD. The source water is conveyed by booster pumps to a microfiltration treatment plant where it is filtered and sodium hypochlorite is added. Three booster pumps convey the treated water to a 0.5 MG reservoir which supplies the water system. The distribution system consists of 6-inch, 8-inch and 12-inch water lines.

The estimated maximum day demand is 0.075 MGD. The system facility capacity of the potable water system is not adequate to meet existing potable water requirements. Future water demands were not reported.

A separate non-potable system serves a small scale farming activity at the correctional facility. The irrigation water is stored in a 0.092 MG reservoir and supplied through a non-potable irrigation system. The existing irrigation water use was not provided. There were no reported plans to expand the farming activities.

System Facility Capacity (MGD)	Existing Avg Day Demand (MGD)	Existing Max Day Demand (MGD)	Surplus System Facility Capacity (MGD)	2034 SWPP Avg Day Dmd (MGD)	2034 SWPP Max Day Dmd (MGD)	Adequate to meet future demands?	Primary Use
0.050	0.050	0.075	0	N/R	-	No	Potable

7.1.7 Department of Transportation

There is one water system under the Department of Transportation (DOT), which is located on the island of Oʻahu: Dillingham Airfield Water System

7.1.7.1 Dillingham Airfield Water System

The Dillingham Airfield Water System is located in Mokulēʻia, Oʻahu. The system is located in the North Aquifer Sector Area [304], and Mokulēʻia Aquifer System Area [30401]. The United States Army owns the Dillingham Airfield Water System. The Dillingham Airfield Water System is designated as DOH Public Water System No. 338. The Department of Transportation, Airports

Division (DOT-AIR) leases the facility from the Army. A private contractor, Doonwood Engineering, maintains and operates the water system for DOT-AIR. According to CWRM records, the average daily water use is 0.132 MGD.

The source for the water system is State Well number 3412-02, with a design pump capacity of 0.72 MGD. The system facility capacity is 0.48 MGD. The water is disinfected with sodium hypochlorite at the well head. The well water is stored into a 0.1 MG concrete storage reservoir at an elevation 200 feet. The distribution system branches into a 4-inch line serving the Army beach, Camp Erdman and the Kaʻena Point Satellite tracking station; and 6-inch line, which serves the airfield complex and Mokulēʻia Beach Park. A booster pump station is located on the 4-inch line branch to increase the water pressure.

The existing maximum day demand is 0.198 MGD. The Dillingham Airfield has adequate system facility capacity to meet the existing maximum day demand. Future demands were not reported.

System Facility Capacity (MGD)	Existing Avg Day Demand (MGD)	Existing Max Day Demand (MGD)	Surplus System Facility Capacity (MGD)	2034 SWPP Avg Day Dmd (MGD)	2034 SWPP Max Day Dmd (MGD)	Adequate to meet future demands?	Primary Use
0.480	0.132	0.198	0.282	N/R	-	N/A	Potable

7.1.8 University of Hawaiʻi

The University of Hawaiʻi (UH) owns and operates one water system, which is located on the island of Oʻahu: Waialeʻe Livestock Experiment Station Water System.

7.1.8.1 Waialeʻe Livestock Experiment Station Water System

The Waialeʻe Livestock Experiment Station Water System is located in Waialeʻe on the North Shore of Oʻahu. The system is located in the North Aquifer Sector Area [304], and Kawailoa Aquifer System Area [30403]. The water system is owned and operated by the State, UH College of Tropical Agriculture and Human Resources (CTAHR). The Waialeʻe Livestock Experiment Station consists of 40 acres of pasture lands and 309 dairy cattle and swine. The estimated average day consumption from the Experiment Station is 0.023 MGD, with a maximum day demand of 0.035 MGD. The pasture lands estimated irrigation demand ranges from 0 to 0.0065 MGD, depending on weather conditions.

The water system is supplied by two sources: Waialeʻe Well (State Well Number 4101-10), which serves the Experiment Station; and the Waialeʻe Pond (Kalou Fish Pond, spring fed with a pump, State Diversion Number 4101-01), which supplies irrigation water to the pasture lands. The pump capacity of the Waialeʻe Well is 0.316 MGD and the pump capacity from the Waialeʻe Pond is 0.72 MGD. The system facility capacity of the Waialeʻe Well is 0.21 MGD. The system facility capacity of the Waialeʻe Pond pump is 0.48 MGD. Both sources supply brackish non-potable water. The well does not have a permitted water allocation, however a water use permit is being processed.

There are no planned future projects to be serviced by the Waiale‘e Livestock Experiment Station Water System. There is adequate system facility capacity to meet the Experiment Station existing consumption and maximum day demand. Future demands were not reported.

System Facility Capacity (MGD)	Existing Avg Day Demand (MGD)	Existing Max Day Demand (MGD)	Surplus System Facility Capacity (MGD)	2034 SWPP Avg Day Dmd (MGD)	2034 SWPP Max Day Dmd (MGD)	Adequate to meet future demands?	Primary Use
0.211	0.023	0.035	0.177	N/R	-	N/A	Irrigation

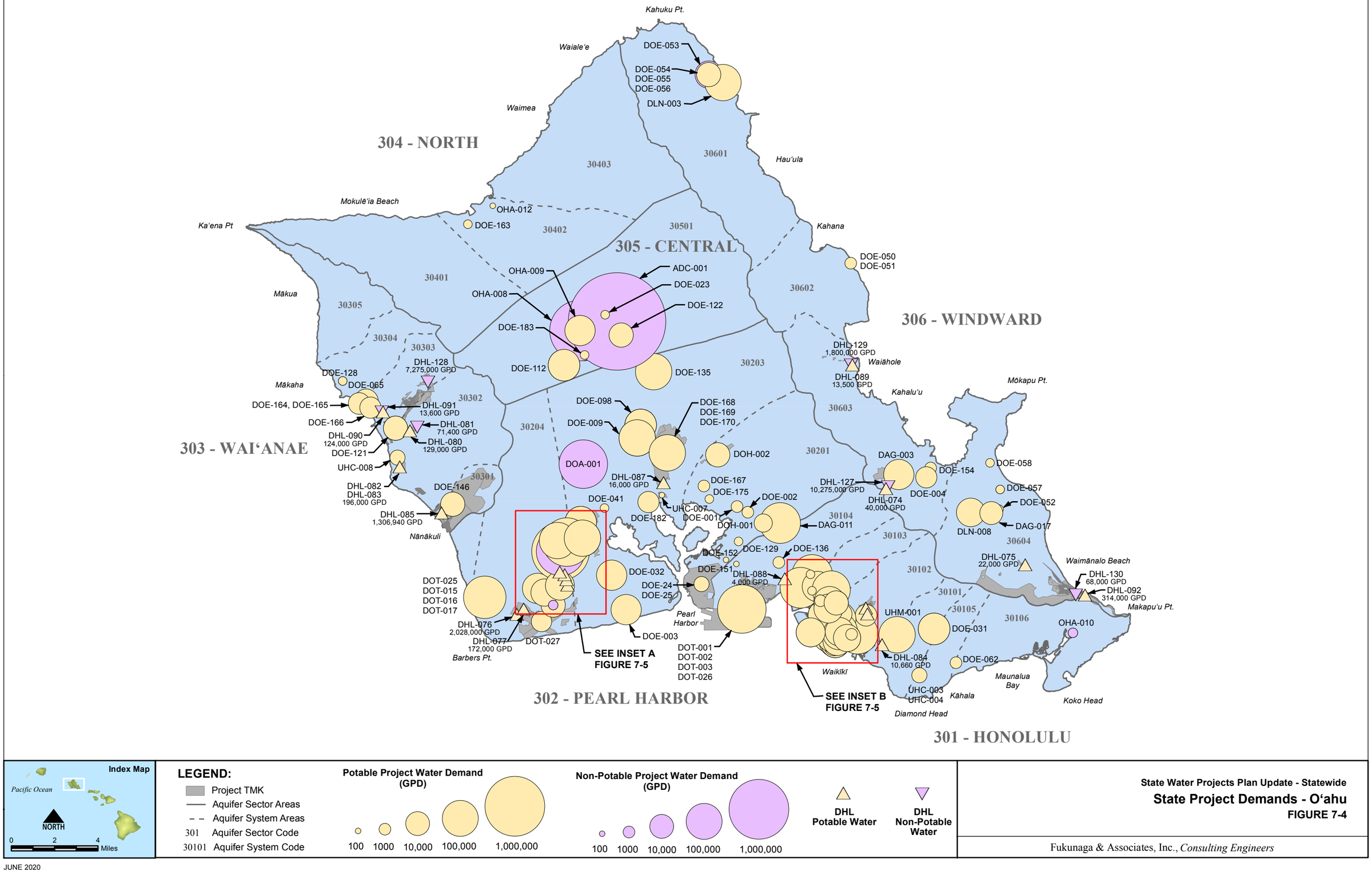
7.2 SWPP PROJECT WATER DEMAND

7.2.1 SWPP Project Water Demand Overview

The individual SWPP projects and associated water demands located on the island of O‘ahu are listed in tabular form separated by Department in **Appendix F** (potable) and **Appendix G** (non-potable) and by Island in **Appendix H** (potable) and **Appendix I** (non-potable). The total SWPP water demands were sorted to summarize the yearly cumulative average day demands throughout the 20-year planning period. **Table 7-1** and **Table 7-2** summarizes the potable and non-potable projected water demand for SWPP projects by State department, respectively. **Figure 7-4** and **Figure 7-5** shows the map of the SWPP project water demands on the island of O‘ahu.

Table 7-1 – SWPP Potable Water Demands by State Department – O‘ahu

State Department	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
DAGS	0	0	0	0	0	0.4556	0.5036	0.5036
DBEDT	0	0	0	0	0.0252	0.3144	0.3144	0.3144
DOD	0.0070	0.0095	0.0095	0.0100	0.0100	0.0105	0.0105	0.0105
DOE	0	0	0	0.1000	0.1000	0.1600	0.5184	1.2784
DHHL	0.6090	0.7388	0.7388	0.7388	0.7388	0.9652	5.2899	5.4259
DOH	0	0.0190	0.0190	0.0190	0.0190	0.0190	0.0190	0.0190
DHS	0	0	0	0	0	0.3266	0.3946	0.3946
DLNR	0	0.0300	0.1600	0.1600	0.1600	0.1600	0.4420	0.7387
DOT	0	0.0235	0.0470	0.0704	0.0939	0.2892	0.5665	0.8981
Judiciary	0	0	0	0	0	0	0	0.0066
OHA	0	0.0030	0.0056	0.0092	0.0118	0.0580	0.0840	0.3608
UH	0	0.0027	0.0055	0.0085	0.0085	0.0184	0.0184	1.0443
Total O‘ahu	**0.6160**	**0.8266**	**0.9855**	**1.1160**	**1.1673**	**2.7770**	**8.1613**	**10.995**
Total State	**0.9414**	**5.4812**	**5.8039**	**6.0894**	**6.5019**	**13.286**	**24.273**	**34.147**



State Water Projects Plan Update - Statewide

State Project Demands - O'ahu

FIGURE 7-4

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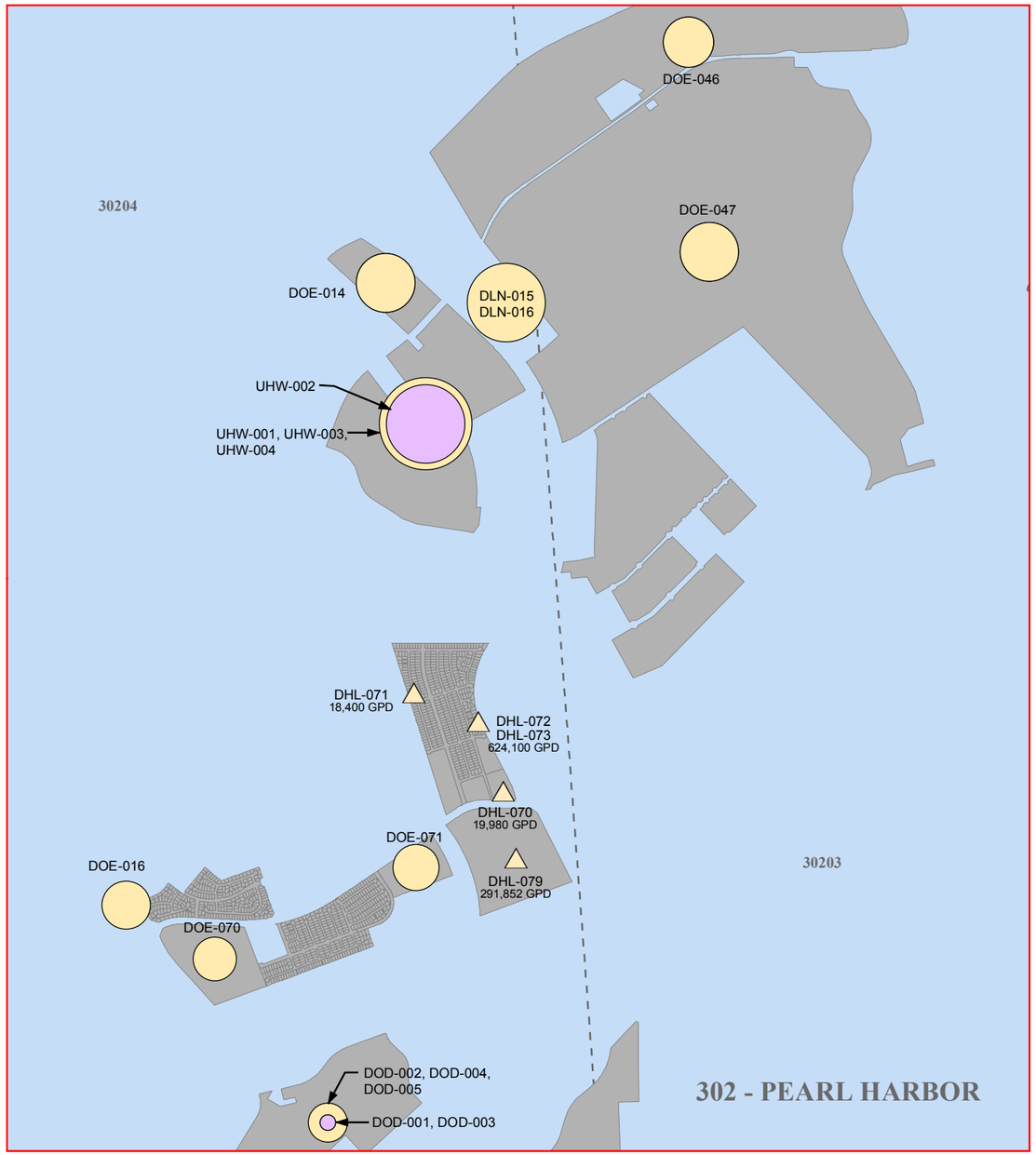

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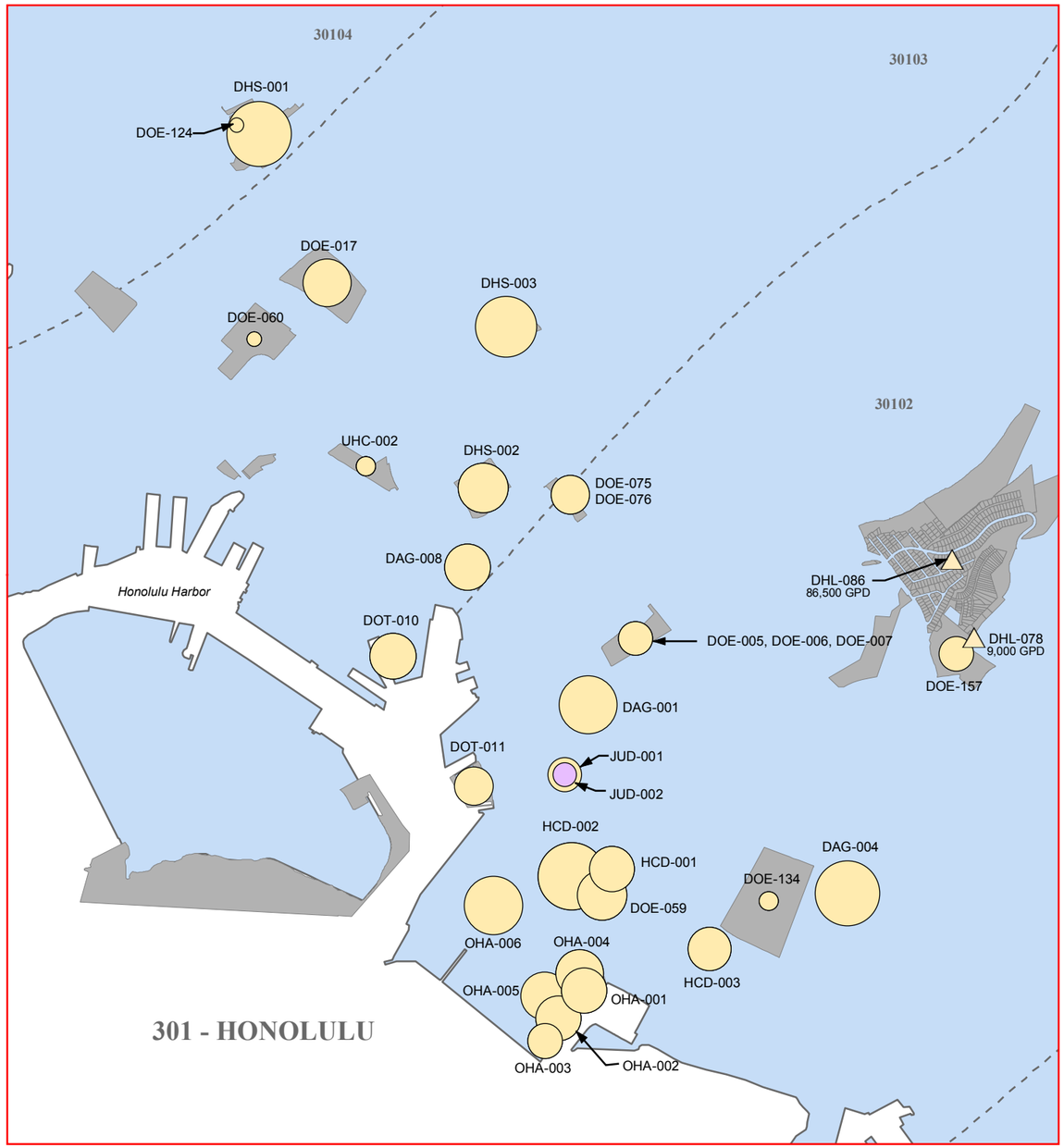

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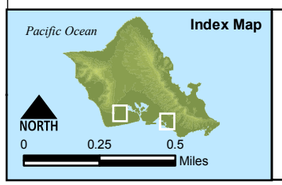

LEGEND:

- Project TMK
- Aquifer Sector Areas
- Aquifer System Areas
- 301 Aquifer Sector Code
- 30101 Aquifer System Code

Potable Project Water Demand (GPD)

100 1000 10,000 100,000 1,000,000

Non-Potable Project Water Demand (GPD)

100 1000 10,000 100,000 1,000,000

DHL Potable Water

DHL Non-Potable Water

State Water Projects Plan Update - Statewide

State Project Demands - O'ahu - Insets

FIGURE 7-5

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Table 7-2 – SWPP Non-Potable Water Demands by State Department – O‘ahu

State Department	Cumulative Average Day Demand							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
DOA	0	4.1690	4.1690	4.1690	4.1690	4.1690	4.1690	4.7240
DOD	0.0010	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
DOE	0	0	0	0	0	0	0	0.0380
DHHL	0	1.8000	1.8000	1.8000	1.8000	1.8136	19.503	19.503
Judiciary	0	0	0	0	0	0	0	0.0039
OHA	0	0	0	0	0	1.0010	1.0010	1.0010
UH	0	0	0	0	0	0	0	0.5000
Total O‘ahu	**0.0010**	**5.9702**	**5.9712**	**5.9712**	**5.9712**	**6.9848**	**24.674**	**25.771**
Total State	**0.9224**	**43.461**	**46.824**	**50.162**	**53.791**	**73.079**	**117.60**	**148.57**

The individual SWPP projects and associated water demands located on the island of O‘ahu are listed in tabular form separated by Hydrologic Unit in **Appendix J** (potable) and **Appendix K** (non-potable). **Table 7-3** and **Table 7-4** summarize the potable and non-potable water demands for SWPP projects by groundwater and surface water hydrologic unit, respectively.

Table 7-3 – SWPP Potable Water Demands by Groundwater Hydrologic Unit – Oʻahu

Groundwater Hydrologic Unit		Sustainable Yield (MGD)	SWPP 2034 Potable Demand (MGD)
Code	**Name**		
30101	Pālolo	5	0.2144
30102	Nuʻuanu	14	1.2308
30103	Kalihi	9	0.1655
30104	Moanalua	16	0.7721
30105	Waiʻalae-West	2.5	0.0055
30106	Waiʻalae-East	2	0.0012
301	**Subtotal Honolulu**	**48.5**	**2.3895**
30201	Waimalu	45	0.2223
30203	Waipahu-Waiawa	105	1.3286
30204	ʻEwa-Kunia	16	4.4736
30205	Makaīwa	N/A	0
30207	ʻEwa Caprock - Malakole	N/A	0
30208	ʻEwa Caprock - Kapolei	N/A	0.0105
30209	ʻEwa Caprock – Puʻuloa	N/A	0.0000
302	**Subotal Pearl Harbor**	**166**	**6.0350**
30301	Nānākuli	1	1.3213
30302	Lualualei	3	0.3385
30303	Waiʻanae	3	0.1536
30304	Mākaha	3	0.0007
30305	Keaʻau	3	0
303	**Subtotal Waiʻanae**	**13**	**1.8142**
30401	Mokulēʻia	17	0
30402	Waialua	17	0
30403	Kawailoa	22	0
304	**Subtotal North**	**56**	**0**
30501	Wahiawā	23	0.1168
305	**Subtotal Central**	**23**	**0.1168**
30601	Koʻolauloa	35	0.1413
30602	Kahana	15	0.0017
30603	Koʻolaupoko	28	0.1146
30604	Waimānalo	9	0.3811
306	**Subtotal Windward**	**87**	**0.6386**
	Total Oʻahu	**393.5**	**10.995**
	Total State	**3,556.5**	**34.147**

Table 7-4 – SWPP Non-Potable Water Demands by Surface Water Hydrologic Unit – Oʻahu

Surface Water Hydrologic Unit		Declared Use (MGD)	SWPP 2034 Non-Potable Demand (MGD)
Code	Name		
3003	Paumalū	0.022	0
3006	Malaekahana	0.000	0.038
3012	Waipuhi	0.006	0
3016	Punaluʻu	14.242	0
3019	Kaʻaʻawa	0.064	0
3022	Waikāne	0.001	0
3024	Waiāhole	0.000	2.355
3027	Kahaluʻu	0.008	0
3028	Heʻeia	33.532	10.275
3033	Kawainui	0.936	0.068
3035	Waimanālo	0.006	0
3042	Kamilonui	0.000	0.001
3049	Ala Wai	2.801	0
3050	Nuʻuanu	0.156	0.004
3051	Kapālama	0.200	0
3052	Kalihi	0.002	0
3061	Waiawa	0.020	0
3063	Kapakahi	0.292	0
3064	Waikele	4.701	0
3066	Kaloi	0.000	0.501
3070	Māʻiliʻili	0.000	0.085
3071	Kaupuni	0.144	7.275
3080	Makaleha	0.006	0
3082	Kiʻikiʻi	25.543	5.169
3084	Anahulu	0.530	0
	Total Oʻahu	**83.212**	**25.771**
	Total State	**390.149**	**148.57**

7.3 SWPP WATER DEVELOPMENT STRATEGY

Water Development Strategy options were assigned to each SWPP project on the island of Oʻahu as described in Chapter 5. Projects without strategy options but within the service area of the HBWS water system were then identified. The locations of these projects are shown on **Figure 7-6** and **Figure 7-7**. As previously discussed, project demands that are anticipated to require potable water to satisfy a non-potable end use demand have been included in the potable water development strategy options and remaining demands.

7.3.1 Water Development Strategy Options Overview

The SWPP water development strategy options account for 41 percent of the total Oʻahu SWPP potable project water demand for the year 2034. The total water demands for SWPP projects accounted for by each water development strategy option for the island of Oʻahu is summarized in **Table 7-5**. The remaining balance of potable water demands constitutes those projects within or

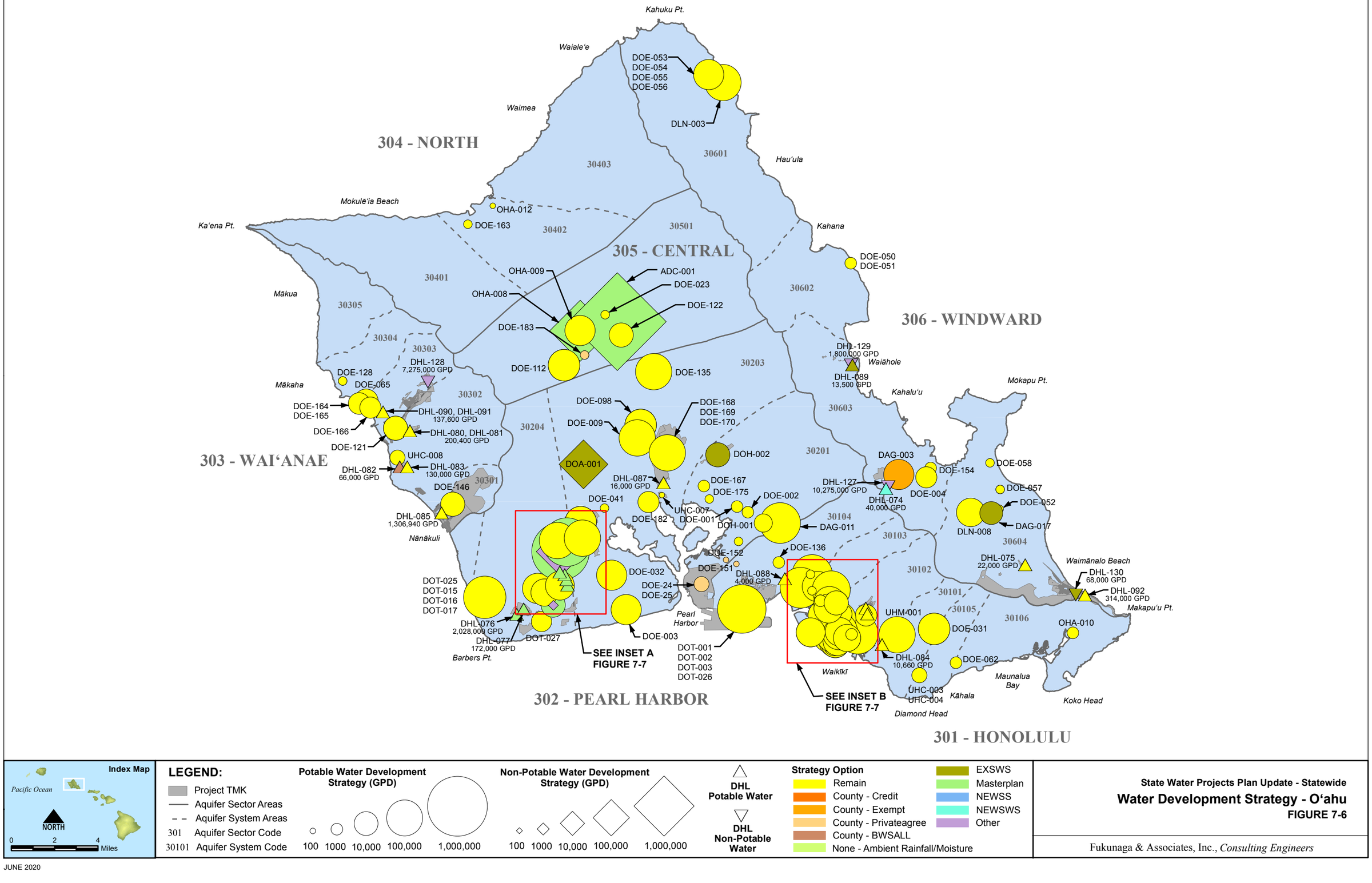
adjacent to the service area of the HBWS water system but without a strategy option. The total water demands for SWPP projects accounted for by each non-potable water development strategy option for the island of O‘ahu is summarized in **Table 7-6**.

Table 7-5 – Summary of Potable Water Development Strategy and Remaining Demands – O‘ahu

Potable Water Development Strategy Options	Cumulative Average Day Demand (MGD)							
	Short-Term						Long-Term	
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
COUNTY-BWSALL	0	0	0	0	0	0.0660	0.0660	0.0660
COUNTY-EXEMPT	0	0	0	0	0	0.0540	0.0540	0.0540
COUNTY-PRIVATEAGREE	0	0	0	0	0	0	0.0050	0.0050
EXSWS	0.0085	0.0276	0.0276	0.0276	0.0276	0.0411	0.0411	0.0411
MASTERPLAN	0.5709	0.5918	0.5918	0.5923	0.5923	0.7082	3.4559	4.6347
NEWSWS	0	0	0	0	0	0	0.0400	0.0400
Demand Accounted for by Water Development Strategy	**0.5794**	**0.6194**	**0.6194**	**0.6199**	**0.6199**	**0.8693**	**3.6620**	**4.8408**
REMAIN – HBWS	0.0367	0.2073	0.3671	0.4971	0.5484	1.9223	4.5853	6.2818
Total Demand Using Potable Sources	**0.6160**	**0.8266**	**0.9865**	**1.1170**	**1.1683**	**2.7916**	**8.2473**	**11.123**

Table 7-6 – Summary of Non-Potable Water Development Strategy – O‘ahu

Non-Potable Water Development Strategy Options	Cumulative Average Day Demand (MGD)							
	Short-Term						Long-Term	
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
EXSWS	0	0	0	0	0	0	0.0680	0.6230
MASTERPLAN	0	4.1690	4.1690	4.1690	4.1690	5.1690	5.1690	5.1690
OTHER-CATCHMENT	0	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
OTHER-RECYCLED	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.5010
OTHER-SPRING SOURCES	0	0	0	0	0	0	7.2750	7.2750
OTHER-STREAM DIVERSION	0	1.8000	1.8000	1.8000	1.8000	1.8000	12.075	12.075
Demand Accounted for by Water Development Strategy	**0.0010**	**5.9702**	**5.9702**	**5.9702**	**5.9702**	**6.9702**	**24.588**	**25.643**
NONE	0	0	0	0	0	0	0	0
Total Demand Using Non-Potable Sources	**0.0010**	**5.9702**	**5.9702**	**5.9702**	**5.9702**	**6.9702**	**24.588**	**25.643**



Index Map

Pacific Ocean

NORTH

0 2 4 Miles

LEGEND:

- Project TMK
- Aquifer Sector Areas
- Aquifer System Areas
- 301 Aquifer Sector Code
- 30101 Aquifer System Code

Potable Water Development Strategy (GPD)

100 1000 10,000 100,000 1,000,000

Non-Potable Water Development Strategy (GPD)

100 1000 10,000 100,000 1,000,000

DHL Potable Water

DHL Non-Potable Water

Strategy Option

- Remain
- County - Credit
- County - Exempt
- County - Privateagree
- County - BWSALL
- None - Ambient Rainfall/Moisture
- EXSWS
- Masterplan
- NEWSS
- NEWSWS
- Other

State Water Projects Plan Update - Statewide

Water Development Strategy - O'ahu

FIGURE 7-6

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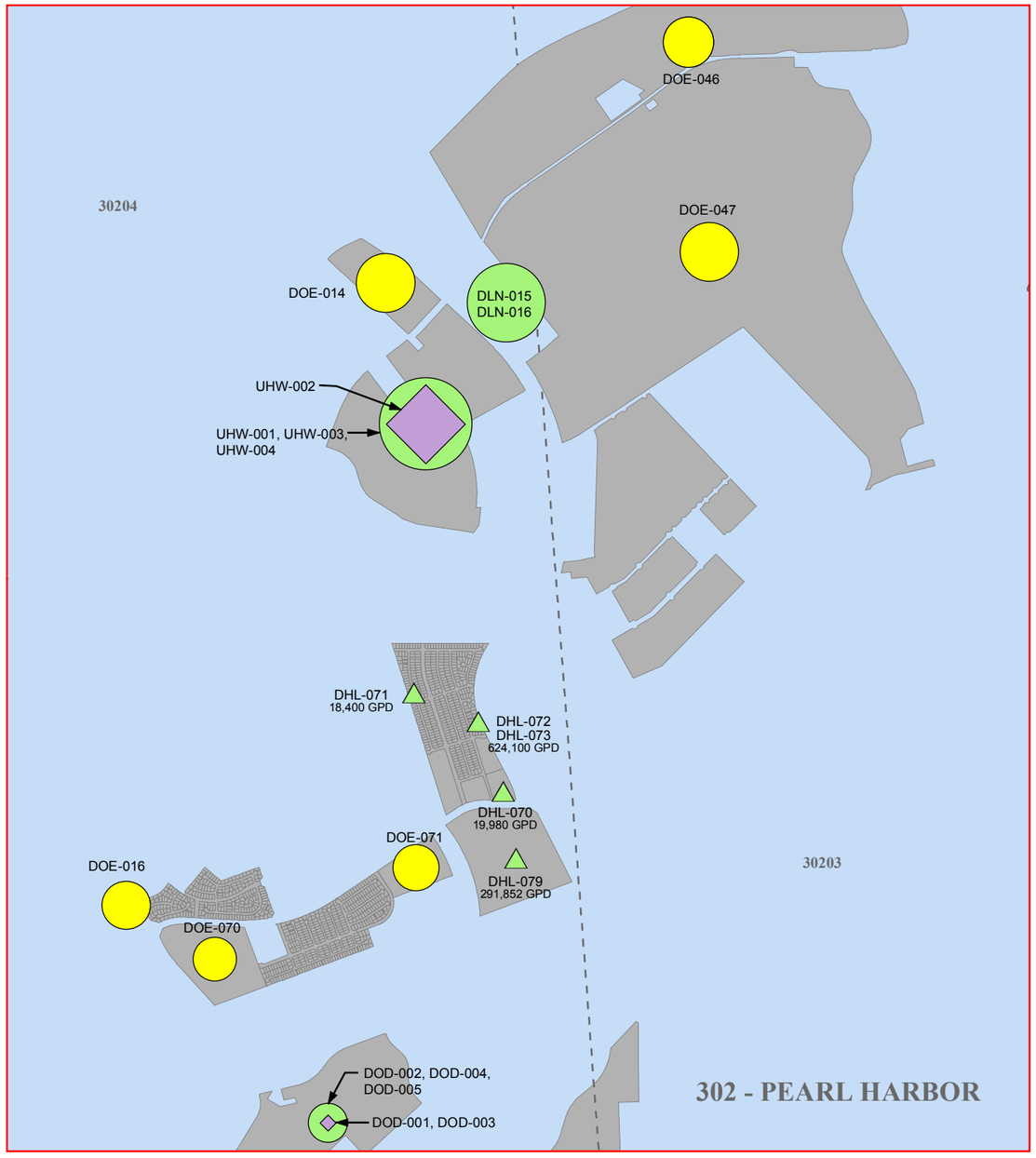

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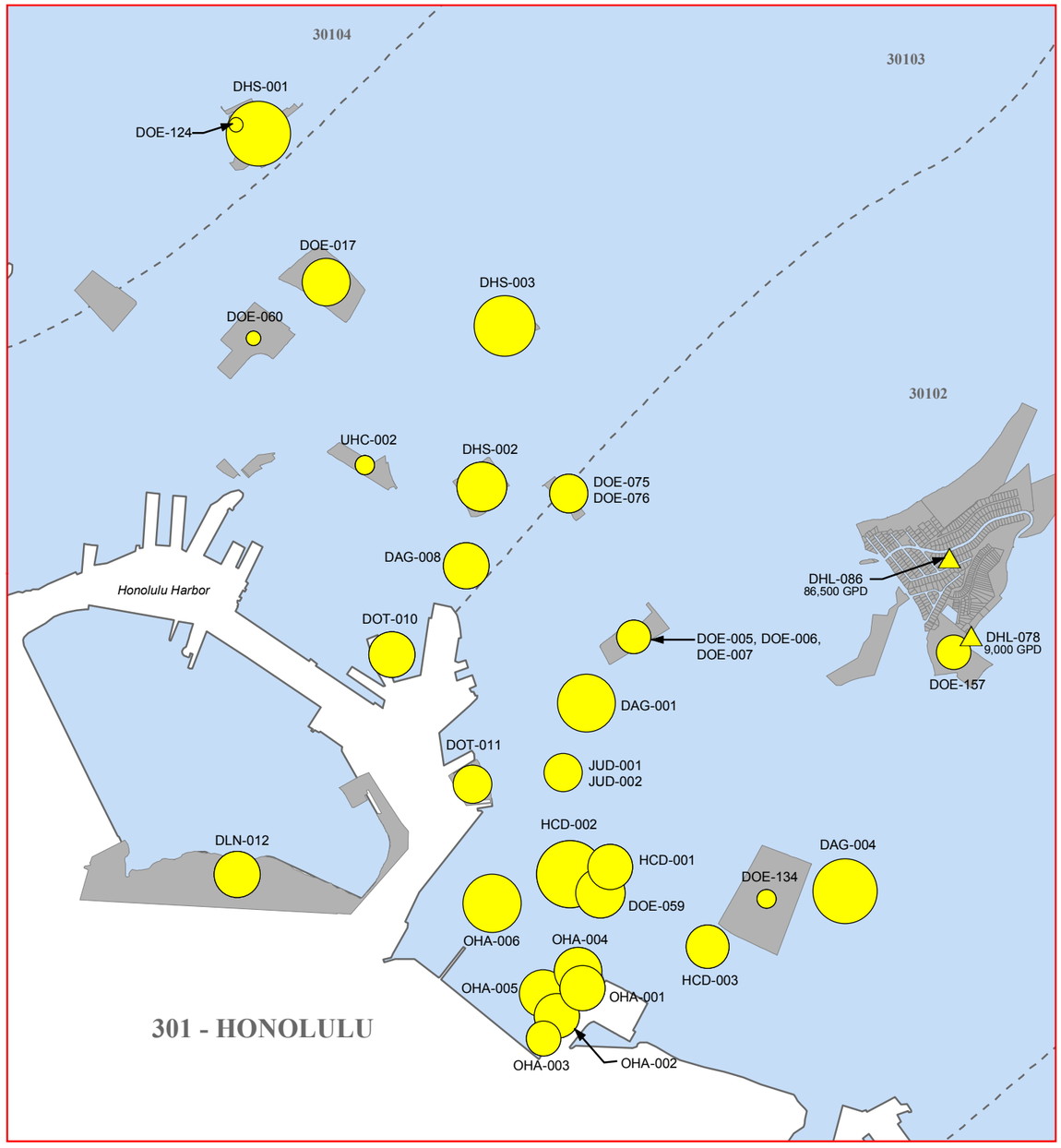

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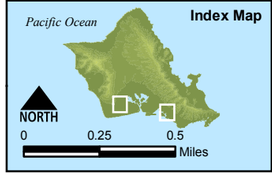

LEGEND:

- Project TMK
- Aquifer Sector Areas
- Aquifer System Areas
- 301 Aquifer Sector Code
- 30101 Aquifer System Code

Potable Water Development Strategy (GPD)

100 1000 10,000 100,000 1,000,000

Non-Potable Water Development Strategy (GPD)

100 1000 10,000 100,000 1,000,000

- DHL Potable Water
- DHL Non-Potable Water

Strategy Option

- Remain
- County - Credit
- County - Exempt
- County - Privateagree
- County - BWSALL
- None - Ambient Rainfall/Moisture
- EXSWS
- Masterplan
- NEWSS
- NEWSWS
- Other

State Water Projects Plan Update - Statewide

Water Development Strategy - O'ahu - Insets

FIGURE 7-7

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JUNE 2020

7.3.2 Evaluation of Water Development Strategy Options

7.3.2.1 Existing State Water Systems (EXSWS)

Waiāhole Water System (DBEDT)

The DBEDT, HHFDC Waiāhole Water System, operated by Doonwood Engineering, Incorporated, is anticipated to supply water to the 27 additional homesteads proposed by the DHHL (SWPP Project: Waiāhole, DHL-089) in its Waiāhole tract. As discussed, the water system has adequate system facility capacity to supply the existing demand plus the SWPP project potable water demand of 0.0135 MGD.

Waimano Ridge Water System (DOH)

The Waimano Ridge Water System, owned by the State DOH and operated by the HBWS, is anticipated to supply additional water required for additions to the DOH Uluakupu building (SWPP Project: Uluakupu Building Interior Renovation, DOH-002). As discussed, the water system has adequate system facility capacity to supply the existing average day demand plus the SWPP project potable water demand of 0.014 MGD.

Hawai‘i Youth Correctional Facility Water System (DHS)

The Hawai‘i Youth Correctional Facility Water System, owned and operated by the DHS, Office of Youth Services, is anticipated to serve the new 180-bed facility at the Women's Community Correctional Center in Kailua (SWPP Project: Women’s Community Correctional Center New Housing, DAG-017). The project will be administered by DAGS on behalf of the DPS. It is not known if the existing system will be able to accommodate SWPP project potable water demand of 0.0135 MGD. A planning assessment is recommended to determine whether the existing system will be able to accommodate the increase in demand from the Women’s Community Correctional Center New Housing facility.

Waiāhole Ditch Irrigation System (DOA-ADC)

The DOA Kunia Agricultural Park project (SWPP Project: Kunia Agricultural Park (Non-Potable), DOA-001) is within the service area of the WDIS. The anticipated SWPP project non-potable water demand for this project is 0.555 MGD. As discussed, due to CWRM’s water use limitation on the WDIS, the potential for expansion of agricultural use will be contingent on improvements to the system’s efficiency to reduce water losses. Upon completion of the Kunia Wells IV project, potable water from the HBWS system will likely be available for this project. As discussed in Section 5.3.4, potable water could be used for processing and irrigation of growing produce, which would reduce the demand from the WDIS. The water development strategy may be revisited at that time.

Waimānalo Irrigation System (DOA)

The distribution system of the State DOA Waimānalo Irrigation System already extends to the DHHL Waimānalo tract (SWPP Project: Waimānalo (Non-Potable), DHL-130). DHHL anticipates a SWPP project non-potable water demand of 0.068 MGD to service its subsistence farming and agricultural areas.

7.3.2.2 Existing State Sources (EXSS)

There are no existing State sources serving SWPP projects.

7.3.2.3 Existing and Planned Water Master Plans (MASTERPLAN)

Kalaeloa Infrastructure Master Plan

The Kalaeloa Community Development District (KCDD) includes nearly 3,700 acres of land within the former Barbers Point Naval Air Station (BPNAS). These lands were owned by various Federal, State, and County agencies and ownership of approximately 1,050 acres have been retained by the Navy following the closure of the BPNAS in 1993.

The Kalaeloa Master Plan was adopted in March 2006. Proposed land uses include: 3 million square feet of light industrial, commercial, retail, and office space, and several thousand residential units. The master plan outlines general recommendations for the internal water system as well as required external infrastructure improvements. These include the construction of a 5.0 MG reservoir and primary transmission main to supply Kalaeloa from Kapolei, primary waterlines along Roosevelt Road and Saratoga Road and a loop along the eastern, southern, and western property lines.

The existing Barber's Point system is not adequate to service the proposed development. California Water Service Group currently owns the water system and Pural Water Specialty Company, Inc. operates the water system. In 2014, HCDA reached an agreement with Hunt Development, one of the largest landowners in the area, to fund a detailed infrastructure master plan, which will include water requirements, in exchange for future public facilities credits. The SWPP projects anticipated to be covered by the proposed infrastructure master plan are:

- Kalaeloa Brigade Readiness Center (Potable), DOD-002
- Kalaeloa AASF (Potable), DOD-004
- Kalaeloa B117 Ph2 Combined Support Maintenance Shop, DOD-005
- Kalaeloa – All Others, DHL-076
- Kalaeloa 3, DHL-077

The total SWPP project potable water demand is 2.2105 MGD.

East Kapolei Water Master Plan

A water master plan report for the East Kapolei Development was prepared for DHHL in 2005 and revised in 2007 to reflect revised ownership and land uses. The master plan projected a demand for the East Kapolei Development, including the UH West Oahu Campus, of 3.96 MGD plus an average demand of 2.0 MGD from the Kalaeloa area, which would also be serviced.

The water master plan report stated that water system would establish two service pressure zones at the 440-ft and 215-ft elevations. The 215-foot pressure zone would include a 4.0 MG tank and a system of 30, 24, 20, 16 and 12-inch water mains. A 2.3 MG tank has been constructed at the 440-foot pressure zone and the water master plan also stated that it would include a system of 16, 12 and 8-inch water mains. A booster pumping station was also recommended to pump from the 215-ft reservoir to the 440-ft reservoir. The main water infrastructure is already in place. DHHL participated in the cost sharing of the development of the water infrastructure; therefore, costs for source, storage and transmission of all DHHL developments in Kapolei have already been accounted for. The SWPP projects covered by this master plan include:

- East Kapolei I – B3, DHL-070
- East Kapolei I – Kānehili, DHL-071
- East Kapolei II – B, DHL-072
- East Kapolei II – C, DHL-073
- Kapolei Regional Mall (DeBartolo), DHL-079
- DLNR East Kapolei Lands, Phase 1, DLN-015
- DLNR East Kapolei Lands, Phase 2, DLN-016

The total SWPP project potable water demand is 1.5431 MGD.

University of Hawai‘i West Oahu Final Environmental Impact Statement

The 2007 Final Environmental Impact Statement (FEIS) for the UH West Oahu Campus provided land use details for the proposed UH West Oahu campus in addition to private lands adjacent to the campus. The FEIS outlined the external water infrastructure described in the East Kapolei Water Master Plan. The SWPP projects accounted by the FEIS are:

- Creative Media Building, UHW-001
- University of Hawai‘i – West Oahu – Long Range Master Plan (Potable), UHW-003
- University of Hawai‘i – West Oahu – Allied Health Building, UHW-004

The total SWPP project potable water demand is 0.8911 MGD.

North Shore/Wahiawā Irrigation Study

A technical study was prepared for the U.S. Army Corps of Engineers in 2014 that assessed and recommended improvements to the existing irrigation system within the Galbraith Agricultural

Lands (GAL) in Wahiawā, O‘ahu. GAL consists of approximately 1,700 acres owned by the ADC and the Office of Hawaiian Affairs (OHA) currently being developed for diversified agriculture.

The study evaluated alternatives including a new connection to Lake Wilson, R-1 recycled water from Wahiawā WWTP, the existing Bott Well Pump Station and its network of pipes, and improvements within the irrigation system such as increasing delivery and efficiencies, and alternative energy opportunities. The alternative selected was a modification of Alternative 2: Wahiawā WWTP Recycled Water and Lake Wilson – North Fork identified in the report, which would combine surface water from Lake Wilson with and R-1 recycled water from the Wahiawā WWTP with the vision to supply a new agricultural hub for potential food processing and packaging facilities. The system would be sized to convey approximately 5.1 MGD and consist of a water intake structure, wetwell and pump station, 3 transmission mains including redundancy, and 14 MG and 10 MG reservoirs. The SWPP projects accounted by the study include: Alternative 2: Wahiawā WWTP R-1 & Lake Wilson – North Fork, ADC-001; and Kūkaniloko (Non-Potable), OHA-008. The total anticipated SWPP project non-potable demand is 5.169 MGD. Should potable water from HBWS be used for processing, the non-potable demand will be reduced accordingly. The water development strategy may be revisited at that time.

7.3.2.4 County and Private Water Agreements (COUNTY-)

COUNTY-BWSALL

The DHHL Māʻili development (SWPP Project: Māʻili 1, DHL-082) will be a joint venture between DHHL and Kamehameha Schools (KS) with the former transferring a portion of its water credits with HBWS to KS. This transfer of credits is to service the school, and in return, the latter being responsible for installing the water system improvements required to service the ultimate demand. The anticipated SWPP project potable water demand from the school is 0.066 MGD.

COUNTY-EXEMPT

The DAGS will administer the development of a new 144-bed facility on the Hawaiʻi State Hospital campus (SWPP Project: Hawaiʻi State Hospital Patient Facility, DAG-003) on behalf of the DOH. Water credits with the HBWS will be claimed for the demolition of the hospital's existing Goddard Building and applied toward the new facility. The net balance of installed fixture units is anticipated to result in no increase in total fixture units; therefore, this project should be exempt from HBWS facilities charges.

COUNTY-PRIVATEAGREE

The DOE has several projects anticipated be served by water systems owned and operated by the United States military. All are expansions of existing schools that are already served by one of these water systems. The SWPP projects and their respective water systems are:

- Pearl Harbor Elementary School New 4 Classroom Building, DOE-151, within the U.S. Navy Pearl Harbor Water System

- Wheeler Elementary School - 8 Classroom Building, DOE-183, within the U.S. Air Force Schofield Barracks Water System
- Hickam Elementary School - New Administration Building, DOE-024; and Hickam Elementary School - New Cafeteria and Library Expansion, DOE-025, within the U.S. Air Force Hickam Water System
- Pearl Harbor Kai Elementary School Building "F" Renovation 2 Classroom, DOE-152, within the U.S. Navy Pearl Harbor Water System

The total SWPP project potable water demand for all projects on military water systems is 0.0051 MGD. It is anticipated that agreements or modifications to existing agreements will be made between each purveyor and DOE.

7.3.2.5 New State Water Systems (NEWSWS)

Haʻikū Water System (DHHL)

The abandoned HBWS Haʻikū Water System supplied the former Coast Guard Omega Navigation Station which closed in 1997. The 2017 DHHL SWPP indicated that reactivation of this system could provide potable water supply for the proposed community uses within the Haʻikū tract (SWPP Project: Haʻikū, DHL-074), however, noted that an assessment would need to be conducted to determine the extent of rehabilitation required. The well supplying the system would also need to be reactivated. The anticipated SWPP project potable water demand that could be serviced by the potential water system is 0.04 MGD.

7.3.2.6 New and/or Planned State Wells (NEWSS)

There are no new State wells planned for development.

7.3.2.7 Planned Private Sources (PLANPS)

There were no reported planned private sources available for SWPP projects.

7.3.2.8 Coordination of Remaining SWPP Project Demands with County Water Department (REMAIN)

The remaining balance of potable water demands are summarized by groundwater hydrologic unit in **Table 7-7**.

Table 7-7 – Summary of Remaining Potable Demands by Groundwater Hydrologic Unit – O‘ahu

Groundwater Hydrologic Unit		Cumulative Average Day Demand (MGD)							
		Short-Term						Long-Term	
Code	Name	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
30101	Pālolo	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.2144
30102	Nu‘uanu	0	0.0547	0.0573	0.0599	0.0877	0.7415	0.9475	1.2347
30103	Kalihi	0	0	0	0	0	0.2419	0.3105	0.3605
30104	Moanalua	0.0040	0.0271	0.0502	0.0732	0.0963	0.3853	0.5022	0.7718
30105	Wai‘alae-West	0	0.0027	0.0027	0.0055	0.0055	0.0055	0.0055	0.0055
30106	Wai‘alae-East	0	0	0.0010	0.0010	0.0010	0.0010	0.0022	0.0022
301	**Subtotal Honolulu**	**0.0556**	**0.1361**	**0.1628**	**0.1912**	**0.2421**	**1.4268**	**1.8195**	**2.6300**
30201	Waimalu	0	0.0049	0.0049	0.0049	0.0049	0.0049	0.0093	0.0093
30203	Waipahu-Waiawa	0	0	0	0.0503	0.0503	0.0503	0.2345	0.7045
30204	‘Ewa-Kunia	0	0.0004	0.0008	0.0512	0.0516	0.1296	0.2915	0.4735
302	**Subtotal Pearl Harbor**	**0**	**0.0053**	**0.0057**	**0.1064**	**0.1068**	**0.1848**	**0.5353**	**1.1873**
30301	Nānākuli	0	0.0544	0.0544	0.0544	0.0544	0.0544	1.3213	1.3213
30302	Lualualei	0	0	0.0027	0.0027	0.0027	0.0527	0.3439	0.3439
30303	Wai‘anae	0	0	0	0	0	0.0176	0.1672	0.1672
30304	Mākaha	0	0	0	0	0	0	0.0007	0.0007
303	**Subtotal Wai‘anae**	**0**	**0.0544**	**0.0571**	**0.0571**	**0.0571**	**0.1247**	**1.8331**	**1.8331**
30402	Waialua	0	0.0003	0.0003	0.0003	0.0003	0.0003	0.0008	0.0008
304	**Subtotal North**	**0**	**0.0003**	**0.0003**	**0.0003**	**0.0003**	**0.0003**	**0.0008**	**0.0008**
30501	Wahiawā	0	0	0	0.0010	0.0010	0.0446	0.0561	0.1161
305	**Subtotal Central**	**0**	**0**	**0**	**0.0010**	**0.0010**	**0.0446**	**0.0561**	**0.1161**
30601	Ko‘olauloa	0	0	0.1300	0.1300	0.1300	0.1300	0.1413	0.1793
30602	Kahana	0	0	0	0	0	0	0.0017	0.0017
30603	Ko‘olaupoko	0	0	0	0	0	0	0.0071	0.0071
30604	Waimānalo	0.0220	0.0520	0.0520	0.0520	0.0520	0.0520	0.2316	0.3676
306	**Subtotal Windward**	**0.0220**	**0.052**	**0.182**	**0.182**	**0.182**	**0.182**	**0.3817**	**0.5557**
	Total O‘ahu	**0.0367**	**0.2073**	**0.3671**	**0.4971**	**0.5484**	**1.9223**	**4.5853**	**6.2819**

The HBWS remains the first strategy option to serve remaining SWPP project water demands on the island of O‘ahu. DLNR will coordinate the availability of water system capacity with the HBWS to meet these water demands. HBWS and DLNR should note that a remaining potable water demand of 1.32 and 1.23 MGD is anticipated in the Nānākuli and Nu‘uanu Aquifer Systems, respectively. A planning level estimate to determine the anticipated cost to connect to the HBWS water system is provided in **Appendix O**. The planning level cost estimates are for budgetary purposes only.

7.3.2.9 Water Catchment Systems

Non-potable water for landscaping the DOD Army Aviation Support Facility (SWPP Project: Kalaeloa AASF (Non-Potable), DOD-003) is proposed to be supplied by catchment. The SWPP project non-potable water demand is 0.0002 MGD.

7.3.2.10 Stream Diversions and Spring Sources

There are two DHHL areas anticipated for loʻi kalo cultivation that could potentially obtain irrigation water from stream diversions to provide irrigation water. The Heʻeia Stream flows through the upper portion of the Haʻikū tract (SWPP Project: Haʻikū (Non-Potable), DHL-127). There are several perennial streams which run alongside portions of the Waiāhole tract (SWPP Project: Waiāhole (Non-Potable) DHL-129). DHHL has also indicated that spring sources could potentially be used to supply the Kaʻala Farm area anticipated for loʻi kalo cultivation within the Waiʻanae tract (SWPP Project: Kaʻala Farm (Non-Potable) DHL-128). However, as discussed in the 2017 DHHL SWPP, the demand was based on the potential loʻi kalo area and is subject to change when the quantity of available resources is determined, and further studies will need to be completed. The total anticipated SWPP project non-potable water demand is 19.35 MGD.

7.3.2.11 Recycled Water

Non-potable water for landscaping the Department of Defense Hawaiʻi Army National Guard's Kalaeloa Brigade Readiness Center (SWPP Project: Kalaeloa Brigade Readiness Center (Non-Potable), DOD-002) is proposed to be supplied by reclaimed air conditioning system condensate. The SWPP project non-potable water demand is 0.001 MGD.

The 2007 FEIS for the UH West Oahu Campus provided land use details for the proposed UH West Oahu campus in addition to private lands adjacent to the campus. The FEIS discussed proposed non-potable transmission lines which would provide recycled water from the Honouliuli Wastewater Reclamation Facility (WWRF) to the campus for landscaping (SWPP Project: University of Hawaiʻi – West Oahu – Long Range Master Plan (Non-Potable), UHW-002). The SWPP project non-potable water demand anticipated to be supplied by recycled water is 0.5 MGD.

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CHAPTER 8 SWPP FOR THE ISLANDS OF MAUI, MOLOKA'I AND LĀNA'I

8.1 EXISTING STATE WATER RESOURCES

The State currently owns and/or operates 28 wells, 5 stream diversions, and 5 water systems on the island of Maui and 18 wells, 9 stream diversions, and 3 water systems on the island of Molokaʻi. The State does not own or operate any wells, stream diversions, or water systems on the island of Lānaʻi. The locations of the registered State wells are shown in **Figure 8-1**, the locations of the stream diversions are shown in **Figure 8-3**, and the locations of the water systems are shown in **Figure 8-5** on the island of Molokaʻi. The locations of the registered State wells are shown in **Figure 8-2**, the locations of the stream diversions are shown in **Figure 8-4**, and the locations of the water systems are shown in **Figure 8-6** on the island of Maui.

8.1.1 Department of Agriculture

The Department of Agriculture (DOA) owns, operates, and/or manages the following two water systems on the islands of Maui and Molokaʻi:

- Upcountry Maui Irrigation System
- Molokaʻi Irrigation System

8.1.1.1 Upcountry Maui Irrigation System

The Upcountry Maui Irrigation System, located within the Kula to Kēōkea areas on the island of Maui, is currently under development by the State DOA in conjunction with County of Maui, Department of Water Supply (MDWS), the U.S. DOA, Natural Resources Conservation Services (NRCS), and the Olinda-Kula Soil and Water Conservation District. The system is located in the Central Aquifer Sector Area [603], and Makawao [60303] and Kamaʻole [60304] Aquifer System Areas. According to CWRM records, a gage at the Olinda Water Treatment Facility measured average daily flows of 1.31 MGD between January 2015 and August 2018.

The sources for the system are stream diversions from Haipuaʻena, Puohokamoa, Waikamoi Kailua, Kakipi, and Maliko Streams and their tributaries. The collection system for these source waters are operated and maintained by MDWS and includes the twin Waikomoi Reservoirs and the 50 MG Kahakapao Reservoir, which supplies the MDWS Olinda Water Treatment Facility. The Olinda Water Treatment Facility in turn provides potable water for the upper Kula area.

When completed, the Upcountry Maui Irrigation System is intended to supply untreated water from the Kahakapao Reservoir to farmers in the upper Kula area to Kēōkea. The 1997 Final Watershed Plan Environmental Impact Statement for this facility indicated that there would be nine lateral systems supplied by the main 10-mile-long pipeline; however, due to budgetary considerations, DOA has since indicated that they do not have any plans to construct the lateral to service the DHHL Kēōkea/Waiohuli Tract.

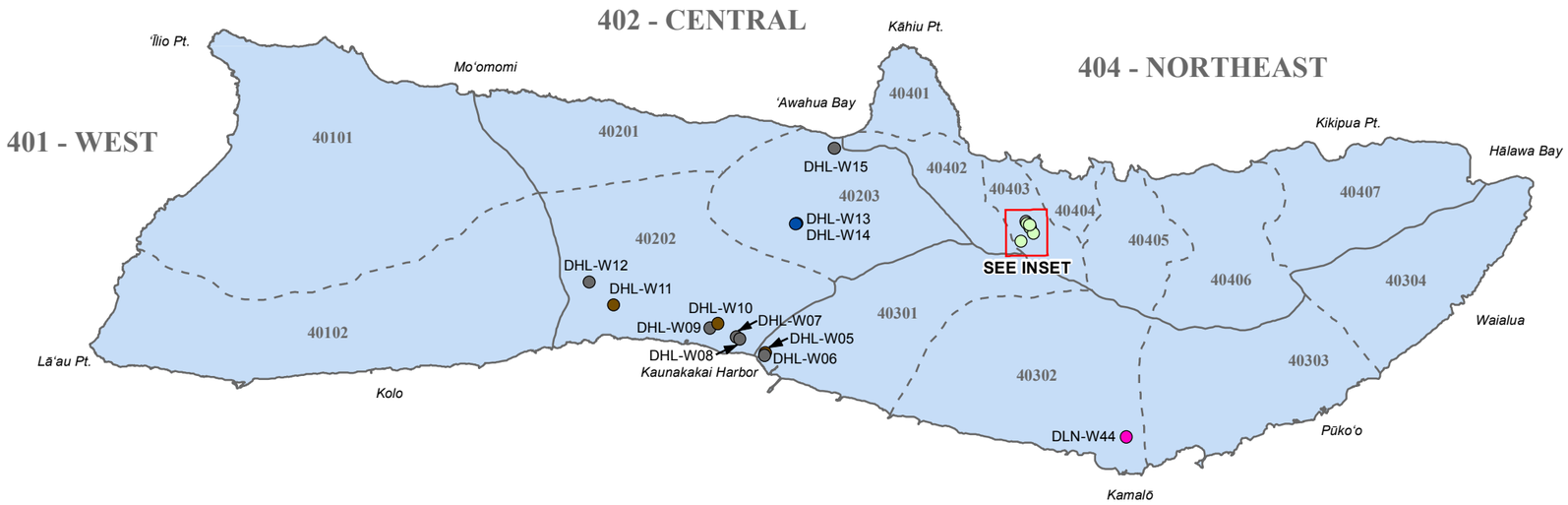
DOA has further indicated that the current supply of water from MDWS may not be adequate to completely service the proposed project area for the Upcountry Maui Irrigation System identified in the 1997 watershed plan. The SWPP project non-potable water demand provided by DOA is 1.880 MGD. The 2017 DHHL SWPP estimated a non-potable water demand of 0.578 MGD for the agricultural areas within the Kēōkea/Waiohuli tract.

8.1.1.2 Molokaʻi Irrigation System

The Molokaʻi Irrigation System (MIS) is located in Central Aquifer Sector Area [402] on the island of Molokaʻi, despite the sources for this system being located in the Northeast Aquifer Sector Area [404], Waikolu Aquifer System Area [40403]. The irrigation system is owned and operated by the State DOA, ARMD. The system includes 250 current service connections which serves a total acreage of approximately 3,360 acres. According to DOA metering records, the average daily quantity of water provided was 2.37 MGD in fiscal years 2014 through 2016.

The sources for the MIS include groundwater wells and stream diversions. The Waikolu groundwater well battery includes: Waikolu Tunnel 1 (State Well No. 0855-01) with a pump capacity 1.15 MGD, Waikolu 2 (State Well No. 0855-02) with a pump capacity 1.66 MGD, Waikolu 3 (State Well No. 0855-03) with a pump capacity 1.44 MGD, Waikolu 4 (State Well No. 0855-04) with a pump capacity 1.44 MGD, Waikolu 5 (State Well No. 0855-05) with a pump capacity 1.15 MGD and Waikolu 6 (State Well No. 0855-06) with a pumping capacity 1.44 MGD. The Waikolu well battery has a permitted water allocation of 0.853 MGD. The stream diversions include: Diversion Dam from Waikolu Stream at elevation 700 with 3 pumps to pump water into the tunnel (pump capacities are 1.01 MGD, 1.01 MGD and 2.02 MGD); Dam No. 1 which diverts water from Waikolu Stream; and Dam No. 2 and No. 3 which divert water from Waikolu Valley at elevation 1,000. Rainfall patterns, environmental impacts to streams, energy costs and pump operations affect the amount of source production that these sources contribute into the system. The source from the various wells and stream diversions is transported to the 1.4 billion-gallon Kualapuʻu Reservoir via a system that includes an 8-foot wide by 8-foot high tunnel, concrete flume and pipeline. It is estimated that the Kualapuʻu Reservoir loses approximately 0.5 MGD due to evaporation. From the reservoir, irrigation water is transmitted and distributed to its end users through a network of 6-inch to 24-inch pipelines. The MIS services the Molokaʻi Agricultural Park, Molokaʻi Ranch, DHHL Homestead Farmers, and private individual diversified farmers. DOA has indicated that its Capital Improvement Plan (CIP) recommendations from the Agricultural Water Use and Development Plan (AWUDP) for the MIS have become outdated.

Although the DHHL Hoʻolehua/Kalamaʻula tract is within the service area of the MIS, the DOA has stated that the non-homestead users of the MIS have been placed on mandatory restrictions of up to 30 percent for several of the past 10 years due to changing rainfall patterns (severe drought) and that new source development in adjacent eastern valleys has not been developed and will not be put into place for any time in the foreseeable future. The DOA has further clarified that expansion into these adjacent valley areas was not part of their original plan. This, coupled with the recent water shortages, would make expansion into the adjacent eastern valleys highly controversial. The 2017 DHHL SWPP estimated a non-potable water demand of 6.09 MGD for the Hoʻolehua and Kalamaʻula agricultural areas.



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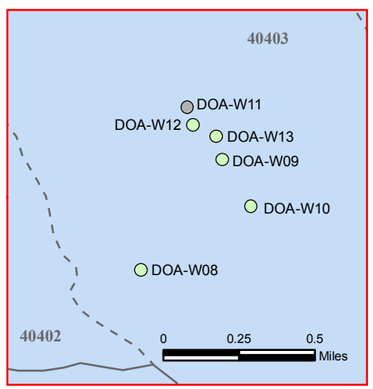
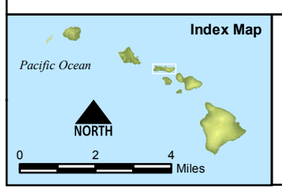




LEGEND:

ABN	AGRAQ	DOM	IRRGC	IRRSC	OBSDM	UNU	
ABNLOS	AGRCP	DOMNSC	IRRHM	MUN	OBSWL		
ABNSLD	AGRLI	INDEL	IRRLA	MUNST	OTH		
AGR	AGROTH	IRR	IRRPA	OBS	UNK		

Aquifer Sector Areas
Aquifer System Areas
301 Aquifer Sector Code
30101 Aquifer System Code

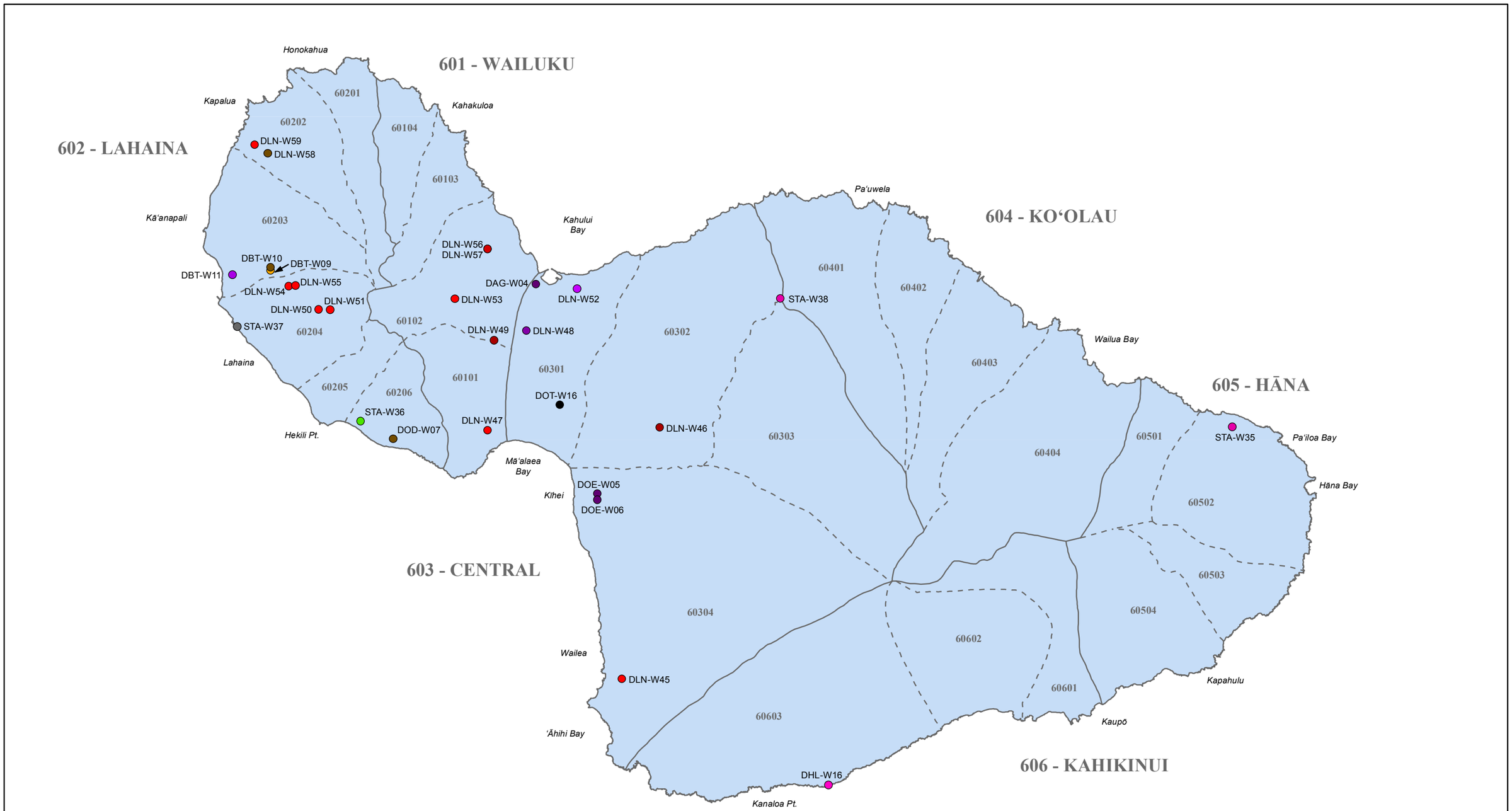
State Water Projects Plan Update - Statewide

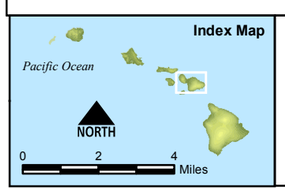
Existing Registered State Wells - Moloka'i

FIGURE 8-1

Fukunaga & Associates, Inc., *Consulting Engineers*

JUNE 2020





LEGEND:

ABN	AGRAQ	DOM	IRRGC	IRRSC	OBSDM	UNU	
ABNLOS	AGRCP	DOMNSC	IRRHM	MUN	OBSWL		
ABNSLD	AGRLI	INDEL	IRRLA	MUNST	OTH		
AGR	AGROTH	IRR	IRRPA	OBS	UNK		

—— Aquifer Sector Areas
– – Aquifer System Areas
301 Aquifer Sector Code
30101 Aquifer System Code

State Water Projects Plan Update - Statewide

Existing Registered State Wells - Maui

FIGURE 8-2

Fukunaga & Associates, Inc., *Consulting Engineers*

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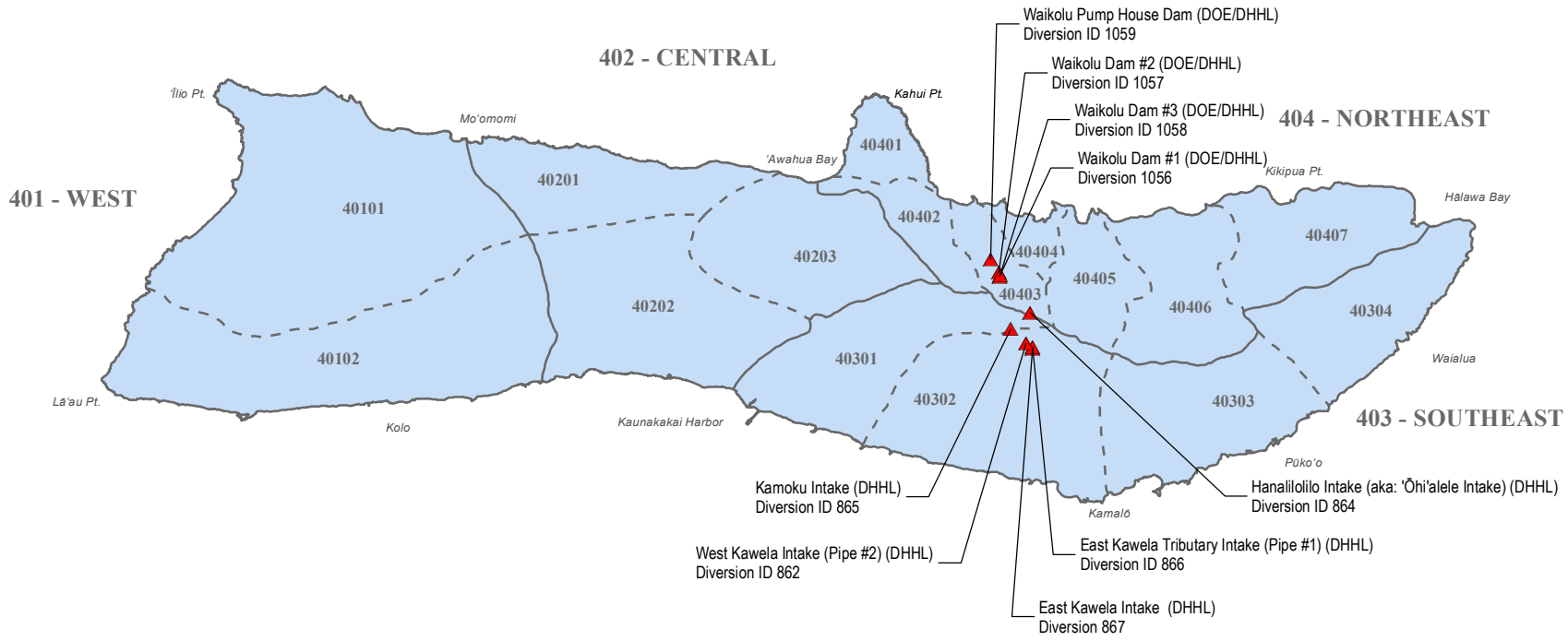
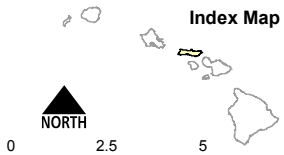


Index Map



Legend

- State Stream Diversions
- Aquifer Sector Areas
- Aquifer System Areas
- 401 Aquifer Sector Code
- 40101 Aquifer System Code

State Water Projects Plan Update - Statewide

Existing State Stream Diversions - Moloka'i

FIGURE 8-3

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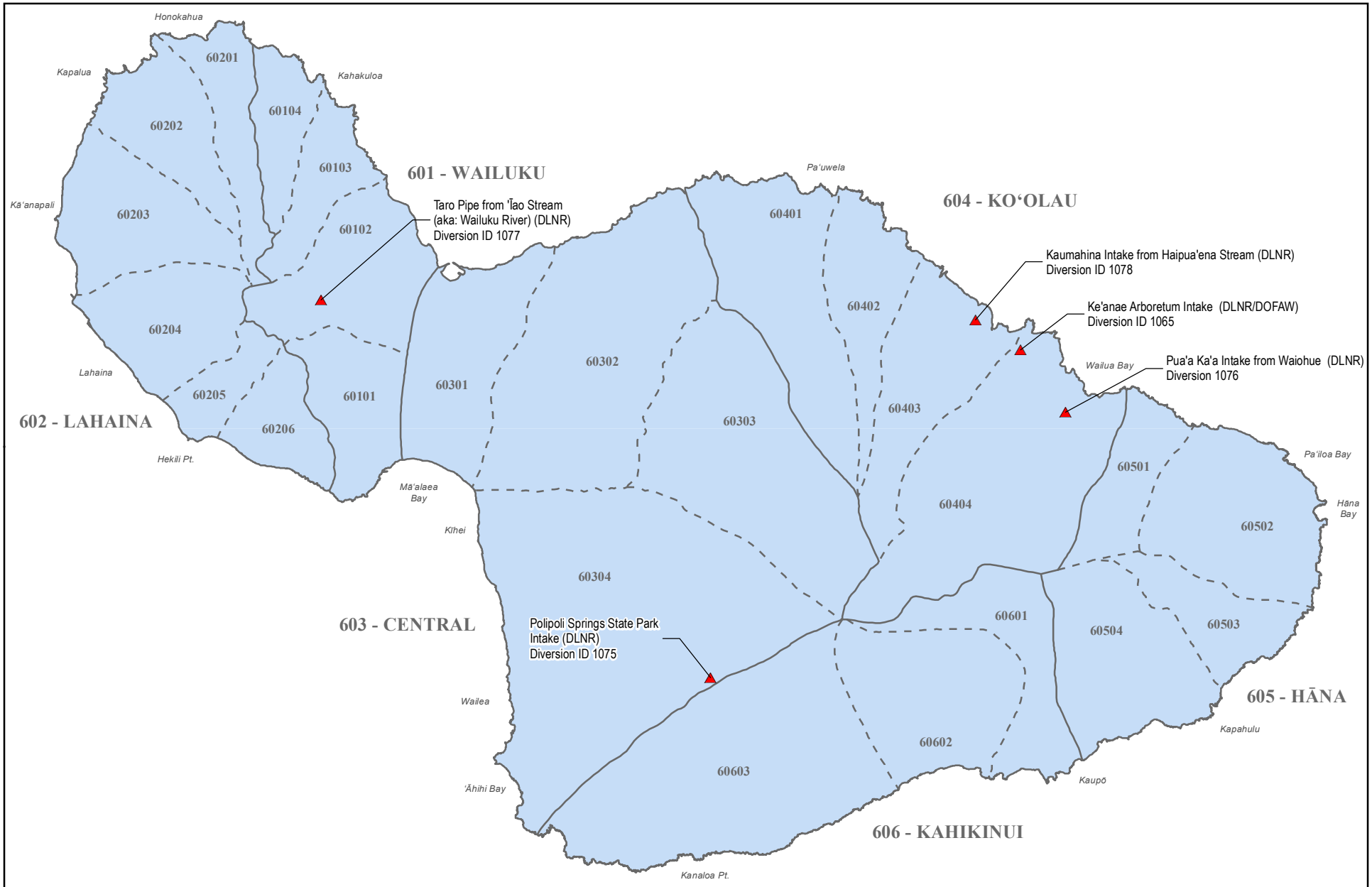

State Water Projects Plan Update - Statewide

Existing State Stream Diversions - Maui

FIGURE 8-4

Fukunaga & Associates, Inc., *Consulting Engineers*

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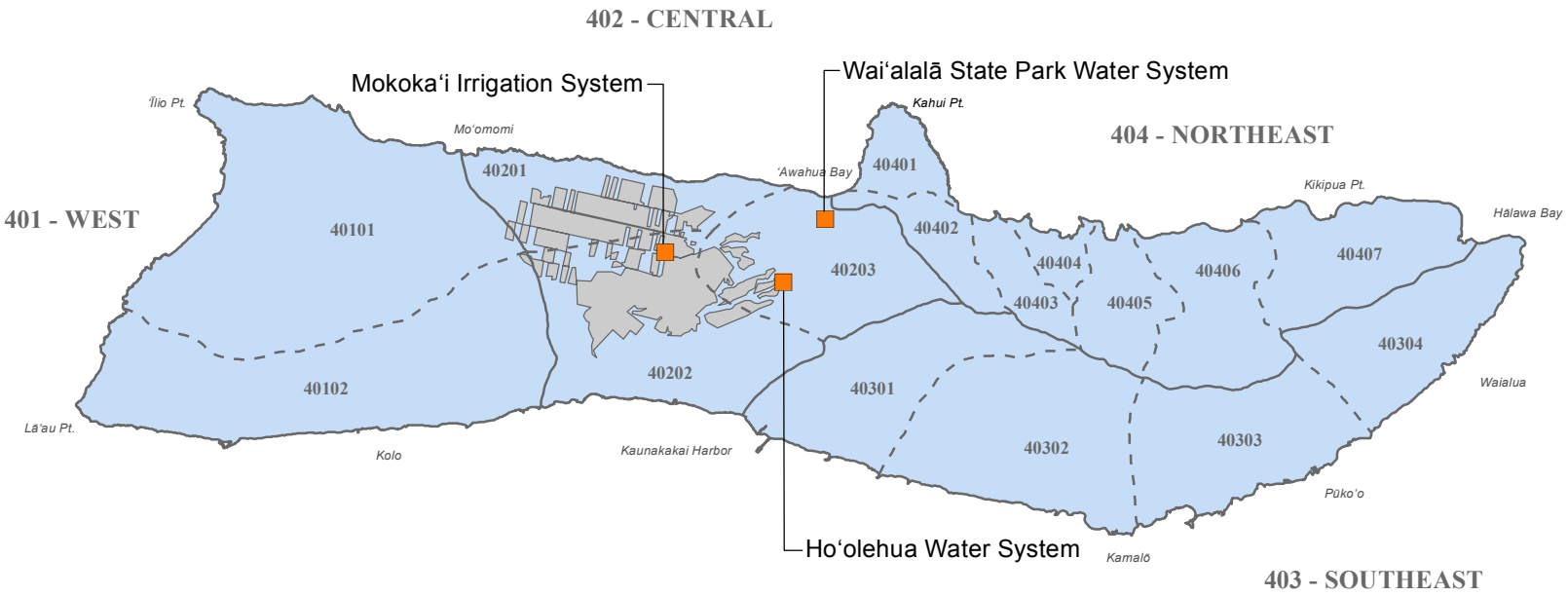

Index Map

NORTH

0 2.5 5 Miles

Legend

- WS Locations
- Irrigation System Approximate Service Area
- Aquifer Sector Areas
- Aquifer System Areas

State Water Projects Plan Update - Statewide

Existing State Water Systems - Moloka'i

FIGURE 8-5

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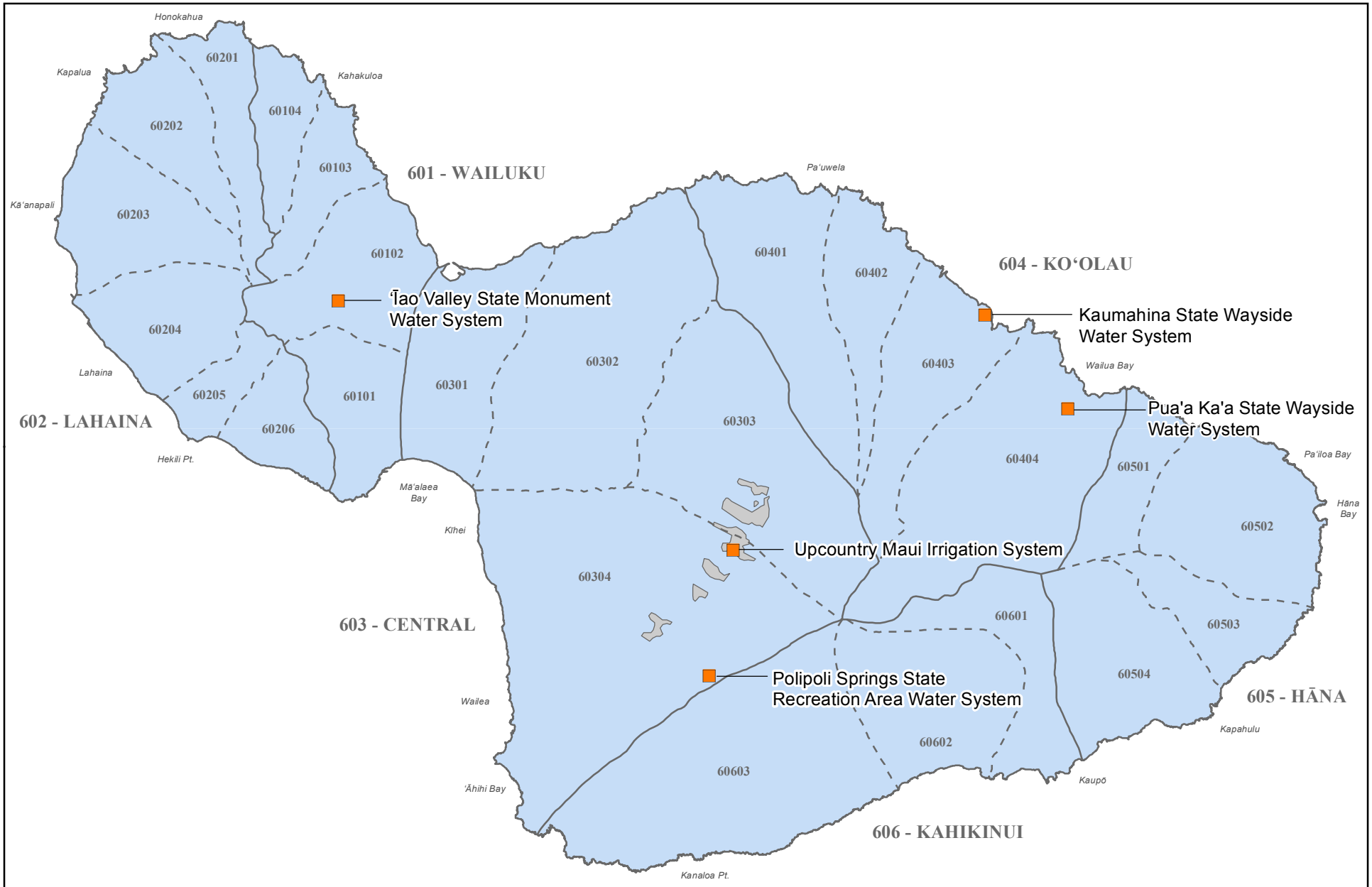

State Water Projects Plan Update - Statewide

Existing State Water Systems - Maui

FIGURE 8-6

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JUNE 2020

8.1.2 Department of Hawaiian Home Lands

The DHHL owns one water system on the island of Molokaʻi: Hoʻolehua Water System

8.1.2.1 Hoʻolehua Water System

The Hoʻolehua Water System is located within the Central Aquifer Sector [402] and the Kualapuʻu Aquifer System [40203] on the island of Molokaʻi. The water system, Department of Health (DOH) Public Water System No. 230, is owned and operated by the DHHL, and serves 2,400 customers from 581 service connections. The average daily consumption is 0.423 MGD.

Water is supplied by two groundwater wells, Kauluwai 1 (State Well No. 0801-01) at elevation 1,005 feet, and Kauluwai 2 (State Well No. 0801-02) at 1,011 feet, with pumping capacities of 0.864 and 1.08 MGD, respectively. The wells have a combined system facility capacity of 0.576 MGD. The system has full back-up power with a diesel generator and appurtenances. The water is disinfected with chlorine gas and pumped into a 0.1 MG concrete tank at elevation 1,015 feet. Water is pumped from this tank with two 300 GPM booster pumps to a 1.0 MG concrete reservoir at elevation 1,412 feet. Upstream of the booster pumps, water flows by gravity to a 0.2 MG concrete tank at elevation 233 feet, which supplies the Kalamaʻula community. The 1.0 MG reservoir itself provides water to the Maui DWS Kalaʻe Water System, the Molokaʻi Ranch Kīpū Water System, and the Meyer Estate. Water flows by gravity from the 1.0 MG reservoir to two 3.5 MG concrete tanks at elevation 1,017 feet, which supply Molokaʻi Airport, Molokaʻi High School, Kualapuʻu Elementary School and a portion of Hoʻolehua Town. There is also an emergency connection to the Molokaʻi Ranch Kualapuʻu Water System via a normally closed gate valve, adjacent to the 1.0 MG reservoir. The Hoʻolehua Water System distribution pipes range between 2 and 20-inch diameter, and consist of ductile iron, asbestos-cement and polyvinyl chloride (PVC) pipes. There are 450 fire hydrants and 50 miles of pipeline, from Kalamaʻula to Hoʻolehua. System pressures are targeted between 40 and 80 psi.

Based on the average existing water use, the maximum day demand is 0.635 MGD, and the system facility capacity is 0.576 MGD; therefore, the system facility capacity is not adequate to meet the existing maximum day demand. However, interconnections with other systems are available as backup.

System Facility Capacity (MGD)	Existing Avg Day Demand (MGD)	Existing Max Day Demand (MGD)	Surplus System Facility Capacity (MGD)	2034 SWPP Avg Day Dmd (MGD)	2034 SWPP Max Day Dmd (MGD)	Adequate to meet future demands?	Primary Use
0.576	0.423	0.635	0	0.793	1.189	No	Potable

8.1.2.2 Department of Land and Natural Resources

The Department of Land and Natural Resources (DLNR) owns five water systems on the islands of Maui and Molokaʻi:

- ʻĪao Valley State Monument Water System
- Kaumahina State Wayside Water System
- Polipoli Springs State Recreation Area Water System
- Puaʻa Kaʻa State Wayside Water System
- Waiʻalalā State Park Water System

8.1.2.3 ʻĪao Valley State Monument Water System

The ʻĪao Valley State Monument Water System is located at the end of ʻĪao Valley Road, outside of Wailuku on the island of Maui. The system is located in the Wailuku Aquifer Sector Area [601], and ʻĪao Aquifer System Area [60102]. The water system is owned and operated by the State and managed by the DLNR, Division of State Parks. The water system provides irrigation to a loʻi kalo patch (1,500 SF) within the State Park. The estimated non-potable water demand was not reported. The potable park consumption is supplied by the MDWS water system.

The non-potable source for the water system is a stream diversion from the ʻĪao Stream. Stream water is diverted through a 2-inch pipe and flows by gravity to the irrigation system. Information to determine the stream diversion capacity is not available and flow measurements are not available. System facility capacity adequacy could not be determined. Future water demands for the park were not reported.

8.1.2.4 Kaumahina State Wayside Water System

The Kaumahina State Wayside Water System is located between Kailua and Wailua along Hāna Highway, 28 miles east of the Kahului Airport on the island of Maui. The system is located in the Koʻolau Aquifer Sector Area [604], and Waikamoi Aquifer System Area [60403]. The water system is owned and operated by the State and managed by the DLNR, Division of State Parks. The water system serves a comfort station within the Wayside. The estimated existing water demand is 0.008 MGD.

The non-potable source for the water system is a stream diversion from the Haipuaʻena Stream. Stream water is diverted through a 2-inch pipe and flows by gravity to the comfort station. Information to determine the stream diversion capacity is not available and flow measurements are not recorded. System facility capacity adequacy could not be determined. Future water demands for the park were not reported.

8.1.2.5 Polipoli Springs State Recreation Area Water System

The Polipoli Springs State Recreation Area Water System is located in the Kahikinui Forest Reserve, 9.7 miles upland from Kula on Waipoli Road on the island of Maui. The system is located

in the Central Aquifer Sector Area [603], and Kamaʻole Aquifer System Area [60304]. The water system is owned and operated by the State and managed by the DLNR, Division of State Parks. The water system serves a park cabin and campground area. The estimated existing water demand is 0.002 MGD.

The non-potable source for the water system is an unnamed spring. The spring water flows through a 1-1/2-inch pipe to the campground area. Information to determine the stream diversion capacity is not available and flow measurements are not recorded. System facility capacity adequacy could not be determined. Future water demands for the park were not reported.

8.1.2.6 Puaʻa Kaʻa State Wayside Water System

The Puaʻa Kaʻa State Wayside Water System is located between Wailua and Nāhiku along Hāna Highway, 38 miles East of Kahului Airport on the island of Maui. The system is located in the Koʻolau Aquifer Sector Area [604], and Keʻanae Aquifer System Area [60404]. The water system is owned and operated by the State and managed by the DLNR, Division of State Parks. The water system serves a comfort station within the Wayside. The estimated existing water demand is 0.006 MGD.

The non-potable source for the water system is a stream diversion from the Waiohue Stream. Stream water is diverted through a 2-inch pipe and stored in a 0.005 MG reservoir. The water gravity flows to the comfort station. Information to determine the stream diversion capacity is not available and flow measurements are not recorded. System facility capacity adequacy could not be determined. Future water demands for the park were not reported.

8.1.2.7 Waiʻalalā State Park Water System

The Waiʻalalā State Park Water System is located at the end of Kalaʻe Highway on the island of Molokaʻi. The system is located in the Central Aquifer Sector Area [402], and Kualapuʻu Aquifer System Area [40203]. The water system is owned and operated by the State and managed by the DLNR, Division of State Parks. The recorded population served by the water system is 600 people, and the estimated existing demand is 0.003 MGD.

Source for the system comes from the Waiʻalalā Tunnel (State Well No. 1000-03). Water from the Waiʻalalā Tunnel flows into a junction box and then into a 15,000 gallon steel tank. The water is boosted at a small pump station to another 5,000-gallon redwood tank, where sodium hypochlorite is directly added in the tank for disinfection. The water system serves the Molokaʻi Mule Ride Stables, Resident Manager's Office, Pālāʻau State Park and Kalaupapa Lookout. Tunnel source capacity information is not available and flow measurements are not recorded. System facility capacity adequacy could not be determined. Future water demands for the park were not reported.

8.2 SWPP PROJECT WATER DEMAND

8.2.1 SWPP Project Water Demand Overview

The individual SWPP projects and associated water demands located on the island of Maui, Molokaʻi, and Lānaʻi are listed in tabular form separated by Department in **Appendix F** (potable) and **Appendix G** (non-potable) and by Island in **Appendix H** (potable) and **Appendix I** (non-potable). The total SWPP water demands were sorted to summarize the yearly cumulative average day demands throughout the 20-year planning period. **Table 8-1** through **Table 8-3** summarize the SWPP project potable projected water demand by State department, for Molokaʻi, Lānaʻi, and Maui, respectively. **Table 8-4** and **Table 8-5** summarize the SWPP project non-potable water demand for by State department, for Molokaʻi and Maui, respectively. There were no non-potable demands reported for the island of Lānaʻi. **Figure 8-7** shows the map of the SWPP project water demands on the islands of Molokaʻi and Lānaʻi. **Figure 8-8** shows the map of the SWPP project water demands on the island of Maui.

Table 8-1 – SWPP Potable Water Demands by State Department – Molokaʻi

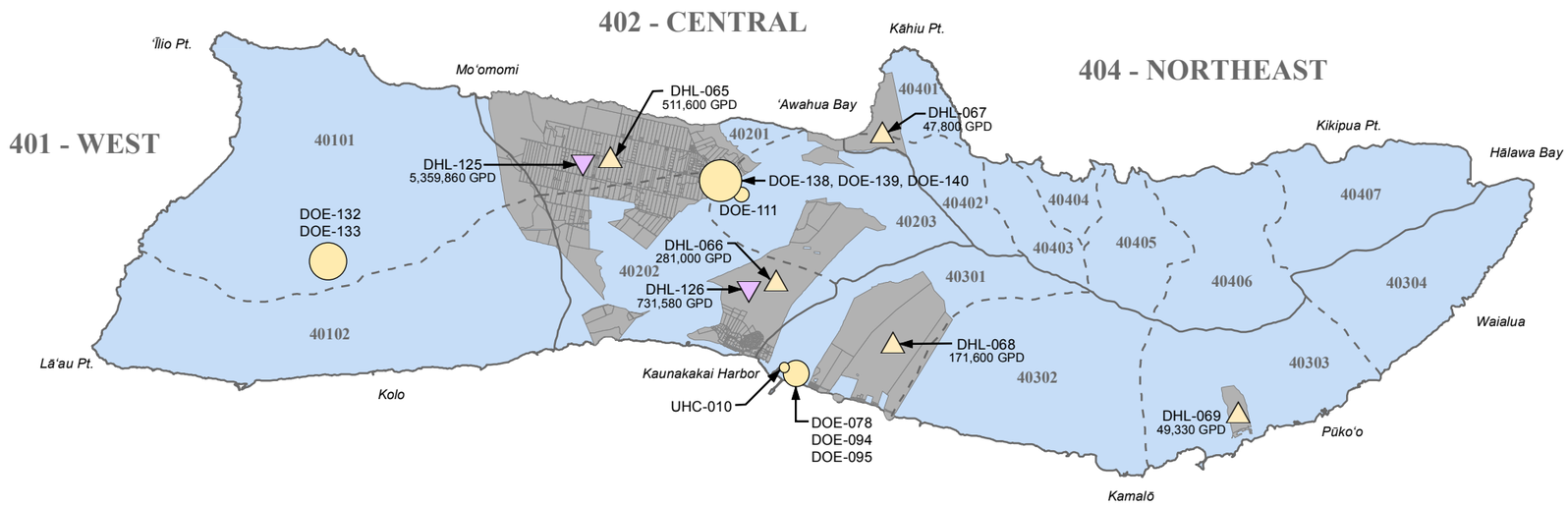
State Department	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
DOE	0	0	0	0	0	0	0.0295	0.0295
DHHL	0	0.2594	0.2594	0.2594	0.2594	0.6620	1.0613	1.0613
UH	0	0	0	0.0003	0.0003	0.0003	0.0003	0.0003
Total Molokaʻi	**0**	**0.2594**	**0.2594**	**0.2597**	**0.2597**	**0.6623**	**1.0911**	**1.0911**
Total State	**0.9414**	**5.4812**	**5.8039**	**6.0894**	**6.5019**	**13.286**	**24.273**	**34.147**

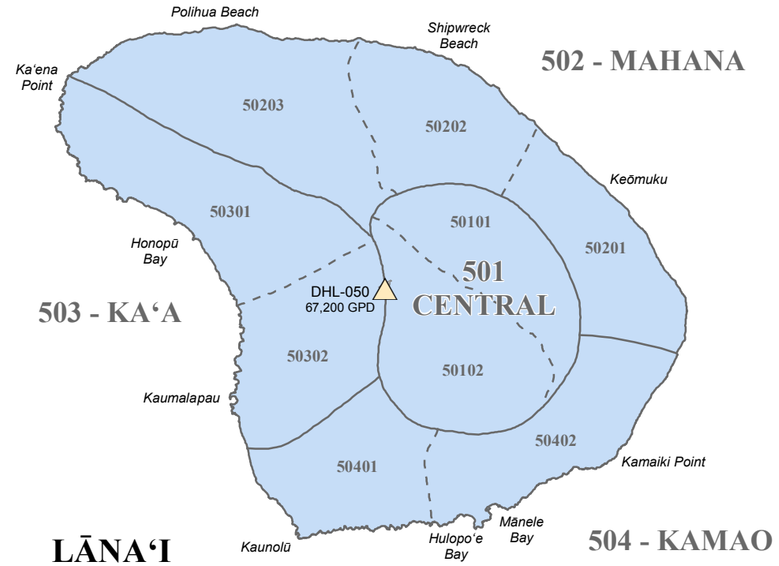
Table 8-2 – SWPP Potable Water Demands by State Department – Lānaʻi

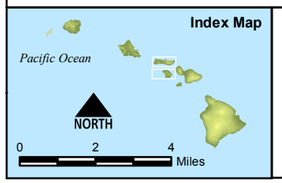
State Department	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
DHHL	0	0	0	0	0	0	0	0.0672
Total Lānaʻi	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0672**
Total State	**0.9414**	**5.4812**	**5.8039**	**6.0894**	**6.5019**	**13.286**	**24.273**	**34.147**

Table 8-3 – SWPP Potable Water Demands by State Department – Maui

State Department	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
DAGS	0	0	0	0.0400	0.0400	0.0460	0.3276	0.3276
DBEDT	0	0	0	0	0.1458	0.5133	0.9954	1.8185
DOE	0	0	0	0	0	0.0140	0.4940	0.5540
DHHL	0	2.2134	2.2134	2.2134	2.2134	2.7151	3.4566	3.5212
DLNR	0	0	0	0	0	0.5971	0.6214	0.6218
DOT	0	0	0.0002	0.0002	0.0002	0.0032	0.0092	0.1531
Judiciary	0	0	0	0	0	0.0090	0.0090	0.0090
UH	0	0	0.0003	0.0016	0.0016	0.0016	0.0016	0.0016
Total Maui	**0**	**2.2134**	**2.2139**	**2.2552**	**2.4010**	**0.38993**	**5.9148**	**7.0064**
Total State	**0.9414**	**5.4812**	**5.8039**	**6.0894**	**6.5019**	**13.286**	**24.273**	**34.147**







LEGEND:

- Project TMK
- Aquifer Sector Areas
- Aquifer System Areas
- 301 Aquifer Sector Code
- 30101 Aquifer System Code

Potable Project Water Demand (GPD)

100 1000 10,000 100,000 1,000,000

Non-Potable Project Water Demand (GPD)

100 1000 10,000 100,000 1,000,000

DHL Potable Water

DHL Non-Potable Water

State Water Projects Plan Update - Statewide

State Project Demands - Moloka'i and Lāna'i

FIGURE 8-7

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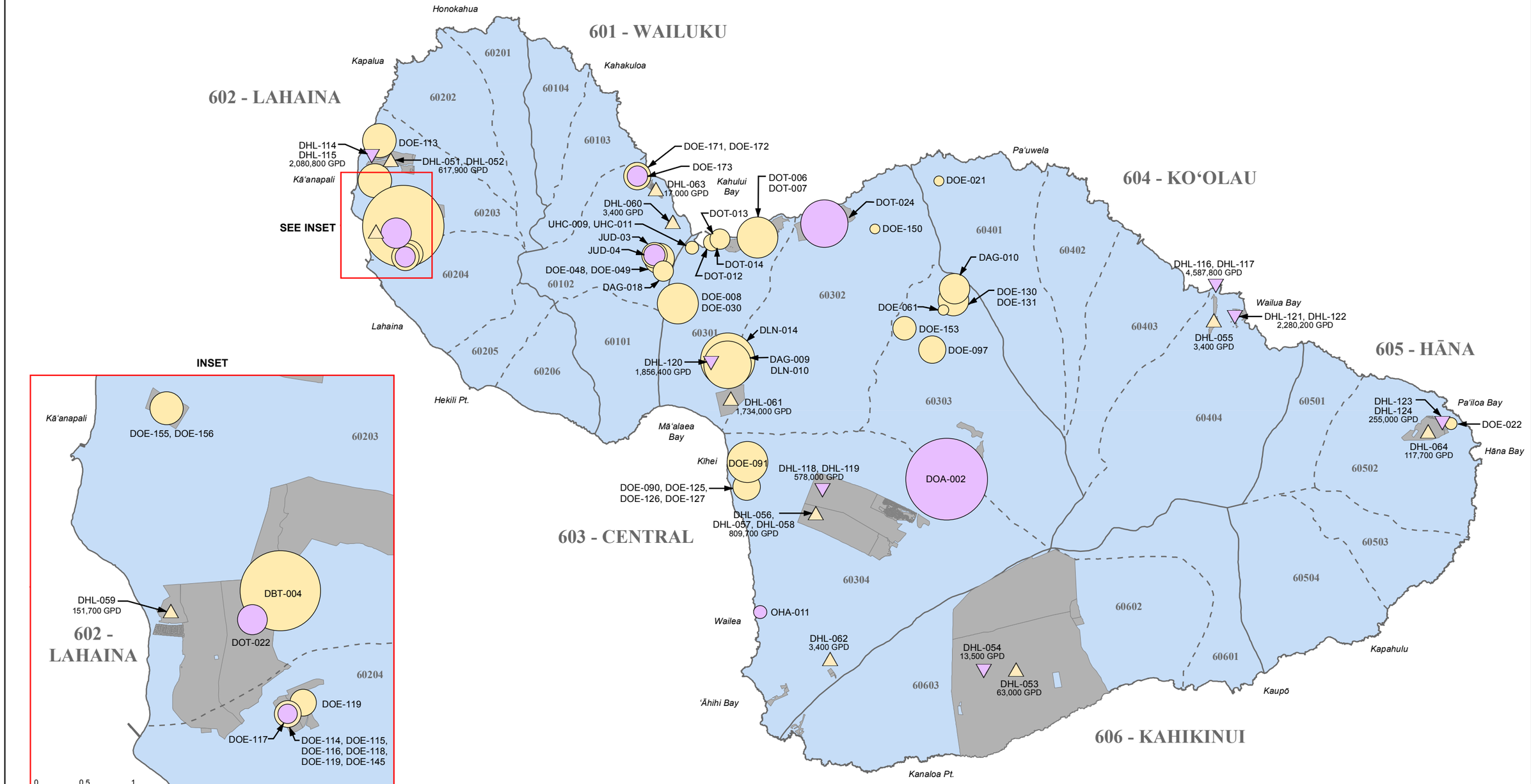
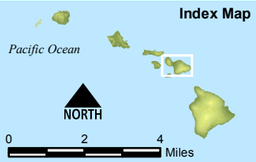
JUNE 2020



Index Map



LEGEND:

- Project TMK
- Aquifer Sector Areas
- Aquifer System Areas
- 301 Aquifer Sector Code
- 30101 Aquifer System Code

Potable Project Water Demand (GPD)

100 1000 10,000 100,000 1,000,000

Non-Potable Project Water Demand (GPD)

100 1000 10,000 100,000 1,000,000

DHL Potable Water

DHL Non-Potable Water

State Water Projects Plan Update - Statewide

State Project Demands - Maui

FIGURE 8-8

Fukunaga & Associates, Inc., *Consulting Engineers*

JUNE 2020

Table 8-4 – SWPP Non-Potable Water Demands by State Department – Molokaʻi

State Department	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
DHHL	0	4.7207	4.7207	4.7207	4.7207	5.3599	6.0915	6.0915
Total Molokaʻi	**0**	**4.7207**	**4.7207**	**4.7207**	**4.7207**	**5.3599**	**6.0915**	**6.0915**
Total State	**0.9224**	**43.461**	**46.824**	**50.162**	**53.791**	**73.079**	**117.60**	**148.57**

Table 8-5 – SWPP Non-Potable Water Demands by State Department – Maui

State Department	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
DOA	0	0	0	0	0	0	0	1.8800
DOE	0	0	0	0	0	0	0.0119	0.0119
DHHL	0	1.8699	1.8699	1.8699	1.8699	11.397	11.397	11.652
DOT	0	0	0	0	0	0.2880	0.3180	0.3180
Judiciary	0	0	0	0	0	0.0066	0.0066	0.0066
OHA	0	0.0025	0.0025	0.0025	0.0040	0.0040	0.0040	0.0040
Total Maui	**0**	**1.8724**	**1.8724**	**1.8724**	**1.8739**	**11.695**	**11.737**	**13.872**
Total State	**0.9224**	**43.461**	**46.824**	**50.162**	**53.791**	**73.079**	**117.60**	**148.57**

The individual SWPP projects and associated water demands located on the islands of Maui, Molokaʻi, and Lānaʻi are listed in tabular form separated by Hydrologic Unit in **Appendix J** (potable) and **Appendix K** (non-potable). **Table 8-6** and **Table 8-7** summarize the potable and non-potable water demand for SWPP projects by groundwater and surface water hydrologic unit, respectively.

Table 8-6 – SWPP Potable Water Demands by Groundwater Hydrologic Unit – Molokaʻi, Lānaʻi, and Maui

Island	Groundwater Hydrologic Unit		Sustainable Yield (MGD)	SWPP 2034 Potable Demand (MGD)
	Code	Name		
Molokaʻi	40101	Kalukoʻi	2	0.0081
	40102	Punakou	2	0
	401	**Subtotal West**	**4**	**0.0081**
	40201	Hoʻolehua	2	0
	40202	Manawainui	2	0
	40203	Kualapuʻu	5	0.8593
	402	**Subtotal Central**	**9**	**0.8593**
	40301	Kamiloloa	3	0.0028
	40302	Kawela	5	0.1716
	40303	ʻUalapuʻe	8	0.0493
	40304	Waialua	6	0
	403	**Subtotal Southeast**	**22**	**0.2237**
	40401	Kalaupapa	2	0
	40402	Kahanui	3	0
	40403	Waikolu	5	0
	40404	Hāʻupu	2	0
	40405	Pelekunu	9	0
	40406	Wailau	15	0
	40407	Hālawa	8	0
	404	**Subtotal Northeast**	**44**	**0**
		Total Molokaʻi	**79**	**1.0911**
Lānaʻi	50101	Windward	3	0
	50102	Leeward	3	0.0672
	501	**Subtotal Central**	**6**	**0.0672**
	50201	Hauola	0	0
	50202	Maunalei	0	0
	50203	Paomaʻi	0	0
	502	**Subtotal Mahana**	**0**	**0**
	50301	Honopū	0	0
	50302	Kaumalapau	0	0
	503	**Subtotal Kaʻa**	**0**	**0**
	50401	Keālia	0	0
	50402	Mānele	0	0
	504	**Subtotal Kamao**	**0**	**0**
		Total Lānaʻi	**6**	**0.0672**

Table 8-6 – SWPP Potable Water Demands by Groundwater Hydrologic Unit – Molokaʻi, Lānaʻi, and Maui (Continued)

Island	Groundwater Hydrologic Unit		Sustainable Yield (MGD)	SWPP 2034 Potable Demand (MGD)
	Code	Name		
Maui	60101	Waikapū	3	0
	60102	ʻĪao	20	0.0846
	60103	Waiheʻe	8	0
	60104	Kahakuloa	5	0
	601	**Subtotal Wailuku**	**36**	**0.0846**
	60201	Honokohau	9	0
	60202	Honolua	8	0
	60203	Honokōwai	6	2.6481
	60204	Launiupoko	7	0.0910
	60205	Olowalu	2	0
	60206	Ukumehame	2	0
	602	**Subtotal Lahaina**	**34**	**2.7391**
	60301	Kahului	1	1.2177
	60302	Pāʻia	7	0.0006
	60303	Makawao	7	0.0949
	60304	Kamaʻole	11	2.6837
	603	**Subtotal Central**	**26**	**3.9969**
	60401	Haʻikū	24	0.0008
	60402	Honopou	16	0
	60403	Waikamoi	37	0
	60404	Keʻanae	75	0.0034
	604	**Subtotal Koʻolau**	**152**	**0.0042**
	60501	Kūhiwa	14	0
	60502	Kawaipapa	31	0.1186
	60503	Waihoʻi	18	0
	60504	Kīpahulu	15	0
	605	**Subtotal Hāna**	**78**	**0.1186**
	60601	Kaupō	13	0
	60602	Nakula	7	0
	60603	Lualaʻilua	11	0.0630
	606	**Subtotal Kahikinui**	**31**	**0.0630**
		Total Maui	**357**	**7.0064**
		Total State	**3,556.5**	**34.147**

Table 8-7 – SWPP Non-Potable Water Demands by Surface Water Hydrologic Unit – Molokaʻi and Maui

Island	Surface Water Hydrologic Unit		Declared Use (MGD)	SWPP 2034 Non-Potable Demand (MGD)
	Code	Name		
Molokaʻi	4001	Waihānau	0.274	0
	4003	Waikolu	0.130	6.091
	4015	Wailau	0.004	0
	4021	Hālawa	0.002	0
	4022	Pāpio	0.007	0
	4025	Honoulimaloʻo	0.139	0
	4026	Honouliwai	0.250	0
	4029	Honomūni	0.018	0
	4037	Kawela	0.716	0
	4038	Kamiloloa	0.000	0
	4041	Manawainui	0.071	0
		Total Molokaʻi	**1.611**	**6.091**
Maui	6001	Waikapū	2.507	0
	6004	Ukumehame	4.888	0
	6005	Olowalu	4.556	0
	6006	Launiupoko	0.728	0
	6007	Kauaula	6.008	0.007
	6008	Kahoma	5.626	0.030
	6011	Kahana	1.099	0
	6013	Honolua	0.000	1.404
	6014	Honokōhau	0.011	1.040
	6017	Honanana	0.006	0
	6018	Kahakuloa	0.004	0
	6019	Waipili	0.027	0
	6021	Makamakaʻole	0.007	0
	6022	Waiheʻe	9.727	0
	6023	Waiehu	0.105	0.005
	6024	ʻĪao	22.833	0.007
	6026	Kailua Gulch	0.000	0.288
	6027	Māliko	0.014	1.880
	6028	Kuiaha	0.002	0
	6029	Kaupakulua	0.012	0
	6032	Kealiʻi	0.001	0
	6033	Kākipi	0.155	0
	6034	Honopou	1.327	0
	6035	Hoʻolawa	0.133	0
	6036	Waipiʻo	0.050	0
	6037	Hanehoi	0.007	0
	6047	Waikamoi	0.000	0.289
	6051	Honomanu	0.017	0.289
	6053	Piʻinaʻau	0.378	4.588
	6055	Waiokamilo	0.023	2.280
	6056	Wailuanui	0.002	0
	6064	Hanawī	0.303	0

Table 8-7 – Non-Potable Water Demands by Surface Water Hydrologic Unit – Molokaʻi and Maui (Continued)

Island	Surface Water Hydrologic Unit		Declared Use (MGD)	SWPP 2034 Non-Potable Demand (MGD)
	Code	Name		
Maui (Cont'd)	6067	Waihole	0.001	0
	6073	Heleleʻikeʻōhā	0.001	0
	6074	Kawakoe	0.002	0
	6075	Honomāʻele	0.000	0.209
	6076	Kawaipapa	0.000	0.046
	6079	Kapia	0.002	0
	6082	Alaʻalaula	0.007	0
	6083	Wailua	0.101	0
	6088	Puaʻaluʻu	0.112	0
	6097	Kālepa	0.018	0
	6099	Manawainui	0.004	0
	6106	Kīpapa	0.000	0.014
	6110	Wailea	0.000	0.004
	6112	Waiakoa	0.000	1.856
		Total Maui	**60.804**	**13.872**
		Total State	**3,641**	**148.57**

8.3 SWPP WATER DEVELOPMENT STRATEGY

Water Development Strategy options were to assigned to each SWPP project on the islands of Molokaʻi, Lānaʻi, and Maui as described in Chapter 5. Projects without strategy options but within the service area of the MDWS water system were then identified. The locations of these projects are shown on **Figure 8-9** and **Figure 8-10**. As previously discussed, project demands that are anticipated to require potable water to satisfy a non-potable end use demand have been included in the potable water development strategy options and remaining demands.

8.3.1 Water Development Strategy Options Overview

The SWPP water development strategy options account for 79 percent, 100 percent, and 77 percent of the total Molokaʻi, Lānaʻi, and Maui SWPP potable project water demand for the year 2034. The total water demands for SWPP projects accounted for by water development strategy option for the islands of Molokaʻi, Lānaʻi, and Maui are summarized in **Table 8-8** through **Table 8-10**, respectively. The remaining balance of potable water demands constitutes those projects within or adjacent to the service area of the MDWS water system but without a strategy option. The total water demands for SWPP projects accounted for by each non-potable water development strategy option for the islands of Molokaʻi and Maui are summarized in **Table 8-11** and **Table 8-12**, respectively. Demands met by ambient conditions and not requiring a strategy option are also listed.

Table 8-8 – Summary of Potable Water Development Strategy and Remaining Demands – Molokaʻi

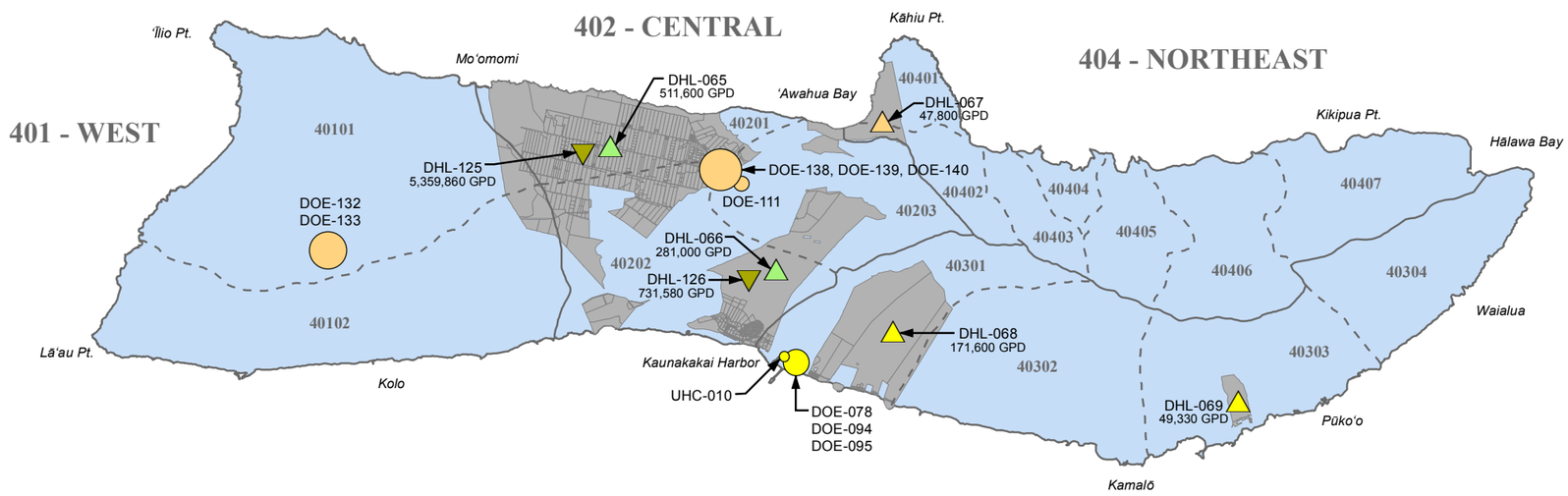
Potable Water Development Strategy Options	Cumulative Average Day Demand (MGD)							
	Short-Term						Long-Term	
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
COUNTY-PRIVATEAGREE	0	0	0	0	0	0	0.0748	0.0748
MASTERPLAN	0	0.2594	0.2594	0.2594	0.2594	0.6338	0.7926	0.7926
Demand Accounted for by Water Development Strategy	**0**	**0.2594**	**0.2594**	**0.2594**	**0.2594**	**0.6338**	**0.8674**	**0.8674**
REMAIN – MDWS	0	0	0	0.0003	0.0003	0.0285	0.2237	0.2237
Total Demand Using Potable Sources	**0**	**0.2594**	**0.2594**	**0.2597**	**0.2597**	**0.6623**	**1.0911**	**1.0911**

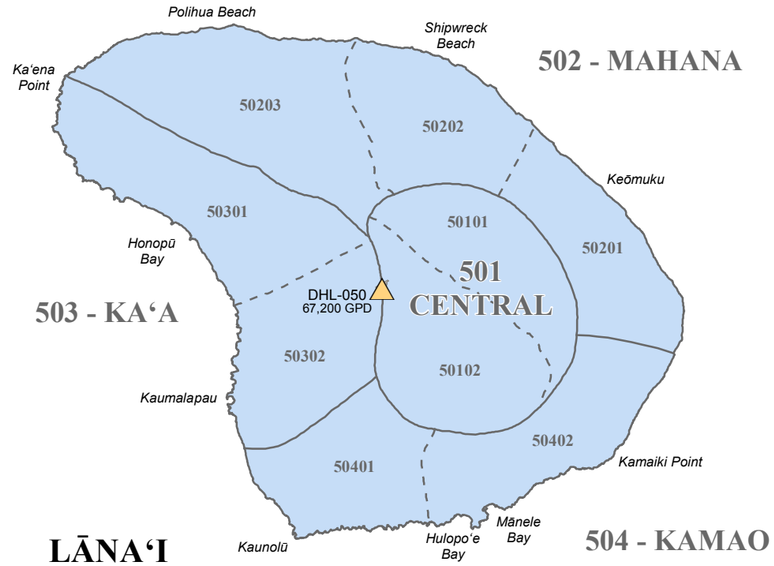
Table 8-9 – Summary of Potable Water Development Strategy and Remaining Demands – Lānaʻi

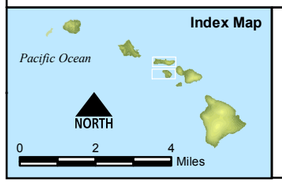
Potable Water Development Strategy Options	Cumulative Average Day Demand (MGD)							
	Short-Term						Long-Term	
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
COUNTY-PRIVATEAGREE	0	0	0	0	0	0	0	0.0672
Demand Accounted for by Water Development Strategy	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0672**
REMAIN – Maui DWS	0	0	0	0	0	0	0	0
Total Demand Using Potable Sources	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0672**

Table 8-10 – Summary of Potable Water Development Strategy and Remaining Demands – Maui

Potable Water Development Strategy Options	Cumulative Average Day Demand (MGD)							
	Short-Term						Long-Term	
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
COUNTY-CREDIT	0	0.0960	0.0960	0.0960	0.0960	0.8781	0.8781	0.8781
MASTERPLAN	0	1.7340	1.7340	1.7340	1.7340	1.7340	1.7340	1.7340
NEWSS	0	0.3000	0.3000	0.3000	0.4458	1.0262	1.7650	2.5881
NEWSWS	0	0	0	0	0	0.0679	0.5287	0.5287
OTHER - CATCHMENT	0	0.0765	0.0765	0.0765	0.0765	0.0765	0.0765	0.0765
Demand Accounted for by Water Development Strategy	**0**	**2.2065**	**2.2065**	**2.2065**	**2.3523**	**3.7827**	**4.9823**	**5.8054**
REMAIN – Maui DWS	0	0.0229	0.0234	0.0647	0.0662	0.4287	1.2865	1.5550
Total Demand Using Potable Sources	**0**	**2.2294**	**2.2299**	**2.2712**	**2.4185**	**4.2114**	**6.2688**	**7.3604**







LEGEND:

- Project TMK
- Aquifer Sector Areas
- Aquifer System Areas
- 301 Aquifer Sector Code
- 30101 Aquifer System Code

Potable Water Development Strategy (GPD)

100 1000 10,000 100,000

Non-Potable Water Development Strategy (GPD)

100 1000 10,000 100,000

△ DHL Potable Water

▽ DHL Non-Potable Water

Strategy Option

- Remain
- County - Credit
- County - Exempt
- County - Privateagree
- County - BWSALL
- None - Ambient Rainfall/Moisture
- EXSWS
- Masterplan
- NEWSS
- NEWSWS
- Other

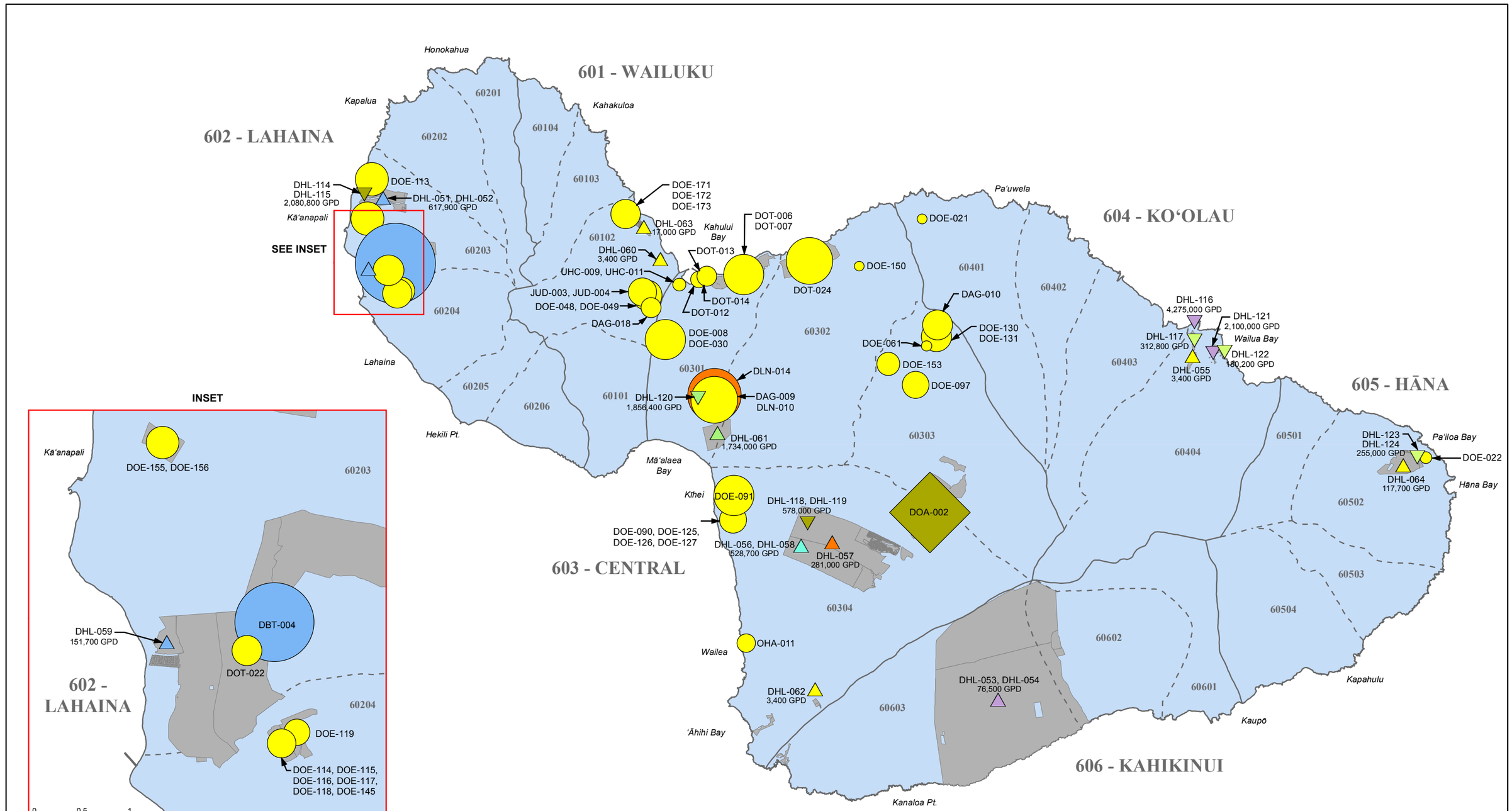
State Water Projects Plan Update - Statewide

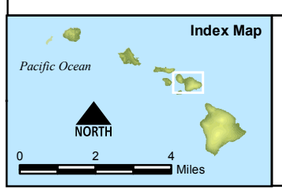
Water Development Strategy - Moloka'i and Lāna'i

FIGURE 8-9

Fukunaga & Associates, Inc., *Consulting Engineers*

JUNE 2020





LEGEND:

- Project TMK
- Aquifer Sector Areas
- Aquifer System Areas
- 301 Aquifer Sector Code
- 30101 Aquifer System Code

Potable Water Development Strategy (GPD)

100 1000 10,000 100,000 1,000,000

Non-Potable Water Development Strategy (GPD)

100 1000 10,000 100,000 1,000,000

DHL Potable Water

DHL Non-Potable Water

Strategy Option

- Remain
- County - Credit
- County - Exempt
- County - Privateagree
- County - BWSALL
- None - Ambient Rainfall/Moisture
- EXSWS
- Masterplan
- NEWSS
- NEWSWS
- Other

State Water Projects Plan Update - Statewide

Water Development Strategy - Maui

FIGURE 8-10

Fukunaga & Associates, Inc., *Consulting Engineers*

JUNE 2020

Table 8-11 – Summary Non-Potable Water Development Strategy – Molokaʻi

Non-Potable Water Development Strategy Options	Cumulative Average Day Demand (MGD)							
	Short-Term						Long-Term	
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
EXSWS	0	4.7207	4.7207	4.7207	4.7207	5.3599	6.0915	6.0915
Demand Accounted for by Water Development Strategy	**0**	**4.7207**	**4.7207**	**4.7207**	**4.7207**	**5.3599**	**6.0915**	**6.0915**
NONE	0	0	0	0	0	0	0	0
Total Demand Using Non-Potable Sources	**0**	**4.7207**	**4.7207**	**4.7207**	**4.7207**	**5.3599**	**6.0915**	**6.0915**

Table 8-12 – Summary of Non-Potable Water Development Strategy – Maui

Non-Potable Water Development Strategy Options	Cumulative Average Day Demand (MGD)							
	Short-Term						Long-Term	
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
EXSWS	0	0	0	0	0	2.6588	2.6588	4.5388
MASTERPLAN	0	1.8564	1.8564	1.8564	1.8564	1.8564	1.8564	1.8564
OTHER-STREAM DIVERSION	0	0	0	0	0	6.3750	6.3750	6.3750
Demand Accounted for by Water Development Strategy	**0**	**1.8564**	**1.8564**	**1.8564**	**1.8564**	**10.890**	**10.890**	**12.770**
NONE-AMBIENT RAINFALL	0	0	0	0	0	0.4930	0.4930	0.7480
Total Demand Using Non-Potable Sources	**0**	**1.8564**	**1.8564**	**1.8564**	**1.8564**	**11.383**	**11.383**	**13.518**

8.3.2 Evaluation of Water Development Strategy Options

8.3.2.1 Existing State Water Systems (EXSWS)

Maui Land and Pineapple Irrigation System

The Maui Land & Pineapple Irrigation System, Honokōhau Ditch, including three reservoirs, is located along the mauka boundary of the DHHL Honokowai tract. The anticipated non-potable demand from the DHHL agricultural areas within the tract (SWPP Projects: Honokowai (Non-Potable 1), DHL-114; and Honokowai (Non-Potable 2), DHL-115) is 2.0808 MGD. According to the 2004 AWUDP, the ditch is intact, but some sections are not being used, abandoned, or in a state of flux pending resolution of ownership issues. The 2017 DHHL SWPP noted that the forthcoming update of the AWUDP could reveal the irrigation system to be a viable option and recommended that non-potable supply alternatives be investigated further.

Upcountry Maui Irrigation System (DOA)

As discussed, the Upcountry Maui Irrigation System was originally intended to supply non-potable water to nine lateral systems from the main pipeline, including the DHHL Kēōkea area. However, due to budgetary considerations and inadequate water supply to the system, DOA does not plan to extend service to the Kēōkea area. DOA estimated a non-potable demand of 1.880 MGD for the Upcountry Maui Irrigation System (SWPP Project: Upcountry Maui Irrigation System (Non-Potable), DOA-002). DOA has indicated that DHHL could construct the lateral to service the

Kēōkea area at its own cost. The 2017 DHHL SWPP recommended that a coordinated effort be undertaken between DHHL, DOA and MDWS to determine the feasibility of utilizing the Upcountry Maui Irrigation System to supply the anticipated SWPP project non-potable water demand of 0.578 MGD to the Kēōkea agricultural area (SWPP Projects: Kēōkea-Waiohuli Development Phase 1-4 (Non-Potable 1), DHL-118; and Kēōkea-Waiohuli Development Phase 1-4 (Non-Potable 2), DHL-119).

Molokaʻi Irrigation System (DOA)

As discussed, a potential non-potable source to meet the agricultural demands for the DHHL Hoʻolehua and Kalamaʻula tracts (SWPP Projects: Hoʻolehua (Non-Potable), DHL-125; and Kalamaʻula (Non-Potable), DHL-126) could be the State DOA Molokaʻi Irrigation System; however DOA has cautioned that provision of water from the MIS to these areas would be highly controversial. The 2017 DHHL SWPP recommended that DHHL and DOA collaborate to determine the feasibility of supplying DHHL's non-potable needs from the MIS and work towards a solution that will benefit all parties. The anticipated SWPP project non-potable water demand for the two tracts is 6.0914 MGD.

8.3.2.2 Existing State Sources (EXSS)

There are no existing State sources serving SWPP projects.

8.3.2.3 Existing and Planned Water Master Plans (MASTERPLAN)

Pūlehunui Regional Infrastructure Master Plan

The 2017 DHHL SWPP discussed the proposed development of a comprehensive water and wastewater master plan for the Pūlehunui area in central Maui, which includes the DHHL Puʻunēnē tract and lands owned by the DLNR. The master plan was anticipated to be a collaborative effort between DHHL, DLNR, DPS, and DAGS. At the time of 2017 DHHL SWPP, funds had been appropriated and DHHL had developed a matrix of potential water servicing alternatives, which included options such as collaboration with multiple agencies, water conservation, and water reuse. Development of the Puʻunēnē tract includes industrial (SWPP Project: Puʻunēnē, DHL-061) and agricultural (SWPP Project: Puʻunēnē (Non-Potable), DHL-120) areas. The anticipated SWPP project potable and non-potable water demands are 1.734 MGD and 1.8564 MGD, respectively.

Hoʻolehua and Kalamaʻula Potable Water Master Plan

The Hoʻolehua and Kalamaʻula Potable Water Master Plan (WMP) was completed in 2007 for DHHL to evaluate the Hoʻolehua Water System for the ultimate potable water demand that would result from full build-out of the DHHL Hoʻolehua and Kalamaʻula tracts (SWPP Projects: Hoʻolehua, DHL-065; and Kalamaʻula, DHL-066), as based on the land use areas identified in its Molokaʻi Island Plan. The report made several recommendations for improving the capabilities of the system to adequately deliver the required demand, including operational, transmission, storage, and source development improvements. The total SWPP project potable water demand is

0.7926 MGD. The 2017 DHHL SWPP indicated that the recommendations from the WMP had not yet been implemented. It concluded that the WMP recommendations should be initiated as soon as possible, particularly the studies and tests that will provide the basis for future decisions, and also recommended that that all water master plans be updated to reflect current information.

8.3.2.4 County and Private Water Agreements (COUNTY-)

COUNTY-CREDIT

The DHHL has a Water Credits Agreement with the MDWS signed on December 9, 1997 in which MDWS committed 0.5 MGD of potable water per average day to DHHL for homesteading use in exchange for DHHL improvements to the water system. The agreement stipulates that MDWS shall not impose any time limitations on DHHL to draw or use such reservation of potable water from the MDWS system. Two existing DHHL developments have already used 0.219 MGD of the available water credits, leaving a remaining balance of 0.281 MGD for future use. The SWPP project Kēōkea/Waiohuli Development Phase 1-4 1, DHL-057, proposes a potable water demand of 0.2810 MGD, which will utilize the remaining credits.

A water credits agreement between the DLNR and the DWS was signed in 2004 and revised in 2020. Under this agreement, DLNR will develop site well(s) in Central Maui to service the DLNR Industrial and Business Park project (DLN-014) in exchange for water allocation credits in direct proportion to its financial contribution. The determination of water credits will be based on the developable yield of the well(s). The anticipated SWPP project potable water demand for this project is 0.5971 MGD.

COUNTY-PRIVATEAGREE

The 2017 DHHL SWPP indicates the development 112 residential units within the Lānaʻi tract (SWPP Project: Lānaʻi City, DHL-050). The SWPP project potable water demand of 0.0672 MGD is anticipated to be supplied by the Lānaʻi Water Company system, through development of an agreement between the purveyor and DHHL.

The DOE has six SWPP projects anticipated to be served by water systems owned by Molokaʻi Ranch. All are expansions of existing schools that are already served by one of these water systems. The Maunaloa-Kaloi Water System is anticipated to serve the following projects:

- Maunaloa Elementary School New 4 Classroom, DOE-132
- Maunaloa Elementary School New Library, DOE-133

The Kualapuʻu Water System is anticipated to serve the following projects:

- Kualapuʻu Elementary School 6 Classroom Building, DOE-111
- Molokaʻi High School New Administration, DOE-138
- Molokaʻi High School Cafeteria, DOE-139
- Molokaʻi High School 8 Classroom Building, DOE-140

The total SWPP project potable water demands for all projects on the Maunaloa-Kaloi and Kualapuʻu Water Systems are 0.008 MGD and 0.0188 MGD, respectively. It is anticipated that agreements or modifications to existing agreements will be made between the purveyor and the DOE.

The Kalaupapa National Historic Park Water System, owned and operated by the National Park Service (NPS), is anticipated to serve DHHL's future community and commercial developments in its Kalaupapa/Pālāʻau tract (SWPP Project: Kalaupapa, Pālāʻau, DHL-067). The system has adequate facility capacity to supply the existing average demand of 0.05 MGD plus the SWPP project potable water demand of 0.0478 MGD from the DHHL development. The water system already serves the existing DHHL settlement, and therefore, it is anticipated that agreements or modifications to existing agreements will be developed between the NPS and DHHL to service the future areas.

8.3.2.5 New State Water Systems (NEWSWS)

Kēōkea/Waiohuli Water System (DHHL)

Development of the DHHL Kēōkea/Waiohuli community over and above the development that can be served by the available MDWS water credits (SWPP Projects: Kēōkea/Waiohuli, DHL-056; and Kēōkea/Waiohuli Development Phase 1-4, DHL-058), and located below the 2,400-foot elevation, will require a new water system. An exploratory well at the 1,900-foot elevation of the Waiohuli tract tapped into water at approximately six feet above sea level. The 2017 DHHL SWPP indicated that the water would need to be pumped from the wells to a reservoir to service the higher elevations, and then would flow by gravity to the remainder of the service area. A second reservoir and a distribution system with a series of PRVs would also be required. The total SWPP project potable water demand that could be serviced by this potential new water system is estimated at 0.5287 MGD.

8.3.2.6 New and/or Planned State Wells (NEWSS)

DHHL is in the process of developing a potable water well mauka of its Honokōwai tract, and as part of the Environmental Assessment for the well, is developing water transmission alternatives to integrate this well with the MDWS system. This will provide service to the proposed communities within its Honokōwai and Leialiʻi tracts and address future MDWS demands in the area. The Hawaiʻi Housing Finance & Development Corporation (HHFDC) entered into a Memorandum of Understanding (MOU) with DHHL where HHFDC agreed to participate in funding for the first portion of the development of the well, and in return will receive credit for a share of the well capacity. DHHL anticipates 50 acres of commercial and industrial development in addition to residential, subsistence farming and community uses for the two tracts (SWPP Projects: Honokōwai, DHL-051; Kaʻanapali, Honokōwai, DHL-052; and Lealiʻi 1B, DHL-059). The capacity allotted to HHFDC will be used to supply its Villages of Leialiʻi development (SWPP Project: DBT-004). The anticipated total SWPP project potable water demand from these projects is 2.5881 MGD.

8.3.2.7 Planned Private Sources (PLANPS)

There were no reported planned private sources available for SWPP projects.

8.3.2.8 Coordination of Remaining SWPP Project Demands with County Water Department (REMAIN)

The remaining balance of potable and water demands are summarized by groundwater hydrologic unit in **Table 8-13** for the island of Molokaʻi and **Table 8-14** for the island of Maui.

Table 8-13 – Summary of Remaining Potable Demands by Groundwater Hydrologic Unit – Molokaʻi

Groundwater Hydrologic Unit		Cumulative Average Day Demand (MGD)							
		Short-Term						Long-Term	
Code	Name	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
40301	Kamiloloa	0	0	0	0.0003	0.0003	0.0003	0.0028	0.0028
40302	Kawela	0	0	0	0	0	0	0.1716	0.1716
40303	Ualapuʻe	0	0	0	0	0	0.0282	0.0493	0.0493
403	**Subtotal Southeast**	**0**	**0**	**0**	**0.0003**	**0.0003**	**0.0285**	**0.2237**	**0.2237**
	Total Molokaʻi	**0**	**0**	**0**	**0.0003**	**0.0003**	**0.0285**	**0.2237**	**0.2237**

Table 8-14 – Summary of Remaining Potable Demands by Groundwater Hydrologic Unit – Maui

Groundwater Hydrologic Unit		Cumulative Average Day Demand (MGD)							
		Short-Term						Long-Term	
Code	Name	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
60102	ʻĪao	0	0.0204	0.0204	0.0204	0.0204	0.0420	0.0963	0.0963
601	**Subtotal Wailuku**	**0**	**0.0204**	**0.0204**	**0.0204**	**0.0204**	**0.0420**	**0.0963**	**0.0963**
60203	Honokowai	0	0	0	0	0	0	0.0300	0.0900
60204	Launipoko	0	0	0	0	0	0.0140	0.0978	0.0978
602	**Subtotal Lahaina**	**0**	**0**	**0**	**0**	**0**	**0.0140**	**0.1278**	**0.1878**
60301	Kahului	0	0	0.0005	0.0018	0.0018	0.0048	0.4767	0.6206
60302	Pāʻia	0	0	0	0	0	0.2880	0.2886	0.2886
60303	Makawao	0	0	0	0.0400	0.0400	0.0400	0.0949	0.0949
60304	Kamaʻole	0	0.0025	0.0025	0.0025	0.0040	0.0040	0.1406	0.1440
603	**Subtotal Central**	**0**	**0.0025**	**0.0030**	**0.0443**	**0.0458**	**0.3368**	**1.0008**	**1.1481**
60401	Haʻikū	0	0	0	0	0	0	0.0008	0.0008
60404	Keʻanae	0	0	0	0	0	0.0034	0.0034	0.0034
604	**Subtotal Koʻolau**	**0**	**0**	**0**	**0**	**0**	**0.0034**	**0.0042**	**0.0042**
60502	Kawaipapa	0	0	0	0	0	0.0325	0.0574	0.1186
605	**Subtotal Hāna**	**0**	**0**	**0**	**0**	**0**	**0.0325**	**0.0574**	**0.1186**
	Total Maui	**0**	**0**	**0.0234**	**0.0647**	**0.0662**	**0.4287**	**1.2865**	**1.5550**

The MDWS remains the first strategy option to serve remaining SWPP project water demands on the islands of Maui and Molokaʻi. DLNR will coordinate the availability of water system capacity with the MDWS to meet these water demands. MDWS and DLNR should note that a remaining potable water demand of 0.62 MGD is anticipated in the Kahului aquifer system by 2034. A

planning level estimate to determine the anticipated cost to connect to the MDWS water system is summarized in **Appendix O**. The planning level cost estimates are for budgetary purposes only.

8.3.2.9 Water Catchment Systems

There are no known surface water sources in proximity to the DHHL Kahikinui tract. The ambient annual rainfall is between 20 and 50 inches, which is not sufficient to support traditional rainwater catchment systems. However, DHHL is exploring the option of utilizing fog drip catchment systems to supply the 0.063 MGD required to support its pastoral homesteads (SWPP Project: Kahikinui, DHL-053) and 0.0135 MGD required for stock water (SWPP Project Kahikinui (Non-Potable Using Potable), DHL-054). Fog drip catchment systems operate similarly to rainwater catchment systems, with net-like fog collectors being utilized to collect the moisture in lieu of using dwelling roofs.

8.3.2.10 Stream Diversions

There are two DHHL areas anticipated for loʻi kalo cultivation that could potentially use this strategy option to provide needed irrigation water. The Piʻinaʻau Stream runs through the Keʻanae tract (SWPP Project: Keʻanae (Non-Potable 1), DHL-116). A registered stream diversion on the Waiokamilo Stream runs along the edge of the Wailua tract (SWPP Project: Wailua (Non-Potable 1), DHL-121) with no declared use, but DHHL has indicated that the Wailua tract area was formerly used for loʻi kalo cultivation. As discussed in the DHHL SWPP, further studies will need to be completed to determine the amount of water that can be supplied by these sources. The anticipated non-potable water demand potentially supplied by stream diversions is 6.375 MGD.

8.3.2.11 No Water Development Strategy Assigned

The DHHL Wākiu, Keʻanae and Wailua tracts are located in areas characterized with high ambient rainfall, which ranges between 120 and 200 inches. DHHL anticipates that the ambient rainfall should be sufficient to satisfy the non-potable requirements for subsistence farming and agricultural lands within these tracts. The SWPP projects are:

- Keʻanae (Non-Potable 2), DHL-117
- Wailua (Non-Potable 2), DHL-122
- Wākiu (Non-Potable 1), DHL-123
- Wākiu (Non-Potable 2), DHL-124

The total SWPP non-potable water demand anticipated to be supplied by ambient rainfall is 0.748 MGD.

CHAPTER 9 SWPP FOR THE ISLAND OF HAWAI'I

9.1 EXISTING STATE WATER RESOURCES

The State currently owns and/or operates 102 wells, 18 stream diversions, and 7 water systems on the island of Hawai‘i. The locations of the registered State wells are shown in **Figure 9-1**, the locations of the stream diversions are shown in **Figure 9-2**, and the locations of the water systems are shown in **Figure 9-3**.

9.1.1 Department of Agriculture

The Department of Agriculture (DOA) owns, operates, and/or manages the following two water systems on the island of Hawai‘i:

- Lower Hāmākua Ditch Irrigation System
- Waimea Irrigation System

9.1.1.1 Honoka‘a-Pa‘auilo Irrigation System (Also Known As the Lower Hāmākua Ditch Irrigation System)

Honoka‘a-Pa‘auilo Irrigation System, also known as “Lower Hāmākua Ditch Irrigation System” (LHDIS) is located in the Hāmākua District on the island of Hawai‘i. The system is located in the East Mauna Kea Aquifer Sector Area [802], and Pa‘auilo Aquifer System Area [80202]. The LHDIS is owned by the Kamehameha Schools Bishop Estate (KSBE) and other private landowners. The DOA has assumed the operation of the LHDIS under a 1993 bankruptcy settlement agreement. DOA is responsible to maintain and continue operation of the LHDIS to sustain agricultural water to various farmers and ranchers on former sugar cane lands, located on the Hāmākua coast between Pa‘auilo and Kukuihaele. DOA has negotiated an agreement with KSBE and private landowners to operate and control the LHDIS for a 35-year period. According to DOA metering records, the average daily quantity of water provided was 0.063 MGD in fiscal years 2014 through 2016.

The LHDIS is a 26-mile ditch system consisting of unlined tunnels; open lined and unlined ditches; and flumes. Surface water from the Kohala Mountains is diverted into the LHDIS by intake structures on the Kawainui, Alakahi and Ko‘iawe streams. There are two existing State reservoirs: Pa‘auilo (10 MG) and Honoka‘a (1 MG), with a combined storage capacity of 11 MG. DOA is in the process of replacing the old plantation irrigation system, concrete lining the ditch and completing other improvements. Future projects include ditch and tunnel stabilization and repair, installation of agricultural park meters, and retrofitting portions of open ditch with pipeline.

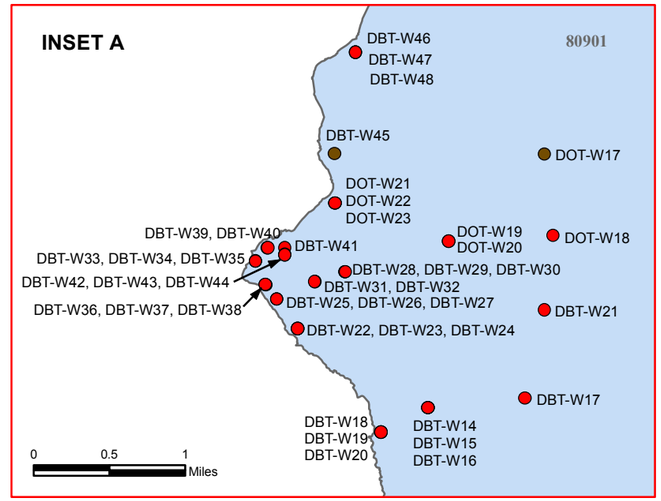
Since the closing of the Hāmākua Sugar Company, approximately 509 acres were foreclosed by the State. The Hāmākua/North Hilo Agricultural Cooperative has leased State owned lands to about 83 farmers. The farmers have initiated diversified crop production in the Paʻauilo, Kalopu and Honokaia areas. According to the 2015 Statewide Agricultural Land Use Baseline, the types of crops grown in the area include macadamia nuts, diversified crops, tropical fruit, papaya and dairy.

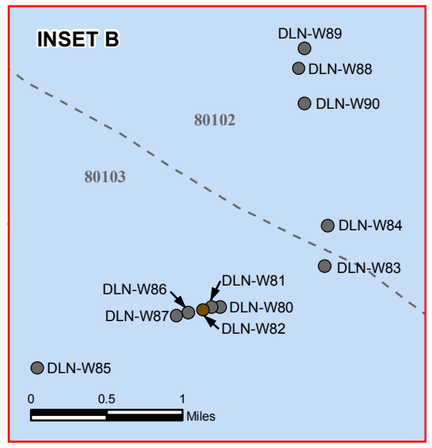
9.1.1.2 Waimea Irrigation System

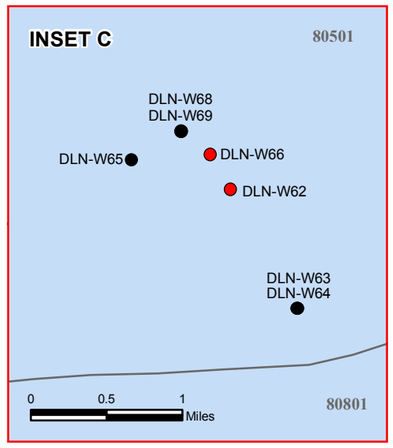
The Waimea Irrigation System (WIS) is located near Lālāmilo and Puʻukapu, in the Hāmākua District on the windward coast of the island of Hawaiʻi. The system is located in the Kohala Aquifer Sector Area [801] and Waimanu Aquifer System Area [80102]. The irrigation system is owned and operated by the State DOA, Agricultural Resource Management Division. The WIS currently serves 145 farmers on 767 acres in three defined sections: the Lālāmilo section, the Puʻukapu section and the DHHL section within its Puʻukapu tract. According to DOA metering records, the average daily quantity of water provided was 0.705 MGD in fiscal years 2014 through 2016.

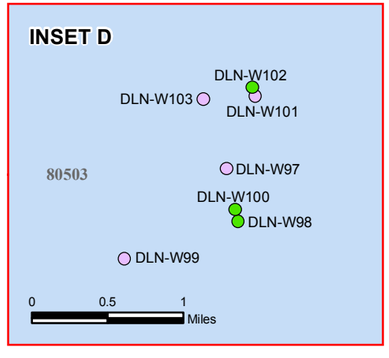
The Upper Hāmākua Ditch (UHD) supplies the WIS. The UHD consists of a series of lined and unlined ditches, natural streams, flumes and tunnels in the Kohala Forest Reserve. The UHD receives source water from intake structures on five streams. The Kawainui stream and Alakahi stream provide the majority of the flow into the system, while the Waimā stream, Kawaiki stream, Koʻiawe stream and other tributaries contribute smaller flow amounts into the system. Repairs and maintenance to the UHD to improve the condition of the ditch system have been performed and will continue, as needed. Improvements to the Waimā and Koʻiawe intakes are also planned. DOA previously developed two groundwater wells: Puʻukapu Deep Well (State Well No. 6337-01), with a pumping capacity of 1.44 MGD and Puʻukapu Shallow Well (State Well No. 6337-02); however, the wells are not in service.

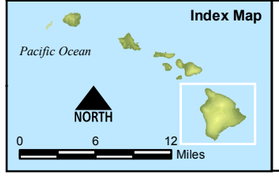
The WIS begins at a concrete intake structure, which diverts the flow from the UHD through a 24-inch intake pipeline feeding the Waimea Reservoir, also referred to as the Puʻukapu Reservoir. The Waimea Reservoir is a concrete-lined earthen dam with a design capacity of 60 MG of which only 51 MG is usable. The Waimea Reservoir is located at elevation 2,935 feet. The Waimea Reservoir provides gravity flow to the farming area. The Puʻu Pulehu Reservoir is another reservoir which serves the WIS. The Puʻu Pulehu Reservoir has a capacity of 110 MG and has been lined with a watertight geomembrane. The reservoir is located at an elevation of 2,830 feet. The reservoir provides overflow storage for the Waimea Reservoir. When the Waimea Reservoir is low, reserved water from the Puʻu Pulehu Reservoir is pumped to the Waimea Reservoir for distribution. The reservoir is used to supply a portion of the WIS. The transmission system from the Waimea Reservoir to the farm lot areas consists of two miles of 24-inch diameter ductile iron pipeline and another two miles of 18-inch diameter ductile iron pipeline. The distribution system within the service area includes pipelines varying between 8-inches to 18-inches. The Lālāmilo distribution pipeline and two flumes have recently been replaced. According to the 2015 Statewide Agricultural Land Use Baseline, diversified crops are grown in the area.











LEGEND:

ABN	AGRAQ	DOM	IRRGC	IRRSC	OBSDM	UNU
ABNLOS	AGRCP	DOMNSC	IRRHM	MUN	OBSWL	
ABNSLD	AGRLI	INDEL	IRRLA	MUNST	OTH	
AGR	AGROTH	IRR	IRRPA	OBS	UNK	

Aquifer Sector Areas
Aquifer System Areas
301 Aquifer Sector Code
30101 Aquifer System Code

State Water Projects Plan Update - Statewide

Existing Registered State Wells - Hawai'i

FIGURE 9-1

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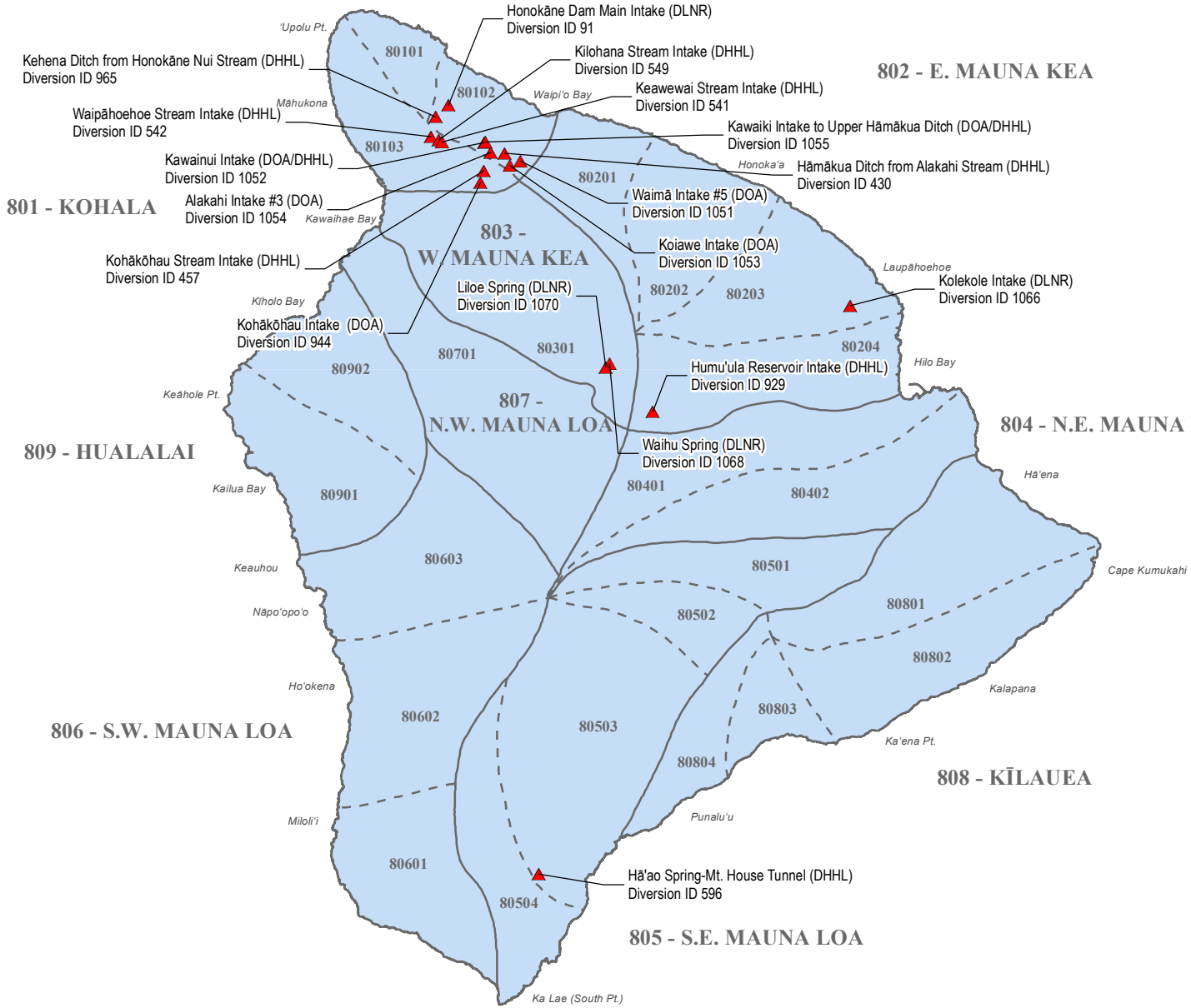
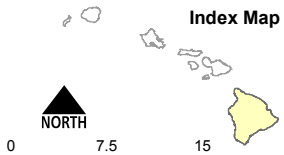


Index Map



Legend

- State Stream Diversions
- Aquifer Sector Areas
- Aquifer System Areas
- 801 Aquifer Sector Code
- 80101 Aquifer System Code

State Water Projects Plan Update - Statewide

Existing State Stream Diversions - Hawai'i

FIGURE 9-2

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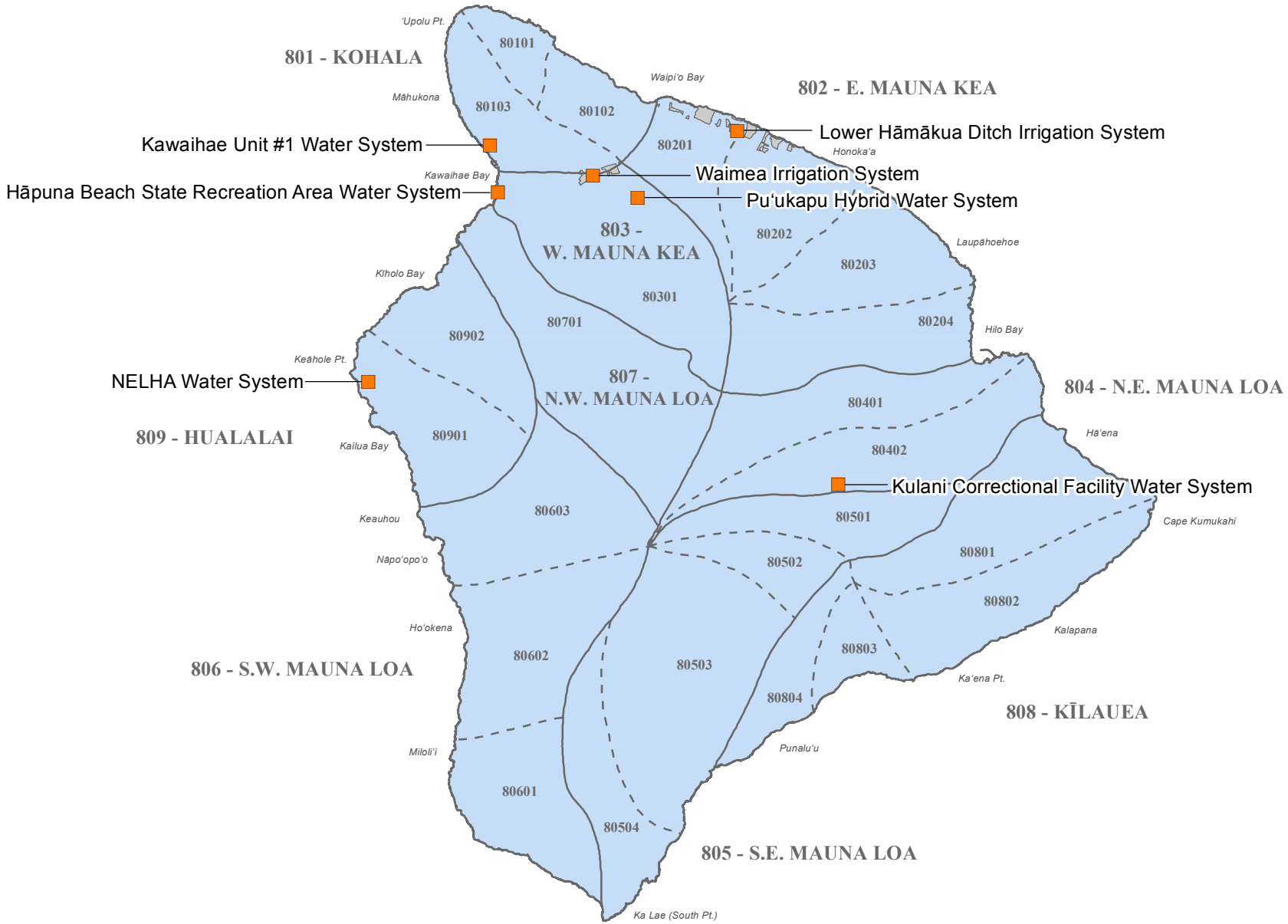

State Water Projects Plan Update - Statewide

Existing State Water Systems - Hawai'i

FIGURE 9-3

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Part of the DHHL Pu‘ukapu Tract project is within the service area of the WIS. The 2017 DHHL SWPP estimated a non-potable demand of 0.811 MGD for the agricultural areas within the tract. The 2004 AWUDP, under guidance from the 1997 Waimea-Pa‘auilo Watershed Plan and Environmental Impact Statement, recommended several CIP projects to improve the reliability of the system. The Watershed Plan also identified the future cropland areas to be irrigated, which included the DHHL Pu‘ukapu tract. However, DOA has indicated that this 1997 watershed plan was never federally/state funded or implemented, and furthermore, the federal program that funds these projects has not designated any new money to fund Hawai‘i projects for the past several years.

9.1.2 Department of Business, Economic Development and Tourism

There is one water system under the Department of Business, Economic Development and Tourism (DBEDT) on the island of Hawai‘i: Natural Energy Laboratory of Hawai‘i Authority (NELHA) Water System.

9.1.2.1 NELHA Water System

The NELHA Water System is located in Keāhole, Hawai‘i. The water system is owned and operated by the State DBEDT, NELHA and is located in the Hualalai Aquifer Sector Area [809], and Keauhou Aquifer System Area [80901]. Existing consumption has steadily increased and the average consumption for 2014 was 0.627 MGD.

The water system serves the Natural Energy Laboratory of Hawai‘i and the Hawai‘i Ocean, Science and Technology Park (HOST). The NELHA Water System is supplied by the County of Hawai‘i, Department of Water Supply (HDWS) North Kona Water System. A six-inch HDWS meter records the NELHA consumption. The existing distribution system located after the water meter, of 4-inch to 8-inch water lines within the NELHA property, is considered the State water system. There are 37 tenants and the NELHA within the development. The existing use is primarily diversified agriculture with a small percentage of industrial, park/open space and landscaping.

The anticipated SWPP project water demand from expansion of the NELHA development is 1.0 MGD. Early stage planning is underway for a new well, developed and constructed by NELHA and dedicated to HDWS, which would provide an allocation to NELHA.

9.1.3 Department of Hawaiian Home Lands

The DHHL owns two water systems on the island of Hawai‘i:

- Kawaihae Unit #1 Water System
- Pu‘ukapu Hybrid Water System

9.1.3.1 Kawaihae Unit #1 Water System

The Kawaihae Unit #1 Water System (DOH Public Water System No. 164) is located within the Kohala Aquifer Sector [801] and the Māhukona Aquifer System [80103] on the island of Hawai‘i. The water system is owned by the DHHL and operated by Pural Water Specialty Company, a private contractor under contract with the DHHL. Currently there are 152 service connections on this system. It is noted that this system has the capacity to service up to 195 connections at full build-out of the subdivision. The current average daily water usage is 0.054 MGD.

Water is purchased from the Kohala Ranch Water System, which draws from two (2) groundwater wells, Kohala Ranch Well No. 1 (State Well No. 6549-01) and Kohala Ranch Well No. 2 (State Well No. 6549-02). Water from a 0.1 MG reservoir, at elevation 305 feet, feeds into the Kawaihae Water System. The water is disinfected with calcium hypochlorite tablets and pumped to an upper 0.1 MG concrete tank at elevation 636 feet using two 120-GPM booster pumps. The system facility capacity of the two pumps is 0.115 MGD. Details of the distribution system are not known.

DHHL anticipates that the ultimate average day demand for the subdivision would be 0.136 MGD, or a maximum day demand of 0.203 MGD. The system facility capacity of the Kawaihae Unit #1 Water System is not adequate to meet the future demands.

System Facility Capacity (MGD)	Existing Avg Day Demand (MGD)	Existing Max Day Demand (MGD)	Surplus System Facility Capacity (MGD)	2034 SWPP Avg Day Dmd (MGD)	2034 SWPP Max Day Dmd (MGD)	Adequate to meet future demands?	Primary Use
0.115	0.054	0.081	0.034	0.136	0.203	No	Potable

9.1.3.2 Pu‘ukapu Hybrid Water System

The Pu‘ukapu Hybrid Water System is located within the West Mauna Kea Aquifer Sector [803] and the Waimea Aquifer System [80301] on the island of Hawai‘i. The water system is owned by the DHHL.

Water is supplied by the HDWS Waimea Water System, and enters the system through a master meter on an 8-inch waterline located to the south of Waimea Town. Water passes through a PRV before flowing into a 11,600-gallon storage tank at 2,727 feet. From this storage tank, located immediately downstream of the master meter, water is pumped via a 125 GPM booster pump to a 59,000-gallon storage tank at elevation 3,244 feet. Water is then pumped from the 59,000-gallon tank via a 20 GPM low capacity solar pump and a 50 GPM diesel pump to a 73,000-gallon storage tank at elevation 3,588 feet.

In lieu of fire hydrants, the Pu‘ukapu Hybrid Water System includes four “dead storage” tanks at various locations within the distribution system for fire protection. Water feeds only in a one-way direction into these tanks, where it remains until it is used to fill fire or water trucks (in the event of a fire). Since the water is not frequently used or circulated, the water in these “dead storage” tanks is considered to be non-potable, and the water system, with its potable and non-potable

components, is identified as a "hybrid water system." The distribution system consists of HDPE pipe ranging in size from 3 to 6 inches in diameter.

The system facility capacity of the 125 GPM booster pump located after the master meter is 0.12 MGD. According to the water master plan prepared for the development, the Pu'ukapu Hybrid Water System was intended to supply potable water to serve the domestic and livestock needs of 184 pastoral lots equating to a combined maximum day demand of 0.119 MGD. Since then, DHHL and the Hawaiian Homes Commission determined that the Pu'ukapu Hybrid Water System will only provide non-potable water to its beneficiaries. Potable water demands will be met directly from the DWS Waimea System through a spigot provided at the DHHL Waimea District Office, which is located outside the Pu'ukapu Hybrid Water System.

System Facility Capacity (MGD)	Existing Avg Day Demand (MGD)	Existing Max Day Demand (MGD)	Surplus System Facility Capacity (MGD)	2034 SWPP Avg Day Dmd (MGD)	2034 SWPP Max Day Dmd (MGD)	Adequate to meet future demands?	Primary Use
0.120	0	0	0.120	N/R	-	N/A	Non-Potable

9.1.4 Department of Land and Natural Resources

The Department of Land and Natural Resources (DLNR) owns one (1) water system on the island of Hawai'i: Hāpuna Beach State Recreation Area Water System.

9.1.4.1 Hāpuna Beach State Recreation Area Water System

The Hāpuna Beach State Recreation Area is located 2.3 miles South of Kawaihae, on Queen Ka'ahumanu Highway on the island of Hawai'i. The system is located in the West Mauna Kea Aquifer Sector Area [803], and Waimea Aquifer System Area [80301]. The water system is owned and operated by the State and managed by the DLNR, Division of State Parks. The water system supplies irrigation service only. The estimated existing irrigation demand for the park is 0.028 MGD. The potable demand for Hāpuna Beach State Recreation Area facilities are provided by the HDWS.

The non-potable source is a groundwater well (State Well No. 5948-01), with a pump capacity of 0.50 MGD. The system facility capacity is 0.33 MGD. The non-potable water is stored in a reservoir next to the well pump at elevation 244 feet and feeds into the park irrigation system. Future irrigation requirements for the park were not reported. The Hāpuna Beach State Recreation Area Water System facility capacity is adequate to meet current irrigation consumption. A second non-potable well is planned. A potable well is planned to supplement County water supply to the park.

System Facility Capacity (MGD)	Existing Avg Day Demand (MGD)	Existing Max Day Demand (MGD)	Surplus System Facility Capacity (MGD)	2034 SWPP Avg Day Dmd (MGD)	2034 SWPP Max Day Dmd (MGD)	Adequate to meet future demands?	Primary Use
0.336	0.028	0.042	0.294	N/R	-	N/A	Non-Potable

9.1.5 Department of Public Safety

The Department of Public Safety (DPS) owns one water system on the island of Hawai‘i: Kūlani Correctional Facility Water System.

9.1.5.1 Kūlani Correctional Facility Water System

The Kūlani Correctional Facility Water System is located in Kūlani, Hawai‘i off Stainback Highway. The system is located in the Northeast Mauna Loa Aquifer Sector Area [804] and Kea‘au Aquifer System Area [80402]. Between 2010 and 2014 the facility, including the water system, was transferred to the Department of Defense, Hawai‘i National Guard, which ran the Youth Challenge Academy at the former prison during that time. The water system is identified as DOH Public Water System No. 153. 121 people are served through 16 connections with an average day demand of approximately 0.027 MGD.

The water source is a polyethylene lined sloped catchment area of approximately 5 acres, with a design capacity of about 0.024 MGD. Rainwater that is collected from the catchment area is conveyed into an open polyethylene lined 5.0 MG reservoir. A cutoff ditch and retaining wall protect the catchment from surface drainage and forest wildlife. The rainwater is treated using a Key-Tech HDF-100 package treatment plant with a design plant capacity of 0.14 MGD. The treatment process is completely automatic, with on-off, non-modulating gravity flow operation, based on hydraulic mass mixing, coagulation reaction and rapid filtration through a multi-media filter bed. The water treated is injected with three separate chemical solutions at the inlet to the reaction chamber: aluminum sulfate, Poly E-Z and hypochlorite. The treated water is pumped into either of two steel storage tanks: the older 0.36 MG tank constructed in the mid-1980s or the newer 0.66 MG tank constructed in 2000. The water is then conveyed into the distribution system comprised of a system of 12-inch, 8-inch and 6-inch water lines. The water system serves the offices, dormitories, mechanical/automotive, classrooms, theater, kitchen/cafeteria, laundry facility and irrigation system.

The estimated existing maximum day demand is 0.04 MGD. The water treatment plant design capacity is adequate to meet the estimated existing average day and maximum day consumption. Future demands were not reported.

System Facility Capacity (MGD)	Existing Avg Day Demand (MGD)	Existing Max Day Demand (MGD)	Surplus System Facility Capacity (MGD)	2034 SWPP Avg Day Dmd (MGD)	2034 SWPP Max Day Dmd (MGD)	Adequate to meet future demands?	Primary Use
0.140	0.027	0.041	0.100	N/R	-	N/A	Potable

9.2 SWPP PROJECT WATER DEMAND

9.2.1 SWPP Project Water Demand Overview

The individual SWPP projects and associated water demands located on the island of Hawai‘i are summarized in tabular form separated by Department in **Appendix F** (potable) and **Appendix G** (non-potable) and by Island in **Appendix H** (potable) and **Appendix I** (non-potable). The SWPP water demands were sorted to summarize the yearly cumulative average day demands throughout the 20-year planning period. **Table 9-1** and **Table 9-2** summarize the SWPP project potable and non-potable water demands by State department, respectively. **Figure 9-4** and **Figure 9-5** shows the map of the SWPP project demands on the island of Hawai‘i.

Table 9-1 – SWPP Potable Water Demands by State Department – Hawai‘i

State Department	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
DAGS	0	0	0	0.0060	0.0206	0.0733	0.0733	0.0733
DBEDT	0	0	0.1251	0.1752	0.3399	1.0761	1.4879	1.4879
DOE	0	0	0	0	0	0.0023	0.1676	0.1678
DHHL	0.2695	1.7665	1.7665	1.7665	1.7665	3.1841	4.2269	9.0019
DLNR	0	0	0	0	0.0037	0.0037	0.0037	0.0049
DOT	0	0	0.0003	0.0043	0.0043	0.2329	0.2541	0.2566
UH	0.0304	0.0608	0.0912	0.1243	0.1547	0.3747	0.5947	0.8147
Total Hawai‘i	**0.3001**	**1.8275**	**1.9833**	**2.0766**	**2.2900**	**4.9474**	**6.8085**	**11.807**
Total State	**0.9414**	**5.4812**	**5.8039**	**6.0894**	**6.5019**	**13.286**	**24.273**	**34.147**

Table 9-2 – SWPP Non-Potable Water Demands by State Department – Hawai‘i

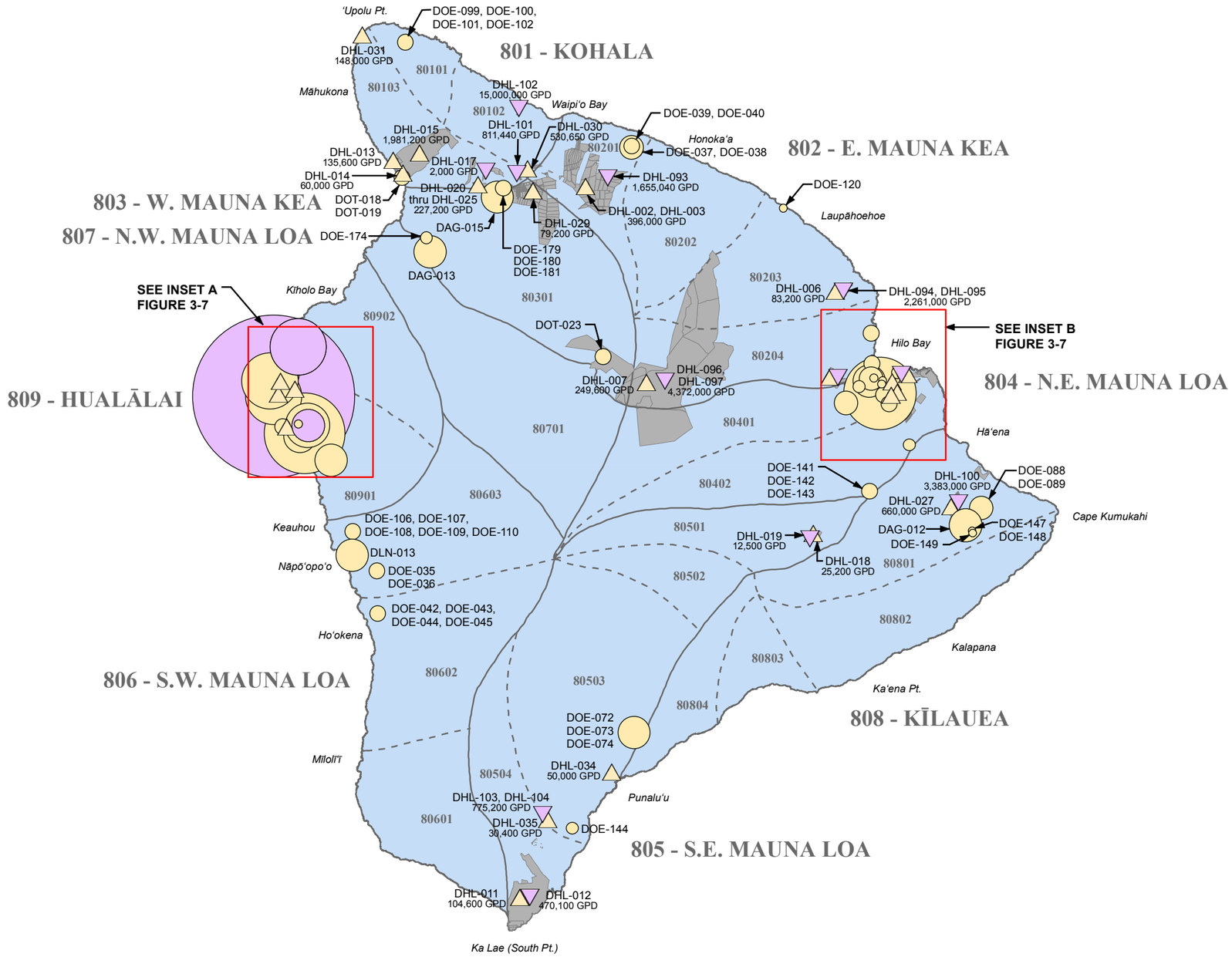
State Department	Cumulative Average Day Demand (MGD)							
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
DAGS	0	0	0	0	0.3100	0.3100	0.3100	0.3100
DBEDT	0	0	3.3625	6.7006	10.018	13.318	35.956	35.956
DHHL	0.1020	0.9319	0.9319	0.9319	0.9319	4.1138	5.2664	31.721
DOE	0	0	0	0	0	0	0.0120	0.0120
Total Hawai‘i	**0.1020**	**0.9319**	**4.2944**	**7.6325**	**11.260**	**17.741**	**41.545**	**67.999**
Total State	**0.9224**	**43.461**	**46.824**	**50.162**	**53.791**	**73.079**	**117.60**	**148.57**

The individual SWPP projects and associated water demands located on the island of Hawai‘i are listed in tabular form separated by Hydrologic Unit in **Appendix J** (potable) and **Appendix K** (non-potable). **Table 9-3** and **Table 9-4** summarize the potable and non-potable water demands for SWPP projects by groundwater and surface water hydrologic unit, respectively. Additional

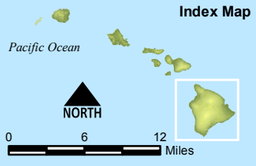
information on SWPP projects in the North Kona area (Keauhou ASYA and a portion of the Kiholo ASYA) is found in **Appendix A**, the State Water Projects Plan – North Kona Region.

Table 9-3 – Potable Water Demands by Groundwater Hydrologic Unit – Hawai‘i

Groundwater Hydrologic Unit		Sustainable Yield (MGD)	SWPP 2034 Potable Demand (MGD)
Code	**Name**		
80101	Hawi	11	0.1499
80102	Waimanu	110	0
80103	Māhukona	10	3.0152
801	**Subtotal Kohala**	**131**	**3.1651**
80201	Honoka‘a	29	0.4048
80202	Pa‘auilo	56	0
80203	Hakalau	150	0.0836
80204	Onomea	147	0.2520
802	**Subtotal E. Mauna Kea**	**382**	**0.7404**
80301	Waimea	16	0.0349
803	**Subtotal W. Mauna Kea**	**16**	**0.0349**
80401	Hilo	349	1.3391
80402	Kea‘au	395	1.3436
804	**Subtotal N.E. Mauna Loa**	**744**	**2.6827**
80501	‘Ōla‘a	125	0.0252
80502	Kapāpala	19	0
80503	Nā‘ālehu	118	0.2044
80504	Ka Lae	31	0
805	**Subtotal S.E. Mauna Loa**	**293**	**0.2296**
80601	Manukā	25	0
80602	Ka‘apuna	51	0.0033
80603	Kealakekua	38	0.0076
806	**Subtotal S.W. Mauna Loa**	**114**	**0.0109**
80701	‘Anaeho‘omalu	30	0
807	**Subtotal N.W. Mauna Loa**	**30**	**0**
80801	Pāhoa	432	0.6830
80802	Kalapana	158	0
80803	Hilina	20	0
80804	Keaīwa	17	0
808	**Subtotal Kīlauea**	**621**	**0.6830**
80901	Keauhou	38	4.2606
80902	Kīholo	18	0
809	**Subtotal Hualālai**	**56**	**4.2606**
	Total Hawai‘i	**2,393**	**11.807**
	Total State	**3,556.5**	**34.147**



Index Map



LEGEND:

- Project TMK
- Aquifer Sector Areas
- Aquifer System Areas
- 301 Aquifer Sector Code
- 30101 Aquifer System Code

Potable Project Water Demand (GPD)

100 1000 10,000 100,000 1,000,000

Non-Potable Project Water Demand (GPD)

100 1000 10,000 100,000 1,000,000

DHL Potable Water

DHL Non-Potable Water

State Water Projects Plan Update - Statewide

State Project Demands - Hawai'i

FIGURE 9-4

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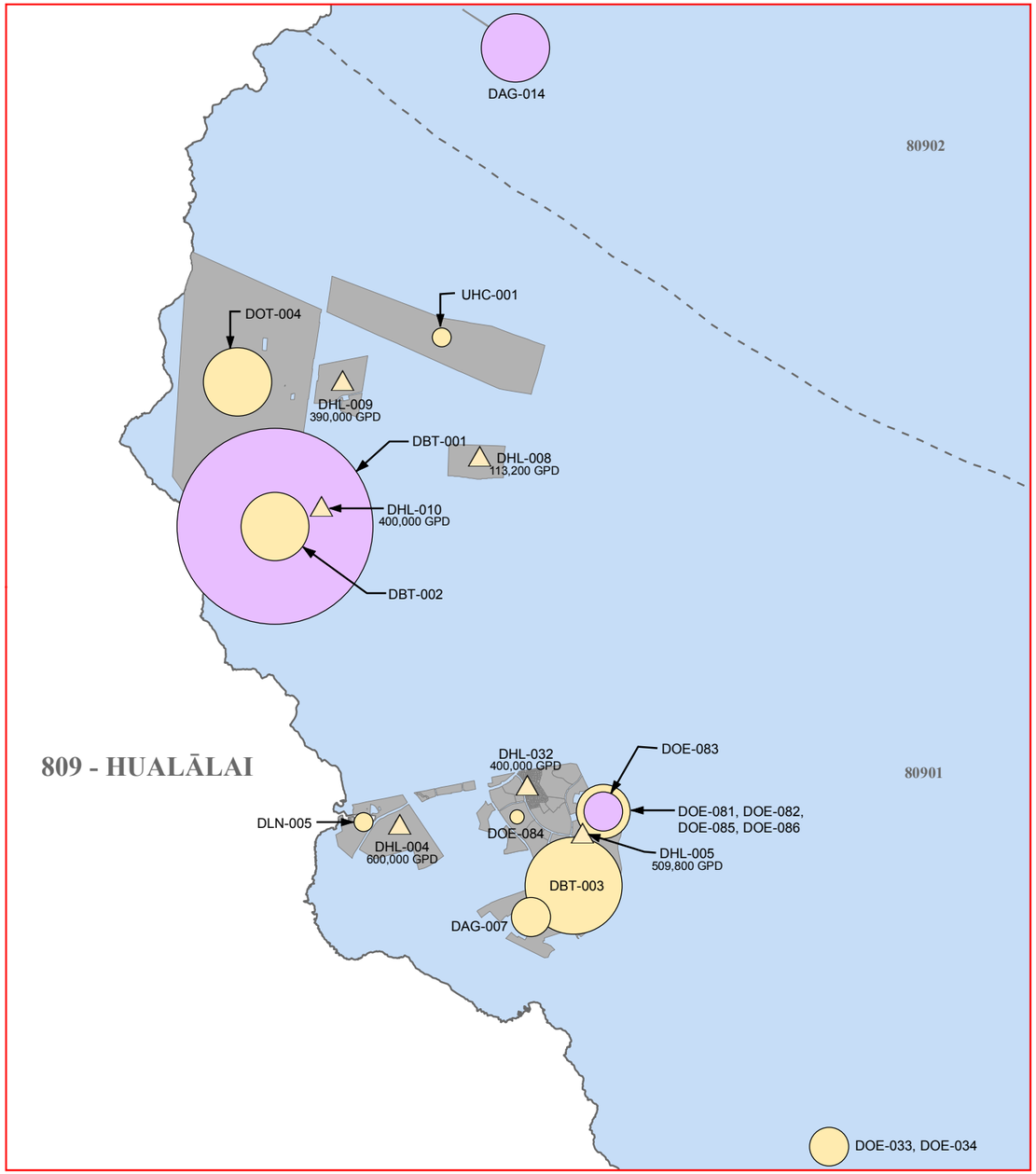

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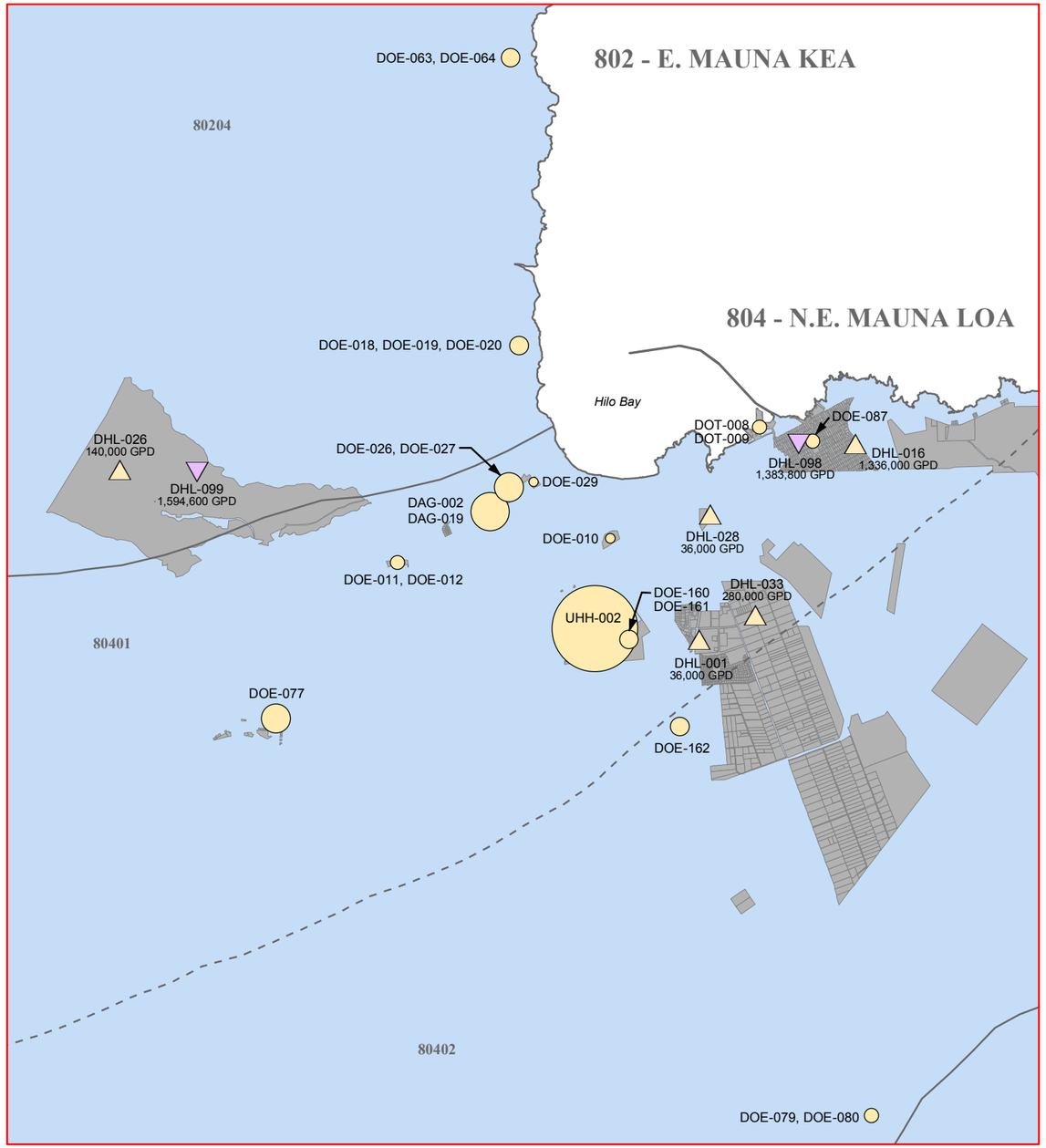
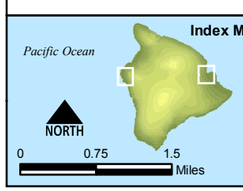


INSET B



LEGEND:

- Project TMK
- Aquifer Sector Areas
- Aquifer System Areas
- 301 Aquifer Sector Code
- 30101 Aquifer System Code

Potable Project Water Demand (GPD)

100 1000 10,000 100,000 1,000,000

Non-Potable Project Water Demand (GPD)

100 1000 10,000 100,000 1,000,000

DHL Potable Water

DHL Non-Potable Water

State Water Projects Plan Update - Statewide

State Project Demands - Hawai'i - Insets

FIGURE 9-5

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Table 9-4 – Non-Potable Water Demands by Surface Water Hydrologic Unit – Hawai‘i

Surface Water Hydrologic Unit		Declared Use (MGD)	SWPP 2034 Non-Potable Demand (MGD)
Code	Name		
8009	Wainaia	2.259	0
8012	‘A‘amakāō	0.100	0
8013	Niuli‘i	9.199	0
8014	Waikama	0.002	0
8015	Pololū	2.001	0
8016	Honokāne Nui	3.502	0
8035	Waimanu	0.000	15.000
8041	Wailoa/Waipi‘o	0.776	0.811
8047	Waikoloa	0.000	0.002
8051	Honokaia	0.000	1.655
8087	Manowai‘ōpae	0.194	0
8088	Kuwaikahi	0.010	0
8103	Waikolu	0.020	0
8108	Peleau	0.012	0
8111	Kolokole	0.096	0
8112	Pāhe‘ehe‘e	0.000	1.131
8113	Honomū	0.000	1.131
8116	Makea	7.422	0
8117	Alia	3.014	0
8119	Waima‘auou	1.808	0
8120	Waia‘ama	2.835	0
8121	Kawainui	3.014	0
8122	Onomea	0.025	0
8125	Kalaoa	0.001	0
8128	Pu‘uokalepa	0.030	0
8135	Mā‘ili	0.145	0
8138	Wailuku	47.343	5.967
8140	Ka‘ahakini	0.000	4.779
8146	Hīlea	0.001	0.858
8147	Nā‘ālehu	0.001	0.388
8151	Ki‘ilae	0.001	0
8153	Wai‘aha	0.014	0.012
8155	Keāhole	0.000	35.956
8156	Kīholo	0.000	0.310
8161	Waikoloa	37.155	0.002
8163	Honokoa	5.184	0
8164	Keawanui	0.350	0
	Total Hawai‘i	**126.514**	**67.999**
	Total State	**390.149**	**148.57**

9.3 SWPP WATER DEVELOPMENT STRATEGY

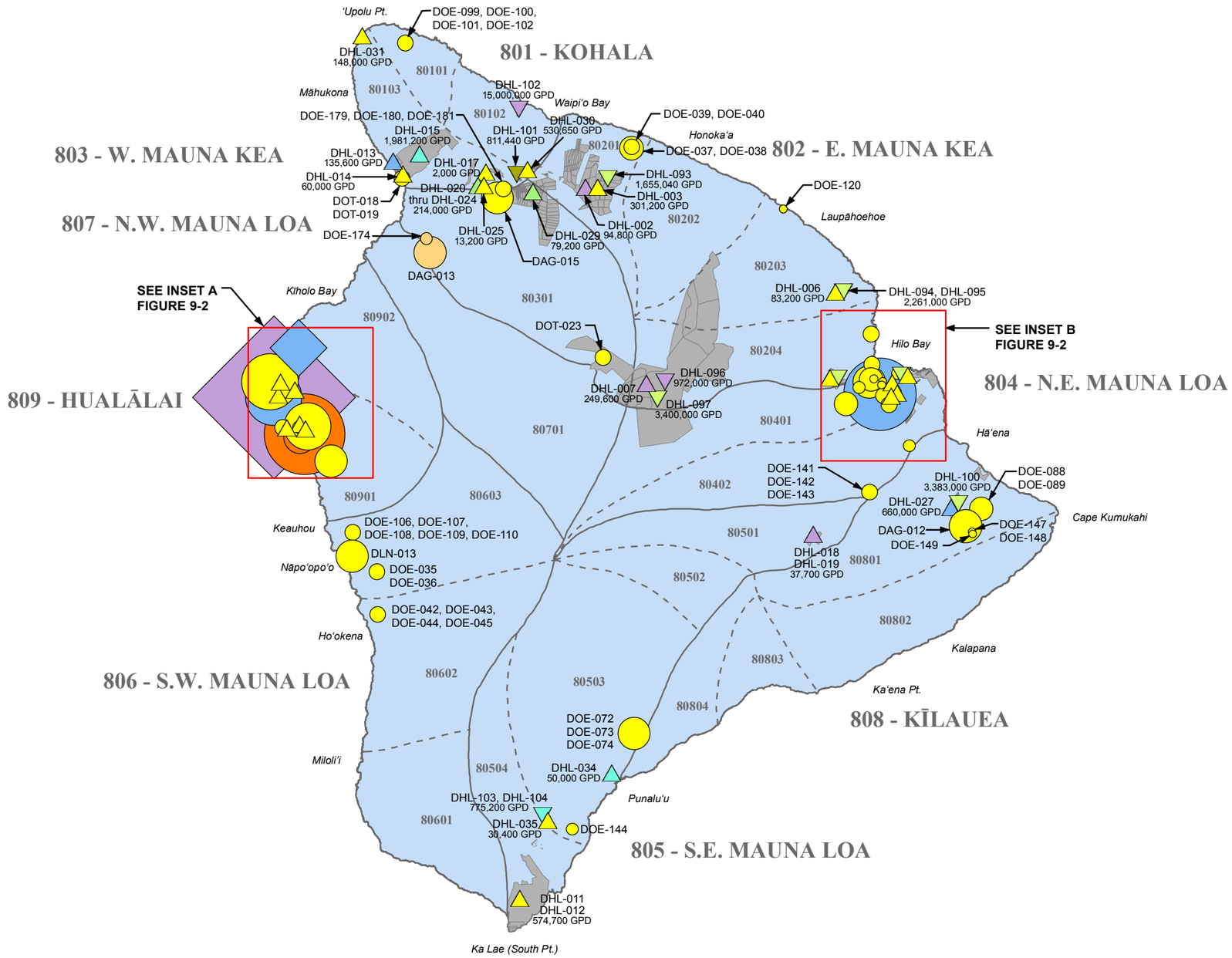
Water Development Strategy options were to assigned to each SWPP project on the island of Hawai‘i as described in Chapter 5. Projects without strategy options but within the service area of the HDWS water system were then identified. The locations of these projects are shown on **Figure 9-6** and **Figure 9-7**. As previously discussed, project demands that are anticipated to require potable water to satisfy a non-potable end use demand have been included in the potable water development strategy options and remaining demands.

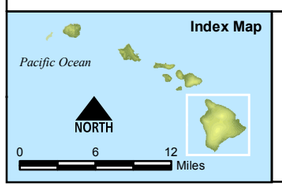
9.3.1 Water Development Strategy Options Overview

The SWPP water development strategy options account for 47 percent of the total Hawai‘i SWPP potable project water demand for the year 2034. The total water demands for SWPP projects accounted for by each potable water development strategy option for the island of Hawai‘i are summarized in **Table 9-5**. The remaining balance of potable water demands constitutes those projects within or adjacent to the service area of the HDWS water system but without a strategy option. The total water demands for SWPP projects accounted for by each non-potable water development strategy option for the island of Hawai‘i are summarized in **Table 9-6**. Demands met by ambient conditions and not requiring a strategy option are also listed in **Table 9-6**.

Table 9-5 – Summary of Potable Water Development Strategy and Remaining Demands – Hawai‘i

Potable Water Development Strategy Options	Cumulative Average Day Demand (MGD)							
	Short-Term						Long-Term	
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
COUNTY-CREDIT	0	0	0.0680	0.0680	0.2026	0.8986	1.1286	1.1286
COUNTY-PRIVATEAGREE	0	0	0	0	0	0.0146	0.0146	0.0146
MASTERPLAN	0.0488	0.0640	0.0640	0.0640	0.0640	0.1644	0.2140	0.2932
NEWSS	0.0864	0.2724	0.3599	0.4404	0.5155	0.8757	1.3775	1.9815
NEWSWS	0	0	0	0	0	0	0	2.0312
OTHER - CATCHMENT	0	0.0777	0.0777	0.0777	0.0777	0.1277	0.1625	0.3821
Demand Accounted for by Water Development Strategy	**0.1352**	**0.4141**	**0.5696**	**0.6502**	**0.8598**	**2.0810**	**2.8972**	**5.8312**
REMAIN – HDWS	0.1647	1.8181	1.8184	1.8311	1.8349	3.3488	4.4057	6.4726
Total Demand Using Potable Sources	**0.2999**	**2.2322**	**2.3880**	**2.4813**	**2.6947**	**5.4298**	**7.3029**	**12.3037**





LEGEND:

- Project TMK
- Aquifer Sector Areas
- Aquifer System Areas
- 301 Aquifer Sector Code
- 30101 Aquifer System Code

Potable Water Development Strategy (GPD)

100 1000 10,000 100,000 1,000,000

Non-Potable Water Development Strategy (GPD)

100 1000 10,000 100,000 1,000,000

DHL Potable Water

DHL Non-Potable Water

Strategy Option

- Remain
- County - Credit
- County - Exempt
- County - Privateagree
- County - BWSALL
- None - Ambient Rainfall/Moisture
- EXSWS
- Masterplan
- NEWSS
- NEWSWS
- Other

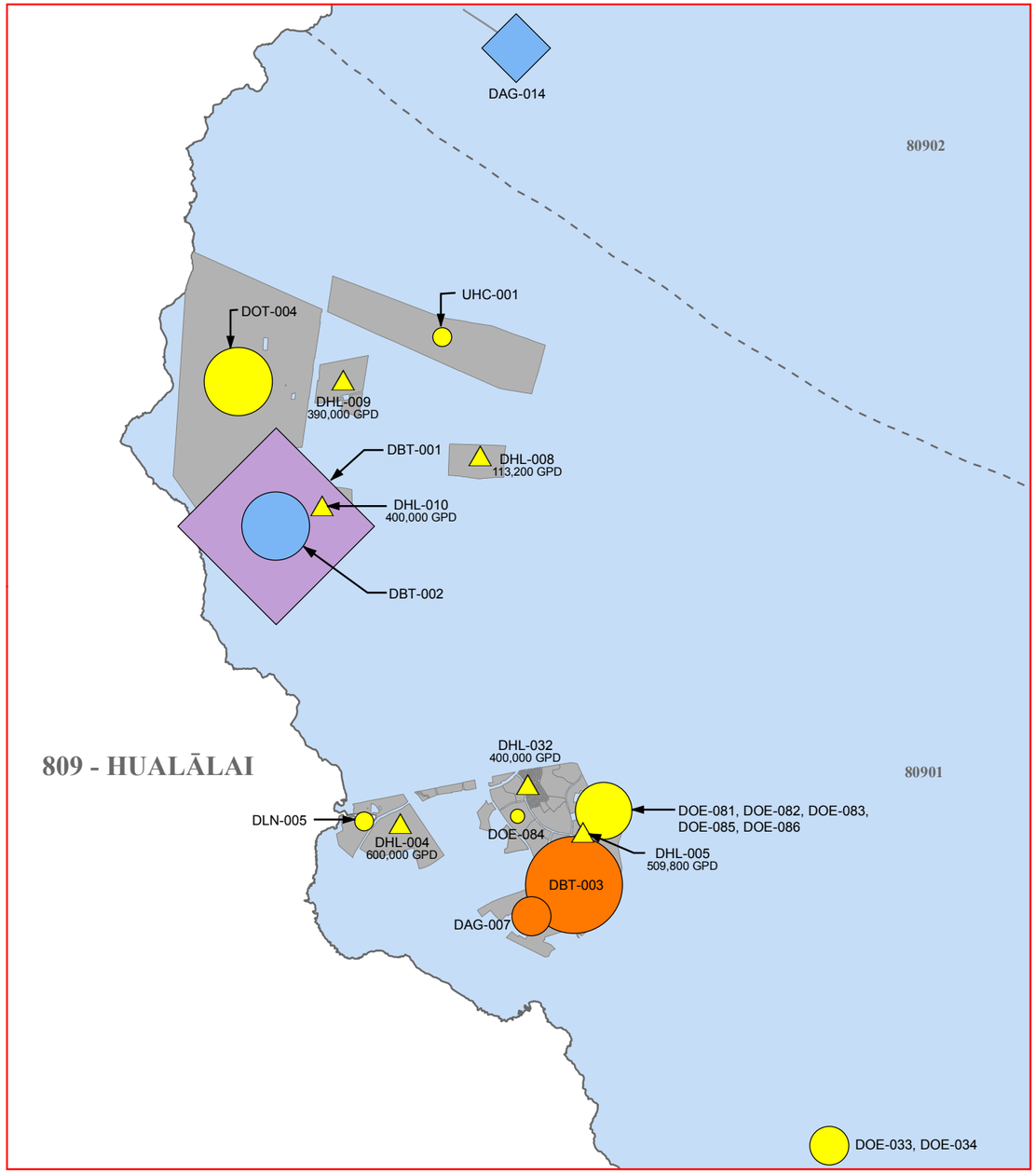
State Water Projects Plan Update - Statewide

Water Development Strategy - Hawai'i

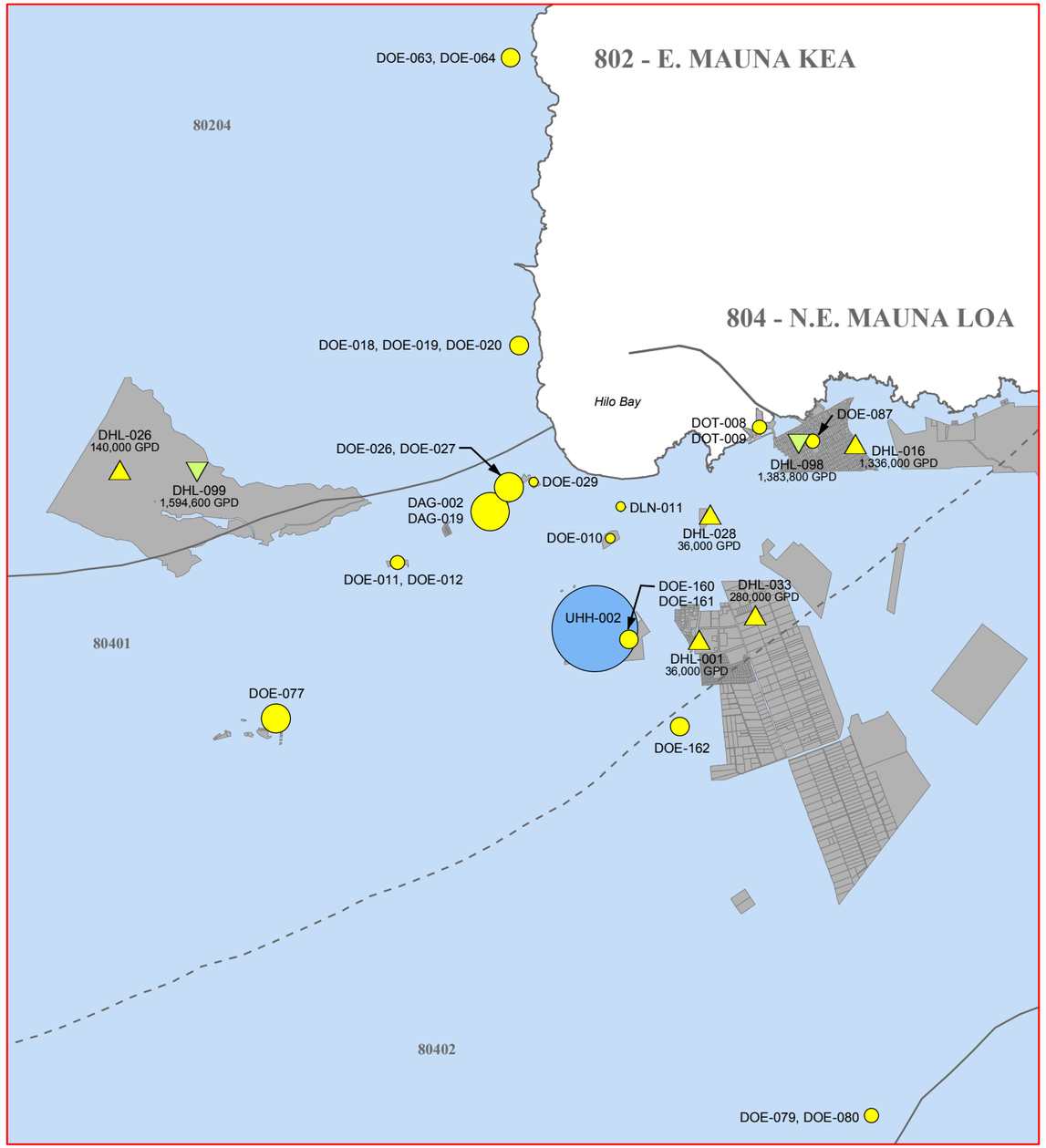
FIGURE 9-6

Fukunaga & Associates, Inc., *Consulting Engineers*

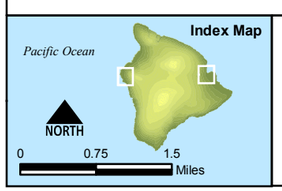
JUNE 2020



INSET A



INSET B



LEGEND:

- Project TMK
- Aquifer Sector Areas
- Aquifer System Areas
- 301 Aquifer Sector Code
- 30101 Aquifer System Code

Potable Water Development Strategy (GPD)

100 1000 10,000 100,000 1,000,000

Non-Potable Water Development Strategy (GPD)

100 1000 10,000 100,000 1,000,000

△ **DHL Potable Water**

▽ **DHL Non-Potable Water**

Strategy Option

- Remain
- County - Credit
- County - Exempt
- County - Privateagree
- County - BWSALL
- None - Ambient Rainfall/Moisture
- EXSWS
- Masterplan
- NEWSS
- NEWSWS
- Other

State Water Projects Plan Update - Statewide

Water Development Strategy - Hawai'i - Insets

FIGURE 9-7

Fukunaga & Associates, Inc., *Consulting Engineers*

JUNE 2020

Table 9-6 – Summary of Non-Potable Water Development Strategy – Hawai‘i

Non-Potable Water Development Strategy Options	Cumulative Average Day Demand (MGD)							
	Short-Term						Long-Term	
	2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
EXSWS	0.1020	0.1020	0.1020	0.1020	0.1020	0.1360	0.1360	0.8114
NEWSS	0	0	0	0	0.3100	0.3100	0.3100	0.3100
NEWSWS	0	0.2550	0.2550	0.2550	0.2550	0.7752	0.7752	0.7752
OTHER-SEAWATER	0	0	3.3625	6.7006	10.018	13.318	35.956	35.956
OTHER-STREAM DIVERSION	0	0	0	0	0	0	0	15.972
Demand Accounted for by Water Development Strategy	**0.1020**	**0.3570**	**3.7195**	**7.0576**	**10.685**	**14.539**	**37.178**	**53.825**
NONE-AMBIENT RAINFALL	0.0000	0.1700	0.1700	0.1700	0.1700	2.7200	3.8726	13.677
Total Demand Using Non-Potable Sources	**0.1020**	**0.5270**	**3.8895**	**7.2276**	**10.855**	**17.259**	**41.050**	**67.502**

9.3.2 Evaluation of Water Development Strategy Options

9.3.2.1 Existing State Water Systems (EXSWS)

Waimea Irrigation System (DOA)

As discussed, part of the DHHL SWPP Pu‘ukapu Tract project is within the service area of the Waimea Irrigation System. The anticipated SWPP project non-potable water demand for the agricultural areas of the tract (SWPP project: Pu‘ukapu (Non-Potable), DHL-101) is 0.811 MGD. Per DOA, the Capital Improvement Plan (CIP) projects recommended in the 2004 Agricultural Water Use and Development Plan to improve the reliability of the system have not been implemented. The 2017 DHHL SWPP recommended that DHHL and DOA enter into discussions to look for alternate solutions to supply DHHL’s non-potable needs for its Pu‘ukapu Tract.

9.3.2.2 Existing State Sources (EXSS)

There are no existing State sources serving SWPP projects.

9.3.2.3 Existing and Planned Water Master Plans (MASTERPLAN)

Lālāmilo Water Master Plan

The Lālāmilo Water Master Plan was prepared in 2007 for DHHL to identify the necessary water system improvements for the development of its 457-lot Lālāmilo Subdivision, Phase 2. The Water Master Plan (WMP) indicated that two (2) CIP projects would be required for the existing HDWS system in order to adequately address the water needs of this development: provision of a water storage tank along Māmalahoa Highway at the entrance to the development, and a 12-inch water transmission main along Hoku‘ula Road and Opelo Road.

The Waimea Well Agreement between DHHL and HDWS, dated June 5, 2013, provides DHHL with 441 units of water allocation from HDWS, plus a 300-unit entitlement from DLNR, for

DHHL's contribution to the well development (in exchange for monetary payment). The allocation is to be applied to DHHL's developments in Lālāmilo and Puʻukapu, at 543 and 198 units, respectively. This agreement also grants a 22 percent facilities charge credit that can be applied to the 300-unit entitlement from DLNR. It is also anticipated that DHHL will receive credit for storage and transmission on the demands covered by the WMP. The estimated construction cost for improvements described in the 2017 DHHL SWPP, inflated to 2012 dollars, is $10.9 million. The WMP accounts for SWPP projects DHL-020 through DHL-024. The total SWPP project potable water demand is 0.214 MGD.

Puʻukapu Pasture Lots Water Master Plan

The Puʻukapu Pasture Lots Water Master Plan, prepared for DHHL in 2011, proposed a hybrid water system intended to supply potable water to serve the domestic and livestock needs of 184 Pastoral lots within the lower half of the DHHL Puʻukapu tract (SWPP Project: Puukapu 1, DHL-029). The estimated potable water demand for this project is 0.0792 MGD. The proposed hybrid water system was also intended to provide non-potable water for fire protection through four "dead storage" tanks at various locations off of the distribution system in lieu of fire hydrants. As previously discussed (in Section 9.1.3.2), since the completion of the WMP, DHHL and the Hawaiian Homes Commission has since determined that the Puʻukapu Hybrid Water System can only be used to provide non-potable water to its beneficiaries. Potable water demands will be met through a spigot provided at the DHHL Waimea District Office. As discussed previously in this section, the Waimea Well Agreement allocates 198 units of water at 400 GPD per unit to the DHHL for the Puʻukapu development. The 2017 DHHL SWPP recommended that all water master plans be updated to reflect this current information.

9.3.2.4 County and Private Water Agreements (COUNTY-)

COUNTY-CREDIT

The Department of Accounting and General Services will administer the development of the Kona Judiciary Complex on behalf of the Judiciary (SWPP Project: Kona Judiciary Complex, DAG-007). Per agreement with the Queen Liliʻuokalani Trust (QLT), the QLT will sell to the State the required water credits for the project to proceed. However, the agreement requires the State department to seek water from a State source. The agreement also stipulates that if/when a State water source becomes available for the Kona Judiciary Complex, the State will return the water credits to QLT in exchange for the purchase price. The SWPP project potable water demand is 0.0146 MGD.

The Hawaiʻi Housing Finance & Development Corporation (HHFDC) will oversee the development of the Kamakana Villages at Keahuolū affordable housing multi-family and mixed use facilities project (SWPP Project: Kamakana Villages at Keahuolū, DBT-003). Water is planned to be provided through Keōpū Well 4, which will be developed as a part of this project and dedicated to the HDWS upon project completion. An agreement between the HDWS and Stanford Carr Development, LLC (the project developer) will be negotiated to determine the water commitments that the HDWS will grant Stanford Carr Development, LLC as a result of developing Keōpū Well 4. The SWPP project potable water demand is 1.114 MGD.

COUNTY-PRIVATEAGREE

Two SWPP projects are anticipated to be served by the Waikoloa Water System: Waikoloa Public Library Planning, DAG-013; and Waikoloa Elementary School 3rd Increment 8 Classroom/Library, DOE-174. The total SWPP project potable water demand is 0.0146 MGD. It is anticipated that agreements will be established between the purveyor, Hawai‘i Water Service, and the respective State agencies for each project. The DOE project is an expansion of an existing facility; therefore, it is anticipated that modifications to existing agreements will be developed between the purveyor and DOE.

9.3.2.5 New State Water Systems (NEWSWS)

Kawaihae Mauka Water System (DHHL)

The mauka portion of the DHHL Kawaihae tract extends in elevation from 0 and 1,500 feet. This area is anticipated for residential and industrial development (SWPP Project: Kawaihae Mauka, DHL-015). The water system alternative proposed in the 2017 DHHL SWPP was for DHHL to develop its own water system, drawing from groundwater wells within the Kawaihae tract. Although the location of these wells would depend on future feasibility studies and exploration, for the purposes of the SWPP, it is assumed they would be installed at approximately the 1,600-foot elevation. A series of tanks, PRVs, and transmission mains would allow water to be distributed throughout the service area entirely by gravity. The SWPP project potable water demand is 1.9812 MGD.

Wailau Water System (DHHL)

There are no County or State water systems in proximity to the DHHL Wailau tract in Ka‘ū. Although water supply could be obtained from the privately owned Punalu‘u Water System, operated by Sea Mountain Resort and located across Hawai‘i Belt Road at the makai side of the tract, the 2017 DHHL SWPP suggested that a new DHHL water system could be developed. This would provide DHHL full control over the water supply. The new water system would require a new well, storage tank, and transmission lines to supply the residential and commercial developments within the tract (SWPP Project: Wailau, DHL-034). The SWPP project potable water demand is 0.05 MGD.

Ka‘ū Irrigation System (DOA-ADC)

The 2017 DHHL SWPP identified the Ka‘ū Irrigation System (KAIS) located in the Nā‘ālehu area, as a potential source to supply non-potable irrigation water to its Wai‘ōhinu tract; however, available information related to the Ka‘ū Irrigation System is limited. The Agribusiness Development Corporation (ADC) has been working with a local farmers’ co-op that is familiar with the KAIS to assess the system and determine the best locations to obtain source water. A collaboration between DHHL and ADC is required to determine the feasibility of reinstating and/or extending the existing system to the Wai‘ōhinu tract. Irrigation water is anticipated for the proposed subsistence farming lots Wai‘ōhinu (SWPP Projects: Wai‘ōhinu (Non-Potable 1), DHL-

103; and Waiʻōhinu (Non-Potable 2), DHL-104). The SWPP project non-potable water demand is 0.7752 MGD.

9.3.2.6 New and/or Planned State Wells (NEWSS)

The UH Hilo Well (State Well No. 4106-01) was drilled and outfitted by the UH and was subsequently turned over to the HDWS. The well was intended to supply the increase in water demand from anticipated growth of the University of Hawaiʻi at Hilo (UHH) campus through 2060 as identified in its Long-Range Development Plan. The SWPP project accounting for the increase in water demand through 2034 is: UH Hilo Water Infrastructure Improvements, UHH-002. HDWS and UHH began work on an agreement that would document the water allotment for UHH projects. It is noted, however, that as of the date of this report, work on this agreement is still in progress. Upon completion of the agreement, it is anticipated that this designated water allotment will serve as the strategy to meet the SWPP project potable water demand of 0.812 MGD.

The DBEDT NELHA is in early stage planning for a new well to developed and constructed by NELHA, then dedicated to the HDWS. Completion of this new well would provide additional water allocation to NELHA. NELHA is continuing to explore alternative sources of fresh water including development of brackish water wells and desalination options; however, it is anticipated that this new well represents the best strategy option to meet the projected potable water needs for the ongoing NEHLA facilities expansion. SWPP Project: Ongoing NELHA Expansion (Potable), DBT-002, represents the anticipated increase in potable water demand of 0.3739 MGD through 2034.

The DHHL Kawaihae Unit #1 Water System currently services the existing DHHL residential development adjacent to the Kohala Ranch subdivision. Water for this system is water purchased from the Kohala Ranch Water System. DHHL is investigating the possibility of developing its own source, which would eliminate its dependence on the Kohala Ranch system. Two exploratory wells have been drilled on DHHL lands and preliminary test results have indicated that only one may be capable of producing potable water. DHHL is completing a water servicing study, which will assess the feasibility of implementing this option; however, for the purposes of this SWPP, it is anticipated that a new DHHL well will be the future source to supply the anticipated potable water demand of 0.1356 MGD to the residential development (SWPP Project: Kawaihae Existing, DHL-013).

The DHHL Makuʻu tract is located within the service area of the HDWS Pāhoa Water System; however, additional sources will be required to meet the anticipated 0.66 MGD potable water demand required to service the planned residential and subsistence farming communities, and commercial developments (SWPP Project: Makuʻu-Keonepoko, DHL-027). DHHL previously entered into discussions with the United States Department of Agriculture (USDA) to develop a new well via joint venture; however, as of the date of this report, there are no firm agreements or plans in place for the development of a new source.

The West Hawaiʻi Veterans Cemetery is located mauka of Queen Kaʻahumanu Highway near the Kūkiʻo development. A brackish well, located on the existing cemetery parcel, has been proposed

to supply its landscaping areas (SWPP Project: West Hawai‘i Veterans Cemetery, DAG-014). The anticipated SWPP project non-potable water demand is 0.31 MGD.

9.3.2.7 Planned Private Sources (PLANPS)

There were no reported planned private sources available for SWPP projects.

9.3.2.8 Coordination of Unmet SWPP Project Demand with County Water Department (REMAIN)

The remaining balance of potable water demands are summarized by groundwater hydrologic unit in **Table 9-7**.

Table 9-7 – Summary of Remaining Potable Demands by Groundwater Hydrologic Unit – Hawai‘i

Groundwater Hydrologic Unit		Cumulative Average Day Demand (MGD)							
		Short-Term						Long-Term	
Code	Name	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
80101	Hawi	0	0	0	0	0	0	0.1499	0.1499
80103	Māhukona	0.0847	0.0847	0.0847	0.0847	0.0847	0.0939	0.5485	0.6072
801	**Subtotal Kohala**	**0.0847**	**0.0847**	**0.0847**	**0.0847**	**0.0847**	**0.0939**	**0.6984**	**0.7571**
80201	Honoka‘a	0	0	0	0	0	0	0.0088	0.3100
80203	Hakalau	0	0	0	0	0	0.0400	0.0836	0.0836
80204	Onomea	0	0	0	0	0	0	0.0023	0.0024
802	**Subtotal East Mauna Kea**	**0**	**0**	**0**	**0**	**0**	**0.0400**	**0.0947**	**0.3960**
80301	Waimea	0	0	0	0.0040	0.0040	0.0190	0.0203	0.0203
803	**Subtotal West Mauna Kea**	**0**	**0**	**0**	**0.0040**	**0.0040**	**0.0190**	**0.0203**	**0.0203**
80401	Hilo	0	0	0.0003	0.0063	0.0063	0.3688	0.3868	0.5271
80402	Kea‘au	0	0.0760	0.0760	0.0760	0.0760	0.0760	0.0836	1.3436
804	**Subtotal Northeast Mauna Loa**	**0.0002**	**0.0762**	**0.0765**	**0.0825**	**0.0825**	**0.445**	**0.4706**	**1.8709**
80503	Nā‘ālehu	0	0.4404	0.4404	0.4404	0.4404	0.5841	0.6035	0.6245
805	**Subtotal Southeast Mauna Loa**	**0**	**0.4404**	**0.4404**	**0.4404**	**0.4404**	**0.5841**	**0.6035**	**0.6245**
80602	Ka‘apuna	0	0	0	0	0	0	0.0033	0.0033
80603	Kealakekua	0	0	0	0	0	0	0.0064	0.0076
806	**Subtotal Southwest Mauna Loa**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0097**	**0.0109**
80801	Pāhoa	0	0	0	0	0	0.0136	0.0230	0.0230
808	**Subtotal Kīlauea**	**0**	**0**	**0**	**0**	**0**	**0.0136**	**0.0230**	**0.0230**
80901	Keauhou	0.0800	1.2170	1.2170	1.2197	1.2235	2.1534	2.4858	2.7701
809	**Subtotal Hualālai**	**0.0800**	**1.2170**	**1.2170**	**1.2197**	**1.2235**	**2.1534**	**2.4858**	**2.7701**
	Total Hawai‘i	**0.1647**	**1.8181**	**1.8184**	**1.8311**	**1.8349**	**3.3488**	**4.4057**	**6.4726**

The HDWS remains the first strategy option to provide service to serve remaining SWPP project water demands on the island of Hawai‘i. DLNR will coordinate the availability of water system capacity with the HDWS to meet these water demands. HDWS and DLNR should note that the

Kea‘au and Keauhou aquifer systems have the largest remaining potable water demands by 2034 of 1.34 and 2.77 MGD, respectively. A planning level estimate to determine the anticipated cost to connect to the HDWS water systems is provided in **Appendix O**. The planning level cost estimates are for budgetary purposes only.

9.3.2.9 Water Catchment Systems

There are no public or private water systems available to provide needed potable water for the DHHL Honokaia, Humu‘ula-Pi‘ihonua and ‘Ōla‘a-Kurtistown tracts; however, DHHL anticipates that individual rainwater catchment systems can provide potable water needed for its anticipated subsistence farming and pastoral homesteads (SWPP Projects: Honokaia, Kamoku-Kapulena, Nienie 1, DHL-002; Humu‘ula-Pi‘ihonua, DHL-007; and Kurtistown-‘Ōla‘a , DHL-018). DHHL also anticipates that rainwater catchment systems can provide non-potable stock water required for pastoral areas (SWPP Project: Kurtistown-‘Ōla‘a (Non-Potable Using Potable), DHL-019). The ambient rainfall within all of these areas is generally greater than 60 inches annually, which is the minimum required to support catchment systems, and in some areas, it is upwards of 160 inches annually. The total SWPP project water demand anticipated to be supplied by catchment systems is 0.3821 MGD.

9.3.2.10 Stream Diversions

Stream diversions are identified as a potential strategy option to meet some of the agricultural water needs of the DHHL Humu‘ula-Pi‘ihona and Waimanu tracts. The perennial Wailuku River and its tributaries traverse the DHHL Humu‘ula-Pi‘ihonua tract. It may be possible to divert water from the Wailuku River such that farmers could collect and haul water to supply livestock (SWPP Project: Humu‘ula-Pi‘ihonua (Non-Potable 1), DHL-096). There are no registered stream diversions or ditches in the vicinity of the DHHL Waimanu tract; however, the perennial Waimanu Stream runs through the tract and could potentially be utilized to supply irrigation water for the lands proposed for lo‘i kalo cultivation (SWPP Project: Waimanu (Non-Potable), DHL-102). The total anticipated SWPP non-potable water demand potentially supplied by stream diversions is 15.972 MGD.

9.3.2.11 Seawater

The ongoing expansion at the Hawai‘i Ocean Science & Technology Park administered by the DBEDT NELHA will continue to deliver deep sea water, from depths up to 3,000 feet, as well as pristine sea surface water to its clients. SWPP Project: Ongoing NELHA Expansion (Non-Potable), DBT-001, represents the anticipated increase in non-potable water demand of 35.9561 MGD through 2034.

9.3.2.12 No Water Development Strategy Assigned

DHHL Honokaia, Keaukaha/Waiākea/Pana‘ewa, Lower Pi‘ihonua, Honomū-Kuhua, Maku‘u-Keonepoko and Humu‘ula-Pi‘ihonua tracts are located in areas characterized with high ambient rainfall, upwards of 160 inches annually. DHHL anticipates that the ambient rainfall should be

sufficient to satisfy the non-potable water requirements for the subsistence farming and pastoral land areas within these tracts. The SWPP projects are:

- Honokaia, Kamoku-Kapulena, Nienie (Non-Potable), DHL-093
- Honomū-Kuhua (Non-Potable 1), DHL-094
- Honomū-Kuhua (Non-Potable 2), DHL-095
- Humu‘ula-Pi‘ihonua (Non-Potable 2), DHL-097
- Keaukaha, Waiākea-Pana‘ewa (Non-Potable), DHL-098
- Lower Pi‘ihonua (Non-Potable), DHL-099
- Maku‘u-Keonepoko (Non-Potable), DHL-100

The total SWPP non-potable water demand anticipated to be supplied by ambient rainfall is 13.6774 MGD.

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CHAPTER 10 CONCLUSIONS AND RECOMMENDATIONS

The following general recommendations are made:

1) This SWPP is a guide and is considered to be a high-level planning document, identifying anticipated water demands and possible source development strategies statewide. As localized/project specific water master plans are developed, master plan conclusions should be reviewed and checked for consistency with the SWPP. Also, where available, County Water Master Plans, and should be periodically updated as related planning documents change.

2) SWPP water development strategy recommendations should be integrated into their respective County WUDP water supply and infrastructure planning efforts. The water development strategy options identified in this SWPP update provide a basis for assessing WUDP project timelines, locations of source development, and related development timeline requirements to be evaluated in the WUDP. Water demand calculation methodologies and water development strategy options should be reviewed and vetted by their respective County Water Departments and the CWRM.

3) The State's water resource database, e.g. stream diversions, should be analyzed to identify the extent of additional data required to better guide decision makers towards best planned use of available water resources. In conjunction with this, a plan should be developed to acquire the needed data.

4) The CWRM is the State's decision-making body for water resource management. The scope of the SWPP is to collect data related to anticipated water consumption, current allocations, and identify known potential resources for the State. The SWPP report is not intended to be the governing document for the allocation of water. It serves, however, as the CWRM's primary water guiding resource and will provide support for all its water resource management decision making.

5) The CWRM should continue to implement the Hawai‘i Water Conservation Plan and should consider updating this plan based on how effective current conservation measures have been in increasing the efficiency of water use and evaluation of new technologies. State agencies should continue utilizing water conservation measures and, if not already in place, should develop department-wide water conservation programs. State agencies should also consider water conservation as a strategy to satisfy part of their future project demands.

6) State agencies should continue to seek non-potable source strategies to satisfy non-potable needs and should begin to develop methods to utilize reclaimed water for facility non-potable project needs by December 31, 2045 in order to comply with HB No. 1749.

7) DLNR Engineering should maintain frequent communication with various State agencies to maintain an updated list of agency points contact and to track any changes and/or additions to anticipated water resource demands and/or strategy options.

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APPENDIX A

State Water Projects Plan –
North Kona Region

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STATE WATER PROJECTS PLAN

NORTH KONA REGION

JUNE 2020

Prepared for the:
Department of Land and Natural Resources
State of Hawaii

Prepared by:
Akinaka & Associates, Ltd.
1100 Alakea Street, Suite 1800
Honolulu, Hawaii 96813

STATE WATER PROJECTS PLAN
North Kona Region

For the:
Department of Land and Natural Resources
State of Hawaii

June 2020

AKINAKA & ASSOCIATES, LTD.
1100 Alakea Street, Suite 1800
Honolulu, Hawaii 96813

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ABBREVIATIONS

AWUDP	Agricultural Water Use and Development Plan
CWRM	Commission on Water Resource Management
DBEDT	Department of Business Economic Development & Tourism
DHHL	Department of Hawaiian Home Lands
DLNR	Department of Land and Natural Resources
DOA	Department of Agriculture
DOE	Department of Education
DOT	Department of Transportation
HDWS	Department of Water
EXSS	Existing State or Private Sources
EXSWS	Existing State Water Systems
gpd	gallons per day
gpm	gallons per minute
HHA	Hawaii Health Authority
HHFDC	Hawaii Housing Finance & Development Corporation
HRS	Hawaii Revised Statutes
HWP	Hawaii Water Plan
NELHA	Natural Energy Laboratory of Hawaii Authority
NEWSS	New/Planned State Wells
NEWSWS	New State Water Systems
OHA	Office of Hawaiian Affairs
PLANPS	Planned Private Sources
SWAP	Source Water Assessment Program
SWPP	State Water Projects Plan
UH	University of Hawaii
WQP	Water Quality Plan
WRPP	Water Resource Protection Plan
WUDP	Water Use and Development Plans

CHAPTER 1. INTRODUCTION

The first State Water Project Plan (SWPP) was completed in 1990 and updated in 2000 and 2003. Due to limited funds, in 2017, an update to the SWPP was completed for only the Department of Hawaiian Home Lands' (DHHL) projects. As one of the largest State agency land owners, there was concern that DHHL's projects could have significant impacts and requirements on water resources.

Due to concerns over water availability in the North Kona region on the island of Hawaii and potential designation of the Keauhou Aquifer, the Department of Land and Natural Resources (DLNR) decided to evaluate the water needs of State projects located in North Kona. This report is a supplement to the 2020 SWPP update.

1.1. BACKGROUND

Under the State Water Code, Chapter 174C, Hawaii Revised Statues (HRS), the Commission on Water Resource Management (CWRM) is responsible for developing and maintaining the Hawaii Water Plan, a dynamic, long-range planning guide for water resource management. The guide is intended to help maintain the supply, conservation and quality of State waters. The plan consists of five components:

1) Water Resource Protection Plan (WRPP)
2) Water Quality Plan (WQP)
3) State Water Projects Plan (SWPP)
4) Agricultural Water Use and Development Plan (AWUDP)
5) Water Use and Development Plans (WUDP) for each County

Each plan is prepared by a governing agency. The DLNR, in conjunction with other State agencies, is responsible for preparation of the SWPP.

1.2. OBJECTIVE OF THE SWPP

The primary objective of the SWPP is to provide a framework for the planning and implementation of water development programs to meet projected water demands for future State projects. The plan is implemented in conjunction with each County's WUDP to ensure comprehensive water planning. Other objectives include:

1) Inventory State water resources including State wells, stream diversions, and State water systems
2) Inventory State projects and their water requirements. State projects shall be used to justify source development and water use permits or water reservations from CWRM
3) Inventory State department water conservation programs
4) Develop a Water Development Strategy to meet the needs of proposed State projects
5) Incorporation of the AWUDP
6) Consistency with the WRPP and the WQP

7) Coordination of each of the Counties' WUDPs. The State project demands are to be incorporated within the respective County WUDPs for comprehensive water planning.

1.3. NORTH KONA STATE AGENCIES

North Kona is located on the west side of the island of Hawaii and extends from Kukio Bay in Kailua- Kona to Nenue Point in Kealakekua. North Kona encompasses the entire Keauhou Aquifer System Area and a portion of the Kiholo Aquifer System Area. Landmarks and activities within North Kona include Kona International Airport, Kaloko-Honokohau National Historic Park, several hotels and resorts, residential neighborhoods, industrial parks and wholesale and retail businesses. **Figure 1.1** shows all State-owned lands located in North Kona. The following State agencies own or lease land in North Kona.

1) Department of Business, Economic Development & Tourism (DBEDT):
   The purpose of the Department of Business, Economic Development & Tourism (DBEDT) is to explore and pursue opportunities to broaden and diversify the State's economic base. DBEDT oversees the Natural Energy Laboratory of Hawaii Authority (NELHA) and the Hawaii Housing Finance & Development Corporation (HHFDC).

   A) Natural Energy Laboratory of Hawaii Authority (NELHA)
      NELHA provides resources and facilities for energy and ocean related research, education and commercial activities that utilize natural resources such as seawater and solar energy. NELHA's main facility is located at Keahole Point, near Kona International Airport.

   B) Hawaii Housing Finance & Development Corporation (HHFDC):
      HHFDC is responsible for the development and financing of affordable housing projects and administering homeownership programs. The HHFDC works with private developers to facilitate the development of affordable housing projects.

2) Hawaii Health Authority (HHA):
   The Department of Budget and Finance oversees the Hawaii Health Authority (HHA) which is responsible for the overall health planning for the State of Hawaii. As part of their comprehensive health plan, HHA is responsible for determining future capacity needs for health providers, facilities, equipment, and support services.

3) Department of Hawaiian Home Lands (DHHL):
   The Department of Hawaiian Home Lands' (DHHL) primary purpose is to serve Native Hawaiians and administer its land trust for the benefit of their beneficiaries. Beneficiaries are eligible to receive homestead leases, financial assistance, community services and individual empowerment initiatives.

4) Department of Land and Natural Resources (DLNR):
   The Department of Land and Natural Resources (DLNR) is responsible for managing, administering, and exercising control over public lands, water resources, ocean waters, navigable streams, coastal areas (except commercial harbors), minerals, and all interests therein.

5) Department of Transportation (DOT):
The Department of Transportation (DOT) is responsible for all major State-owned transportation facilities including airports, harbors, and highways. Kona International Airport located and operated in North Kona, has local, national and international flights.

6) Office of Hawaiian Affairs (OHA):
The Office of Hawaiian Affairs (OHA) focuses on improving the well-being of Native Hawaiians by providing resources for Native Hawaiians and developing and shaping public policies that have implications for the Hawaiian community. OHA focuses on aina, culture, economic self-sufficiency, education, governance and health.

7) University of Hawaii (UH):
The University of Hawaii (UH) education system consists of ten (10) university campuses, community college campuses, and research facilities across the State. Hawaii Community College Palamanui is located in North Kona.

8) Department of Education (DOE)
The Department of Education (DOE) oversees the public school system in Hawaii and is responsible for managing 256 public schools and 34 charter schools across the State. Schools located in North Kona fall under the Kealakehe complex area.

9) Department of Accounting and General Services (DAGS)
The Department of Accounting and General Services (DAGS) is responsible for managing and supervising a wide range of State programs activities including but not limited to fiscal services, information technology, land survey and public works.

10) Department of Agriculture (DOA)
The Department of Agriculture (DOA) operates the Keahole Agricultural Park which consists of 179 acres of land subdivided into 34 lots. Water for the park is provided by the Hawaii Department of Water Supply's water system.

Of the ten agencies listed above, only DBEDT, DHHL, DLNR, DOT, UH and DOE have indicated upcoming projects in North Kona.

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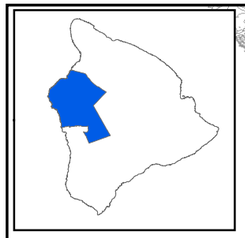
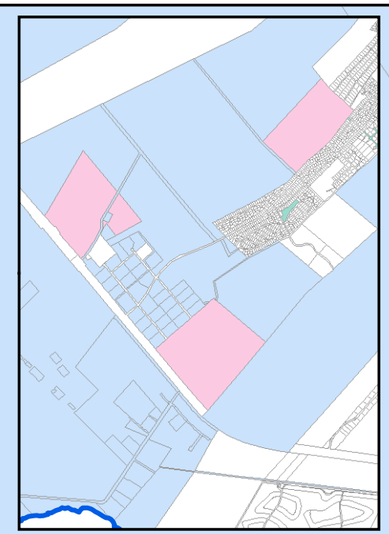
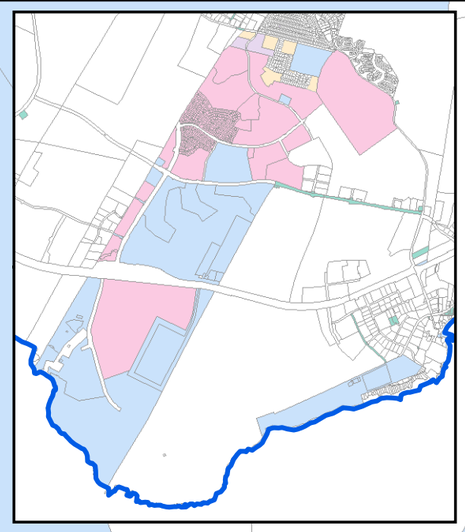




INSET A



INSET B

Kiholo Bay

Kukio

INSET A

Kona International Airport

Kaloko-Honokohau National Historic Park

INSET B

Kailua Bay

Kahaluu

Keauhou

Kealakekua Bay

Legend

- North Kona
- Keauhou Aquifer System

Land Owners

- Other Land Owners
- HHA
- HFDC
- DHHL
- State of Hawaii
- County of Hawaii

N W E S

0 1.5 3 6 Miles

State Water Projects Plan - North Kona

Figure 1.1 - Land Ownership in North Kona

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June 2020

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1.4. ELEMENTS OF STUDY

The following areas of study were used to develop a water development strategy to meet water needs of future State projects:

1.4.1. Inventory of Existing Water Resources

To assess the State's current water operations, an inventory of existing State water resources in North Kona was completed. Existing State water resources include existing State wells and water systems owned and/or operated by State agencies.

1.4.2. Inventory of Proposed State Projects and Future Water Requirements

To determine future water needs, surveys were sent to the ten (10) State departments that own land in North Kona, to develop an inventory of future State projects with water requirements over a 20-year planning horizon starting in 2015. Of the ten (10) State departments, six (6) departments responded with information on future State projects. A copy of the survey forms is included in Appendix A.

Project water needs were grouped into one-year increments between 2015 and 2019 and five-year increments between 2020 and 2034. As required by the Statewide Framework for Updating the Hawaii Water Plan, a range of forecasts (high, medium and low) was developed for these water requirements to account for uncertainties in projected water use.

Estimated water demands were calculated for each project using the best available information. It should be noted that these demands are based on projected development and the values derived herein should be reevaluated as the specific projects become better defined.

1.4.3. SWPP Water Development Strategy

Source development options were identified and evaluated to meet projected State water demands. Strategy options and recommendations were organized into two periods: Short-term (2015 to 2019) and Long-term (2020 to 2034).

The objective of the strategy is to provide more effective planning and coordination to meet projected State water demands. Source development options include, but are not limited to, existing and/or planned State water sources/systems, county/private water agreements, and existing master plans. These strategy options are preliminary in nature and must be further evaluated with regard to scheduling, funding, system reliability, requirements for infrastructure improvements, and other planning considerations. DLNR will initiate discussions with the County of Hawaii, Department of Water Supply (HDWS) on the availability and feasibility of using County water systems to accommodate SWPP project

demands. In the event County water systems are unable to supply SWPP project demands, DLNR will evaluate the development of an additional source, storage system or transmission main.

CHAPTER 2. EXISTING NORTH KONA WATER RESOURCES

2.1. GENERAL

The majority of existing State facilities in North Kona are served by the County's potable water system. Areas outside of the County's service area rely on other purveyors, including State, Federal or private agencies, to provide water service to their respective facilities. An inventory of existing State owned and operated water systems was conducted to assess the extent of the State's current water-related operations.

2.2. NORTH KONA RESOURCES

2.2.1. Wells

A "Well" is defined as "an artificial excavation or opening into the ground, or an artificial enlargement of a natural opening by which ground water is drawn or may be used or can be made to be usable to supply reasonable and beneficial uses within the State." Well development and water use operations are regulated by CWRM. According to CWRM's database of permitted wells, there are 131 existing wells in North Kona. Of the 131 wells, 48 are owned by State agencies with five (5) of the wells classified as non-monitoring wells, as shown on **Figure 2.1**. All three of these wells are currently unused. **Table 2.1** lists well capacities for these wells. In addition to these wells, CWRM also has two (2) deep monitor wells and several water level observation wells in North Kona used to monitor the water quality of the underlying aquifer.

Table 2.1. Existing Unused Registered State Wells in North Kona

Well Number	Well Name	Owner	Year Drilled	Test Pump Capacity (GPM)
8-3957-005	Keopu #4	HHFDC	2003	1650
8-4463-004	Dust Control	NELHA	1987	150
8-4462-002	Keahole-DOT	DOT Airports	1992	100
8-5155-001	Hind Well	State of Hawaii	-	-
8-4953-001	Kiholo	DLNR	1972	700

2.2.2. Stream Diversions

Waiaha Stream is the only perennial stream in North Kona. The stream flows from Umiahu through Holualoa. In the wettest part of the rain belt, springs such as Waiaha Springs, may form. Dam and other flood control measures have been constructed to mitigate flooding of nearby properties.

A "Stream Diversion" is defined as "the act of diverting, pumping or otherwise removing water from a stream into a channel, ditch, pipeline, or other conduit." Based on registered stream diversion records with CWRM, the State of Hawaii currently owns and/or operates 21 stream diversions on the island of Hawaii. The State currently does not have any registered stream diversions in North Kona.

2.2.3. State Owned or Operated Water Systems

A State water system is a water system that is owned and/or operated by a State Department and provides water service to State projects or facilities. Water for the system may either be supplied by the County, third party or an onsite source. Water service activities include, but is not limited to providing source water, treatment of source water, water storage and/or booster pump capacity and conveyance of water to service connections via a distribution system.

There is currently one State water system in North Kona, as shown on **Table 2.2**. Although the system is owned and maintained by DBEDT, the system is supplied by HDWS. The capacity of the system is determined by the HDWS.

Table 2.2 North Kona State Water Systems

Water System Name	State Agency	Primary Use (Agriculture, Industrial, Irrigation)	State Owned	State Operated
NELHA	DBEDT	Potable	Yes, Source provided by County HDWS	Yes

2.3. DESCRIPTION AND EVALUATION OF NORTH KONA STATE WATER SYSTEMS

2.3.1. Department of Business and Economic Development

NELHA owns and operates the only State owned and/or operated water system in North Kona. Located in Keahole, Hawaii, the NELHA Water System provides water service throughout the Natural Energy Laboratory of Hawaii and the Hawaii Ocean, Science and Technology Park (HOST). The NELHA water system is supplied by HDWS' North Kona water system. A six-inch HDWS meter monitors NELHA's water consumption. From the water meter, water is distributed to 37 tenants within the property via 4-inch and 8-inch waterlines. Water is used for diversified agriculture, industrial, park/open space and landscaping. In 2014, average consumption was 0.627 million gallons per day (MGD). Since the water source for NELHA's water system is supplied by HDWS, additional water use is at the discretion of HDWS. Evaluation of surplus source and water system capacity for the NELHA water system should be conducted under a water master plan for future NELHA development.

Well Name: Hind Well
Well No: 8-5155-001
Well Owner: State of Hawaii
Well Use: Unused

Well Name: Kiholo
Well No: 8-4953-001
Well Owner: DLNR
Well Use: Unused
Test Capacity: 700 gpm

Well Name: Keahole
Well No: 8-4462-002
Well Owner: DOT Airports
Well Use: Unused
Test Capacity: 100 gpm

Well Name: Dust Control
Well No: 8-4463-004
Well Owner: NELHA
Well Use: Unused

Well Name: Keopu
Well No: 8-3957-005
Well Owner: HHFDC
Well Use: Unused
Test Capacity: 1650 gpm

Legend

Well Owner
- HHFDC
- DOT Airports
- NELHA
- DLNR
- State of Hawaii

Land Owners
- Other Land Owners
- State of Hawaii
- HFDC
- DHHL
- HHA
- County of Hawaii

N W E S

0 0.75 1.5 3 Miles

State Water Projects Plan - North Kona

Figure 2.1 - Existing State Wells

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June 2020

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CHAPTER 3. PROPOSED WATER-RELATED STATE PROJECTS

3.1. GENERAL

To anticipate the future water requirements of North Kona State projects, an inventory of State projects requiring water use was compiled. Each State department was contacted for their proposed project listings and associated project schedules. The collected data was reviewed and sorted to obtain a listing of future projects and its associated water demand projected by year. The project data was used as the basis for evaluating water resource planning, water system improvements, and source development. Projects involving new housing developments, major facilities or major expansions were considered as having a significant impact on water resources.

3.2. EVALUATION AND METHODOLOGY OF SWPP WATER DEMAND

3.2.1. Evaluation of SWPP Project Information

The status of State projects and water requirement information collected varied from the planning stage to the engineering stage and final design. Project information in the planning stage was conceptual and schematic, with water demand units or areas grossly estimated. Project information in the engineering stage was based on the project design. Water demand requirements for projects in the final design stage were based on plumbing fixture units or known units or areas.

Project information received through the SWPP survey forms were reviewed for completeness and accuracy. In general, the Water System Standards' domestic consumption guidelines was used to determine future average day water demands. The unit rate potable water requirements by land use designations are presented in **Table 3.1**. Applying the standard guidelines to each project allowed for consistency of projected water demands amongst all State departments and other components of the Hawaii Water Plan.

Table 3.1 Domestic Consumption Guideline

Zone	Average Daily Demand
Residential: Single Family or Duplex	400 gal/unit
Commercial	3000 gal/unit
Resort	400 gal/unit
Light Industry	4000 gal/acre
Schools, Parks	4000 gal/acre or 60 gal/student

3.2.2. Project Water Demand Calculation Methodology

The Water System Standards' domestic consumption guidelines provides estimated water consumption rates based on designated land use types. The average day demand for each project was calculated by multiplying the proposed project units or areas by the standard unit rates as determined by the applicable land use type.

The following guidelines and methods were used to calculate and verify SWPP project average day demands for projects with land use types not specified in the Water System Standards. In some instances, water consumption rates were provided by the Departments based on previous water use.

1) DOE – New Classrooms at Existing School for Projected Increase in Student Enrollment: Determine the projected increase in student enrollment or proposed number of new classrooms. If the water demand is based on the number of classrooms, multiply the number of classrooms by 30 students per classroom. If the water demand is based on an increase in students, multiply the projected number of students by 60 gallons per student.

2) DOE – New Administration Building/Library/Renovation to Classroom at Existing School: Determine the floor area and multiply the area by the Water System Standards Commercial/Industrial Mix unit rate.

3) DOT - Highway Landscaping for New Landscaping: Determine the acreage of the landscaping and then multiply by 6,000 gallons per acre to determine demand from available water sources, including non-potable and reuse water systems. Irrigation is provided for the first year of plant establishment.

4) New State Building: Determine the total building floor area based on the number of floors in the building and multiply the area by the Water System Standards, Commercial/Industrial Mix unit rate. The water demand for landscaping was determined using the landscaped area multiplied by Water System Standards, Parks unit rate.

5) DOT Kona International Airport - Office Building: Determine the projected increase in employees and multiply by 25 gallons per employee.

3.3. PROPOSED NORTH KONA PROJECTS AND DEMAND

The individual State projects and water demands for North Kona are listed in Appendix B Projected North Kona Water Demands. The projects are listed by Department and summarizes the yearly cumulative average day demands for a 20-year planning period. **Table 3.2** and **Table 3.3** summarize the projected water demand for each State Department. **Figures 3.1** and **Figure 3.2** shows the location of each project.

Table 3.2 Projected Potable Water Demands by Department

	Cumulative Potable Water Average Day Demand (mgd)							
Department	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
UH	0.0000	0.0000	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027
DOT	0.0000	0.0000	0.0000	0.0000	0.0000	0.2286	0.2491	0.2506
DLNR	0.0000	0.0000	0.0000	0.0000	0.0037	0.0037	0.0037	0.0037
DAGS	0.0000	0.0000	0.0000	0.0000	0.0146	0.0146	0.0146	0.0146
DHHL	0.0000	0.0000	1.2170	1.2170	1.2170	1.9170	2.1302	2.4130
DOE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0013	0.1001	0.1001
DBEDT	0.0000	0.0000	0.1251	0.1752	0.3399	1.0761	1.4879	1.4879
Total	**0.0000**	**0.0000**	**1.3421**	**1.3949**	**1.5779**	**3.2440**	**3.9883**	**4.2726**

Table 3.3 Projected Non-Potable Water Demands by Department

	Cumulative Non-Potable Water Average Day Demand (mgd)							
Department	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
DAGS	0.0000	0.0000	0.0000	0.0000	0.3100	0.3100	0.3100	0.3100
DBEDT	0.0000	0.0000	3.3625	6.7006	10.0179	13.3175	35.9562	35.9562
Total	**0.0000**	**0.0000**	**3.3625**	**6.7066**	**10.3279**	**13.6275**	**36.2662**	**36.2662**

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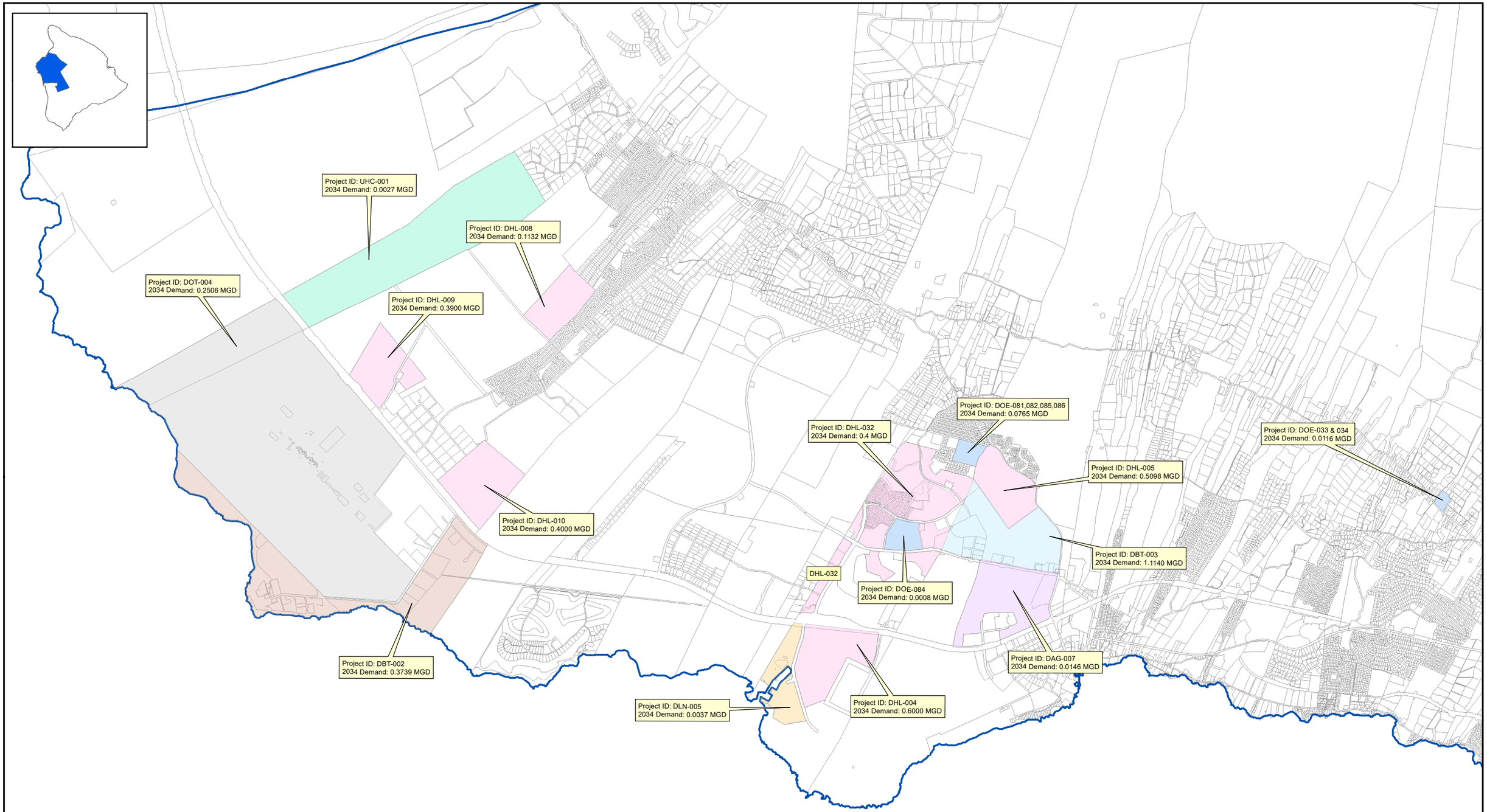

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Legend

Agency

- DAGS
- DBEDT/NELHA
- DHHL
- DLNR
- DOE
- DOT
- HHFDC
- UH
- Keauhou Aquifer System

N E S W

0 0.425 0.85 1.7 Miles

State Water Projects Plan - North Kona

Figure 3.1 - Potable Water Demands

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June 2020

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Project ID: DAG-014
2034 Demand: 0.3100 MGD

Project ID: DOE-083
2034 Demand: 0.0120 MGD

Project ID: DBT-002
2034 Demand: 35.9562 MGD

Legend

Agency

- DAGS
- DBEDT/NELHA
- DOE

Aquifer System

- Keauhou Aquifer System
- Kiholo Aquifer System

N E W S

0 0.4 0.8 1.6 Miles

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State Water Projects Plan - North Kona

Figure 3.2 - Non-Potable Water Demands

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June 2020

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Table 3.4 summarizes the sustainable yields, current water use and SWPP projected 2034 demands for each aquifer sector and system. The table provides an overview of future State water requirements in relation to current permitted water use and available sustainable yields. It should be noted that the table does not take into account water conservation efforts, alternate sources of non-potable water and other County and private projects. Therefore, the values in this table should not be taken as a comparison of project water requirements and available source water.

Table 3.4 SWPP Projected Water Demands and Sustainable Yield

Aquifer System	Sustainable Yield (SY) (MGD)	Current Pumpage (MGD)*	SWPP 2034 Potable Demand (MGD)	2034 Available Sustainable Yield (MGD)
Hualalai	**56**	**20.798**	**4.2726**	**30.930**
Kiholo	18	7.868	0.0000	10.132
Keauhou	38	12.930	4.2726	20.797

* 12-Month Moving Average Pumpage (7/1/18 to 6/30/19); excludes salt water.

Each aquifer has a designated sustainable yield, or maximum amount of water that can be withdrawn each day without adversely affecting the aquifer. As ground water is pumped up to its sustainable yield, aquifer water levels will decline to a pre-identified level, that will allow for optimal development of the resource without compromising water quality and existing infrastructure. If water availability and/or water quality of an aquifer becomes a concern, CWRM many designate the aquifer as a Water Management Areas, requiring well owners in these areas to comply with more stringent use regulations. The Keauhou and Kiholo Aquifers are currently not designated at this time.

3.4 ISSUES, CONCERNS, LIMITATIONS IN PROJECTIONS AND TIME FRAMES

The issues, concerns, and uncertainties raised in this section are based on discussions with departmental contacts, evaluation of SWPP survey data and calculations of SWPP project water demands. The comments and recommendations are provided for discussion purposes only and suggest ways of improving the gathering of more accurate SWPP data in the future.

Limitations in Available Project Information

Based on discussions with departmental contacts, many departments did not have a defined list of future projects for a 20 year planning period. To participate in the study, many departments put together a list of potential projects based on available information. Since a comprehensive list of projects for a 20 year planning period is not regularly maintained, there may be projects that are missing from this study, that may be identified in future updates.

In addition, although a department may have a list of projects that were identified through planning efforts, aside from the project name and general scope, there may not be an associated time frame or detailed project information available. The projected water demand for those projects were limited to planning level estimates which vary considerably from actual water use. Since water

demands for projects in the planning phase are based on an estimated land use area or number of units and land use types, as specified by the Water System Standards, the initial water estimates for these projects are typically near the higher end of the range. In addition, because limited project information is available during the planning phase, these estimates could include components of the project that could be met by non-potable water. As the project's scope is refined during design, the water demand decreases with future iterations as more detail becomes available and the number of plumbing fixture counts is defined. Water demands should be reevaluated as more detailed and/or additional information becomes available.

Although water demands are refined through the design phase, the estimated water demand will likely vary from actual water consumption. A comparison of the actual metered water consumption and estimated demand projection upon project completion is recommended. Historical water consumption data can also help estimate future water demands by providing a baseline for projects of similar scope and size.

Limitations in Time Frames

Project information and time frames are constantly changing. Projects can be added, deleted and chronologically shifted based on department prioritization and funding. In addition, there may be modifications or changes to the list of capital improvement projects due to funding issues, project priority status or departmental policies, that may affect the completion date and projected annual water requirements of State projects. To streamline future updates of the SWPP, it would be beneficial if State agencies had a designated program to regularly track all future potential projects on an annual basis. Tracking current projects on the capital improvements plan (CIP) budget, future planned projects within the 5 to 10-year horizon and long term master planning projects would also help agencies prioritize projects, identify funding requirements and identify long lead items.

3.5 RANGE OF PROJECTED WATER DEMANDS

Low, medium and high SWPP project demand forecasts were developed to provide a range of SWPP project water demands. Water demands reported by State departments were considered to be medium range forecasts. The low range forecast was developed by reducing the medium forecast demands by 20 percent. The low range forecast accounts for savings from water conservation practices, conservatism within the Water Standard System unit rates and uncertainties with project funding, construction of projects and project delays. The high range forecast was determined by increasing the medium demand range by 20 percent to account for additional State projects or modifications to SWPP projects. The 20 percent factor was selected as it is typically used as an uncertainty factor. **Table 3.5** shows the range of SWPP project water demands.

Table 3.5 Low, Medium and High Demand Ranges

	Cumulative Potable Water Average Day Demand (mgd)							
Range	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
Low	0.0000	0.0000	1.0737	1.1159	1.2623	2.5952	3.1906	3.4181
Medium	0.0000	0.0000	1.3421	1.3949	1.5779	3.2440	3.9883	4.2726
High	0.0000	0.0000	1.6105	1.6739	1.8935	3.8928	4.7860	5.1271

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CHAPTER 4. WATER CONSERVATION

4.1 WATER CONSERVATION MEASURES

Water conservation can play an important role in managing the State's water resources by reducing both existing and future water use. According to the United States Environmental Protection Agency (USEPA), Water Conservation Plan Guidelines, water conservation measures include, but are not limited to the following:

1) Universal Metering – Metering and accounting of water use by customers

2) Water Accounting and Loss Control – Tracking and identifying areas of metered but unbilled water through system audits and leak detection programs

3) Costing and Pricing Strategies – Pricing water such that the value and true cost of water is conveyed to customers

4) Information and Education – Educating the public on water use habits

5) Water Use Audits – Identifying water use and reducing overuse

6) Retrofits – Replacing existing fixtures with more water efficient fixtures

7) Pressure Management – Reducing water pressure in the system to decrease leakages in the system and reduce system deterioration

8) Landscape Efficiency – Reducing the amount of water used for landscaping through irrigation management and plant selection

9) Replacement and Promotions – Rebates and incentives for replacement of old fixtures with new water efficient fixtures and appliances

10) Reuse and Recycling – Use of recycled water for non-potable purposes

11) Water Use Regulation – Regulations to manage water use during droughts and emergency situations or enforce water conservation practices

12) Integrated Resource Management – Encourage water conservation to conserve joint resources

4.2 STATE DEPARTMENT WATER CONSERVATION PROGRAMS

As part of the SWPP survey, each department was asked to report any water conservation programs they may have and to identify the specific measures used. Of the ten departments surveyed, none of the departments reported having a water conservation program. However, NELHA and DHHL reported using water conversation efforts in their survey responses.

4.2.1 NELHA

NELHA's existing water conservation measures include universal metering, water accounting and loss control, costing and pricing strategies, information and education, landscape efficiency and maintenance of its existing system. Additional details regarding specific water conservation measures were not provided.

4.2.2 DHHL

On July 22, 2014, the Hawaiian Homes Commission approved the Water Policy Plan which outlines policies and goals for proactive management of water resources. The purpose of the plan is to ensure that there is adequate water and supporting infrastructure to support their homestead lands and overall mission of the department. Policies 10 and 11 state that DHHL will consider in their work, the development and use of alternative sources of water and efficiency measures in water decision making and that water decisions are consistent with other Departmental policies, programs, and plans, including but not limited to the Energy Policy and Agricultural Program.

4.3 WATER CONSERVATION RECOMMENDATIONS

Water conservation measures recommended for North Kona State Projects include installation of low flow fixtures, adoption of the current plumbing code, xeriscape landscaping, implementation of water audits, and use of alternate water sources such as recycled water. Between 1990 to 2010, water use on Oahu decreased by 16.5% with the help of the City and County of Honolulu Board of Water Supply's water conservation programs. Water demand on Oahu is projected to continue to decrease another 7.6% through 2040 if water conservation program goals are achieved. North Kona State Projects could experience similar decreases in water demand due to the implementation of the following water conservation measures.

4.3.1 Installation of Low Flow Fixtures

The installation of low flow fixtures or more water efficient fixtures in new and existing buildings can help reduce indoor water use. To enforce the use of low flow fixtures, the State should follow the standards in the green supplement to the plumbing code. Plumbing codes impose a maximum on the amount of water used per flush by toilets and urinals and per minute by faucets and showerheads. The green supplement to the plumbing codes allow for designs that permit the installation of even smaller, more precise water usage and water drainage systems, resulting in less water use. By adopting the current plumbing code, new construction is required to implement low fixture and support water conservation.

4.3.2 Xeriscape Landscaping

Xeriscaping is the philosophy of landscaping with native, drought-resistant plants and arranging them in efficient, water-saving ways. By using native, drought-resistant plants, less irrigation is required. Coupled with efficient irrigation practices, water use for irrigation can be significantly reduced. In addition, alternative sources of non-potable water such as recycled water and greywater can be used for irrigation of landscaping further conserving potable water resources.

4.3.3 Implementation of Water Audits

Regular auditing of water systems can help utilities identify equipment inefficiencies and areas of lost revenue (i.e. real and apparent losses), as well as provide a thorough understanding of system operations. Better understanding of system operations can help purveyors identify unusual spikes and activity in their systems faster, leading to increased system efficiency and faster recovery of lost revenue.

Under Act 169 SLH 2016, CWRM is required to develop and implement a standardized water audit program and provide associated training to counties and public water utilities. The program is based on the methods adopted by the American Water Works Association's (AWWA) Water Audit and Loss Control Programs – M36, as amended. In 2015, CWRM began a targeted pilot program to train 15 PUC regulated public water systems on the AWWA water audit method. Beginning July 1, 2018, county owned public water systems are required to submit annual water audits to CWRM. All remaining public water systems serving a population of 1,000 or more and public water systems in water management areas will be required to submit annual water audits to CWRM beginning July 1, 2020.

4.3.5 Recycled Water Use

Use of recycled water can reduce dependence on potable water sources. The County of Hawaii, Department of Environmental Management (DEM) is planning to undertake a regional effort to upgrade the existing Kealakehe Wastewater Treatment Plant (KWWTP) to produce 1.0 MG of R-1 recycled water for irrigation and non-potable uses. Phase 1 of the upgrade is anticipated to provide a recycled water distribution line from the KWWTP to Makaeo Park. Future phases may include the installation of distribution lines to serve Honokohau Small Boat Harbor and other future developments areas. Although recycled water is not currently available for use, recycled water could be available to meet non-potable water demands at the end of the planning period.

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CHAPTER 5. ASSESSMENT OF SHORT AND LONG RANGE DEVELOPMENTS

5.1. SWPP WATER DEVELOPMENT STRATEGY OPTIONS

The SWPP Water Development Strategy was formulated in the 2000 SWPP to identify and evaluate source development options for proposed State projects. The strategy identified potential options and recommended actions to meet individual project demands for each State project. The options utilize existing and proposed State water resources. The objective of the strategy was to identify projects with and without source and water system options. Projects without identified State source or system options but located within the service area of a County water system were classified as unmet project demands. **Table 5.1** summarizes the water development strategies developed in the 2000 SWPP and notes their applicability for North Kona SWPP projects. Due to concerns with water availability in the North Kona area, water conservation was added as a SWPP water development strategy.

Table 5.1 Water Development Strategy Options

Abbreviation Code	Water Development Strategy Option	Water Type	Applicable to North Kona SWPP Projects
EXSWS	Existing State Water Systems	Potable & Non-Potable	No
EXSS	Existing State Wells	Potable & Non-Potable	No
MASTERPLAN	Existing and planned water master plans	Potable & Non-Potable	No
COUNTY-CREDIT	Credit for County Water Department facilities charges	Potable	Yes
COUNTY-EXEMPT	Exempt from County Water Department facilities charges	Potable	No
COUNTY-PRIVATEAGREE	Agreements for provision of water service by private purveyor	Potable	No
NEWSWS	New State Water System	Potable & Non-Potable	No
NEWSS	New and/or planned State well	Potable	Yes
PLANPS	Planned private sources	Potable	No
REMAIN	Remaining balance of water demand to be	Potable	Yes

	supplied by County Water Systems		
OTHER-CATCHMENT	Rain water catchment system	Potable & Non-Potable	No
OTHER - CONSERVATION	Conservation measures	Potable	Yes
OTHER-STREAM DIVERSION	Potential stream diversions	Non-Potable	No
OTHER-SPRING SOURCES	Potential spring sources	Non-Potable	No
OTHER-RECYCLED WATER	Recycled wastewater	Non-Potable	No[1]
OTHER-SEAWATER	Deep sea ocean saltwater	Non-Potable	Yes
NONE	Ambient rainfall sufficient to sustain agricultural demands	Non-Potable	No

[1] The County of Hawaii currently has limited water reuse infrastructure. Although the County is planning to upgrade its wastewater treatment plant to produce recycled water, there is no time frame for those improvements. It is unknown at this time whether future non-potable water needs can be met by recycled water.

The water development strategy options applicable to North Kona SWPP projects are described in the following sections. The proposed options are preliminary in nature and must be further evaluated with regard to priority, funding, system operational parameters, coordination with other agencies and interested parties, and other planning considerations.

5.1.1 County Water Agreements

Abbreviation code: COUNTY-CREDIT.

As part of the project requirements, State agencies often provide capital improvements to off-site water system components. These improvements are then turned over to the County Water Department in exchange for County facilities charge credits or source water agreements. It is noted that due to the type and amount of infrastructure improvements provided by a project, the amount of facilities charge credit granted by the County department varies and a portion of the project's facilities charge, or other charges, may still apply.

As part of the development of Kamakana Villages at Keahuolu, a new potable water well will be developed and dedicated to the HDWS upon project completion. An agreement between HDWS and Stanford Carr Development, LLC (the project developer) will be negotiated to determine the water commitments that the HDWS will grant Stanford Carr Development, LLC as a result of developing the well.

5.1.2 New/Planned State Well

Abbreviation code: NEWSS.

Generally, DLNR is the lead State department for the development and coordination of new water sources for State agencies; however, some agencies develop new sources and infrastructure for their projects independently of DLNR. Source water and infrastructure development endeavors to support SWPP demands are often coordinated with the County Water Department.

NELHA is currently in the early planning stages of constructing a new County dedicated well. The well would be developed and constructed by NELHA and dedicated to HDWS in exchange for water commitments that can be used to meet future water needs. NELHA is also exploring alternatives sources of fresh water including development of brackish water wells and desalination.

5.1.3 Unmet Project Demand

Abbreviation code: REMAIN.

This strategy implements an iterative process of assigning other strategy options to SWPP projects to determine the remaining balance of SWPP project water demands within or adjacent to the service area of County water systems but without secured water allocation.

DLNR will initiate discussions with HDWS on the availability and feasibility of County water systems accommodating SWPP project demands. In the event, County systems are unable to supply the remaining SWPP project demands, DLNR may be required to develop new State sources or propose a State-County joint venture to develop new sources. State agencies may also coordinate with the HDWS to upgrade or improve the County water system in exchange for water commitments.

The unmet project demands consist of small projects involving renovations, additions and improvements to existing State facilities and large developments. Projects with large projected demands should consider alternative source and water service options. Strategies for supplying unmet project demands include existing State water systems, private water agreements and planned State wells. The SWPP Water Development Strategy to fulfill the unmet water demands will be consistent with HDWS' Water Use and Development Plan.

5.1.4 Other Considerations

Abbreviation code: OTHER-CONSERVATION

Due to concerns with water availability in the North Kona area, it is important that new projects implement water conservation measures to protect natural resources and ensure that water resources are used for the highest use. While water conservation cannot meet water demands, the implementation of water conservation measures can reduce potable water demands by up to seven percent (7%). Proposed conservation measures for North Kona projects are discussed in Section 4.3.

Abbreviation code: OTHER-SEAWATER.

NELHA utilizes deep sea water for a variety of non-potable uses such as aquaculture, water desalination, clean energy research and development such as solar thermal energy production, algae growth for biofuels and seawater air conditioning.

5.2. SWPP PROJECT DEMANDS

Water development strategies for each project are listed in Appendix C Water Development Strategies. **Table 5.2** and **5.3** summarizes the potable and non-potable water demand by water development strategy option. **Figures 5.1** and **Figure 5.2** shows the water development strategy options for each project.

Table 5.2 Potable Water Development Strategies

	Cumulative Potable Water Demand (MGD)							
Development Strategy	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
COUNTY-CREDIT	0.0000	0.0000	0.0632	0.0632	0.1748	0.8221	1.0360	1.0360
NEWSS	0.0000	0.0000	0.0531	0.0997	0.1413	0.1787	0.3477	0.3477
REMAIN	0.0000	0.0000	1.1318	1.1343	1.1513	2.0161	2.3253	2.5897
OTHER-CONSERVATION	0.0000	0.0000	0.0939	0.0976	0.1105	0.2278	0.2792	0.2991
Total SWPP Demand	**0.0000**	**0.0000**	**1.3421**	**1.3949**	**1.5779**	**3.2447**	**3.9883**	**4.2726**

Table 5.3 Non-Potable Water Development Strategies

	Cumulative Potable Water Demand (MGD)							
Development Strategy	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
NEWSS	0.0000	0.0000	0.0000	0.0000	0.3100	0.3100	0.3100	0.3100
OTHER-SEAWATER	0.0000	0.0000	3.3625	6.7006	10.0179	13.3175	35.9562	35.9562
Total SWPP Demand	**0.0000**	**0.0000**	**3.3625**	**6.7006**	**10.3279**	**13.6275**	**36.2662**	**36.2662**

The remaining balance of unmet SWPP potable water demands were formulated into low, medium and high demands. Following the methodology described in Section 3.5, high and low ranges were computed using a 20 percent adjustment factor to the medium range to account for uncertainties and changes to projected water requirements as shown in Table 4.4.

Table 5.4 Demand Ranges of Unmet (REMAIN) SWPP Project Demands

	Cumulative Potable Water Average Day Demand (mgd)							
Range	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
Low	0.0000	0.0000	0.9054	0.9075	0.9211	1.6129	1.8603	2.0718
Medium	0.0000	0.0000	1.1318	1.1343	1.1513	2.0161	2.3253	2.5897
High	0.0000	0.0000	1.3582	1.3612	1.3816	2.4193	2.7904	3.1077

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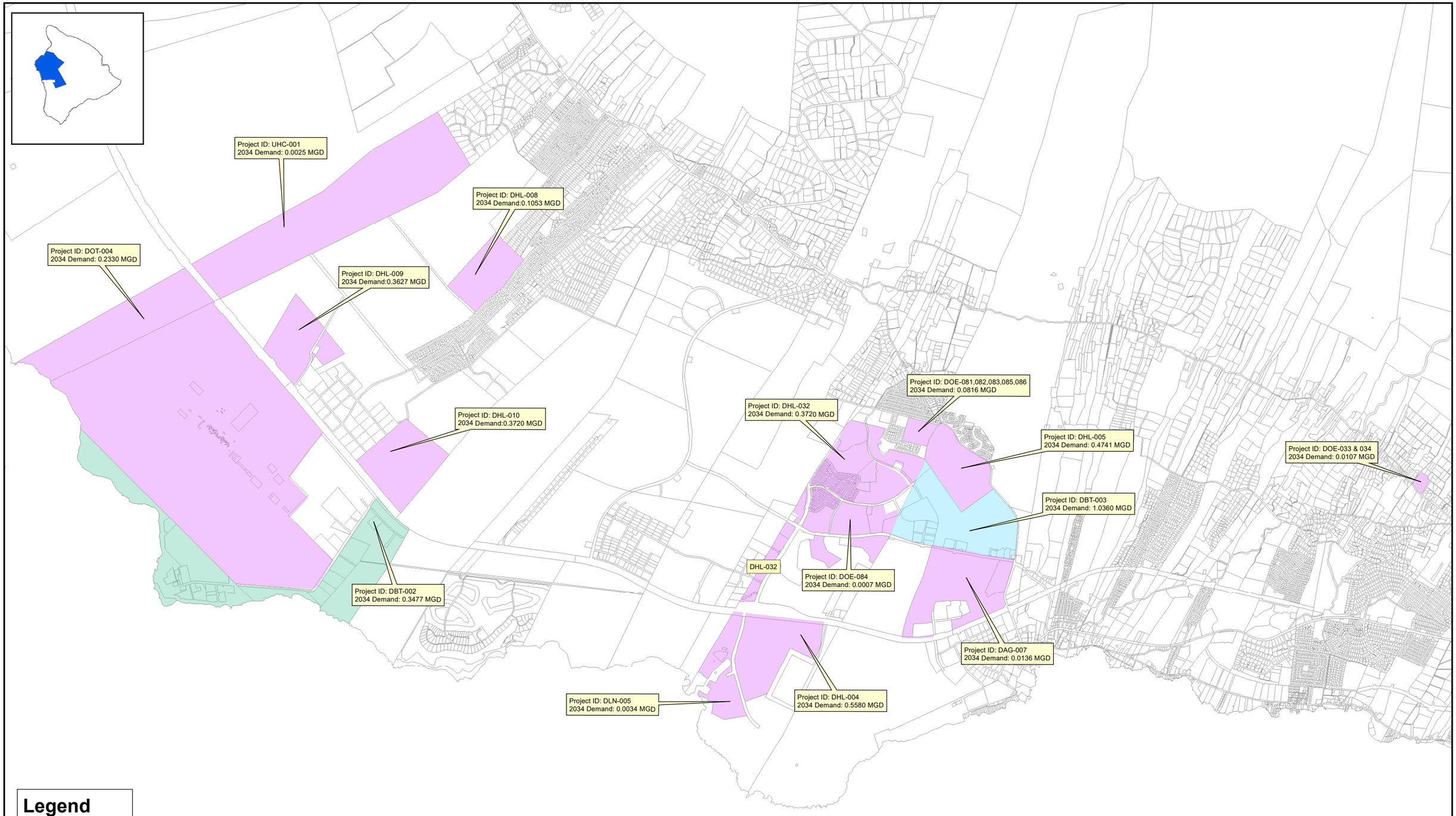

Path: G:\DLNR1301 State Water Projects Plan - North Kona\800 GIS\North Kona Potable Development Strategy.mxd

Legend

Development

- COUNTY-CREDIT
- NEWSS
- REMAIN

N E S W

0 0.375 0.75 1.5 Miles

State Water Projects Plan - North Kona

Figure 5.1 - Proposed Water Development Strategy for Potable Water Demands

Akinaka & Associates, Ltd.
June 2020

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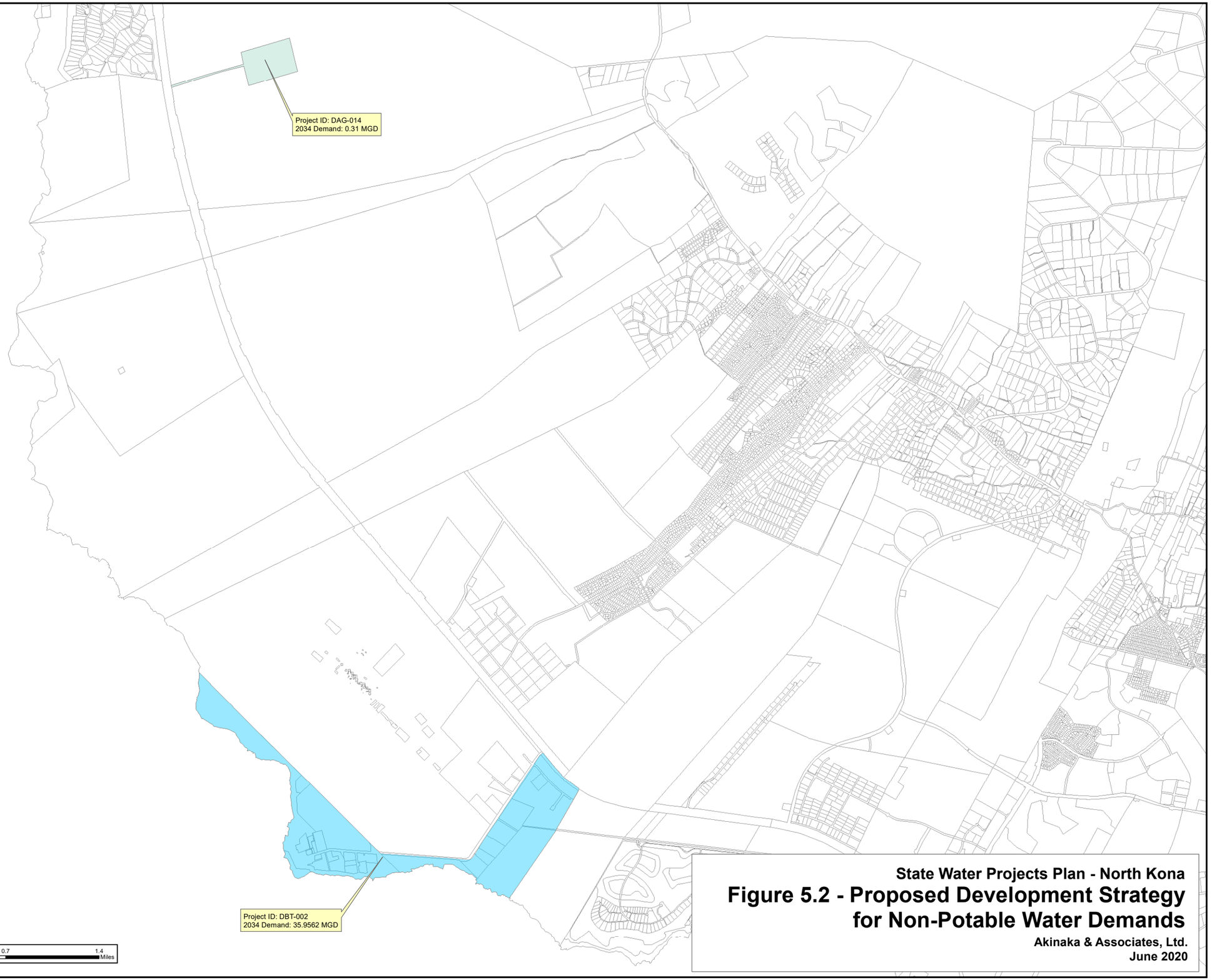

Legend

Strategy

- NEWSS
- OTHER-SEAWATER

N E S W

0 0.35 0.7 1.4 Miles

State Water Projects Plan - North Kona

Figure 5.2 - Proposed Development Strategy for Non-Potable Water Demands

Akinaka & Associates, Ltd.
June 2020

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5.3. CONSISTENCY WITH APPLICABLE HAWAII WATER PLANS

5.3.1. Water Quality Plan

The Department of Health (DOH) is responsible for preparation of the Water Quality Plan (WQP) which outlines regulations, standards and resource management policies that define the level of water quality required to be maintained in ground water and surface water resources. An update to the 1990 WQP was released in 2019. The WQP provides input on water reuse and groundwater protection. The SWPP is consistent with the WQP's goals to increase water reuse statewide as water reuse is a development strategy of the SWPP.

5.3.2. Water Resource Protection Plan

CWRM is responsible for the preparation of the Water Resource Protection Plan (WRPP). An update to the 2008 WRPP was released in 2019. The objective of the WRPP is to study and inventory the State's existing water resources and future water needs and evaluate the quality and quantity of ground water hydrologic units and sustainable yields of each aquifer. The sustainable yield is the maximum amount of water that can be withdrawn each day without adversely affecting the aquifer. As ground water is pumped up to its sustainable yield, aquifer water levels will decline to a pre-identified level that allows for optimal development of the resource without compromising water quality and the existing infrastructure. The relationship between the SWPP and the WRPP is discussed in Section 3.3. Section 3.3 presented the hydrologic sustainable yield and the projected SWPP water demands.

In addition to evaluating each aquifer, the WRPP provides recommendations for protecting and sustaining the State's water resources, including augmenting water resources with alternative sources. Alternate sources include wastewater reclamation (recycled water), storm water reclamation, and desalination. While these options are not yet approved by DOH for potable water uses, these alternate sources can be used for non-potable uses, such as irrigation and landscaping.

Strategies for meeting non-potable SWPP project demands are consistent with the recommendations of the WRPP as alternate sources, such as seawater and desalination, are being explored to meet these demands.

5.3.3. Agricultural Water Use and Development Plan

The Department of Agriculture (DOA) is responsible for the preparation of the Agricultural Water Use and Development Plan (AWUDP). The AWUDP assesses State and private agricultural water use and supply with respect to ditch irrigation systems. The plan is intended to be a master irrigation inventory plan which evaluates the condition and capacity of the system. DOA is in the process of updating their AWUDP. Since there are no existing irrigation systems in North Kona, the guidelines provided in the AWUDP do not apply to the water development strategies for North Kona SWPP projects.

5.3.4. Hawaii County Water Use and Development Plan Update – Keauhou Aquifer System Area

Each county is responsible for preparing its own Water Use and Development Plan (WUDP) to evaluate existing and future water needs. As a follow up to the recommendations of the 2010 Hawaii WUDP, CWRM requested that Hawaii County further evaluate the water use of the Keauhou Aquifer System, which is part of the Hualalai Aquifer Sector Area, and identify resource and facility strategies to meet future water needs.

Source development strategies presented in the resulting 2017 Hawaii WUDP for the Keauhou Aquifer System to meet projected future water needs include development of high level ground water wells, use of recycled water and implementation of water conservation practices. To meet future water needs, the Hawaii WUDP encourages the development of high level wells between ground elevations of 1,500 to 1,800 feet, mauka of Mamalahoa Highway between the Queen Liliokalani Trust Deepwell in the Keauhou ASYA and the Halekii Deepwell in the Kealakekua ASYA. These high-level wells may reduce operational reliance on existing basal sources. Development of these wells will require additional water system infrastructure and improvements to existing transmission and storage facilities to accommodate the additional flows. There may be opportunities for the State to upgrade or improve the County water system in exchange for water allocation commitments. A State-County joint venture to develop a new source may also help provide water commitments for SWPP projects.

5.3.5. Act 170, SLH 2016

In 2016, the Hawaii State Legislature passed House Bill No. 1749 (Act 170), which amends the Water Code to include as an additional objective of the Hawaii Water Plan "the utilization of reclaimed water for uses other than drinking and for potable water needs in one hundred percent of State and County facilities by December 31, 2045".

The County of Hawaii currently has limited water reuse infrastructure. Although recycled water transmission mains are being installed as part of the Department of Transportation's Queen Kaahumanu Highway widening project, the County still needs to upgrade the existing Kealakehe Wastewater Treatment Plant to produce recycled water. There is currently no time frame for upgrade of the plant. The bill will require the construction of new distribution infrastructure to deliver recycled water to all State and County facilities, which will have significant upfront costs. The cost of new infrastructure may deter development on lands located outside of the County's recycled water system.

New State facilities and complexes should consider the possibility of using reclaimed water for non-potable water uses. Sources for reclaimed water could include stormwater runoff collected via low impact development practices, graywater and onsite or decentralized wastewater recycling facilities.

CHAPTER 6. RECOMMENDED WATER DEVELOPMENT STRATEGY

The unmet project water demand in 2034 totals 2.59 mgd. To meet the unmet water demand, the State should develop a new high level well source to be dedicated to the County. Development of the well should be in accordance with the Hawaii WUDP for the Keauhou Aquifer. In exchange for development of a water source, the County will grant the State water commitments that can be used for State projects.

For projects with immediate water needs or small water demands, the State can partner with the County to improve the County's water system transmission or storage in exchange for water commitments. Further coordination with the County is required to identify specific opportunities. Likewise, the State can also partner with private developers to provide land or cost sharing for development of a private well.

Due to time requirements and significant planning efforts to develop a new well, connection to the County water system remains the first strategy option to serve remaining project demands. DLNR will coordinate the availability of water service with HDWS.

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CHAPTER 7. REFERENCES

"2013 Update of the Hawaii Water Reuse Survey and Report," prepared for State of Hawaii, Commission on Water Resource Management, by The Limtiaco Consulting Group, July 2013.

"Hawaii County Water Use and Development Plan Update, Keauhou Aquifer System," prepared for County of Hawaii by Fukunaga & Associates, Inc., March 2017

"North Shore Watershed Management Plan, Oahu Watershed Management Plan," prepared for Honolulu Board of Water Supply by Group 70 International, December 2016.

"State Water Projects Plan, Hawaii Water Plan, Volumes 1 – 5," prepared for State of Hawaii, Commission on Water Resource Management; by Fukunaga & Associates, Inc., February 2003.

"State Water Project Plan Update, Hawaii Water Plan," prepared for State of Hawaii, Department of Land and Natural Resources; by Fukunaga & Associates, Inc., September 2015.

"Water Resource Protection Plan," prepared for State of Hawaii, Commission on Water Resource Management, prepared by Wilson Okamoto Corporation, June 2008.

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Appendix A
Sample Survey Forms

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SURVEY INSTRUCTIONS:

The State Water Projects Plan State Department Survey consists of the files and forms as described in the table below:

File Name	Form Title	Excel Tab Name
CoverSheet.pdf	State Agency Cover Sheet	-
InvtryStateWtrInfrst_(Agency).pdf	State Water Systems State Wells State Stream Diversions	-
WtrConsProg_(Agency).xls	Water Conservation Program	WtrConsrvProg
StateProj_(Agency)_(Proj).xls	Projected Water Demand for State Projects	ProjWtrDmnd-State
	Water Source Development Plans – Primary Water Source	WtrSource-Prim
	Water Source Development Plans – Alternate Water Source	WtrSource-Alt
PrivAgProj_(Agency)_(Proj).xls	Projected Water Demand for Private Agricultural Projects	ProjWtrDmnd-PrivAg
	Water Source Development Plans for Proposed Private Agricultural Projects – Primary Water Source	WtrSourcePrivAg-Prim
	Water Source Development Plans for Proposed Private Agricultural Projects – Alternative Water Source	WtrSourcePrivAg-Alt

The State Water Projects Plan State Department Survey is being provided as paper printouts and electronically on compact disk (CD).

Please complete the State Agency Cover Sheet and attach to the submittal when submitting completed forms.

For questions regarding the State Water Projects Plan State Department Survey, please feel free to contact Lance Fukumoto (LFukumoto@fukunagaengineers.com) or Amanda Kimi (AKimi@fukunagaengineers.com) of Fukunaga & Associates, Inc., our consultant for this project. They may also be reached at (808) 944-1821.

INVENTORY OF STATE WATER INFRASTRUCTURE

Existing inventory information for the Agency's Water Systems, Wells, and Diversions has been provided as paper printouts and as an electronic pdf file on CD as an initial source of reference. If existing inventory information for the Agency was not available, only blank forms have been provided.

The updates to the Water Systems, Wells, and Diversions forms may be submitted either on paper or as annotations on the electronic pdf file, "InvtryStateWtrInfrst_(Agency).pdf" provided.

Inventory of State Water Systems

The data gathered for the 2003 State Water Projects Plan and updated with information from the Department of Health sanitary surveys and other sources are provided as an initial source of reference. Please review and provide updated and missing information on these State Water Systems owned or operated by your agency. Please provide information on the water system service area if available, e.g. GIS layer, tax map keys of parcels served, map, etc. For additional State Water Systems not included in this packet, please complete a new "State Water Systems" form. One "State Water Systems" form shall be completed for each State Water System. A blank paper form has been provided at the beginning of the Inventory section, and a blank pdf form has been provided at the beginning of the "InvtryStateWtrInfrst_(Agency).pdf" file.

Inventory of State Wells

The data gathered for the 2003 State Water Projects Plan and updated with the best available data from Commission on Water Resource Management (CWRM) are provided as an initial source of reference. Please review the attached data and provide updated and missing information on these wells owned or operated by your agency. For additional State Wells not included in this packet, please complete a new "State Wells" form. One "State Wells" form shall be completed for each State Well. A blank paper form has been provided at the beginning of the Inventory section, and a blank pdf form has been provided at the beginning of the "InvtryStateWtrInfrst_(Agency).pdf" file.

Inventory of State Stream Diversions

State Stream Diversions are any diversion owned or operated by the State. The attached data gathered for the 2003 State Water Projects Plan and updated with the best available data from CWRM are provided as an initial source of reference. Please review and provide updated and missing information on these State Stream Diversions owned or operated by your agency. For additional State Stream Diversions not included in this packet, please complete a new "State Stream Diversions" form. One "State Stream Diversions" form shall be completed for each State Stream Diversion. A blank paper form has been provided at the beginning of the Inventory section, and a blank pdf form has been provided at the beginning of the InvtryStateWtrInfrst_(Agency).pdf" file.

WATER CONSERVATION PROGRAM

Water Conservation Program File Name: "WtrConsProg_(Agency).xls"

Using the fields provided in green and checkboxes, please describe your agency's existing water conservation program, including specific agency objectives, and water conservation measures already in place.

The Water Conservation Program form may be submitted either on paper or as an electronic file that includes the Agency as part of the file name: for example, "WtrConsProg_DHHL.xls"

STATE PROJECTS

State Projects File Name: "StateProj_(Agency)_(Proj).xls"

The following three forms, one form per tab, are included in the State Projects excel file:

- Projected Water Demand for State Projects
- Water Source Development Plans for State Projects – Primary Water Source
- Water Source Development Plans for State Projects – Alternate Water Source

Please complete the Projected Water Demand for State Projects form for each project. If water service may be provided by a source other than an existing Municipal Water System, please also complete the Primary and Alternate Water Source forms. The Primary Water Source is the first water source intended for use, and the Alternate Water Source is the alternate in the event that the primary water source is not available. Response fields are highlighted in green and checkboxes have been provided. Response fields that have drop down menus are indicated by a down arrow "▾."

The State Project forms may be submitted either on paper or as electronic files that include the Agency and Project name as part of the file name; for example, "StateProj_DHHL_Bldg1.xls."

PRIVATE AGRICULTURAL PROJECTS (For completion by Dept. of Agriculture ONLY)

Private Agricultural Projects File Name: "PrivAgProj_(Agency)_(Proj).xls"

The following three forms, one form per tab, are included in the Private Agricultural Projects excel file:

- Projected Water Demand for Private Agricultural Projects
- Water Source Development Plans for Private Agricultural Projects – Primary Water Source
- Water Source Development Plants for Private Agricultural Projects – Alternate Water Source

Please complete the Projected Water Demand for Private Agricultural Projects form for each project. If water service may be provided by a source other than an existing Municipal Water System, please also complete the Primary and Alternate Water Source forms. The Primary

Water Source is the first water source intended for use, and the Alternate Water Source is the alternate in the event that the primary water source is not available. Response fields are highlighted in green and checkboxes have been provided. Response fields that have drop down menus are indicated by a down arrow "▾."

The Private Agricultural Project forms may be submitted either on paper or as electronic files that include the Agency and Project name as part of the file name; for example, "PrivAgProj_DOA_WaikeleAgLots.xls."

STATE AGENCY COVER SHEET

FOR THE

STATE WATER PROJECTS PLAN, STATE DEPARTMENT SURVEY, 2015

Department: _____

Division/Agency: _____

PREPARED BY

Name: _____ Title: _____

Email: _____ Phone: _____

AUTHORIZATION

I do hereby certify that the information provided in response to the State Water Projects Plan, State Department Survey, 2015, is true and correct to the best of my knowledge, information and belief.

Approved by (Printed): _____ Title: _____

Signature: _____ Date: _____

REMARKS: (If this is a partial submittal, please indicate what portion(s) of the survey are included with this submittal.)

STATE WATER SYSTEMS

1. STATE WATER SYSTEM INFORMATION

AGENCY OWNER _____

AGENCY OPERATOR _____

STATE WATER SYSTEM NAME _____

PUBLIC WATER SYSTEM? ☐ Yes "Public Water System" is defined as a potable water system which has 15 or more service connections or regularly serves an average of 25 or more people for at least 60 days each year.

ISLAND _____

WATER SYSTEM LOCATION _____

ADDRESS (if applicable) _____

TAX MAP KEY
(X) - X - X - XXX:XXX _____

JUDICIAL DISTRICT _____

AQUIFER SYSTEM _____

SYSTEM CLASSIFICATION ○ Potable ○ Non-Potable

MAP ATTACHED OF WATER SYSTEM LOCATION AND SERVICE AREA? ☐ Yes ☐ No

WATER SYSTEM EXISTING AVERAGE DAY DEMAND _____ GPD

2. WATER SYSTEM SOURCE

☐ State ☐ Private _____

☐ County ☐ Other _____

☐ Federal

STATE WELL ID(s):
(X-XXXX-XXX) _____ _____ _____ _____ _____

STATE WATER SYSTEMS

2. WATER SYSTEM SOURCE (cont.)

STATE DIVERSION(S):
Diversion Structure Name _____

TYPE OF SOURCE	(% OF TOTAL SUPPLY)
Surface Water	_____ %
Ground Water	_____ %
Reclaimed Water	_____ %
Desalinized Water	_____ %
Catchment Water	_____ %
Other _____	_____ %

3. EXISTING CONDITIONS

USES	(% OF TOTAL USE)	QUALITY OF WATER	REQUIRES TREATMENT
RES/DIVAG/SCH	%	○ Fresh ○ Brackish ○ Seawater	☐ Yes GAS CHLORINATION
	%	○ Fresh ○ Brackish ○ Seawater	☐ Yes

FRESH=<250 mg/l CL BRACKISH=251-16,999 mg/l CL SEAWATER=>17,000 mg/l CL

STATE WATER SYSTEMS

4. WATER SYSTEM DESIGN FUTURE DEMAND

***COMPLETE IN TERMS OF UNITS OR ACRES**

LAND USE	Agency Demand (MGD)	Comp. Date (Mo-Yr)	Total Units (No.)	Gallons Per Unit (GPU)	Total Demand (MGD)	Total Area (Acres)	Gallons Per Acre (GPA)	Total Demand (MGD)
RESIDENTIAL Single Family/Duplex								
RESIDENTIAL Multi-Family Low Rise								
RESIDENTIAL Multi-Family High Rise								
COMMERCIAL								
COMMERCIAL Residential Mix								
COMMERCIAL Industrial Mix								
RESORT								
INDUSTRIAL								
SCHOOL								
HOSPITAL								
PARK / OPEN SPACE								
AGRICULTURE Monocrop								
AGRICULTURE Diversified Agriculture								
AGRICULTURE Aquatic								
AGRICULTURE Nursery								
AGRICULTURE Taro								
AGRICULTURE Other								
GOLF COURSE								
LANDSCAPING								
OTHER								

REMARKS

STATE WATER SYSTEMS

4. WATER SYSTEM DESIGN FUTURE DEMAND (Cont.)

PROJECT WATER DEMAND BY CALENDER YEAR

2015 (MGD)	2016 (MGD)	2017 (MGD)	2018 (MGD)	2019 (MGD)	10-Year 2024 (MGD)	15-Year 2029 (MGD)	20-Year 2034 (MGD)

5. ANNUAL AVERAGE QUANTITY DELIVERED/SOLD

	2009	2010	2011	2012	2013	2014
WATER DELIVERED (MG)						
ACRES SERVED (ACRES)						
POPULATION SERVED						

STATE WELLS

1. WELL DESCRIPTION

WELL NAME _____

WELL NO _____

WELL OWNER _____

STATE WATER SYSTEM NAME _____

ISLAND _____

LATITUDE _____ _____

TAX MAP KEY
(X) - X - X - XXX:XXX _____

JUDICIAL DISTRICT: _____

AQUIFER SYSTEM _____

2. WATER DESCRIPTION

INSTALLED PUMP CAPACITY _____ GPM

WELL USE _____

ABN = Abandoned	IND = Industrial	MUN = Municipal	UNU = Unused
AGR = Agriculture	IRR = Irrigation	OBS = Observation	
DOM = Domestic	MIL = Military	OTH = Other	

CHLORIDE CONCENTRATION _____ mg/l Cl
*UPON CONSTRUCTION

ANNUAL AVERAGE PUMPAGE RECORDS:

METHOD OF MEASUREMENT _____

	2009	2010	2011	2012	2013	2014
PUMPAGE (MGD)						
CHLORIDES (ppm)						

STATE STREAM DIVERSIONS

1. DIVERSION INFORMATION

OWNER OF DIVERSION WORKS SITE _____

DIVERSION WORKS OPERATOR _____

DIVERSION SYSTEM NAME _____

DIVERSION STRUCTURE NAME _____

STATE WATER SYSTEM NAME _____

ISLAND _____

LOCATION LATITUDE _____ LONGITUDE _____

TAX MAP KEY,
DIV. STRUCTURE
(X) - X - X - XXX:XXX _____

TAX MAP KEY,
SURFACE WATER USE
(X) - X - X - XXX:XXX _____

JUDICIAL DISTRICT _____

AQUIFER SYSTEM _____

STREAM NAME _____

WATERSHED NAME _____

WATER PURVEYOR _____

2. WATER DESCRIPTION

DIVERSION 0 MGD _____ MGY

QUALITY OF WATER

- ◉ Fresh (<= 250 mg/l Cl)
- ◉ Brackish (251 - 16,999 mg/l Cl)
- ◉ Seawater (>= 17,000 mg/l Cl)

ANNUAL AVERAGE DIVERSION RECORDS

METHOD OF MEASUREMENT _____

	2009	2010	2011	2012	2013	2014
DIVERSION (MGD)						
CHLORIDES (ppm)						

WATER CONSERVATION PROGRAM

1. WATER CONSERVATION PROGRAM INFORMATION

State Agency Initiating Water Conservation Efforts:

Describe the agency's existing water conservation program, and to the extent possible, quantify the degree of success achieved:

- ☐ The Agency does not have an existing water conservation program.
- ☐ The Agency is not implementing any water conservation measures.

Indicate the specific objectives of the Agency's water conservation program, if any:

- ☐ Educating customers about the value of water
- ☐ Lowering variable operating costs
- ☐ Reducing water demand and water usage
- ☐ Substituting use of non-potable water for potable water
- ☐ Avoiding new source development costs
- ☐ Eliminating, downsizing, or postponing the need for capital projects
- ☐ Improving the utilization and extending the life of existing facilities
- ☐ Improving drought or emergency preparedness
- ☐ Improving reliability, margins of safe and dependable yields
- ☐ Protecting and preserving environmental resources
- ☐ Other:
- ☐ No water conservation objectives at this time.

2. EXISTING WATER CONSERVATION MEASURES

The USEPA Water Conservation Plan Guidelines, Appendix A identifies the following Level 1, Level 2, and Level 3 measures. Check all water conservation measures that apply to this project.

"All water systems, regardless of their size or the conditions under which they operate, should consider the very fundamental and widely accepted practices identified under Level 1. The measures in Levels 2 and 3 generally are considered appropriate for systems with significant conservation needs and interests."

LEVEL 1 MEASURES

Universal Metering:

*LEED credits offered for "Water metering."

- ☐ Source-water metering
- ☐ Service-connection metering
- ☐ Meter public-use water metering
- ☐ Fixed-interval metering reading
- ☐ Meter accuracy analysis
- ☐ Meter maintenance; test, calibrate repair and replace meters

Water Accounting and Loss Control:

- ☐ Account for water
- ☐ Repair known leaks
- ☐ Analyze nonaccount water
  - Accounted for - line flushing, reservoir cleaning, fire fighting, sewer flushing, street cleaning
  - Unaccounted for - leaks, unauthorized use, inaccurate metering, inaccurate billing
- ☐ Water system audit
- ☐ Leak detection and repair strategy
  - Installation of permaloggers, tracking leak repairs
- ☐ Automated sensors/technology
  - Storage tank automatic level controls/float controlled valves
- ☐ Loss prevention program

Costing and Pricing Strategies:

- ☐ Cost-of-service accounting
- ☐ User charges (e.g. based on water used)
- ☐ Metered rates (e.g. to be established)
- ☐ Cost analysis
- ☐ Nonpromotional rates
- ☐ Advanced pricing methods (e.g. tiered pricing)

Information and Education:

- ☐ Information available
  - Understandable water bill
  - Informative water bill
  - Water-bill inserts
  - Website
  - Signs (e.g. boaters to limit wash time)
- ☐ Education offered
  - School program
  - Public-education program
  - Workshops
  - Advisory committee

LEVEL 2 MEASURES

Water Use Audits:

- ☐ Audits of large-volume users
- ☐ Large-landscape audits
- ☐ Selective end-use audits

Retrofits:

*LEED credits offered for "Indoor water use reduction."

- ☐ Retrofit kits available
- ☐ Distribution of retrofit kits
- ☐ Targeted programs

Pressure Management:

- ☐ Systemwide pressure regulation
- ☐ Selective use of pressure-reducing valves

Landscape Efficiency:

*LEED credits offered for "Outdoor water use reduction."

- ☐ Promotion of landscape efficiency
  - Watering takes place during early evening or early morning hours
  - Watering is decreased during cooler, wetter months
  - Appropriate amount of water is utilized (e.g. plants not overwatered, water not flowing offsite)
  - Watering is limited to areas that require water
  - Training for landscape maintenance personnel is implemented.
- ☐ Landscape planning and renovation
  - Limited turf areas, plants with similar water needs are grouped together.
  - Xeriscaping is incorporated into the landscaped area.
  - Irrigation system utilizes drip irrigation, auto shut-off hoses, system pressure regulators, etc.
- ☐ Selective irrigation submetering
- ☐ Irrigation management
  - Irrigation maintenance is scheduled and conducted; equipment performing properly.
  - Irrigation system is audited for flow rate, flow direction, temperature, etc.
  - Recycled water or other non-potable resource is utilized.

LEVEL 3 MEASURES

Replacement and Promotions:

- ☐ Rebates and incentives (nonresidential)
- ☐ Rebates and incentives (residential)
- ☐ Promotion of new technologies

Reuse and Recycling Applications:

*LEED credits offered for "Cooling tower water use."

- ☐ Industrial applications
  - Cooling Tower water uses rinse water
  - Boiler and steam water stored for later use
- ☐ Large-volume irrigation applications
- ☐ Selective residential applications
- ☐ Other _____

Water Use Regulation:

- ☐ Water-use standards and regulations
  - Water System Standards, 2002
  - Plumbing Code Regulations
- ☐ Requirements for new developments
  - LEED Certified development and new construction

Integrated Resource Management:

- ☐ Supply-side technologies
- ☐ Demand-side technologies

OTHER MEASURES

Alternative Water Resource Enhancement Measures:

- ☐ Wastewater recycling
- ☐ Rainwater catchment
- ☐ Desalination

Water Saving Components/Habits:

- ☐ Faucets
  - Low flow features, aeration devices
- ☐ Dishwashers
  - Set to minimum low flow
  - Wash full loads
- ☐ Garbage Disposals
  - Set to minimum low flow
- ☐ Ice Machines
  - Taps into another chilled water system
  - Relies on air cooling
  - Produces ice flakes
  - Adjusted to dispense appropriate quantity
- ☐ Laundry Facilities
  - Wash full loads
  - Rinse using reclaimed water
  - Continuous batch option
  - Utilize chemicals allowing fewer wash/rinse cycles

Maintenance Work:

- ☐ Fixtures checked regularly for leaks
- ☐ Toilets checked for extended flush times
- ☐ Valves to unneeded water fixtures are closed
- ☐ Dry clean-up procedures are utilized when possible
  - Sweeping, vacuuming, carpet cleaning powders, dry absorbents

Other Water Conservation Measures:

PROJECTED WATER DEMAND FOR STATE PROJECTS

1. PROJECT INFORMATION

State Agency Initiating Project:

Project Name:

Agency Project No.:

Stand-Alone Project: ☐

Addition/Expansion to Existing Project: ☐

Existing Water Demand: MGD

Is this project funded?

Construction Start Date (Mo-Yr):

Construction End Date (Mo-Yr):

2. PROJECT LOCATION

Island:

Judicial District:

Tax Map Key, (X)-X-X-XXX:XXX

Address:

Map of Project Location Attached:

Aquifer System (CWRM Hydrologic Unit):

Watershed (CWRM Hydrologic Unit):

3. PROJECTED WATER DEMAND **(20-Year Planning Horizon 2014 - 2034)**

---------- Complete in terms of Acres OR Units ----------

Land Use / Project Name (Name)		Agency Demand (MGD)	Project Compltn (Mo-Yr)	Total Area (Acres)	Gallons/ Acre (GPA)	Total Demand (MGD)	Total Units (No.)	Gallons/ Unit (GPU)	Total Demand (MGD)
Residential	Sgl Fam/Dplx								
	Mlti-Fam LR								
	Mlti-Fam HR								
Commercial									
Commercial/Resid Mix									
Commercial/Indus Mix									
Resort									
Industrial									
School									
Hospital									
Park/Open Space									
Agriculture	Monocrop								
	Divers Ag								
	Aquatic								
	Nursery								
	Taro								
Golf Course									
Landscaping									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
	Total								

Remarks:

4. PROJECTED QUALITY OF WATER NEEDED

Land Use / Project Name		Potable	Non-Potable Indicate Type Below: Brackish, Seawater, Surface, Reclaimed		Usage (%)	Potable (MGD)	Non-Pot (MGD)
Residential	Sgl Fam/Dplx	☐	☐				
	Mlti-Fam LR	☐	☐				
	Mlti-Fam HR	☐	☐				
Commercial		☐	☐				
Commercial/Resid Mix		☐	☐				
Commercial/Indus Mix		☐	☐				
Resort		☐	☐				
Industrial		☐	☐				
School		☐	☐				
Hospital		☐	☐				
Park/Open Space		☐	☐				
Agriculture	Monocrop	☐	☐				
	Divers Ag	☐	☐				
	Aquatic	☐	☐				
	Nursery	☐	☐				
	Taro	☐	☐				
		☐	☐				
Golf Course		☐	☐				
Landscaping		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				

Projected Water Demand by Calendar Year (MGD)

Year	Total		Potable		Non-Potable	
	Cummultv	Incrmntl	Cummultv	Incrmntl	Cummultv	Incrmntl
2015						
2016						
2017						
2018						
2019						
2024 (10-Year)						
2029 (15-Year)						
2034 (20-Year)						

Potable

Non-Potable _____

5. WATER SOURCE DEVELOPMENT PLANS

SWPP Project served by the following water service provider(s):

- ☐ County
- ☐ State
- ☐ Federal
- ☐ Private

EXISTING SOURCE

☐ Municipal Water System

Describe the water source and agreement, if any, under which water is to be provided.

☐ Well, Diversion, or Water System ☐ State ☐ Private

Complete both of the following forms:

Water Source Development Plans for State Projects - Primary Water Source (See "WtrSourceState-Prim" tab)
Water Source Development Plans for State Projects - Alternate Water Source (See "WtrSourceState-Alt" tab)

Describe the water source and agreement, if any, under which existing surplus capacity will be provided to meet project water demands.

NEW SOURCE

☐ Water Source Development Plan Available

Complete both of the following forms:

Water Source Development Plans for State Projects - Primary Water Source (See "WtrSourceState-Prim" tab)
Water Source Development Plans for State Projects - Alternate Water Source (See "WtrSourceState-Alt" tab)

☐ Water Source Development in Planning Stages

Identify any master plan(s) and engineering report(s) associated with the proposed water source development.

☐ Water Source Development Plan Not Available

Explain how projected water demands will be met and when such plans are expected to be developed.

6. PLANNED WATER CONSERVATION MEASURES

Water conservation measures will be implemented for this project:

- ☐ Yes, as indicated in the following sections.
- ☐ No water conservation measures will be implemented.
- ☐ Unsure at this time.

The USEPA Water Conservation Plan Guidelines, Appendix A identifies the following Level 1, Level 2, and Level 3 measures. Check all water conservation measures that apply to this project.

"All water systems, regardless of their size or the conditions under which they operate, should consider the very fundamental and widely accepted practices identified under Level 1. The measures in Levels 2 and 3 generally are considered appropriate for systems with significant conservation needs and interests."

LEVEL 1 MEASURES

Universal Metering:

*LEED credits offered for "Water metering."

- ☐ Source-water metering
- ☐ Service-connection metering
- ☐ Meter public-use water metering
- ☐ Fixed-interval metering reading
- ☐ Meter accuracy analysis
- ☐ Meter maintenance; test, calibrate repair and replace meters

Water Accounting and Loss Control:

- ☐ Account for water
- ☐ Repair known leaks
- ☐ Analyze nonaccount water
  - Accounted for - line flushing, reservoir cleaning, fire fighting, sewer flushing, street cleaning
  - Unaccounted for - leaks, unauthorized use, inaccurate metering, inaccurate billing
- ☐ Water system audit
- ☐ Leak detection and repair strategy
  - Installation of permaloggers, tracking leak repairs
- ☐ Automated sensors/technology
  - Storage tank automatic level controls/float controlled valves
- ☐ Loss prevention program

Costing and Pricing Strategies:

- ☐ Cost-of-service accounting
- ☐ User charges (e.g. based on water used)
- ☐ Metered rates (e.g. to be established)
- ☐ Cost analysis
- ☐ Nonpromotional rates
- ☐ Advanced pricing methods (e.g. tiered pricing)

Information and Education:

- ☐ Information available
  - Understandable water bill
  - Informative water bill
  - Water-bill inserts
  - Website
  - Signs (e.g. boaters to limit wash time)
- ☐ Education offered
  - School program
  - Public-education program
  - Workshops
  - Advisory committee

LEVEL 2 MEASURES

Water Use Audits:

- ☐ Audits of large-volume users
- ☐ Large-landscape audits
- ☐ Selective end-use audits

Retrofits:

*LEED credits offered for "Indoor water use reduction."

- ☐ Retrofit kits available
- ☐ Distribution of retrofit kits
- ☐ Targeted programs

Pressure Management:

- ☐ Systemwide pressure regulation
- ☐ Selective use of pressure-reducing valves

Landscape Efficiency:

*LEED credits offered for "Outdoor water use reduction."

- ☐ Promotion of landscape efficiency
  - Watering takes place during early evening or early morning hours
  - Watering is decreased during cooler, wetter months
  - Appropriate amount of water is utilized (e.g. plants not overwatered, water not flowing offsite)
  - Watering is limited to areas that require water
  - Training for landscape maintenance personnel is implemented.
- ☐ Landscape planning and renovation
  - Limited turf areas, plants with similar water needs are grouped together.
  - Xeriscaping is incorporated into the landscaped area.
  - Irrigation system utilizes drip irrigation, auto shut-off hoses, system pressure regulators, etc.
- ☐ Selective irrigation submetering
- ☐ Irrigation management
  - Irrigation maintenance is scheduled and conducted; equipment performing properly.
  - Irrigation system is audited for flow rate, flow direction, temperature, etc.
  - Recycled water or other non-potable resource is utilized.

LEVEL 3 MEASURES

Replacement and Promotions:

- ☐ Rebates and incentives (nonresidential)
- ☐ Rebates and incentives (residential)
- ☐ Promotion of new technologies

Reuse and Recycling Applications:

*LEED credits offered for "Cooling tower water use."

- ☐ Industrial applications
  - Cooling Tower water uses rinse water
  - Boiler and steam water stored for later use
- ☐ Large-volume irrigation applications
- ☐ Selective residential applications
- ☐ Other _____

Water Use Regulation:

- ☐ Water-use standards and regulations
  - Water System Standards, 2002
  - Plumbing Code Regulations
- ☐ Requirements for new developments
  - LEED Certified development and new construction

Integrated Resource Management:

- ☐ Supply-side technologies
- ☐ Demand-side technologies

OTHER MEASURES

Alternative Water Resource Enhancement Measures:

- ☐ Wastewater recycling
- ☐ Rainwater catchment
- ☐ Desalination

Water Saving Components/Habits:

- ☐ Faucets
  - Low flow features, aeration devices
- ☐ Dishwashers
  - Set to minimum low flow
  - Wash full loads
- ☐ Garbage Disposals
  - Set to minimum low flow
- ☐ Ice Machines
  - Taps into another chilled water system
  - Relies on air cooling
  - Produces ice flakes
  - Adjusted to dispense appropriate quantity
- ☐ Laundry Facilities
  - Wash full loads
  - Rinse using reclaimed water
  - Continuous batch option
  - Utilize chemicals allowing fewer wash/rinse cycles

Maintenance Work:

- ☐ Fixtures checked regularly for leaks
- ☐ Toilets checked for extended flush times
- ☐ Valves to unneeded water fixtures are closed
- ☐ Dry clean-up procedures are utilized when possible
  - Sweeping, vacuuming, carpet cleaning powders, dry absorbents

Other Water Conservation Measures:

Projected Demand Side Reduction:

- ☐ 0 to 5 percent
- ☐ 5 to 10 percent
- ☐ Greater than 10 percent

Describe the approximate timeframes for implementation of the measures indicated above:

These demand-side reductions have been accounted for in the water demand projections for this project.

☐ Yes ☐ No

Demand-side reductions have not been accounted for in the water demand projections due to:

WATER SOURCE DEVELOPMENT PLANS FOR STATE PROJECTS
PRIMARY WATER SOURCE

State Agency Initiating Project: _____

Project Name: _____
Agency Project No.: _____

1. PRIMARY WATER SOURCE INFORMATION

☐ Existing Water Source ☐ New Water Source

Describe the relationship of the source to any existing projects and the proposed project:

EXISTING SOURCE

A. State Well
State Well Name:
State Well ID (X-XXXX-XXX):
Design pump capacity: MGD
---------- OR ----------
B. Water System
Water System Name:
Public Water System No:
Capacity: MGD
---------- OR ----------
C. State Diversion
State Diversion/Intake Name:
State Diversion FILEREF:
Permitted Flow: MGD

Existing Withdrawal: MGD
Surplus Capacity: MGD

NEW SOURCE

☐ Ground Water ☐ Reclaimed Water ☐ Catchment Water
☐ Surface Water ☐ Desalinated Water ☐ Other:

Planned Capacity: MGD

Construction Start Date (Mo-Yr):
Construction End Date (Mo-Yr):

2. PRIMARY WATER SOURCE LOCATION

Island:
Judicial District:
Tax Map Key, (X)-X-X-XXX:XXX
Address:

Map of Project Location Attached:

Aquifer System (CWRM Hydrologic Unit):
Watershed (CWRM Hydrologic Unit):

3. QUALITY OF WATER NEEDED

☐ Potable

Non-Potable
- ☐ Brackish
- ☐ Seawater
- ☐ Surface
- ☐ Reclaimed

4. REQUIRED INFRASTRUCTURE IMPROVEMENTS

☐ Upgrade of Existing ☐ New Infrastructure

Select all that apply:

- ☐ Reservoir
- ☐ Booster Pump Station
- ☐ Other:
- ☐ Transmission Line
- ☐ Water Line

Describe the infrastructure improvements:

Construction Start Date (Mo-Yr):
Construction End Date (Mo-Yr):

WATER SOURCE DEVELOPMENT PLANS FOR STATE PROJECTS
ALTERNATE WATER SOURCE

State Agency Initiating Project: _____

Project Name: _____
Agency Project No.: _____

1. ALTERNATE WATER SOURCE INFORMATION

☐ Existing Water Source ☐ New Water Source

Describe the relationship of the source to any existing projects and the proposed project:

EXISTING SOURCE

A. State Well
State Well Name:
State Well ID (X-XXXX-XXX):
Design pump capacity: MGD
---------- OR ----------
B. Water System
Water System Name:
Public Water System No:
Capacity: MGD
---------- OR ----------
C. State Diversion
State Diversion/Intake Name:
State Diversion FILEREF:
Permitted Flow: MGD

Existing Withdrawal: MGD
Surplus Capacity: MGD

NEW SOURCE

☐ Ground Water ☐ Reclaimed Water ☐ Catchment Water
☐ Surface Water ☐ Desalinated Water ☐ Other:

Planned Capacity: MGD

Construction Start Date (Mo-Yr):
Construction End Date (Mo-Yr):

2. ALTERNATE WATER SOURCE LOCATION

Island:
Judicial District:
Tax Map Key, (X)-X-X-XXX:XXX
Address:

Map of Project Location Attached:

Aquifer System (CWRM Hydrologic Unit):
Watershed (CWRM Hydrologic Unit):

3. QUALITY OF WATER NEEDED

☐ Potable

Non-Potable
- ☐ Brackish
- ☐ Seawater
- ☐ Surface
- ☐ Reclaimed

4. REQUIRED INFRASTRUCTURE IMPROVEMENTS

☐ Upgrade of Existing

☐ New Infrastructure

Select all that apply:

- ☐ Reservoir
- ☐ Booster Pump Station
- ☐ Other:
- ☐ Transmission Line
- ☐ Water Line

Describe the infrastructure improvements:

Construction Start Date (Mo-Yr):
Construction End Date (Mo-Yr):

PROJECTED WATER DEMAND FOR PRIVATE AGRICULTURAL PROJECTS

1. PROJECT INFORMATION

Agency Initiating Project:

Project Name:

Agency Project No.:

Stand-Alone Project: ☐

Addition/Expansion to Existing Project: ☐

Existing Water Demand: MGD

Is this project funded?

Construction Start Date (Mo-Yr):

Construction End Date (Mo-Yr):

2. PROJECT LOCATION

Island:

Judicial District:

Tax Map Key, (X)-X-X-XXX:XXX

Address:

Map of Project Location Attached:

Aquifer System (CWRM Hydrologic Unit):

Watershed (CWRM Hydrologic Unit):

3. PROJECTED WATER DEMAND (20-Year Planning Horizon 2014 - 2034)

---------- Complete in terms of Acres OR Units ----------

Agricultural Crop Type	Crop Name	Agency Demand (MGD)	Project Compltn (Mo-Yr)	Total Area (Acres)	Gallons/ Acre (GPA)	Total Demand (MGD)	Total Units (No.)	Gallons/ Unit (GPU)	Total Demand (MGD)
Monocrop									
Divers Ag									
Aquatic									
Nursery									
Taro									
(Other)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
	Total								

Remarks:

4. PROJECTED QUALITY OF WATER NEEDED

Agricultural Crop Type	Crop Name	Potable	Non-Potable	Indicate Type Below: Brackish, Seawater, Surface, Reclaimed	Usage (%)	Potable (MGD)	Non-Pot (MGD)
Monocrop		☐	☐				
Divers Ag		☐	☐				
Aquatic		☐	☐				
Nursery		☐	☐				
Taro		☐	☐				
(Other)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				

Projected Water Demand by Calendar Year (MGD)

Year	Total		Potable		Non-Potable	
	Cummultv	Incrmntl	Cummultv	Incrmntl	Cummultv	Incrmntl
2015						
2016						
2017						
2018						
2019						
2024 (10-Year)						
2029 (15-Year)						
2034 (20-Year)						

Potable

Non-Potable _____

5. WATER SOURCE DEVELOPMENT PLANS

SWPP Project served by the following water service provider(s):

- ☐ County
- ☐ State
- ☐ Federal
- ☐ Private

EXISTING SOURCE

☐ Municipal Water System

Describe the water source and agreement, if any, under which water is to be provided.

☐ Well, Diversion, or Water System ☐ State ☐ Private

Complete both of the following forms:

Water Source Develop. Plans for Private Ag. Projects - Primary Water Source (See "WtrSourcePrivAg-Prim" tab)
Water Source Develop. Plans for Private Ag. Projects - Alternate Water Source (See "WtrSourcePrivAg-Alt" tab)

Describe the water source and agreement, if any, under which existing surplus capacity will be provided to meet project water demands.

NEW SOURCE

☐ Water Source Development Plan Available

Complete both of the following forms:

Water Source Develop. Plans for Private Ag.Projects - Primary Water Source (See "WtrSourcePrivAg-Prim" tab)
Water Source Develop. Plans for Private Ag. Projects - Alternate Water Source (See "WtrSourcePrivAg-Alt" tab)

☐ Water Source Development in Planning Stages

Identify any master plan(s) and engineering report(s) associated with the proposed water source development.

☐ Water Source Development Plan Not Available

Explain how projected water demands will be met and when such plans are expected to be developed.

6. PLANNED WATER CONSERVATION MEASURES

Water conservation measures will be implemented for this project:

- ☐ Yes, as indicated in the following sections.
- ☐ No water conservation measures will be implemented.
- ☐ Unsure at this time.

The USEPA Water Conservation Plan Guidelines, Appendix A identifies the following Level 1, Level 2, and Level 3 measures. Check all water conservation measures that apply to this project.

"All water systems, regardless of their size or the conditions under which they operate, should consider the very fundamental and widely accepted practices identified under Level 1. The measures in Levels 2 and 3 generally are considered appropriate for systems with significant conservation needs and interests."

LEVEL 1 MEASURES

Universal Metering:

*LEED credits offered for "Water metering."

- ☐ Source-water metering
- ☐ Service-connection metering
- ☐ Meter public-use water metering
- ☐ Fixed-interval metering reading
- ☐ Meter accuracy analysis
- ☐ Meter maintenance; test, calibrate repair and replace meters

Water Accounting and Loss Control:

- ☐ Account for water
- ☐ Repair known leaks
- ☐ Analyze nonaccount water
  - Accounted for - line flushing, reservoir cleaning, fire fighting, sewer flushing, street cleaning
  - Unaccounted for - leaks, unauthorized use, inaccurate metering, inaccurate billing
- ☐ Water system audit
- ☐ Leak detection and repair strategy
  - Installation of permaloggers, tracking leak repairs
- ☐ Automated sensors/technology
  - Storage tank automatic level controls/float controlled valves
- ☐ Loss prevention program

Costing and Pricing Strategies:

- ☐ Cost-of-service accounting
- ☐ User charges (e.g. based on water used)
- ☐ Metered rates (e.g. to be established)
- ☐ Cost analysis
- ☐ Nonpromotional rates
- ☐ Advanced pricing methods (e.g. tiered pricing)

Information and Education:

- ☐ Information available
  - Understandable water bill
  - Informative water bill
  - Water-bill inserts
  - Website
  - Signs (e.g. boaters to limit wash time)
- ☐ Education offered
  - School program
  - Public-education program
  - Workshops
  - Advisory committee

LEVEL 2 MEASURES

Water Use Audits:

- ☐ Audits of large-volume users
- ☐ Large-landscape audits
- ☐ Selective end-use audits

Retrofits:

*LEED credits offered for "Indoor water use reduction."

- ☐ Retrofit kits available
- ☐ Distribution of retrofit kits
- ☐ Targeted programs

Pressure Management:

- ☐ Systemwide pressure regulation
- ☐ Selective use of pressure-reducing valves

Landscape Efficiency:

*LEED credits offered for "Outdoor water use reduction."

- ☐ Promotion of landscape efficiency
  - Watering takes place during early evening or early morning hours
  - Watering is decreased during cooler, wetter months
  - Appropriate amount of water is utilized (e.g. plants not overwatered, water not flowing offsite)
  - Watering is limited to areas that require water
  - Training for landscape maintenance personnel is implemented.
- ☐ Landscape planning and renovation
  - Limited turf areas, plants with similar water needs are grouped together.
  - Xeriscaping is incorporated into the landscaped area.
  - Irrigation system utilizes drip irrigation, auto shut-off hoses, system pressure regulators, etc.
- ☐ Selective irrigation submetering
- ☐ Irrigation management
  - Irrigation maintenance is scheduled and conducted; equipment performing properly.
  - Irrigation system is audited for flow rate, flow direction, temperature, etc.
  - Recycled water or other non-potable resource is utilized.

LEVEL 3 MEASURES

Replacement and Promotions:

- ☐ Rebates and incentives (nonresidential)
- ☐ Rebates and incentives (residential)
- ☐ Promotion of new technologies

Reuse and Recycling Applications:

*LEED credits offered for "Cooling tower water use."

- ☐ Industrial applications
  - Cooling Tower water uses rinse water
  - Boiler and steam water stored for later use
- ☐ Large-volume irrigation applications
- ☐ Selective residential applications
- ☐ Other _____

Water Use Regulation:

- ☐ Water-use standards and regulations
  - Water System Standards, 2002
  - Plumbing Code Regulations
- ☐ Requirements for new developments
  - LEED Certified development and new construction

Integrated Resource Management:

- ☐ Supply-side technologies
- ☐ Demand-side technologies

OTHER MEASURES

Alternative Water Resource Enhancement Measures:

- ☐ Wastewater recycling
- ☐ Rainwater catchment
- ☐ Desalination

Water Saving Components/Habits:

- ☐ Faucets
  - Low flow features, aeration devices
- ☐ Dishwashers
  - Set to minimum low flow
  - Wash full loads
- ☐ Garbage Disposals
  - Set to minimum low flow
- ☐ Ice Machines
  - Taps into another chilled water system
  - Relies on air cooling
  - Produces ice flakes
  - Adjusted to dispense appropriate quantity
- ☐ Laundry Facilities
  - Wash full loads
  - Rinse using reclaimed water
  - Continuous batch option
  - Utilize chemicals allowing fewer wash/rinse cycles

Maintenance Work:

- ☐ Fixtures checked regularly for leaks
- ☐ Toilets checked for extended flush times
- ☐ Valves to unneeded water fixtures are closed
- ☐ Dry clean-up procedures are utilized when possible
  - Sweeping, vacuuming, carpet cleaning powders, dry absorbents

Other Water Conservation Measures:

Projected Demand Side Reduction:

- ☐ 0 to 5 percent
- ☐ 5 to 10 percent
- ☐ Greater than 10 percent

Describe the approximate timeframes for implementation of the measures indicated above:

These demand-side reductions have been accounted for in the water demand projections for this project.

☐ Yes ☐ No

Demand-side reductions have not been accounted for in the water demand projections due to:

WATER SOURCE DEVELOPMENT PLANS FOR PRIVATE AGRICULTURAL PROJECTS
PRIMARY WATER SOURCE

Agency Initiating Project: _____

Project Name: _____
Agency Project No.: _____

1. PRIMARY WATER SOURCE INFORMATION

☐ Existing Water Source ☐ New Water Source

Describe the relationship of the source to any existing projects and the proposed project:

EXISTING SOURCE

A. State Well
State Well Name:
State Well ID (X-XXXX-XXX):
Design pump capacity: MGD
---------- OR ----------
B. Water System
Water System Name:
Public Water System No:
Capacity: MGD
---------- OR ----------
C. State Diversion
State Diversion/Intake Name:
State Diversion FILEREF:
Permitted Flow: MGD

Existing Withdrawal: MGD
Surplus Capacity: MGD

NEW SOURCE

☐ Ground Water ☐ Reclaimed Water ☐ Catchment Water
☐ Surface Water ☐ Desalinated Water ☐ Other:

Planned Capacity: MGD

Construction Start Date (Mo-Yr):
Construction End Date (Mo-Yr):

2. PRIMARY WATER SOURCE LOCATION

Island:
Judicial District:
Tax Map Key, (X)-X-X-XXX:XXX
Address:

Map of Project Location Attached:

Aquifer System (CWRM Hydrologic Unit):
Watershed (CWRM Hydrologic Unit):

3. QUALITY OF WATER NEEDED

☐ Potable

Non-Potable
- ☐ Brackish
- ☐ Seawater
- ☐ Surface
- ☐ Reclaimed

4. REQUIRED INFRASTRUCTURE IMPROVEMENTS

☐ Upgrade of Existing ☐ New Infrastructure

Select all that apply:

☐ Reservoir ☐ Transmission Line
☐ Booster Pump Station ☐ Water Line
☐ Other:

Describe the infrastructure improvements:

Construction Start Date (Mo-Yr):
Construction End Date (Mo-Yr):

WATER SOURCE DEVELOPMENT PLANS FOR PRIVATE AGRICULTURAL PROJECTS
ALTERNATE WATER SOURCE

Agency Initiating Project: _____

Project Name: _____
Agency Project No.: _____

1. ALTERNATE WATER SOURCE INFORMATION

☐ Existing Water Source ☐ New Water Source

Describe the relationship of the source to any existing projects and the proposed project:

EXISTING SOURCE

A. State Well
State Well Name:
State Well ID (X-XXXX-XXX):
Design pump capacity: MGD
---------- OR ----------
B. Water System
Water System Name:
Public Water System No:
Capacity: MGD
---------- OR ----------
C. State Diversion
State Diversion/Intake Name:
State Diversion FILEREF:
Permitted Flow: MGD

Existing Withdrawal: MGD
Surplus Capacity: MGD

NEW SOURCE

☐ Ground Water ☐ Reclaimed Water ☐ Catchment Water
☐ Surface Water ☐ Desalinated Water ☐ Other:

Planned Capacity: MGD

Construction Start Date (Mo-Yr):
Construction End Date (Mo-Yr):

2. PRIMARY WATER SOURCE LOCATION

Island:

Judicial District:

Tax Map Key, (X)-X-X-XXX:XXX

Address:

Map of Project Location Attached:

Aquifer System (CWRM Hydrologic Unit):

Watershed (CWRM Hydrologic Unit):

3. QUALITY OF WATER NEEDED

☐ Potable

Non-Potable

- ☐ Brackish
- ☐ Seawater
- ☐ Surface
- ☐ Reclaimed

4. REQUIRED INFRASTRUCTURE IMPROVEMENTS

☐ Upgrade of Existing

☐ New Infrastructure

Select all that apply:

- ☐ Reservoir
- ☐ Booster Pump Station
- ☐ Other:
- ☐ Transmission Line
- ☐ Water Line

Describe the infrastructure improvements:

Construction Start Date (Mo-Yr):

Construction End Date (Mo-Yr):

Appendix B
Projected North Kona Water Demands

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Appendix B - Projected North Kona Water Demands

		Potable Water Demand (Millon Gallons Per Day)							
Branch/Division	**Project**	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
University of Hawaii (UH)									
UHC-001	Hawaii Community College - Palamanui, Phase II	0.0000	0.0000	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027
	UH Subtotal	**0.0000**	**0.0000**	**0.0000**	**0.0027**	**0.0027**	**0.0027**	**0.0027**	**0.0027**
Department of Transportation, Airports Division (DOTA)									
DOT-004	Kona International Airport Improvements	0.0000	0.0000	0.0000	0.0000	0.0000	0.2286	0.2491	0.2506
	DOTA Subtotal	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2286**	**0.2491**	**0.2506**
Department of Land and Natural Resources (DLNR)									
DLN-005	DLNR Community Center & Admin Facility	0.0000	0.0000	0.0000	0.0000	0.0037	0.0037	0.0037	0.0037
	DLNR Subtotal	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0037**	**0.0037**	**0.0037**	**0.0037**
Department of Accounting and General Services (DAGS)									
DAG-007	Kona Judiciary Complex	0.0000	0.0000	0.0000	0.0000	0.0146	0.0146	0.0146	0.0146
	DAGS Subtotal	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0146**	**0.0146**	**0.0146**	**0.0146**
Department of Hawaiian Home Lands (DHHL)									
DHL-004	Honokohau, Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.6000	0.6000	0.6000
DHL-005	Honokohau, Keauholu, Kealakehe	0.0000	0.0000	0.3270	0.3270	0.3270	0.3270	0.3270	0.5098
DHL-008	Kalaoa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1132	0.1132
DHL-009	Kalaoa, Kaone	0.0000	0.0000	0.3900	0.3900	0.3900	0.3900	0.3900	0.3900
DHL-010	Kalaoa, Kona	0.0000	0.0000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000
DHL-032	Villages of Laiopua	0.0000	0.0000	0.1000	0.1000	0.1000	0.2000	0.3000	0.4000
	DHHL Subtotal	**0.0000**	**0.0000**	**1.2170**	**1.2170**	**1.2170**	**1.9170**	**2.1302**	**2.4130**

Appendix B - Projected North Kona Water Demands

		Potable Water Demand (Millon Gallons Per Day)							
Branch/Division	**Project**	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
Department of Education (DOE)									
DOE-033	Holualoa Elementary School New 6 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
DOE-034	Holualoa Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008
DOE-081	Kealakehe Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008
DOE-082	Kealakehe Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	0.0005
DOE-084	Kealakehe High School New 13 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	0.0008
DOE-085	Kealakehe II Elementary School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600
DOE-086	Kealakehe Intermediate School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144
	DOE Subtotal	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0013**	**0.0881**	**0.0881**
Department of Business, Economic Development and Tourism (DBEDT)									
DBT-002	NELHA – Expansion	0.0000	0.0000	0.0571	0.1072	0.1519	0.1921	0.3739	0.3739
DBT-003	HHFDC – Kamakana Villages at Keahuolu	0.0000	0.0000	0.0680	0.0680	0.1880	0.8840	1.1140	1.1140
	DBEDT Subtotal	**0.0000**	**0.0000**	**0.1251**	**0.1752**	**0.3399**	**1.0761**	**1.4879**	**1.4879**
		2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
	Total Potable Water	**0.0000**	**0.0000**	**1.3421**	**1.3949**	**1.5779**	**3.2440**	**3.9763**	**4.2606**

Appendix B - Projected North Kona Water Demands

		Non-Potable Water Demand (Million Gallons Per Day)							
Branch/Division	**Project**	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
Department of Accounting and General Services (DAGS)									
DAG-014	West Hawaii Veteran Cemetery Non-Potable Well	0.0000	0.0000	0.0000	0.0000	0.3100	0.3100	0.3100	0.3100
Department of Business, Economic Development and Tourism (DBEDT)									
DBT-002	NELHA – expansion (non-potable)	0.0000	0.0000	3.3625	6.7006	10.0179	13.3175	35.9561	35.9561
Department of Education (DOE)									
DOE-083	Kealakehe Elementary School Playfield/Retention Basin (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0120	0.0120
		2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
	Total Non-Potable Water	**0.0000**	**0.0000**	**3.3625**	**6.7006**	**10.3279**	**13.6275**	**36.2781**	**36.2781**

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Appendix C
Water Development Strategies

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Appendix C - Water Development Strategies

WATER STRATEGIES	Project	Potable Water Demand (Millon Gallons Per Day) 2015	2016	2017	2018	2019	2024	2029	2034
COUNTY-CREDIT									
DBT-003	HHFDC – Kamakana Villages at Keahuolu	0.0000	0.0000	0.0632	0.0632	0.1748	0.8221	1.0360	1.0360
	COUNTY-CREDIT Subtotal	**0.0000**	**0.0000**	**0.0632**	**0.0632**	**0.1748**	**0.8221**	**1.0360**	**1.0360**
NEWSS									
DBT-002	NELHA – Ongoing Expansion	0.0000	0.0000	0.0531	0.0997	0.1413	0.1787	0.3477	0.3477
	NEWSS Subtotal	**0.0000**	**0.0000**	**0.0531**	**0.0997**	**0.1413**	**0.1787**	**0.3477**	**0.3477**
REMAIN									
DAG-007	Kona Judiciary Complex	0.0000	0.0000	0.0000	0.0000	0.0136	0.0136	0.0136	0.0136
DHL-04	Honokohau, Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.5580	0.5580	0.5580
DHL-05	Honokohau, Keauholu, Kealakehe	0.0000	0.0000	0.3041	0.3041	0.3041	0.3041	0.3041	0.4741
DHL-08	Kalaoa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1053	0.1053
DHL-09	Kalaoa, Kaone	0.0000	0.0000	0.3627	0.3627	0.3627	0.3627	0.3627	0.3627
DHL-10	Kalaoa, Kona	0.0000	0.0000	0.3720	0.3720	0.3720	0.3720	0.3720	0.3720
DHL-32	Villages of Laiopua	0.0000	0.0000	0.0930	0.0930	0.0930	0.1860	0.2790	0.3720
DLN-005	DLNR Community Center & Admin Facility	0.0000	0.0000	0.0000	0.0000	0.0034	0.0034	0.0034	0.0034
DOE-033	Holualoa Elementary School New 6 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0100	0.0100
DOE-034	Holualoa Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
DOE-081	Kealakehe Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
DOE-082	Kealakehe Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	0.0005
DOE-083	Kealakehe Elementary School Playfield/Retention Basin (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0112	0.0112
DOE-084	Kealakehe High School New 13 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	0.0007

WATER STRATEGIES	Project	Potable Water Demand (Millon Gallons Per Day) 2015	2016	2017	2018	2019	2024	2029	2034
DOE-085	Kealakehe II Elementary School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0558	0.0558
DOE-086	Kealakehe Intermediate School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0134	0.0134
DOT-004	Kona International Airport Improvements	0.0000	0.0000	0.0000	0.0000	0.0000	0.2126	0.2316	0.2330
UHC-001	Hawaii Community College - Palamanui, Phase II	0.0000	0.0000	0.0000	0.0025	0.0025	0.0025	0.0025	0.0025
	REMAIN Subtotal	**0.0000**	**0.0000**	**1.1318**	**1.1343**	**1.1513**	**2.0161**	**2.3253**	**2.5897**
OTHER - CONSERVATION									
	All North Kona Projects	0.0000	0.0000	0.0939	0.0976	0.1105	0.2278	0.2792	0.2991
		2015	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**
	Total Potable Water	**0.0000**	**0.0000**	**1.3421**	**1.3949**	**1.5779**	**3.2447**	**3.9883**	**4.2726**

WATER STRATEGIES	Project	Non-Potable Water Demand (Million Gallons Per Day) 2015	2016	2017	2018	2019	2024	2029	2034
NEWSS									
DAG-014	West Hawaii Veteran Cemetery Non-Potable Well	0.0000	0.0000	0.0000	0.0000	0.3100	0.3100	0.3100	0.3100
	NEWSS Subtotal	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.3100**	**0.3100**	**0.3100**	**0.3100**
OTHER-SEAWATER									
Department of Business, Economic Development and Tourism (DBEDT)									
DBT-001	NELHA – expansion (non-potable)	0.0000	0.0000	3.3625	6.7006	10.0179	13.3175	35.9562	35.9562
	OTHER-SEAWATER Subtotal	**0.0000**	**0.0000**	**3.3625**	**6.7006**	**10.0179**	**13.3175**	**35.9562**	**35.9562**

	2015	2016	2017	2018	2019	2024	2029	2034
Total Non-Potable Water	**0.0000**	**0.0000**	**3.3625**	**6.7006**	**10.3279**	**13.6275**	**36.2662**	**36.2662**

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APPENDIX B

Survey Forms

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SURVEY INSTRUCTIONS:

The State Water Projects Plan State Department Survey consists of the files and forms as described in the table below:

File Name	Form Title	Excel Tab Name
CoverSheet.pdf	State Agency Cover Sheet	-
InvtryStateWtrInfrst_(Agency).pdf	State Water Systems State Wells State Stream Diversions	-
WtrConsProg_(Agency).xls	Water Conservation Program	WtrConsrvProg
StateProj_(Agency)_(Proj).xls	Projected Water Demand for State Projects	ProjWtrDmnd-State
	Water Source Development Plans – Primary Water Source	WtrSource-Prim
	Water Source Development Plans – Alternate Water Source	WtrSource-Alt
PrivAgProj_(Agency)_(Proj).xls	Projected Water Demand for Private Agricultural Projects	ProjWtrDmnd-PrivAg
	Water Source Development Plans for Proposed Private Agricultural Projects – Primary Water Source	WtrSourcePrivAg-Prim
	Water Source Development Plans for Proposed Private Agricultural Projects – Alternative Water Source	WtrSourcePrivAg-Alt

The State Water Projects Plan State Department Survey is being provided as paper printouts and electronically on compact disk (CD).

Please complete the State Agency Cover Sheet and attach to the submittal when submitting completed forms.

For questions regarding the State Water Projects Plan State Department Survey, please feel free to contact Lance Fukumoto (LFukumoto@fukunagaengineers.com) or Amanda Kimi (AKimi@fukunagaengineers.com) of Fukunaga & Associates, Inc., our consultant for this project. They may also be reached at (808) 944-1821.

INVENTORY OF STATE WATER INFRASTRUCTURE

Existing inventory information for the Agency's Water Systems, Wells, and Diversions has been provided as paper printouts and as an electronic pdf file on CD as an initial source of reference. If existing inventory information for the Agency was not available, only blank forms have been provided.

The updates to the Water Systems, Wells, and Diversions forms may be submitted either on paper or as annotations on the electronic pdf file, "InvtryStateWtrInfrst_(Agency).pdf" provided.

Inventory of State Water Systems

The data gathered for the 2003 State Water Projects Plan and updated with information from the Department of Health sanitary surveys and other sources are provided as an initial source of reference. Please review and provide updated and missing information on these State Water Systems owned or operated by your agency. Please provide information on the water system service area if available, e.g. GIS layer, tax map keys of parcels served, map, etc. For additional State Water Systems not included in this packet, please complete a new "State Water Systems" form. One "State Water Systems" form shall be completed for each State Water System. A blank paper form has been provided at the beginning of the Inventory section, and a blank pdf form has been provided at the beginning of the "InvtryStateWtrInfrst_(Agency).pdf" file.

Inventory of State Wells

The data gathered for the 2003 State Water Projects Plan and updated with the best available data from Commission on Water Resource Management (CWRM) are provided as an initial source of reference. Please review the attached data and provide updated and missing information on these wells owned or operated by your agency. For additional State Wells not included in this packet, please complete a new "State Wells" form. One "State Wells" form shall be completed for each State Well. A blank paper form has been provided at the beginning of the Inventory section, and a blank pdf form has been provided at the beginning of the "InvtryStateWtrInfrst_(Agency).pdf" file.

Inventory of State Stream Diversions

State Stream Diversions are any diversion owned or operated by the State. The attached data gathered for the 2003 State Water Projects Plan and updated with the best available data from CWRM are provided as an initial source of reference. Please review and provide updated and missing information on these State Stream Diversions owned or operated by your agency. For additional State Stream Diversions not included in this packet, please complete a new "State Stream Diversions" form. One "State Stream Diversions" form shall be completed for each State Stream Diversion. A blank paper form has been provided at the beginning of the Inventory section, and a blank pdf form has been provided at the beginning of the InvtryStateWtrInfrst_(Agency).pdf" file.

WATER CONSERVATION PROGRAM

Water Conservation Program File Name: "WtrConsProg_(Agency).xls"

Using the fields provided in green and checkboxes, please describe your agency's existing water conservation program, including specific agency objectives, and water conservation measures already in place.

The Water Conservation Program form may be submitted either on paper or as an electronic file that includes the Agency as part of the file name: for example, "WtrConsProg_DHHL.xls"

STATE PROJECTS

State Projects File Name: "StateProj_(Agency)_(Proj).xls"

The following three forms, one form per tab, are included in the State Projects excel file:

- Projected Water Demand for State Projects
- Water Source Development Plans for State Projects – Primary Water Source
- Water Source Development Plans for State Projects – Alternate Water Source

Please complete the Projected Water Demand for State Projects form for each project. If water service may be provided by a source other than an existing Municipal Water System, please also complete the Primary and Alternate Water Source forms. The Primary Water Source is the first water source intended for use, and the Alternate Water Source is the alternate in the event that the primary water source is not available. Response fields are highlighted in green and checkboxes have been provided. Response fields that have drop down menus are indicated by a down arrow "▾."

The State Project forms may be submitted either on paper or as electronic files that include the Agency and Project name as part of the file name; for example, "StateProj_DHHL_Bldg1.xls."

PRIVATE AGRICULTURAL PROJECTS (For completion by Dept. of Agriculture ONLY)

Private Agricultural Projects File Name: "PrivAgProj_(Agency)_(Proj).xls"

The following three forms, one form per tab, are included in the Private Agricultural Projects excel file:

- Projected Water Demand for Private Agricultural Projects
- Water Source Development Plans for Private Agricultural Projects – Primary Water Source
- Water Source Development Plants for Private Agricultural Projects – Alternate Water Source

Please complete the Projected Water Demand for Private Agricultural Projects form for each project. If water service may be provided by a source other than an existing Municipal Water System, please also complete the Primary and Alternate Water Source forms. The Primary

Water Source is the first water source intended for use, and the Alternate Water Source is the alternate in the event that the primary water source is not available. Response fields are highlighted in green and checkboxes have been provided. Response fields that have drop down menus are indicated by a down arrow "▾."

The Private Agricultural Project forms may be submitted either on paper or as electronic files that include the Agency and Project name as part of the file name; for example, "PrivAgProj_DOA_WaikeleAgLots.xls."

STATE AGENCY COVER SHEET

FOR THE

STATE WATER PROJECTS PLAN, STATE DEPARTMENT SURVEY, 2015

Department: _____

Division/Agency: _____

PREPARED BY

Name: _____ Title: _____

Email: _____ Phone: _____

AUTHORIZATION

I do hereby certify that the information provided in response to the State Water Projects Plan, State Department Survey, 2015, is true and correct to the best of my knowledge, information and belief.

Approved by (Printed): _____ Title: _____

Signature: _____ Date: _____

REMARKS: (If this is a partial submittal, please indicate what portion(s) of the survey are included with this submittal.)

BLANK FORMS

STATE WATER SYSTEMS

1. STATE WATER SYSTEM INFORMATION

AGENCY OWNER _____

AGENCY OPERATOR _____

STATE WATER SYSTEM NAME _____

PUBLIC WATER SYSTEM? ☐ Yes "Public Water System" is defined as a potable water system which has 15 or more service connections or regularly serves an average of 25 or more people for at least 60 days each year.

ISLAND _____

WATER SYSTEM LOCATION _____

ADDRESS (if applicable) _____

TAX MAP KEY
(X) - X - X - XXX:XXX _____

JUDICIAL DISTRICT _____

AQUIFER SYSTEM _____

SYSTEM CLASSIFICATION ○ Potable ○ Non-Potable

MAP ATTACHED OF WATER SYSTEM LOCATION AND SERVICE AREA? ☐ Yes ☐ No

WATER SYSTEM EXISTING AVERAGE DAY DEMAND _____ GPD

2. WATER SYSTEM SOURCE

☐ State ☐ Private _____

☐ County ☐ Other _____

☐ Federal

STATE WELL ID(s):
(X-XXXX-XXX) _____ _____ _____ _____ _____

STATE WATER SYSTEMS

2. WATER SYSTEM SOURCE (cont.)

STATE DIVERSION(S):
Diversion Structure Name _____

TYPE OF SOURCE	(% OF TOTAL SUPPLY)
Surface Water	_____ %
Ground Water	_____ %
Reclaimed Water	_____ %
Desalinized Water	_____ %
Catchment Water	_____ %
Other _____	_____ %

3. EXISTING CONDITIONS

USES	(% OF TOTAL USE)	QUALITY OF WATER	REQUIRES TREATMENT
RES/DIVAG/SCH	%	○ Fresh ○ Brackish ○ Seawater	☐ Yes GAS CHLORINATION
	%	○ Fresh ○ Brackish ○ Seawater	☐ Yes

FRESH=<250 mg/l CL BRACKISH=251-16,999 mg/l CL SEAWATER=>17,000 mg/l CL

STATE WATER SYSTEMS

4. WATER SYSTEM DESIGN FUTURE DEMAND

***COMPLETE IN TERMS OF UNITS OR ACRES**

LAND USE	Agency Demand (MGD)	Comp. Date (Mo-Yr)	Total Units (No.)	Gallons Per Unit (GPU)	Total Demand (MGD)	Total Area (Acres)	Gallons Per Acre (GPA)	Total Demand (MGD)
RESIDENTIAL Single Family/Duplex								
RESIDENTIAL Multi-Family Low Rise								
RESIDENTIAL Multi-Family High Rise								
COMMERCIAL								
COMMERCIAL Residential Mix								
COMMERCIAL Industrial Mix								
RESORT								
INDUSTRIAL								
SCHOOL								
HOSPITAL								
PARK / OPEN SPACE								
AGRICULTURE Monocrop								
AGRICULTURE Diversified Agriculture								
AGRICULTURE Aquatic								
AGRICULTURE Nursery								
AGRICULTURE Taro								
AGRICULTURE Other								
GOLF COURSE								
LANDSCAPING								
OTHER								

REMARKS

STATE WATER SYSTEMS

4. WATER SYSTEM DESIGN FUTURE DEMAND (Cont.)

PROJECT WATER DEMAND BY CALENDER YEAR

2015 (MGD)	2016 (MGD)	2017 (MGD)	2018 (MGD)	2019 (MGD)	10-Year 2024 (MGD)	15-Year 2029 (MGD)	20-Year 2034 (MGD)

5. ANNUAL AVERAGE QUANTITY DELIVERED/SOLD

	2009	2010	2011	2012	2013	2014
WATER DELIVERED (MG)						
ACRES SERVED (ACRES)						
POPULATION SERVED						

STATE WELLS

1. WELL DESCRIPTION

WELL NAME _____

WELL NO _____

WELL OWNER _____

STATE WATER SYSTEM NAME _____

ISLAND _____

LATITUDE _____ _____

TAX MAP KEY
(X) - X - X - XXX:XXX _____

JUDICIAL DISTRICT: _____

AQUIFER SYSTEM _____

2. WATER DESCRIPTION

INSTALLED PUMP CAPACITY _____ GPM

WELL USE _____

ABN = Abandoned	IND = Industrial	MUN = Municipal	UNU = Unused
AGR = Agriculture	IRR = Irrigation	OBS = Observation	
DOM = Domestic	MIL = Military	OTH = Other	

CHLORIDE CONCENTRATION _____ mg/l Cl
*UPON CONSTRUCTION

ANNUAL AVERAGE PUMPAGE RECORDS:

METHOD OF MEASUREMENT _____

	2009	2010	2011	2012	2013	2014
PUMPAGE (MGD)						
CHLORIDES (ppm)						

STATE STREAM DIVERSIONS

1. DIVERSION INFORMATION

OWNER OF DIVERSION WORKS SITE _____

DIVERSION WORKS OPERATOR _____

DIVERSION SYSTEM NAME _____

DIVERSION STRUCTURE NAME _____

STATE WATER SYSTEM NAME _____

ISLAND _____

LOCATION LATITUDE _____ LONGITUDE _____

TAX MAP KEY,
DIV. STRUCTURE
(X) - X - X - XXX:XXX _____

TAX MAP KEY,
SURFACE WATER USE
(X) - X - X - XXX:XXX _____

JUDICIAL DISTRICT _____

AQUIFER SYSTEM _____

STREAM NAME _____

WATERSHED NAME _____

WATER PURVEYOR _____

2. WATER DESCRIPTION

DIVERSION 0 MGD _____ MGY

QUALITY OF WATER

- ◉ Fresh (<= 250 mg/l Cl)
- ◉ Brackish (251 - 16,999 mg/l Cl)
- ◉ Seawater (>= 17,000 mg/l Cl)

ANNUAL AVERAGE DIVERSION RECORDS

METHOD OF MEASUREMENT _____

	2009	2010	2011	2012	2013	2014
DIVERSION (MGD)						
CHLORIDES (ppm)						

WATER CONSERVATION PROGRAM

1. WATER CONSERVATION PROGRAM INFORMATION

State Agency Initiating Water Conservation Efforts:

Describe the agency's existing water conservation program, and to the extent possible, quantify the degree of success achieved:

- ☐ The Agency does not have an existing water conservation program.
- ☐ The Agency is not implementing any water conservation measures.

Indicate the specific objectives of the Agency's water conservation program, if any:

- ☐ Educating customers about the value of water
- ☐ Lowering variable operating costs
- ☐ Reducing water demand and water usage
- ☐ Substituting use of non-potable water for potable water
- ☐ Avoiding new source development costs
- ☐ Eliminating, downsizing, or postponing the need for capital projects
- ☐ Improving the utilization and extending the life of existing facilities
- ☐ Improving drought or emergency preparedness
- ☐ Improving reliability, margins of safe and dependable yields
- ☐ Protecting and preserving environmental resources
- ☐ Other:
- ☐ No water conservation objectives at this time.

2. EXISTING WATER CONSERVATION MEASURES

The USEPA Water Conservation Plan Guidelines, Appendix A identifies the following Level 1, Level 2, and Level 3 measures. Check all water conservation measures that apply to this project.

"All water systems, regardless of their size or the conditions under which they operate, should consider the very fundamental and widely accepted practices identified under Level 1. The measures in Levels 2 and 3 generally are considered appropriate for systems with significant conservation needs and interests."

LEVEL 1 MEASURES

Universal Metering:

*LEED credits offered for "Water metering."

- ☐ Source-water metering
- ☐ Service-connection metering
- ☐ Meter public-use water metering
- ☐ Fixed-interval metering reading
- ☐ Meter accuracy analysis
- ☐ Meter maintenance; test, calibrate repair and replace meters

Water Accounting and Loss Control:

- ☐ Account for water
- ☐ Repair known leaks
- ☐ Analyze nonaccount water
  - Accounted for - line flushing, reservoir cleaning, fire fighting, sewer flushing, street cleaning
  - Unaccounted for - leaks, unauthorized use, inaccurate metering, inaccurate billing
- ☐ Water system audit
- ☐ Leak detection and repair strategy
  - Installation of permaloggers, tracking leak repairs
- ☐ Automated sensors/technology
  - Storage tank automatic level controls/float controlled valves
- ☐ Loss prevention program

Costing and Pricing Strategies:

- ☐ Cost-of-service accounting
- ☐ User charges (e.g. based on water used)
- ☐ Metered rates (e.g. to be established)
- ☐ Cost analysis
- ☐ Nonpromotional rates
- ☐ Advanced pricing methods (e.g. tiered pricing)

Information and Education:

- ☐ Information available
  - Understandable water bill
  - Informative water bill
  - Water-bill inserts
  - Website
  - Signs (e.g. boaters to limit wash time)
- ☐ Education offered
  - School program
  - Public-education program
  - Workshops
  - Advisory committee

LEVEL 2 MEASURES

Water Use Audits:

- ☐ Audits of large-volume users
- ☐ Large-landscape audits
- ☐ Selective end-use audits

Retrofits:

*LEED credits offered for "Indoor water use reduction."

- ☐ Retrofit kits available
- ☐ Distribution of retrofit kits
- ☐ Targeted programs

Pressure Management:

- ☐ Systemwide pressure regulation
- ☐ Selective use of pressure-reducing valves

Landscape Efficiency:

*LEED credits offered for "Outdoor water use reduction."

- ☐ Promotion of landscape efficiency
  - Watering takes place during early evening or early morning hours
  - Watering is decreased during cooler, wetter months
  - Appropriate amount of water is utilized (e.g. plants not overwatered, water not flowing offsite)
  - Watering is limited to areas that require water
  - Training for landscape maintenance personnel is implemented.
- ☐ Landscape planning and renovation
  - Limited turf areas, plants with similar water needs are grouped together.
  - Xeriscaping is incorporated into the landscaped area.
  - Irrigation system utilizes drip irrigation, auto shut-off hoses, system pressure regulators, etc.
- ☐ Selective irrigation submetering
- ☐ Irrigation management
  - Irrigation maintenance is scheduled and conducted; equipment performing properly.
  - Irrigation system is audited for flow rate, flow direction, temperature, etc.
  - Recycled water or other non-potable resource is utilized.

LEVEL 3 MEASURES

Replacement and Promotions:

- ☐ Rebates and incentives (nonresidential)
- ☐ Rebates and incentives (residential)
- ☐ Promotion of new technologies

Reuse and Recycling Applications:

*LEED credits offered for "Cooling tower water use."

- ☐ Industrial applications
  - Cooling Tower water uses rinse water
  - Boiler and steam water stored for later use
- ☐ Large-volume irrigation applications
- ☐ Selective residential applications
- ☐ Other _____

Water Use Regulation:

- ☐ Water-use standards and regulations
  - Water System Standards, 2002
  - Plumbing Code Regulations
- ☐ Requirements for new developments
  - LEED Certified development and new construction

Integrated Resource Management:

- ☐ Supply-side technologies
- ☐ Demand-side technologies

OTHER MEASURES

Alternative Water Resource Enhancement Measures:

- ☐ Wastewater recycling
- ☐ Rainwater catchment
- ☐ Desalination

Water Saving Components/Habits:

- ☐ Faucets
  - Low flow features, aeration devices
- ☐ Dishwashers
  - Set to minimum low flow
  - Wash full loads
- ☐ Garbage Disposals
  - Set to minimum low flow
- ☐ Ice Machines
  - Taps into another chilled water system
  - Relies on air cooling
  - Produces ice flakes
  - Adjusted to dispense appropriate quantity
- ☐ Laundry Facilities
  - Wash full loads
  - Rinse using reclaimed water
  - Continuous batch option
  - Utilize chemicals allowing fewer wash/rinse cycles

Maintenance Work:

- ☐ Fixtures checked regularly for leaks
- ☐ Toilets checked for extended flush times
- ☐ Valves to unneeded water fixtures are closed
- ☐ Dry clean-up procedures are utilized when possible
  - Sweeping, vacuuming, carpet cleaning powders, dry absorbents

Other Water Conservation Measures:

PROJECTED WATER DEMAND FOR STATE PROJECTS

1. PROJECT INFORMATION

State Agency Initiating Project:

Project Name:

Agency Project No.:

Stand-Alone Project: ☐

Addition/Expansion to Existing Project: ☐

Existing Water Demand: MGD

Is this project funded?

Construction Start Date (Mo-Yr):

Construction End Date (Mo-Yr):

2. PROJECT LOCATION

Island:

Judicial District:

Tax Map Key, (X)-X-X-XXX:XXX

Address:

Map of Project Location Attached:

Aquifer System (CWRM Hydrologic Unit):

Watershed (CWRM Hydrologic Unit):

3. PROJECTED WATER DEMAND **(20-Year Planning Horizon 2014 - 2034)**

---------- Complete in terms of Acres OR Units ----------

Land Use / Project Name (Name)		Agency Demand (MGD)	Project Compltn (Mo-Yr)	Total Area (Acres)	Gallons/ Acre (GPA)	Total Demand (MGD)	Total Units (No.)	Gallons/ Unit (GPU)	Total Demand (MGD)
Residential	Sgl Fam/Dplx								
	Mlti-Fam LR								
	Mlti-Fam HR								
Commercial									
Commercial/Resid Mix									
Commercial/Indus Mix									
Resort									
Industrial									
School									
Hospital									
Park/Open Space									
Agriculture	Monocrop								
	Divers Ag								
	Aquatic								
	Nursery								
	Taro								
Golf Course									
Landscaping									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
(Project Descrp - Phase X)									
	Total								

Remarks:

4. PROJECTED QUALITY OF WATER NEEDED

Land Use / Project Name		Potable	Non-Potable Indicate Type Below: Brackish, Seawater, Surface, Reclaimed		Usage (%)	Potable (MGD)	Non-Pot (MGD)
Residential	Sgl Fam/Dplx	☐	☐				
	Mlti-Fam LR	☐	☐				
	Mlti-Fam HR	☐	☐				
Commercial		☐	☐				
Commercial/Resid Mix		☐	☐				
Commercial/Indus Mix		☐	☐				
Resort		☐	☐				
Industrial		☐	☐				
School		☐	☐				
Hospital		☐	☐				
Park/Open Space		☐	☐				
Agriculture	Monocrop	☐	☐				
	Divers Ag	☐	☐				
	Aquatic	☐	☐				
	Nursery	☐	☐				
	Taro	☐	☐				
		☐	☐				
Golf Course		☐	☐				
Landscaping		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				
(Project Descrp - Phase X)		☐	☐				

Projected Water Demand by Calendar Year (MGD)

Year	Total		Potable		Non-Potable	
	Cummultv	Incrmntl	Cummultv	Incrmntl	Cummultv	Incrmntl
2015						
2016						
2017						
2018						
2019						
2024 (10-Year)						
2029 (15-Year)						
2034 (20-Year)						

Potable

Non-Potable _____

5. WATER SOURCE DEVELOPMENT PLANS

SWPP Project served by the following water service provider(s):

- ☐ County
- ☐ State
- ☐ Federal
- ☐ Private

EXISTING SOURCE

☐ Municipal Water System

Describe the water source and agreement, if any, under which water is to be provided.

☐ Well, Diversion, or Water System ☐ State ☐ Private

Complete both of the following forms:

Water Source Development Plans for State Projects - Primary Water Source (See "WtrSourceState-Prim" tab)
Water Source Development Plans for State Projects - Alternate Water Source (See "WtrSourceState-Alt" tab)

Describe the water source and agreement, if any, under which existing surplus capacity will be provided to meet project water demands.

NEW SOURCE

☐ Water Source Development Plan Available

Complete both of the following forms:

Water Source Development Plans for State Projects - Primary Water Source (See "WtrSourceState-Prim" tab)
Water Source Development Plans for State Projects - Alternate Water Source (See "WtrSourceState-Alt" tab)

☐ Water Source Development in Planning Stages

Identify any master plan(s) and engineering report(s) associated with the proposed water source development.

☐ Water Source Development Plan Not Available

Explain how projected water demands will be met and when such plans are expected to be developed.

6. PLANNED WATER CONSERVATION MEASURES

Water conservation measures will be implemented for this project:

- ☐ Yes, as indicated in the following sections.
- ☐ No water conservation measures will be implemented.
- ☐ Unsure at this time.

The USEPA Water Conservation Plan Guidelines, Appendix A identifies the following Level 1, Level 2, and Level 3 measures. Check all water conservation measures that apply to this project.

"All water systems, regardless of their size or the conditions under which they operate, should consider the very fundamental and widely accepted practices identified under Level 1. The measures in Levels 2 and 3 generally are considered appropriate for systems with significant conservation needs and interests."

LEVEL 1 MEASURES

Universal Metering:

*LEED credits offered for "Water metering."

- ☐ Source-water metering
- ☐ Service-connection metering
- ☐ Meter public-use water metering
- ☐ Fixed-interval metering reading
- ☐ Meter accuracy analysis
- ☐ Meter maintenance; test, calibrate repair and replace meters

Water Accounting and Loss Control:

- ☐ Account for water
- ☐ Repair known leaks
- ☐ Analyze nonaccount water
  - Accounted for - line flushing, reservoir cleaning, fire fighting, sewer flushing, street cleaning
  - Unaccounted for - leaks, unauthorized use, inaccurate metering, inaccurate billing
- ☐ Water system audit
- ☐ Leak detection and repair strategy
  - Installation of permaloggers, tracking leak repairs
- ☐ Automated sensors/technology
  - Storage tank automatic level controls/float controlled valves
- ☐ Loss prevention program

Costing and Pricing Strategies:

- ☐ Cost-of-service accounting
- ☐ User charges (e.g. based on water used)
- ☐ Metered rates (e.g. to be established)
- ☐ Cost analysis
- ☐ Nonpromotional rates
- ☐ Advanced pricing methods (e.g. tiered pricing)

Information and Education:

- ☐ Information available
  - Understandable water bill
  - Informative water bill
  - Water-bill inserts
  - Website
  - Signs (e.g. boaters to limit wash time)
- ☐ Education offered
  - School program
  - Public-education program
  - Workshops
  - Advisory committee

LEVEL 2 MEASURES

Water Use Audits:

- ☐ Audits of large-volume users
- ☐ Large-landscape audits
- ☐ Selective end-use audits

Retrofits:

*LEED credits offered for "Indoor water use reduction."

- ☐ Retrofit kits available
- ☐ Distribution of retrofit kits
- ☐ Targeted programs

Pressure Management:

- ☐ Systemwide pressure regulation
- ☐ Selective use of pressure-reducing valves

Landscape Efficiency:

*LEED credits offered for "Outdoor water use reduction."

- ☐ Promotion of landscape efficiency
  - Watering takes place during early evening or early morning hours
  - Watering is decreased during cooler, wetter months
  - Appropriate amount of water is utilized (e.g. plants not overwatered, water not flowing offsite)
  - Watering is limited to areas that require water
  - Training for landscape maintenance personnel is implemented.
- ☐ Landscape planning and renovation
  - Limited turf areas, plants with similar water needs are grouped together.
  - Xeriscaping is incorporated into the landscaped area.
  - Irrigation system utilizes drip irrigation, auto shut-off hoses, system pressure regulators, etc.
- ☐ Selective irrigation submetering
- ☐ Irrigation management
  - Irrigation maintenance is scheduled and conducted; equipment performing properly.
  - Irrigation system is audited for flow rate, flow direction, temperature, etc.
  - Recycled water or other non-potable resource is utilized.

LEVEL 3 MEASURES

Replacement and Promotions:

- ☐ Rebates and incentives (nonresidential)
- ☐ Rebates and incentives (residential)
- ☐ Promotion of new technologies

Reuse and Recycling Applications:

*LEED credits offered for "Cooling tower water use."

- ☐ Industrial applications
  - Cooling Tower water uses rinse water
  - Boiler and steam water stored for later use
- ☐ Large-volume irrigation applications
- ☐ Selective residential applications
- ☐ Other _____

Water Use Regulation:

- ☐ Water-use standards and regulations
  - Water System Standards, 2002
  - Plumbing Code Regulations
- ☐ Requirements for new developments
  - LEED Certified development and new construction

Integrated Resource Management:

- ☐ Supply-side technologies
- ☐ Demand-side technologies

OTHER MEASURES

Alternative Water Resource Enhancement Measures:

- ☐ Wastewater recycling
- ☐ Rainwater catchment
- ☐ Desalination

Water Saving Components/Habits:

- ☐ Faucets
  - Low flow features, aeration devices
- ☐ Dishwashers
  - Set to minimum low flow
  - Wash full loads
- ☐ Garbage Disposals
  - Set to minimum low flow
- ☐ Ice Machines
  - Taps into another chilled water system
  - Relies on air cooling
  - Produces ice flakes
  - Adjusted to dispense appropriate quantity
- ☐ Laundry Facilities
  - Wash full loads
  - Rinse using reclaimed water
  - Continuous batch option
  - Utilize chemicals allowing fewer wash/rinse cycles

Maintenance Work:

- ☐ Fixtures checked regularly for leaks
- ☐ Toilets checked for extended flush times
- ☐ Valves to unneeded water fixtures are closed
- ☐ Dry clean-up procedures are utilized when possible
  - Sweeping, vacuuming, carpet cleaning powders, dry absorbents

Other Water Conservation Measures:

Projected Demand Side Reduction:

- ☐ 0 to 5 percent
- ☐ 5 to 10 percent
- ☐ Greater than 10 percent

Describe the approximate timeframes for implementation of the measures indicated above:

These demand-side reductions have been accounted for in the water demand projections for this project.

☐ Yes ☐ No

Demand-side reductions have not been accounted for in the water demand projections due to:

WATER SOURCE DEVELOPMENT PLANS FOR STATE PROJECTS
PRIMARY WATER SOURCE

State Agency Initiating Project: _____

Project Name: _____
Agency Project No.: _____

1. PRIMARY WATER SOURCE INFORMATION

☐ Existing Water Source ☐ New Water Source

Describe the relationship of the source to any existing projects and the proposed project:

EXISTING SOURCE

A. State Well
State Well Name:
State Well ID (X-XXXX-XXX):
Design pump capacity: MGD
---------- OR ----------
B. Water System
Water System Name:
Public Water System No:
Capacity: MGD
---------- OR ----------
C. State Diversion
State Diversion/Intake Name:
State Diversion FILEREF:
Permitted Flow: MGD

Existing Withdrawal: MGD
Surplus Capacity: MGD

NEW SOURCE

☐ Ground Water ☐ Reclaimed Water ☐ Catchment Water
☐ Surface Water ☐ Desalinated Water ☐ Other:

Planned Capacity: MGD

Construction Start Date (Mo-Yr):
Construction End Date (Mo-Yr):

2. PRIMARY WATER SOURCE LOCATION

Island:
Judicial District:
Tax Map Key, (X)-X-X-XXX:XXX
Address:

Map of Project Location Attached:

Aquifer System (CWRM Hydrologic Unit):
Watershed (CWRM Hydrologic Unit):

3. QUALITY OF WATER NEEDED

☐ Potable

Non-Potable
- ☐ Brackish
- ☐ Seawater
- ☐ Surface
- ☐ Reclaimed

4. REQUIRED INFRASTRUCTURE IMPROVEMENTS

☐ Upgrade of Existing ☐ New Infrastructure

Select all that apply:

- ☐ Reservoir
- ☐ Booster Pump Station
- ☐ Other:
- ☐ Transmission Line
- ☐ Water Line

Describe the infrastructure improvements:

Construction Start Date (Mo-Yr):
Construction End Date (Mo-Yr):

WATER SOURCE DEVELOPMENT PLANS FOR STATE PROJECTS
ALTERNATE WATER SOURCE

State Agency Initiating Project: _____

Project Name: _____
Agency Project No.: _____

1. ALTERNATE WATER SOURCE INFORMATION

☐ Existing Water Source ☐ New Water Source

Describe the relationship of the source to any existing projects and the proposed project:

EXISTING SOURCE

A. State Well
State Well Name:
State Well ID (X-XXXX-XXX):
Design pump capacity: MGD
---------- OR ----------
B. Water System
Water System Name:
Public Water System No:
Capacity: MGD
---------- OR ----------
C. State Diversion
State Diversion/Intake Name:
State Diversion FILEREF:
Permitted Flow: MGD

Existing Withdrawal: MGD
Surplus Capacity: MGD

NEW SOURCE

☐ Ground Water ☐ Reclaimed Water ☐ Catchment Water
☐ Surface Water ☐ Desalinated Water ☐ Other:

Planned Capacity: MGD

Construction Start Date (Mo-Yr):
Construction End Date (Mo-Yr):

2. ALTERNATE WATER SOURCE LOCATION

Island:
Judicial District:
Tax Map Key, (X)-X-X-XXX:XXX
Address:

Map of Project Location Attached:

Aquifer System (CWRM Hydrologic Unit):
Watershed (CWRM Hydrologic Unit):

3. QUALITY OF WATER NEEDED

☐ Potable

Non-Potable
- ☐ Brackish
- ☐ Seawater
- ☐ Surface
- ☐ Reclaimed

4. REQUIRED INFRASTRUCTURE IMPROVEMENTS

☐ Upgrade of Existing

☐ New Infrastructure

Select all that apply:

- ☐ Reservoir
- ☐ Booster Pump Station
- ☐ Other:
- ☐ Transmission Line
- ☐ Water Line

Describe the infrastructure improvements:

Construction Start Date (Mo-Yr):
Construction End Date (Mo-Yr):

PROJECTED WATER DEMAND FOR PRIVATE AGRICULTURAL PROJECTS

1. PROJECT INFORMATION

Agency Initiating Project:

Project Name:

Agency Project No.:

Stand-Alone Project: ☐

Addition/Expansion to Existing Project: ☐

Existing Water Demand: MGD

Is this project funded?

Construction Start Date (Mo-Yr):

Construction End Date (Mo-Yr):

2. PROJECT LOCATION

Island:

Judicial District:

Tax Map Key, (X)-X-X-XXX:XXX

Address:

Map of Project Location Attached:

Aquifer System (CWRM Hydrologic Unit):

Watershed (CWRM Hydrologic Unit):

3. PROJECTED WATER DEMAND (20-Year Planning Horizon 2014 - 2034)

---------- Complete in terms of Acres OR Units ----------

Agricultural Crop Type	Crop Name	Agency Demand (MGD)	Project Compltn (Mo-Yr)	Total Area (Acres)	Gallons/ Acre (GPA)	Total Demand (MGD)	Total Units (No.)	Gallons/ Unit (GPU)	Total Demand (MGD)
Monocrop									
Divers Ag									
Aquatic									
Nursery									
Taro									
(Other)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
(Proj Ph X)									
	Total								

Remarks:

4. PROJECTED QUALITY OF WATER NEEDED

Agricultural Crop Type	Crop Name	Potable	Non-Potable	Indicate Type Below: Brackish, Seawater, Surface, Reclaimed	Usage (%)	Potable (MGD)	Non-Pot (MGD)
Monocrop		☐	☐				
Divers Ag		☐	☐				
Aquatic		☐	☐				
Nursery		☐	☐				
Taro		☐	☐				
(Other)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				
(Proj Ph X)		☐	☐				

Projected Water Demand by Calendar Year (MGD)

Year	Total		Potable		Non-Potable	
	Cummultv	Incrmntl	Cummultv	Incrmntl	Cummultv	Incrmntl
2015						
2016						
2017						
2018						
2019						
2024 (10-Year)						
2029 (15-Year)						
2034 (20-Year)						

Potable

Non-Potable _____

5. WATER SOURCE DEVELOPMENT PLANS

SWPP Project served by the following water service provider(s):

- ☐ County
- ☐ State
- ☐ Federal
- ☐ Private

EXISTING SOURCE

☐ Municipal Water System

Describe the water source and agreement, if any, under which water is to be provided.

☐ Well, Diversion, or Water System ☐ State ☐ Private

Complete both of the following forms:

Water Source Develop. Plans for Private Ag. Projects - Primary Water Source (See "WtrSourcePrivAg-Prim" tab)
Water Source Develop. Plans for Private Ag. Projects - Alternate Water Source (See "WtrSourcePrivAg-Alt" tab)

Describe the water source and agreement, if any, under which existing surplus capacity will be provided to meet project water demands.

NEW SOURCE

☐ Water Source Development Plan Available

Complete both of the following forms:

Water Source Develop. Plans for Private Ag.Projects - Primary Water Source (See "WtrSourcePrivAg-Prim" tab)
Water Source Develop. Plans for Private Ag. Projects - Alternate Water Source (See "WtrSourcePrivAg-Alt" tab)

☐ Water Source Development in Planning Stages

Identify any master plan(s) and engineering report(s) associated with the proposed water source development.

☐ Water Source Development Plan Not Available

Explain how projected water demands will be met and when such plans are expected to be developed.

6. PLANNED WATER CONSERVATION MEASURES

Water conservation measures will be implemented for this project:

- ☐ Yes, as indicated in the following sections.
- ☐ No water conservation measures will be implemented.
- ☐ Unsure at this time.

The USEPA Water Conservation Plan Guidelines, Appendix A identifies the following Level 1, Level 2, and Level 3 measures. Check all water conservation measures that apply to this project.

"All water systems, regardless of their size or the conditions under which they operate, should consider the very fundamental and widely accepted practices identified under Level 1. The measures in Levels 2 and 3 generally are considered appropriate for systems with significant conservation needs and interests."

LEVEL 1 MEASURES

Universal Metering:

*LEED credits offered for "Water metering."

- ☐ Source-water metering
- ☐ Service-connection metering
- ☐ Meter public-use water metering
- ☐ Fixed-interval metering reading
- ☐ Meter accuracy analysis
- ☐ Meter maintenance; test, calibrate repair and replace meters

Water Accounting and Loss Control:

- ☐ Account for water
- ☐ Repair known leaks
- ☐ Analyze nonaccount water
  - Accounted for - line flushing, reservoir cleaning, fire fighting, sewer flushing, street cleaning
  - Unaccounted for - leaks, unauthorized use, inaccurate metering, inaccurate billing
- ☐ Water system audit
- ☐ Leak detection and repair strategy
  - Installation of permaloggers, tracking leak repairs
- ☐ Automated sensors/technology
  - Storage tank automatic level controls/float controlled valves
- ☐ Loss prevention program

Costing and Pricing Strategies:

- ☐ Cost-of-service accounting
- ☐ User charges (e.g. based on water used)
- ☐ Metered rates (e.g. to be established)
- ☐ Cost analysis
- ☐ Nonpromotional rates
- ☐ Advanced pricing methods (e.g. tiered pricing)

Information and Education:

- ☐ Information available
  - Understandable water bill
  - Informative water bill
  - Water-bill inserts
  - Website
  - Signs (e.g. boaters to limit wash time)
- ☐ Education offered
  - School program
  - Public-education program
  - Workshops
  - Advisory committee

LEVEL 2 MEASURES

Water Use Audits:

- ☐ Audits of large-volume users
- ☐ Large-landscape audits
- ☐ Selective end-use audits

Retrofits:

*LEED credits offered for "Indoor water use reduction."

- ☐ Retrofit kits available
- ☐ Distribution of retrofit kits
- ☐ Targeted programs

Pressure Management:

- ☐ Systemwide pressure regulation
- ☐ Selective use of pressure-reducing valves

Landscape Efficiency:

*LEED credits offered for "Outdoor water use reduction."

- ☐ Promotion of landscape efficiency
  - Watering takes place during early evening or early morning hours
  - Watering is decreased during cooler, wetter months
  - Appropriate amount of water is utilized (e.g. plants not overwatered, water not flowing offsite)
  - Watering is limited to areas that require water
  - Training for landscape maintenance personnel is implemented.
- ☐ Landscape planning and renovation
  - Limited turf areas, plants with similar water needs are grouped together.
  - Xeriscaping is incorporated into the landscaped area.
  - Irrigation system utilizes drip irrigation, auto shut-off hoses, system pressure regulators, etc.
- ☐ Selective irrigation submetering
- ☐ Irrigation management
  - Irrigation maintenance is scheduled and conducted; equipment performing properly.
  - Irrigation system is audited for flow rate, flow direction, temperature, etc.
  - Recycled water or other non-potable resource is utilized.

LEVEL 3 MEASURES

Replacement and Promotions:

- ☐ Rebates and incentives (nonresidential)
- ☐ Rebates and incentives (residential)
- ☐ Promotion of new technologies

Reuse and Recycling Applications:

*LEED credits offered for "Cooling tower water use."

- ☐ Industrial applications
  - Cooling Tower water uses rinse water
  - Boiler and steam water stored for later use
- ☐ Large-volume irrigation applications
- ☐ Selective residential applications
- ☐ Other _____

Water Use Regulation:

- ☐ Water-use standards and regulations
  - Water System Standards, 2002
  - Plumbing Code Regulations
- ☐ Requirements for new developments
  - LEED Certified development and new construction

Integrated Resource Management:

- ☐ Supply-side technologies
- ☐ Demand-side technologies

OTHER MEASURES

Alternative Water Resource Enhancement Measures:

- ☐ Wastewater recycling
- ☐ Rainwater catchment
- ☐ Desalination

Water Saving Components/Habits:

- ☐ Faucets
  - Low flow features, aeration devices
- ☐ Dishwashers
  - Set to minimum low flow
  - Wash full loads
- ☐ Garbage Disposals
  - Set to minimum low flow
- ☐ Ice Machines
  - Taps into another chilled water system
  - Relies on air cooling
  - Produces ice flakes
  - Adjusted to dispense appropriate quantity
- ☐ Laundry Facilities
  - Wash full loads
  - Rinse using reclaimed water
  - Continuous batch option
  - Utilize chemicals allowing fewer wash/rinse cycles

Maintenance Work:

- ☐ Fixtures checked regularly for leaks
- ☐ Toilets checked for extended flush times
- ☐ Valves to unneeded water fixtures are closed
- ☐ Dry clean-up procedures are utilized when possible
  - Sweeping, vacuuming, carpet cleaning powders, dry absorbents

Other Water Conservation Measures:

Projected Demand Side Reduction:

- ☐ 0 to 5 percent
- ☐ 5 to 10 percent
- ☐ Greater than 10 percent

Describe the approximate timeframes for implementation of the measures indicated above:

These demand-side reductions have been accounted for in the water demand projections for this project.

☐ Yes ☐ No

Demand-side reductions have not been accounted for in the water demand projections due to:

WATER SOURCE DEVELOPMENT PLANS FOR PRIVATE AGRICULTURAL PROJECTS
PRIMARY WATER SOURCE

Agency Initiating Project: _____

Project Name: _____
Agency Project No.: _____

1. PRIMARY WATER SOURCE INFORMATION

☐ Existing Water Source ☐ New Water Source

Describe the relationship of the source to any existing projects and the proposed project:

EXISTING SOURCE

A. State Well
State Well Name:
State Well ID (X-XXXX-XXX):
Design pump capacity: MGD
---------- OR ----------
B. Water System
Water System Name:
Public Water System No:
Capacity: MGD
---------- OR ----------
C. State Diversion
State Diversion/Intake Name:
State Diversion FILEREF:
Permitted Flow: MGD

Existing Withdrawal: MGD
Surplus Capacity: MGD

NEW SOURCE

☐ Ground Water ☐ Reclaimed Water ☐ Catchment Water
☐ Surface Water ☐ Desalinated Water ☐ Other:

Planned Capacity: MGD

Construction Start Date (Mo-Yr):
Construction End Date (Mo-Yr):

2. PRIMARY WATER SOURCE LOCATION

Island:
Judicial District:
Tax Map Key, (X)-X-X-XXX:XXX
Address:

Map of Project Location Attached:

Aquifer System (CWRM Hydrologic Unit):
Watershed (CWRM Hydrologic Unit):

3. QUALITY OF WATER NEEDED

☐ Potable

Non-Potable
- ☐ Brackish
- ☐ Seawater
- ☐ Surface
- ☐ Reclaimed

4. REQUIRED INFRASTRUCTURE IMPROVEMENTS

☐ Upgrade of Existing ☐ New Infrastructure

Select all that apply:

☐ Reservoir ☐ Transmission Line
☐ Booster Pump Station ☐ Water Line
☐ Other:

Describe the infrastructure improvements:

Construction Start Date (Mo-Yr):
Construction End Date (Mo-Yr):

WATER SOURCE DEVELOPMENT PLANS FOR PRIVATE AGRICULTURAL PROJECTS
ALTERNATE WATER SOURCE

Agency Initiating Project: _____

Project Name: _____
Agency Project No.: _____

1. ALTERNATE WATER SOURCE INFORMATION

☐ Existing Water Source ☐ New Water Source

Describe the relationship of the source to any existing projects and the proposed project:

EXISTING SOURCE

A. State Well
State Well Name:
State Well ID (X-XXXX-XXX):
Design pump capacity: MGD
---------- OR ----------
B. Water System
Water System Name:
Public Water System No:
Capacity: MGD
---------- OR ----------
C. State Diversion
State Diversion/Intake Name:
State Diversion FILEREF:
Permitted Flow: MGD

Existing Withdrawal: MGD
Surplus Capacity: MGD

NEW SOURCE

☐ Ground Water ☐ Reclaimed Water ☐ Catchment Water
☐ Surface Water ☐ Desalinated Water ☐ Other:

Planned Capacity: MGD

Construction Start Date (Mo-Yr):
Construction End Date (Mo-Yr):

2. PRIMARY WATER SOURCE LOCATION

Island:

Judicial District:

Tax Map Key, (X)-X-X-XXX:XXX

Address:

Map of Project Location Attached:

Aquifer System (CWRM Hydrologic Unit):

Watershed (CWRM Hydrologic Unit):

3. QUALITY OF WATER NEEDED

☐ Potable

Non-Potable

- ☐ Brackish
- ☐ Seawater
- ☐ Surface
- ☐ Reclaimed

4. REQUIRED INFRASTRUCTURE IMPROVEMENTS

☐ Upgrade of Existing

☐ New Infrastructure

Select all that apply:

- ☐ Reservoir
- ☐ Booster Pump Station
- ☐ Other:
- ☐ Transmission Line
- ☐ Water Line

Describe the infrastructure improvements:

Construction Start Date (Mo-Yr):

Construction End Date (Mo-Yr):

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APPENDIX C

Inventory of State-Owned Wells

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SWPP Well ID	Island	GW Hydrologic Unit	Well No.	Well Name	Department	Use	Year Drilled
DBT-W12	HAWAI'I	80802	8-2883-001	Hgp-A Geo	DLNR-LD	ABNLOS	1976
DBT-W13	HAWAI'I	80901	8-3957-005	Keōpū #4	DBEDT-HHFDC	UNU	2003
DBT-W14	HAWAI'I	80901	8-4262-004	Moana 9	DBEDT-NELHA	OBS	2008
DBT-W15	HAWAI'I	80901	8-4262-005	Moana 9A	DBEDT-NELHA	OBS	2008
DBT-W16	HAWAI'I	80901	8-4262-006	Moana 9B	DBEDT-NELHA	OBS	2008
DBT-W17	HAWAI'I	80901	8-4262-007	W1	DBEDT-NELHA	OBS	1988
DBT-W18	HAWAI'I	80901	8-4262-008	W-2	DBEDT-NELHA	OBS	1988
DBT-W19	HAWAI'I	80901	8-4262-009	W2A	DBEDT-NELHA	OBS	1988
DBT-W20	HAWAI'I	80901	8-4262-010	W2B	DBEDT-NELHA	OBS	1988
DBT-W21	HAWAI'I	80901	8-4361-001	Queen K 13	DBEDT-NELHA	OBS	2008
DBT-W22	HAWAI'I	80901	8-4363-014	Kona Blue 10	DBEDT-NELHA	OBS	2008
DBT-W23	HAWAI'I	80901	8-4363-015	Kona Blue 10A	DBEDT-NELHA	OBS	2008
DBT-W24	HAWAI'I	80901	8-4363-016	Kona Blue 10B	DBEDT-NELHA	OBS	2008
DBT-W25	HAWAI'I	80901	8-4363-017	Mera 11	DBEDT-NELHA	OBS	2008
DBT-W26	HAWAI'I	80901	8-4363-018	Mera 11A	DBEDT-NELHA	OBS	2008
DBT-W27	HAWAI'I	80901	8-4363-019	Mera 11B	DBEDT-NELHA	OBS	2008
DBT-W28	HAWAI'I	80901	8-4363-021	W3	DBEDT-NELHA	OBS	1994
DBT-W29	HAWAI'I	80901	8-4363-022	W3A	DBEDT-NELHA	OBS	1994
DBT-W30	HAWAI'I	80901	8-4363-023	W3B	DBEDT-NELHA	OBS	1994
DBT-W31	HAWAI'I	80901	8-4363-024	W4	DBEDT-NELHA	OBS	1988
DBT-W32	HAWAI'I	80901	8-4363-025	W4A	DBEDT-NELHA	OBS	1988
DBT-W33	HAWAI'I	80901	8-4363-026	W5	DBEDT-NELHA	OBS	1988
DBT-W34	HAWAI'I	80901	8-4363-027	W5A	DBEDT-NELHA	OBS	1988
DBT-W35	HAWAI'I	80901	8-4363-028	W5B	DBEDT-NELHA	OBS	1988
DBT-W36	HAWAI'I	80901	8-4363-029	W6	DBEDT-NELHA	OBS	1988
DBT-W37	HAWAI'I	80901	8-4363-030	W6A	DBEDT-NELHA	OBS	1988
DBT-W38	HAWAI'I	80901	8-4363-031	W6B	DBEDT-NELHA	OBS	1988
DBT-W39	HAWAI'I	80901	8-4363-032	W7	DBEDT-NELHA	OBS	1992
DBT-W40	HAWAI'I	80901	8-4363-033	W7A	DBEDT-NELHA	OBS	1992
DBT-W41	HAWAI'I	80901	8-4363-034	W7B	DBEDT-NELHA	OBS	1992
DBT-W42	HAWAI'I	80901	8-4363-035	W8	DBEDT-NELHA	OBS	1992
DBT-W43	HAWAI'I	80901	8-4363-036	W8A	DBEDT-NELHA	OBS	1992
DBT-W44	HAWAI'I	80901	8-4363-037	W8B	DBEDT-NELHA	OBS	1992
DBT-W45	HAWAI'I	80901	8-4463-004	Dust Control	DBEDT-NELHA	UNU	1987
DBT-W46	HAWAI'I	80901	8-4463-005	North Point 12	DBEDT-NELHA	OBS	2008
DBT-W47	HAWAI'I	80901	8-4463-006	North Point 12A	DBEDT-NELHA	OBS	2008
DBT-W48	HAWAI'I	80901	8-4463-007	North Point 12B	DBEDT-NELHA	OBS	2008
DHL-W17	HAWAI'I	80801	8-3088-001	Maku'u	DHHL	UNU	2005
DHL-W18	HAWAI'I	80103	8-6549-003	Kawaihae-DHHL	DHHL	UNU	1992
DLN-W100	HAWAI'I	80503	8-1630-010	Noguchi 2 Tunnel	DLNR-DOFAW	AGRCP	1930
DLN-W101	HAWAI'I	80503	8-1729-001	Makakupu Tunnel 1	DLNR-DOFAW	IRR	N/A
DLN-W102	HAWAI'I	80503	8-1729-002	Makakupu Tunnel 2	DLNR-DOFAW	AGRCP	1929
DLN-W103	HAWAI'I	80503	8-1730-003	Horita Tunnel	DLNR-DOFAW	IRR	N/A
DLN-W60	HAWAI'I	80504	8-0139-001	Ka'ū Exploratory	DLNR-LD	UNU	1990
DLN-W61	HAWAI'I	80802	8-2102-001	Pulama	DLNR-LD	UNU	1963
DLN-W62	HAWAI'I	80501	8-2714-001	Volcano TH-4	DLNR-LD	OBS	1973
DLN-W63	HAWAI'I	80501	8-2714-002	Volcano TH5	DLNR-LD	OBS	1976
DLN-W64	HAWAI'I	80501	8-2714-003	Volcano A	DLNR-LD	ABNSLD	1976
DLN-W65	HAWAI'I	80501	8-2715-001	Volcano TH2	DLNR-LD	ABNSLD	1973
DLN-W66	HAWAI'I	80501	8-2715-002	Volcano TH 3	DLNR-LD	OBS	N/A
DLN-W67	HAWAI'I	80802	8-2783-001	Malama Ki	DLNR-LD	ABNLOS	1962

SWPP Well ID	Island	GW Hydrologic Unit	Well No.	Well Name	Department	Use	Year Drilled
DLN-W68	HAWAI'I	80501	8-2815-001	Volcano TH-1	DLNR-LD	OBS	1973
DLN-W69	HAWAI'I	80501	8-2815-002	Volcano B	DLNR-LD	ABNSLD	1977
DLN-W70	HAWAI'I	80901	8-4059-001	Palani	DLNR-LD	ABNSLD	1958
DLN-W71	HAWAI'I	80901	8-4360-001	Kalaoa N Kona	DLNR-ED	OBSWL	1968
DLN-W72	HAWAI'I	80701	8-4532-001	Pōhakuloa TH	DLNR-LD	UNU	1965
DLN-W73	HAWAI'I	80301	8-4534-001	Pōhakuloa TH	DLNR-LD	UNU	1969
DLN-W74	HAWAI'I	80902	8-4953-001	Kīholo	DLNR-LD	UNU	1972
DLN-W75	HAWAI'I	80701	8-5347-001	Pu'u Anahulu	DLNR-LD	OBSWL	1999
DLN-W76	HAWAI'I	80301	8-5948-001	Hāpuna Beach Park	DLNR-SP	IRRPA	1970
DLN-W77	HAWAI'I	80103	8-6147-001	Kawaihae 3	DLNR-ED	OBSWL	1963
DLN-W78	HAWAI'I	80102	8-6337-001	Pu'ukapu	DLNR-LD	UNU	1987
DLN-W79	HAWAI'I	80102	8-6337-002	Pu'ukapu Shallow	DLNR-LD	UNU	1993
DLN-W80	HAWAI'I	80103	8-6340-001	Kohākōhau TH 1	DLNR-LD	ABNLOS	1964
DLN-W81	HAWAI'I	80103	8-6340-002	Kohākōhau TH 2	DLNR-LD	ABNLOS	1964
DLN-W82	HAWAI'I	80103	8-6340-003	Kohākōhau TH 3	DLNR-LD	UNU	1964
DLN-W83	HAWAI'I	80103	8-6340-004	Kohala TH 2	DLNR-LD	ABNLOS	1987
DLN-W84	HAWAI'I	80102	8-6340-005	Kohala TH 1	DLNR-LD	ABNLOS	1987
DLN-W85	HAWAI'I	80103	8-6341-001	Wai'aka Gulch TH	DLNR-LD	ABNLOS	1964
DLN-W86	HAWAI'I	80103	8-6341-002	Kohākōhau TH 4	DLNR-LD	ABNLOS	1964
DLN-W87	HAWAI'I	80103	8-6341-003	Kohākōhau TH 5	DLNR-LD	ABNLOS	1964
DLN-W88	HAWAI'I	80102	8-6440-001	Kohala TH 4	DLNR-LD	ABNLOS	1987
DLN-W89	HAWAI'I	80102	8-6440-002	Kohala TH 3	DLNR-LD	ABNLOS	1987
DLN-W90	HAWAI'I	80102	8-6440-003	Kohala TH 5	DLNR-LD	ABNLOS	1987
DLN-W91	HAWAI'I	80503	8-0436-002	Tanaka Tunnel	DLNR-LD	AGRCP	1923
DLN-W92	HAWAI'I	80503	8-0537-001	Hā'ao Tunnel	DLNR-DOFAW	IRR	N/A
DLN-W93	HAWAI'I	80503	8-1333-001	Mo'a'ula Gulch Tunnel	DLNR-DOFAW	IRR	N/A
DLN-W94	HAWAI'I	80503	8-1333-002	Mo'a'ula Trib Tunnel	DLNR-DOFAW	IRR	N/A
DLN-W95	HAWAI'I	80503	8-1333-003	Fukuda Tunnel	DLNR-DOFAW	IRR	N/A
DLN-W96	HAWAI'I	80503	8-1333-004	Shirakura Tunnel	DLNR-DOFAW	AGRCP	1929
DLN-W97	HAWAI'I	80503	8-1630-001	Weda 1 Tunnel	DLNR-DOFAW	IRR	N/A
DLN-W98	HAWAI'I	80503	8-1630-005	Noguchi 1 Tunnel	DLNR-DOFAW	AGRCP	N/A
DLN-W99	HAWAI'I	80503	8-1630-007	Pi'ikea Gulch Tunnel 2	DLNR-DOFAW	IRR	N/A
DOA-W14	HAWAI'I	80102	8-6843-006	Honokāne 1	DOA	UNU	N/A
DOA-W15	HAWAI'I	80102	8-6843-007	Honokāne 3	DOA	UNU	1976
DOD-W08	HAWAI'I	80401	8-4202-002	Hilo Airport 2	DOD	UNU	1944
DOT-W17	HAWAI'I	80901	8-4462-002	Keāhole-DOT	DOT-AIR	UNU	1992
DOT-W18	HAWAI'I	80901	8-4462-005	Keāhole MW-11	DOT-AIR	OBS	1996
DOT-W19	HAWAI'I	80901	8-4462-006	Keāhole MW-13A	DOT-AIR	OBS	1996
DOT-W20	HAWAI'I	80901	8-4462-007	Keāhole MW-13B	DOT-AIR	OBS	1996
DOT-W21	HAWAI'I	80901	8-4463-001	Keāhole MW-14A	DOT-AIR	OBS	1996
DOT-W22	HAWAI'I	80901	8-4463-002	Keāhole MW-14B	DOT-AIR	OBS	1996
DOT-W23	HAWAI'I	80901	8-4463-003	Keāhole MW-14C	DOT-AIR	OBS	1996
STA-W39	HAWAI'I	80602	8-1154-001	Miloli'i-Hceoc	State of Hawai'i	ABNSLD	N/A
STA-W40	HAWAI'I	80501	8-3117-001	Kūlani Prison	State of Hawai'i	ABNSLD	1947
STA-W41	HAWAI'I	80902	8-5155-001	Hind Well	State of Hawai'i	UNU	N/A
STA-W42	HAWAI'I	80103	8-7154-001	Māhukona	State of Hawai'i	ABNLOS	1881
STA-W43	HAWAI'I	80101	8-7449-001	Hawi	State of Hawai'i	UNU	1898
UHH-W01	HAWAI'I	80401	8-4203-016	HSDP 2 Deep	UHH	OBSDM	1999
UHH-W02	HAWAI'I	80401	8-4403-001	PACRC-KSW 1	UHH	AGRAQ	2005
UHH-W03	HAWAI'I	80401	8-4403-003	HSDP 1 Pilot	UHH	OBSDM	1993
UHH-W04	HAWAI'I	80401	8-4203-017	HSDP 3	UHH	OBS	1999

SWPP Well ID	Island	GW Hydrologic Unit	Well No.	Well Name	Department	Use	Year Drilled
ADC-W01	KAUA'I	20301	2-0044-001	Kaunalewa Fld218	DOA-ADC	ABNLOS	1899
ADC-W02	KAUA'I	20301	2-0044-002	Kaunalewa 1	DOA-ADC	ABNSLD	1890
ADC-W03	KAUA'I	20103	2-0222-002	Hanamā'ulu	DOA-ADC	UNU	2006
ADC-W04	KAUA'I	20301	2-0345-001	Saki Mana Ks15	DOA-ADC	ABNLOS	1906
DHL-W01	KAUA'I	20102	2-0220-001	Wailua 1	DHHL	MUN	N/A
DHL-W02	KAUA'I	20104	2-0819-001	Anahola Tunnel	DHHL	UNU	N/A
DHL-W03	KAUA'I	20104	2-0919-003	Anahola	DHHL	MUNST	1979
DHS-W01	KAUA'I	20104	2-0519-001	Kapa'a	DHS-HPHA	ABNSLD	1986
DLN-W01	KAUA'I	20102	2-0021-001	Kālepa Ridge	DLNR-LD	UNU	1967
DLN-W02	KAUA'I	20103	2-0221-001	Fern Grotto 1	DLNR-SP	UNU	1986
DLN-W03	KAUA'I	20103	2-0221-002	Fern Grotto 2	DLNR-SP	OTH	1991
DLN-W04	KAUA'I	20301	2-0242-001	Pu'u 'Ōpae Dh9	DLNR-LD	ABNLOS	1963
DLN-W05	KAUA'I	20301	2-0545-001	Ka'ula'ula	DLNR-SP	IRRPA	1967
DLN-W06	KAUA'I	20302	2-0738-001	Kōke'e-Waineke	DLNR-SP	UNU	2005
DLN-W07	KAUA'I	20302	2-0739-001	Kōke'e Park A	DLNR-SP	MUNST	1986
DLN-W08	KAUA'I	20302	2-0739-002	Kōke'e Park B	DLNR-SP	UNU	1986
DLN-W09	KAUA'I	20302	2-0739-003	Kōke'e-Noe	DLNR-SP	MUNST	1996
DLN-W10	KAUA'I	20302	2-0836-001	Kawaikōī Str Dh5	DLNR-LD	ABNLOS	1963
DLN-W11	KAUA'I	20302	2-0836-002	Kawaikōī Str Dh6	DLNR-LD	ABNLOS	1963
DLN-W12	KAUA'I	20302	2-0837-001	Kawaikōī Str Dh4	DLNR-LD	ABNLOS	1963
DLN-W13	KAUA'I	20302	2-0837-002	Kawaikōī Str Dh7	DLNR-LD	ABNLOS	1963
DLN-W14	KAUA'I	20302	2-0837-003	Kawaikōī Str Dh3	DLNR-LD	ABNLOS	1963
DLN-W15	KAUA'I	20302	2-0837-004	Kawaikōī Str Dh8	DLNR-LD	ABNLOS	1963
DLN-W16	KAUA'I	20302	2-0837-005	Kawaikōī Str Dh2	DLNR-LD	ABNLOS	1963
DLN-W17	KAUA'I	20302	2-0837-006	Kawaikōī Str Dh1	DLNR-LD	ABNLOS	1963
DLN-W18	KAUA'I	20104	2-1020-004	Aliomanu	DLNR-LD	UNU	1974
DLN-W19	KAUA'I	20202	2-1329-001	Hanalei	DLNR-LD	ABNLOS	1959
DLN-W20	KAUA'I	20303	2-5634-001	Hanapēpē Ridge	DLNR-LD	UNU	1961
DOA-W01	KAUA'I	20104	2-0320-002	Wailua	DOA	UNU	1952
DOH-W01	KAUA'I	20104	2-0518-001	Mahelona Hospital	DOH	OTH	1973
DOH-W02	KAUA'I	20104	2-0518-002	Mahelona Hospital	DOH	OBS	1973
DOH-W03	KAUA'I	20104	2-0518-003	Mahelona Hospital	DOH	OTH	1975
DOH-W04	KAUA'I	20104	2-0518-004	Mahelona Hospital	DOH	OTH	1975
DOH-W05	KAUA'I	20104	2-0518-005	Mahelona Hospital	DOH	OTH	1975
STA-W01	KAUA'I	20102	2-0120-002	Kālepa Ridge	State of Hawai'i	ABNLOS	1897
DAG-W04	MAUI	60301	6-5329-015	Maui Comm College	DAGS	IRRSC	1970
DBT-W09	MAUI	60203	6-5439-001	Wahikuli 1	DBEDT-HHFDC	DOM	1992
DBT-W10	MAUI	60203	6-5439-002	Wahikuli 2	DBEDT-HHFDC	UNU	1993
DBT-W11	MAUI	60203	6-5440-001	Wahikuli Irr	DBEDT-HHFDC	IRRLA	1993
DHL-W16	MAUI	60603	6-3518-001	Maui Factors	DHHL	OTH	1970
DLN-W45	MAUI	60304	6-3925-001	Mākena 68	DLNR-LD	OBS	1964
DLN-W46	MAUI	60302	6-4824-001	Kīhei Exploratory	DLNR-LD	OBSWL	1971
DLN-W47	MAUI	60101	6-4831-001	Mā'alaea 272	DLNR-LD	OBS	1965
DLN-W48	MAUI	60301	6-5129-006	Central Maui Regional Park Irrigation	DNLR-ED	IRRPA	2014
DLN-W49	MAUI	60102	6-5130-001	Waikapū 1	DLNR-LD	OBSWL	1961
DLN-W50	MAUI	60204	6-5237-001	Kaua'ula TH 1	DLNR-LD	OBS	1970
DLN-W51	MAUI	60204	6-5237-002	Kaua'ula TH 2	DLNR-LD	OBS	1970
DLN-W52	MAUI	60301	6-5327-010	Kanaha Pond	DLNR-LD	IRRHM	1962
DLN-W53	MAUI	60102	6-5332-004	Kepaniwai TH	DLNR-LD	OBS	1973
DLN-W54	MAUI	60204	6-5338-001	Kanaha TH 1	DLNR-LD	OBS	1970

SWPP Well ID	Island	GW Hydrologic Unit	Well No.	Well Name	Department	Use	Year Drilled
DLN-W55	MAUI	60204	6-5338-002	Kanaha TH 2	DLNR-LD	OBS	1970
DLN-W56	MAUI	60102	6-5430-004	Waiehu TH-D	DLNR-LD	OBS	1975
DLN-W57	MAUI	60102	6-5430-005	Waiehu Deep Monitor	DLNR-CWRM	OBSDM	1982
DLN-W58	MAUI	60202	6-5839-002	'Alaeloa	DLNR-LD	UNU	1967
DLN-W59	MAUI	60202	6-5840-001	'Alaeloa	DLNR-LD	OBS	1964
DOD-W07	MAUI	60206	6-4834-001	Environmental	DOD	UNU	2003
DOE-W05	MAUI	60304	6-4526-002	KHS-1	DOE	IRRSC	2016
DOE-W06	MAUI	60304	6-4526-003	KHS-2	DOE	IRRSC	2016
DOT-W16	MAUI	60301	6-4928-001	Pu'unēnē Airp TH	DOT-AIR	ABNSLD	1942
STA-W35	MAUI	60502	6-4802-001	Honomā'ele	State of Hawai'i		1974
STA-W36	MAUI	60206	6-4835-001	Ukumehame-Pump P	State of Hawai'i	AGRCP	1934
STA-W37	MAUI	60204	6-5240-004	Lahaina	State of Hawai'i	ABNLOS	1956
STA-W38	MAUI	60401	6-5319-001	Silveno Spring	State of Hawai'i		N/A
DHL-W05	MOLOKA'I	40301	4-0501-009	Forestry 1	DHHL	UNU	N/A
DHL-W06	MOLOKA'I	40301	4-0501-010	Forestry 2	DHHL	ABNLOS	N/A
DHL-W07	MOLOKA'I	40202	4-0602-001	Kalama'ula	DHHL	ABNLOS	N/A
DHL-W08	MOLOKA'I	40202	4-0602-002	Kalama'ula	DHHL	ABNLOS	N/A
DHL-W09	MOLOKA'I	40202	4-0603-002	Umipa'a	DHHL	ABNLOS	N/A
DHL-W10	MOLOKA'I	40202	4-0603-005	Iopa's Well	DHHL	UNU	N/A
DHL-W11	MOLOKA'I	40202	4-0705-004	Nā'iwa	DHHL	UNU	N/A
DHL-W12	MOLOKA'I	40202	4-0706-001	So Ho'olehua	DHHL	ABNLOS	N/A
DHL-W13	MOLOKA'I	40203	4-0801-001	Kauluwai 1	DHHL	MUNST	1948
DHL-W14	MOLOKA'I	40203	4-0801-002	Kauluwai 2	DHHL	MUNST	1979
DHL-W15	MOLOKA'I	40203	4-1000-001	Waipunahonu Tunn	DHHL	ABNLOS	N/A
DLN-W44	MOLOKA'I	40302	4-0352-005	Kamalō	DLNR-LD	OTH	1961
DOA-W08	MOLOKA'I	40403	4-0855-001	Waikolu Tunnnel 1	DOA	AGR	1961
DOA-W09	MOLOKA'I	40403	4-0855-002	Waikolu 2	DOA	AGR	1961
DOA-W10	MOLOKA'I	40403	4-0855-003	Waikolu 3	DOA	AGR	1961
DOA-W11	MOLOKA'I	40403	4-0855-004	Waikolu 4	DOA	ABN	1988
DOA-W12	MOLOKA'I	40403	4-0855-005	Waikolu 5	DOA	AGR	1988
DOA-W13	MOLOKA'I	40403	4-0855-006	Waikolu 6	DOA	AGR	N/A
ADC-W05	O'AHU	30701	3-2657-005	Waiawa Dev Tun Exit	DOA-ADC	AGRCP	N/A
ADC-W06	O'AHU	30701	3-2853-001	Waiāhole Main Tunnel	DOA-ADC	AGRCP	1915
ADC-W07	O'AHU	30701	3-2853-002	Waiāhole Tun A	DOA-ADC	UNU	1915
ADC-W08	O'AHU	30701	3-2853-003	Waiāhole Tun B	DOA-ADC	UNU	1915
ADC-W09	O'AHU	30701	3-2953-001	Waiāhole Uwao Tunnel	DOA-ADC	AGRCP	1932
ADC-W10	O'AHU	30701	3-2953-002	Waikāne Tunnel 2	DOA-ADC	AGRCP	1929
ADC-W11	O'AHU	30701	3-2953-003	Uwao Tunnel Ext	DOA-ADC	AGRCP	1964
ADC-W12	O'AHU	30701	3-3053-001	Waikāne Tunnel 1	DOA-ADC	AGRCP	1927
ADC-W13	O'AHU	30501	3-3103-001	Del Monte Pump 5	DOA-ADC	AGRCP	1988
ADC-W14	O'AHU	30701	3-3154-001	Kahana Tunnel 1	DOA-ADC	UNU	1931
DAG-W01	O'AHU	30102	3-1851-061	State Capitol	DAGS	INDEL	1963
DAG-W02	O'AHU	30102	3-1851-066	Beretania	DAGS	INDEL	1967
DAG-W03	O'AHU	30103	3-1953-002	Salt Water	DAGS	ABNSLD	1976
DBT-W01	O'AHU	30102	3-1751-003	Ala Moana	DBEDT-HCDA	ABNLOS	1959
DBT-W02	O'AHU	30102	3-1851-018	American Brewery	DBEDT-HHFDC	ABNSLD	1900
DBT-W03	O'AHU	30208	3-2003-003	Kapolei Irr C	DBEDT-HHFDC	ABNSLD	1991
DBT-W04	O'AHU	30208	3-2003-004	Kapolei Irr D	DBEDT-HHFDC	IRRGC	1991
DBT-W05	O'AHU	30208	3-2003-007	Kapolei Irr C-1	DBEDT-HHFDC	IRRGC	1994
DBT-W06	O'AHU	30208	3-2003-008	East Kapolei	DBEDT-HHFDC	UNU	1999
DBT-W07	O'AHU	30603	3-2853-004	Waiāhole A	DBEDT-HHFDC	MUNST	1986

SWPP Well ID	Island	GW Hydrologic Unit	Well No.	Well Name	Department	Use	Year Drilled
DBT-W08	O'AHU	30603	3-2853-005	Waiāhole B	DBEDT-HHFDC	MUNST	1986
DHL-W04	O'AHU	30301	3-2308-001	Nānākuli	DHHL	UNU	1949
DLN-W21	O'AHU	30106	3-1643-001	Paikō Spring	DLNR-LD	UNU	N/A
DLN-W22	O'AHU	30105	3-1647-004	Kaimukī A	DLNR-ED	ABNLOS	2001
DLN-W23	O'AHU	30105	3-1647-005	Kaimukī B	DLNR-ED	ABNLOS	2001
DLN-W24	O'AHU	30101	3-1649-019	Ala Wai Test 2	DLNR-ED	UNU	2003
DLN-W25	O'AHU	30102	3-1851-004	Iolani Palace	DLNR-SP	UNU	1882
DLN-W26	O'AHU	30102	3-1851-051	'Iolani Palace	DLNR-SP	ABNLOS	1952
DLN-W27	O'AHU	30103	3-1852-008	Coast Guard Res	DLNR-DAR	AGRAQ	1971
DLN-W28	O'AHU	30207	3-1905-009	Caprock 3	DLNR-LD	UNU	1992
DLN-W29	O'AHU	30604	3-2045-001	Maunawili Fault	DLNR-LD	IRR	1900
DLN-W30	O'AHU	30604	3-2045-002	Maunawili Korean	DLNR-LD	IRRGC	1923
DLN-W31	O'AHU	30604	3-2046-003	Maunawili Clark	DLNR-LD	IRR	1926
DLN-W32	O'AHU	30604	3-2146-001	Maunawili Cooke	DLNR-LD	UNU	1926
DLN-W33	O'AHU	30604	3-2146-002	'Ainoni Tunnels	DLNR-LD	IRR	1926
DLN-W34	O'AHU	30604	3-2147-001	Oshaughnessy Tun	DLNR-LD	UNU	1893
DLN-W35	O'AHU	30203	3-2301-048	Waiawa Exploratory	DLNR-ED	UNU	2001
DLN-W36	O'AHU	30604	3-2345-001	Kawainui Marsh	DLNR	UNU	2003
DLN-W37	O'AHU	30603	3-2449-002	Windward Oahu Ex	DNLR-ED	UNU	2000
DLN-W38	O'AHU	30203	3-2659-001	Waipi'o Mauka Deep Monitor	DLNR-CWRM	OBSDM	1986
DLN-W39	O'AHU	30305	3-3213-007	Mākua	DLNR-SP	UNU	1987
DLN-W40	O'AHU	30305	3-3314-004	Keawa'ula Bay	DLNR-SP	MUNST	1979
DLN-W41	O'AHU	30602	3-3352-001	Kahana Valley	DLNR-SP	MUNST	1932
DLN-W42	O'AHU	30601	3-3654-004	Hau'ula	DLNR-SP	UNU	1938
DLN-W43	O'AHU	30601	3-3956-002	Kahuku	DLNR-SP	UNU	1930
DOA-W02	O'AHU	30604	3-2043-002	Waimānalo I	DOA	AGRCP	1952
DOA-W03	O'AHU	30604	3-2045-004	Waimānalo	DOA-ARMD	ABNLOS	N/A
DOA-W04	O'AHU	30601	3-4057-002	P1&11 Bat 2	DOA	AGRCP	N/A
DOA-W05	O'AHU	30601	3-4057-008	P1&11 Bat 3	DOA	AGRCP	1928
DOA-W06	O'AHU	30601	3-4057-013	P1&11 Bat 4	DOA	AGRCP	1940
DOA-W07	O'AHU	30601	3-4057-014	P1&11 Bat 5	DOA	AGRCP	1940
DOD-W01	O'AHU	30603	3-2347-004	Halekou Irr 1	DOD	UNU	1983
DOD-W02	O'AHU	30603	3-2347-005	Halekou Irr 2	DOD	UNU	1983
DOD-W03	O'AHU	30603	3-2347-006	Halekou Irr 3	DOD	ABNSLD	1983
DOD-W04	O'AHU	30603	3-2347-007	Halekou Irr 4	DOD	UNU	1983
DOD-W05	O'AHU	30603	3-2347-008	Halekou Irr 5	DOD	IRR	1983
DOD-W06	O'AHU	30603	3-2347-009	Halekou Irr 6	DOD	IRR	1983
DOE-W01	O'AHU	30102	3-1850-001	Roosevelt Highschool	DOE	ABNSLD	N/A
DOE-W02	O'AHU	30102	3-1850-028	McKinley Aqua 1	DOE	ABNLOS	1990
DOE-W03	O'AHU	30102	3-1850-029	McKinley Aqua 2	DOE	AGRAQ	1993
DOE-W04	O'AHU	30303	3-2712-032	Wai'anae	DOE	AGRAQ	1991
DOH-W06	O'AHU	30603	3-2448-001	HI State Hospital	DOH	IRR	1946
DOH-W07	O'AHU	30201	3-2557-001	Waimano Training School 1	DOH	DOMNSC	1941
DOH-W08	O'AHU	30201	3-2557-002	Waimano Training School 2	DOH	DOMNSC	1950
DOT-W01	O'AHU	30106	3-1645-001	Koko Head	DOT-HWY	ABNLOS	1936
DOT-W02	O'AHU	30106	3-1744-003	Niu Valley	DOT-HWY	ABNLOS	1951
DOT-W03	O'AHU	30106	3-1840-002	Kalama Valley	DOT-HWY	ABNLOS	1945
DOT-W04	O'AHU	30106	3-1840-005	Kalama Valley	DOT-HWY	ABNLOS	1949
DOT-W05	O'AHU	30106	3-1840-007	Kalama Valley	DOT-HWY	ABNLOS	1950
DOT-W06	O'AHU	30207	3-1906-008	Barbers Pt. MW-1	DOT-HAR	OBS	1997
DOT-W07	O'AHU	30207	3-1906-009	Barbers Pt. MW-2	DOT-HAR	ABNLOS	1997

SWPP Well ID	Island	GW Hydrologic Unit	Well No.	Well Name	Department	Use	Year Drilled
DOT-W08	O'AHU	30207	3-1906-010	Barbers Pt. MW-3	DOT-HAR	OBS	1997
DOT-W09	O'AHU	30207	3-2006-018	Barbers Pt. MW-4	DOT-HAR	OBS	1997
DOT-W10	O'AHU	30104	3-2055-003	Hon Intl Airport	DOT-AIR	ABNSLD	1982
DOT-W11	O'AHU	30203	3-2101-003	Honouliuli	DOT-HWY	OBS	1981
DOT-W12	O'AHU	30603	3-2450-003	Ha'ikū-DOT	DOT-HWY	OTH	1990
DOT-W13	O'AHU	30201	3-2451-001	N. Hālawa-DOT	DOT-HWY	OTH	1991
DOT-W14	O'AHU	30401	3-3412-001	Dillingham AFB	DOT-AIR	UNU	1894
DOT-W15	O'AHU	30401	3-3412-002	Dillingham Airfield	DOT-AIR	MUNST	1920
DOT-W24	O'AHU	30102	3-1852-002	Fort Armstrong	DOT-HAR	ABNLOS	1939
DOT-W25	O'AHU	30103	3-1853-001	Sand Isle Wharf	DOT-HAR	ABN	1973
STA-W02	O'AHU	30101	3-1649-002	Waikīkī	State of Hawai'i	ABNSLD	1883
STA-W03	O'AHU	30101	3-1649-005	Waikīkī	State of Hawai'i	ABNSLD	1884
STA-W04	O'AHU	30101	3-1649-006	Waikīkī	State of Hawai'i	ABNSLD	1891
STA-W05	O'AHU	30101	3-1649-007	Waikīkī	State of Hawai'i	ABNSLD	1892
STA-W06	O'AHU	30101	3-1749-004	Kapahulu	State of Hawai'i	ABNSLD	1883
STA-W07	O'AHU	30102	3-1850-009	Makiki	State of Hawai'i	ABNSLD	1882
STA-W08	O'AHU	30102	3-1851-003	King St	State of Hawai'i	ABNSLD	1882
STA-W09	O'AHU	30102	3-1851-029	Ala Moana Blvd	State of Hawai'i	ABNSLD	1913
STA-W10	O'AHU	30102	3-1852-007	Immigration Sta	State of Hawai'i	ABNLOS	1955
STA-W11	O'AHU	30103	3-1951-002	Lanakila	State of Hawai'i	ABNSLD	1894
STA-W12	O'AHU	30103	3-1953-001	O'ahu Prison	State of Hawai'i	ABNSLD	1915
STA-W13	O'AHU	30604	3-2044-001	Olomana Golf	State of Hawai'i	OBS	1933
STA-W14	O'AHU	30604	3-2044-002	Olomana Golf	State of Hawai'i	UNU	1937
STA-W15	O'AHU	30104	3-2053-002	Fort Shafter	State of Hawai'i	ABNSLD	1885
STA-W16	O'AHU	30104	3-2053-006	Fort Shafter	State of Hawai'i	ABNSLD	1895
STA-W17	O'AHU	30604	3-2245-001	Kailua A	State of Hawai'i	ABNSLD	1940
STA-W18	O'AHU	30604	3-2245-002	Kailua B	State of Hawai'i	DOM	1940
STA-W19	O'AHU	30604	3-2245-003	Kailua C	State of Hawai'i	DOM	1948
STA-W20	O'AHU	30201	3-2255-021	Hālawa	State of Hawai'i	OBS	1900
STA-W21	O'AHU	30201	3-2255-022	Hālawa	State of Hawai'i	OBS	1900
STA-W22	O'AHU	30201	3-2255-026	Hālawa	State of Hawai'i	OBS	1900
STA-W23	O'AHU	30201	3-2255-027	Hālawa	State of Hawai'i	OBS	1900
STA-W24	O'AHU	30201	3-2256-010	FW 1	State of Hawai'i	OBS	1922
STA-W25	O'AHU	30201	3-2256-011	FW 2	State of Hawai'i	UNU	1923
STA-W26	O'AHU	30201	3-2357-020	Waiau	State of Hawai'i	ABNSLD	1956
STA-W27	O'AHU	30303	3-2712-028	Wai'anae	State of Hawai'i		1972
STA-W28	O'AHU	30602	3-3350-001	Kūloa Pt	State of Hawai'i	ABNSLD	1937
STA-W29	O'AHU	30403	3-4101-001	Waiale'e	State of Hawai'i	ABNSLD	1921
STA-W30	O'AHU	30403	3-4101-002	Waiale'e	State of Hawai'i	ABNSLD	1921
STA-W31	O'AHU	30403	3-4101-003	Waiale'e	State of Hawai'i	OBS	1921
STA-W32	O'AHU	30403	3-4101-004	Waiale'e	State of Hawai'i	ABNSLD	1938
STA-W33	O'AHU	30403	3-4101-005	Waiale'e	State of Hawai'i	UNU	1939
STA-W34	O'AHU	30403	3-4101-006	Waiale'e	State of Hawai'i	UNU	1941
UHM-W01	O'AHU	30102	3-1751-005	KBMML	UHM	AGROTH	1968
UHM-W02	O'AHU	30403	3-4101-010	Waiale'e UH	UHM	AGRLI	1959
UHM-W03	O'AHU	30102	3-1751-006	Kewalo PBRC	UHM	OTH	1970
UHM-W04	O'AHU	30102	3-1751-008	Kewalo-KBMML	UHM	AGRAQ	2001
UHW-W01	O'AHU	30204	3-2203-001	Waipahu WP5	UHWO	ABN	1900
UHW-W02	O'AHU	30204	3-2203-002	Waipahu WP5	UHWO	UNU	1900
UHW-W03	O'AHU	30204	3-2203-003	Waipahu WP5	UHWO	UNU	1900
UHW-W04	O'AHU	30204	3-2203-004	Waipahu WP5	UHWO	UNU	1900

SWPP Well ID	Island	GW Hydrologic Unit	Well No.	Well Name	Department	Use	Year Drilled
UHW-W05	O'AHU	30204	3-2203-005	Waipahu WP5	UHWO	UNU	1900
UHW-W06	O'AHU	30204	3-2203-006	Waipahu WP5	UHWO	UNU	1900

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APPENDIX D

Inventory of State Operated Diversions

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Diversion ID	Island	SW Hydrologic Unit	Diversion Name	Primary Registrant	Secondary Registrant	Notes
603	Kaua'i	2060	Kumuwela #3 from Po'omau	KEKAHA SUGAR	DHHL	Stream diversion, Kumuwela #3 from Unnamed stream to Koke'e ditch.
606	Kaua'i	2060	Mōhihi #2 Intake	KEKAHA SUGAR	DHHL	Stream diversion, Mōhihi #2 from Unnamed stream to Koke'e ditch.
607	Kaua'i	2060	Kauaikinana Intake	KEKAHA SUGAR	DHHL	Stream diversion, Kauaikinana stream to Koke'e ditch.
608	Kaua'i	2060	Nāwaimaka Intake	KEKAHA SUGAR	DHHL	Stream diversion, Nāwaimaka stream to Koke'e ditch.
612	Kaua'i	2060	Mōhihi #1 Intake	KEKAHA SUGAR	DHHL	Stream diversion, Mōhihi stream intake to Koke'e ditch.
614	Kaua'i	2060	Kumuwela #2 from Po'omau	KEKAHA SUGAR	DHHL	Stream diversion, Kumuwela #2 from Unnamed stream to Koke'e ditch.
615	Kaua'i	2060	Kumuwela #5 from Po'omau	KEKAHA SUGAR	DHHL	Stream diversion, Kumuwela #5 from Unnamed stream to Koke'e ditch.
616	Kaua'i	2060	Kawaikōī Intake	KEKAHA SUGAR	DHHL	Stream diversion, Kawaikōī stream to Koke'e ditch.
617	Kaua'i	2060	Mōhihi #3 Intake	KEKAHA SUGAR	DHHL	Stream diversion, Mōhihi #3 from Unnamed stream to Koke'e ditch.
618	Kaua'i	2060	Halemanu Intake	KEKAHA SUGAR	DHHL	Stream diversion, Halemanu stream to Koke'e ditch.
619	Kaua'i	2060	Kumuwela #1 from Kauaikinana Trib	KEKAHA SUGAR	DHHL	Stream diversion, Kumuwela #1 from Unnamed stream to Koke'e ditch.
620	Kaua'i	2060	Waiakoali Intake Dam	KEKAHA SUGAR	DHHL	Stream diversion, Waiakoali stream dam to Koke'e ditch.
621	Kaua'i	2060	Po‘omau Intake	KEKAHA SUGAR	DHHL	Stream diversion, Kumuwela #4 from Unnamed stream to Koke'e ditch.
622	Kaua'i	2060	Kōke'e Intake/Outflow	KEKAHA SUGAR	DHHL	Stream diversion, Kōke'e stream to Kōke'e ditch. Water height in Puu Lua Reservoir is regulated at the Kokee Intake/Outflow.
694	Kaua'i	2035	Intake 44 from Lower Anahola Stream	LIHUE PLANTATION	DHHL	Stream diversion, Intake #44 from Lower Anahola stream to Lower Anahola ditch.
696	Kaua'i	2035	Intake 43 from Upper Anahola Stream	LIHUE PLANTATION	DHHL	Stream diversion, Intake #43 from Upper Anahola stream to Upper Anahola ditch.
1072	Kaua'i	2060	State Park Intake from Elekeninui	DNLR - State Parks		Stream diversion, pump from Elekeninui Stream.
1074	Kaua'i	2066	Waimea Comfort Station Intake from Kōke‘e Dt.	DNLR - State Parks		Stream diversion. May be a duplicate of STATE PARK KAU entry for TMK 1-4-001:007.
1061	O'ahu	3033	Intake #3 from Maunawili Trib	DOA		Stream diversion, Waimanalo Intake #3 from Maunawili tributary #2 to Waimānalo Irrigation System.
1062	O'ahu	3033	Intake #17 from Makawao	DOA		Stream diversion, Makawao Intake #17 from Makawao Stream to Waimānalo Irrigation System.
1063	O'ahu	3033	Intake #1 from Maunawili Trib	DOA		Stream diversion, Waimanalo Intake #1 from Maunawili Intake #1 to Waimānalo Irrigation System.
1064	O'ahu	3033	Intake #10 from Ainoni Str	DOA		Stream diversion, Intake #10 from Ainoni Stream to Waimānalo Irrigation System.

Diversion ID	Island	SW Hydrologic Unit	Diversion Name	Primary Registrant	Secondary Registrant	Notes
862	Moloka'i	4037	West Kawela Intake (Pipe #2)	MOLOKA'I RANCH	DHHL	Stream diversion, Pipe #2 from West Fork [Kawela] (NDAR). Intake designed to capture 100% of low flow. Pipe was clogged with little or no flow entering intake on CWRM site visit (5/2/2016).
864	Moloka'i	4003	Hanalilolilo Intake (aka: 'Ōhi'alele Intake)	MOLOKA'I RANCH	DHHL	Flow diverted from Waikolu Stream to MR Mountain System Pipeline (Hanalilolilo Pipe). (May also be referred to as 'Ōhi'alele Intake (verification report, Sterling Chow, 1993).
865	Moloka'i	4039	Kamoku Intake	MOLOKA'I RANCH	DHHL	Stream diversion, Pipe from Kaunakakai Gulch South Fork. Pipe was observed disconnected from system on site visit (5/3/2016).
866	Moloka'i	4037	East Kawela Tributary Intake (Pipe #1)	MOLOKA'I RANCH	DHHL	Stream diversion, Pipe #1 from East Fork [Kawela] (NDAR). Dam is damaged; No water taken (CWRM Site visit 5/2/2016).
867	Moloka'i	4037	East Kawela Intake	MOLOKA'I RANCH	DHHL	Flow diverted from East Fork Kawela Stream to MR Mountain System pipeline. Main diversion from Kawela watershed. (Located at site labeled "Kawela Intake" on 1990 USGS topomap).
1056	Moloka'i	4003	Waikolu Dam #1	DOA	DHHL	Stream diversion, Waikolu Dam #1 from Waikolu Stream. Main intake for Moloka'i Irrigation System.
1057	Moloka'i	4003	Waikolu Dam #2	DOA	DHHL	Stream diversion, Waikolu Dam #2 from Waikolu Stream. 100% flow diverted. Intake acts as a siphon to MIS tunnel on other side of valley.
1058	Moloka'i	4003	Waikolu Dam #3	DOA	DHHL	Stream diversion, Waikolu Dam #3 from Waikolu Stream. Presumed 'active'. Status not verified on CWRM site visit 8/16/16.
1059	Moloka'i	4003	Waikolu Pump House Dam	DOA	DHHL	Stream diversion, Waikolu Pump House Diversion Dam.
1065	Maui		Ke'anae Arboretum Intake	DLNR - DOFAW		Stream diversion, Ke'anae Arboretum Intake.
1075	Maui	6053	Polipoli Springs State Park Intake	DLNR - State Parks		1 1/2" pipe from unnamed spring to campground area. Estimated water demand is 0.002 mgd (State Water Projects Plan Update, May 2017).
1076	Maui	6110	Pua'a Ka'a Intake from Waiohue	DLNR - State Parks		Stream diversion, pipe from Waiohue Stream.
1077	Maui	6060	Taro Pipe from 'Īao Stream (aka: Wailuku River)	DLNR - State Parks		Stream diversion, pipe from 'Īao Stream.
1078	Maui	6024	Kaumahina Intake from Haipua'ena Stream	DLNR - State Parks		2" pipe to comfort station.
91	Hawai'i	6049	Honokāne Dam Main Intake	CHALON INT	DLNR - State Parks	Only source of water for Kohala Ditch (Imiola Lindsey, Kamehameha Schools, 7/13/2016). Stream diversion, Honokāne Dam Main Intake. East Branch to Kohala Ditch. Declared Q of 2.571 is the total for Niulii Weir.

Diversion ID	Island	SW Hydrologic Unit	Diversion Name	Primary Registrant	Secondary Registrant	Notes
430	Hawai'i	8016	Hāmākua Ditch from Alakahi Stream	Hāmākua Sugar (Kamehameha Schools/ DOA?)	DHHL	Stream diversion, Alakahi Stream Intake to Lower Hāmākua Ditch.
457	Hawai'i	8041	Kohākōhau Stream Intake	Hawai'i DWS	DHHL	Stream diversion, Kohākōhau Stream Diversion.
541	Hawai'i	8161	Keawewai Stream Intake	KAHUA RANCH	DHHL	Stream diversion, Waterhead #3. Pipe from Keawewai Stream and rights claim.
542	Hawai'i	8163	Waipāhoehoe Stream Intake	KAHUA RANCH	DHHL	Stream diversion, Waterhead #13. Ditch from Waipāhoehoe Gulch and rights claim.
549	Hawai'i	8163	Kilohana Stream Intake	KAHUA RANCH	DHHL	Stream diversion, Waterhead #5. Pipe from Unnamed stream and rights claim.
596	Hawai'i	8163	Hā'ao Spring-Mt. House Tunnel	KAWAIHAE RANCH	DHHL	Spring diversion, use of overflow from County Hā'ao Spring when available.
929	Hawai'i	8147	Humu'ula Reservoir Intake	Parker Ranch	DHHL	Also registered by DHHL as "Mauna Kea Acess Road". DHHL is an 'end-user'. Stream diversion, Humuula Reservoir intake.
944	Hawai'i	8138	Kohākōhau Intake	PERRY-FISKE AL	DOA	Stream diversion, intake from Kohākōhau/Wai'auia Stream. Diversion is operated by the State.
965	Hawai'i	8161	Kehena Ditch from Honokāne Nui Stream	Ponoholo Ranch (aka Kahua Ranch)	DHHL	Stream diversion, Waterhead #11, pipe from West Branch Honokane Nui Stream. See file for KAHUA RANCH. Declared Q calculated from 1 mgd.
1051	Hawai'i	8016	Waimā Intake #5	DOA		Ditch flow enters stream bed upstream of intake. Stream diversion, Waimā Intake from comb intake.
1052	Hawai'i	8041	Kawainui Intake	DOA	DHHL	Main diversion for Upper Hamakua Ditch. Stream diversion, Kawainui Intake from Kawainui Stream.
1053	Hawai'i	8041	Ko'iawe Intake	DOA		Stream diversion, Ko'iawe Intake from comb intake.
1054	Hawai'i	8041	Alakahi Intake #3	DOA		Stream diversion, Alakahi Intake from Alakahi Stream. 20% flow diverted on site visit 8/12/2016.
1055	Hawai'i	8041	Kawaiki Intake to Upper Hāmākua Ditch	DOA	DHHL	Stream diversion, Kawaiki Intake from Kawaiki Stream.
1066	Hawai'i	8041	Kolekole Intake	DLNR - State Parks		Stream diversion, pipe from Kolekole Stream. See also new entry for declarant.
1068	Hawai'i	8111	Waihu Spring	DLNR - State Parks		Spring diversion, pipe from Waihu Spring.
1070	Hawai'i	8157	Liloe Spring	DLNR - State Parks		Spring diversion, pipe from Liloe Spring.

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APPENDIX E

Water System Schematics

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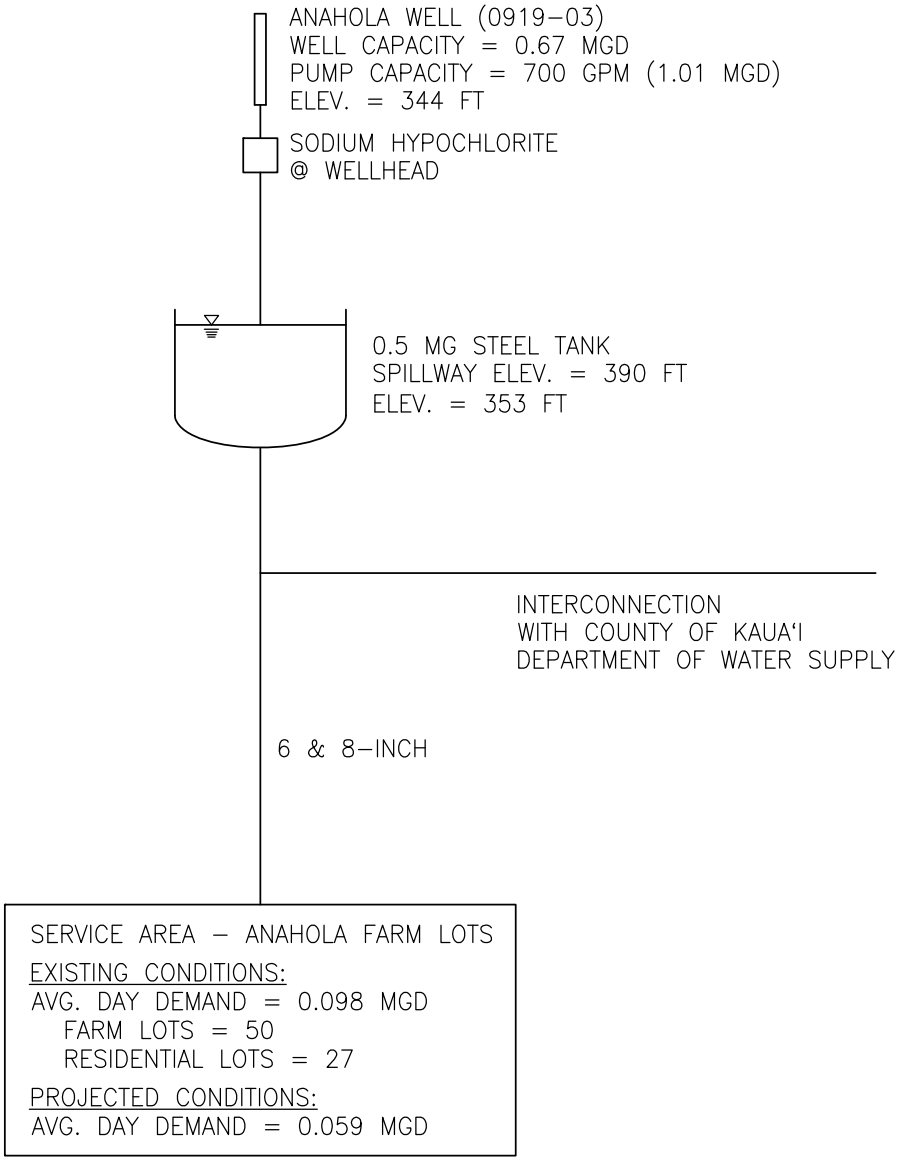

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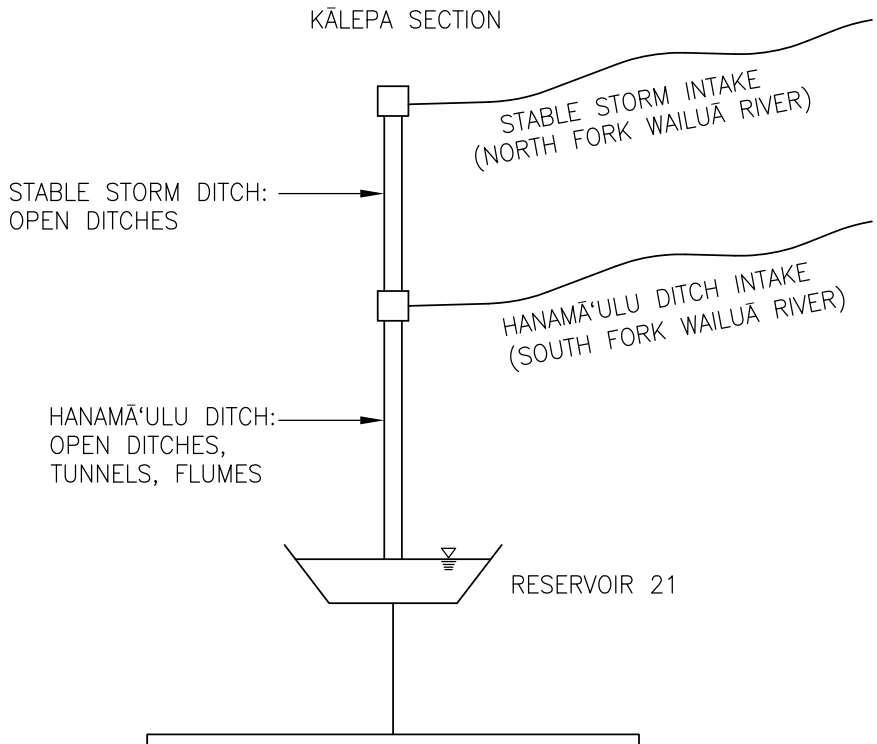
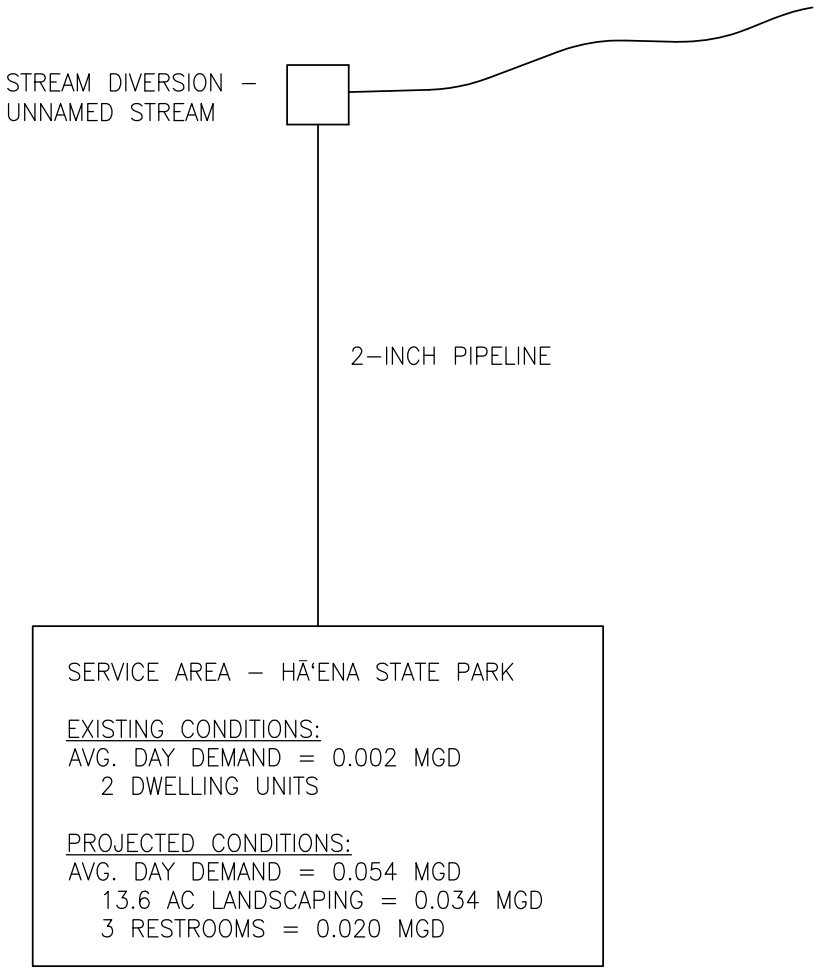
ANAHOLA FARM LOTS WATER SYSTEM (KAUA'I) - DHHL
PUBLIC WATER SYSTEM NO. 432


KĀLEPA SECTION
STABLE STORM INTAKE
(NORTH FORK WAILUĀ RIVER)
STABLE STORM DITCH:
OPEN DITCHES
HANAMĀ‘ULU DITCH INTAKE
(SOUTH FORK WAILUĀ RIVER)
HANAMĀ‘ULU DITCH:
OPEN DITCHES,
TUNNELS, FLUMES
RESERVOIR 21
SERVICE AREA
EXISTING CONDITIONS:
AVG. DAY DEMAND = NOT REPORTED
PROJECTED CONDITIONS:
AVG. DAY DEMAND = 0.34 MGD
DHHL WAILUĀ TRACT



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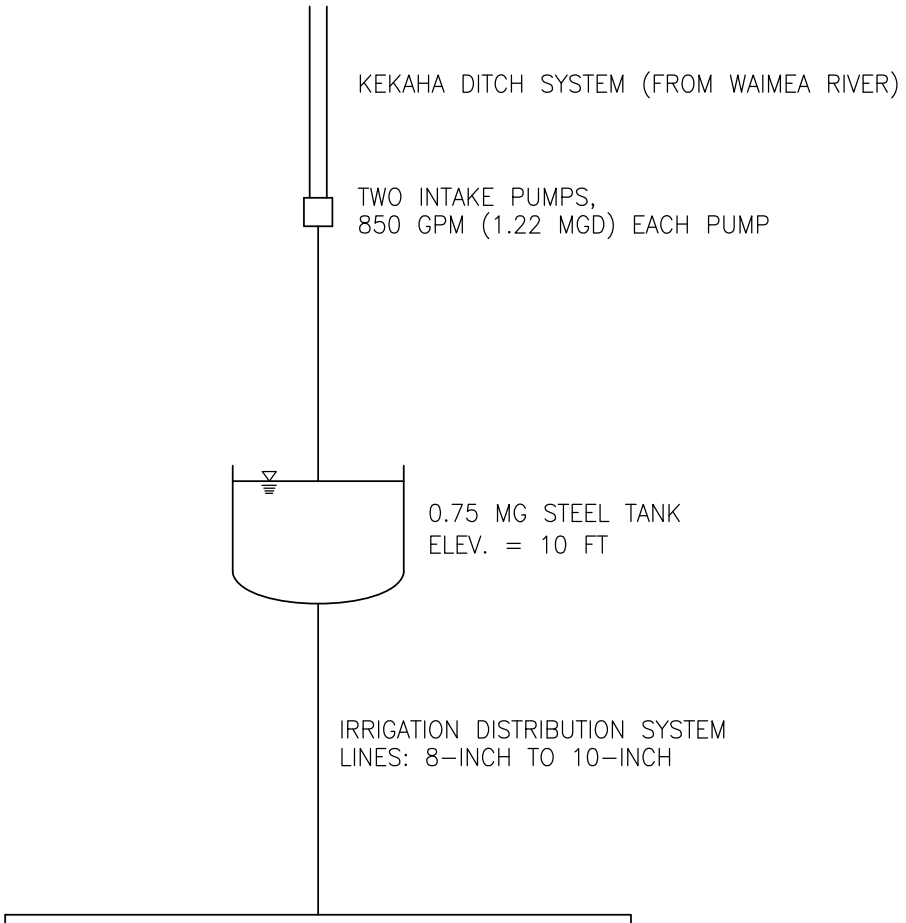
HĀ‘ENA STATE PARK (KAUA‘I) - DLNR-PARKS



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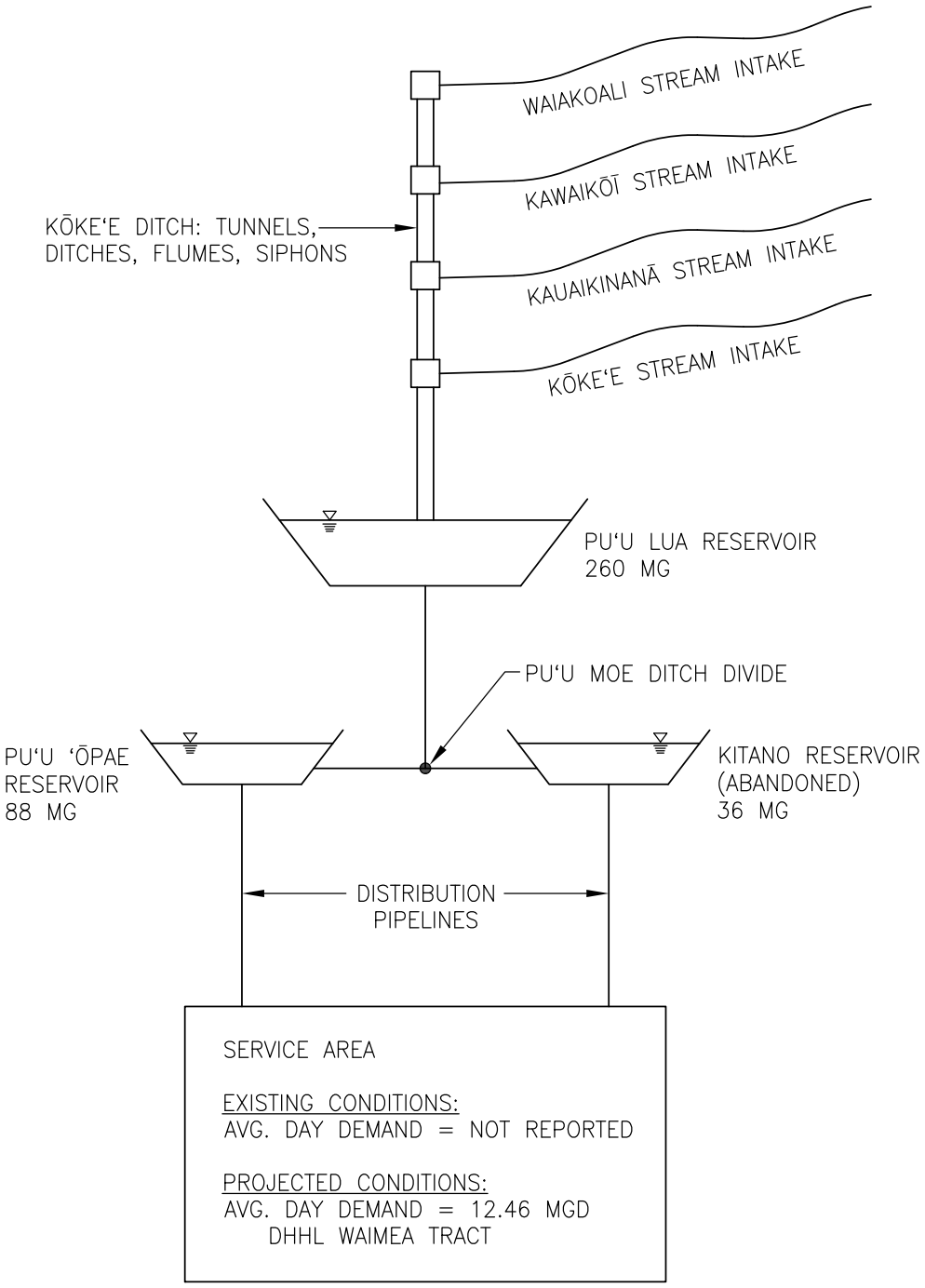
KEKAHA DITCH IRRIGATION SYSTEM (KAUA'I) - DOA-ADC



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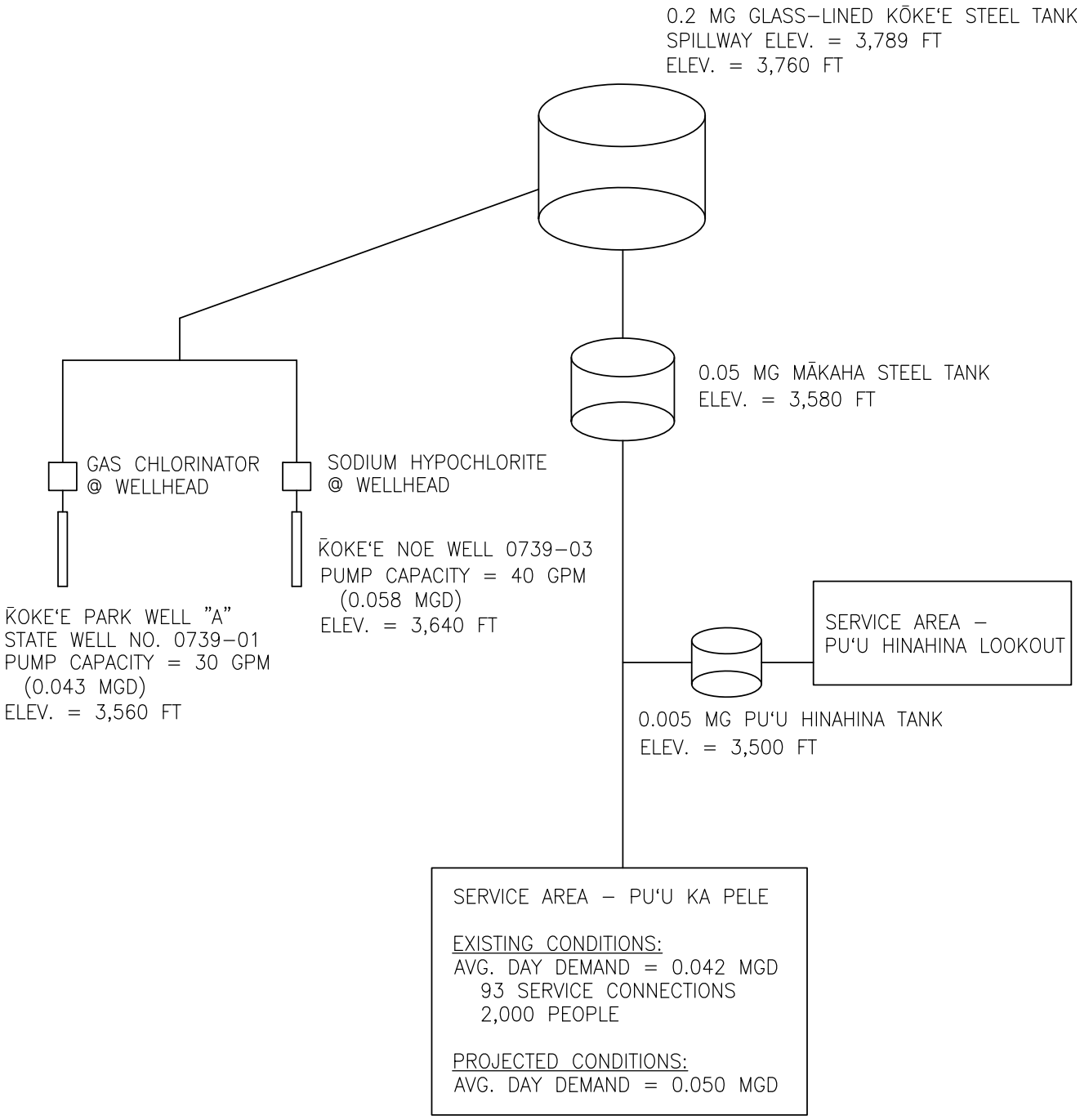
KŌKE‘E DITCH IRRIGATION SYSTEM (KAUA‘I) - DOA-ADC



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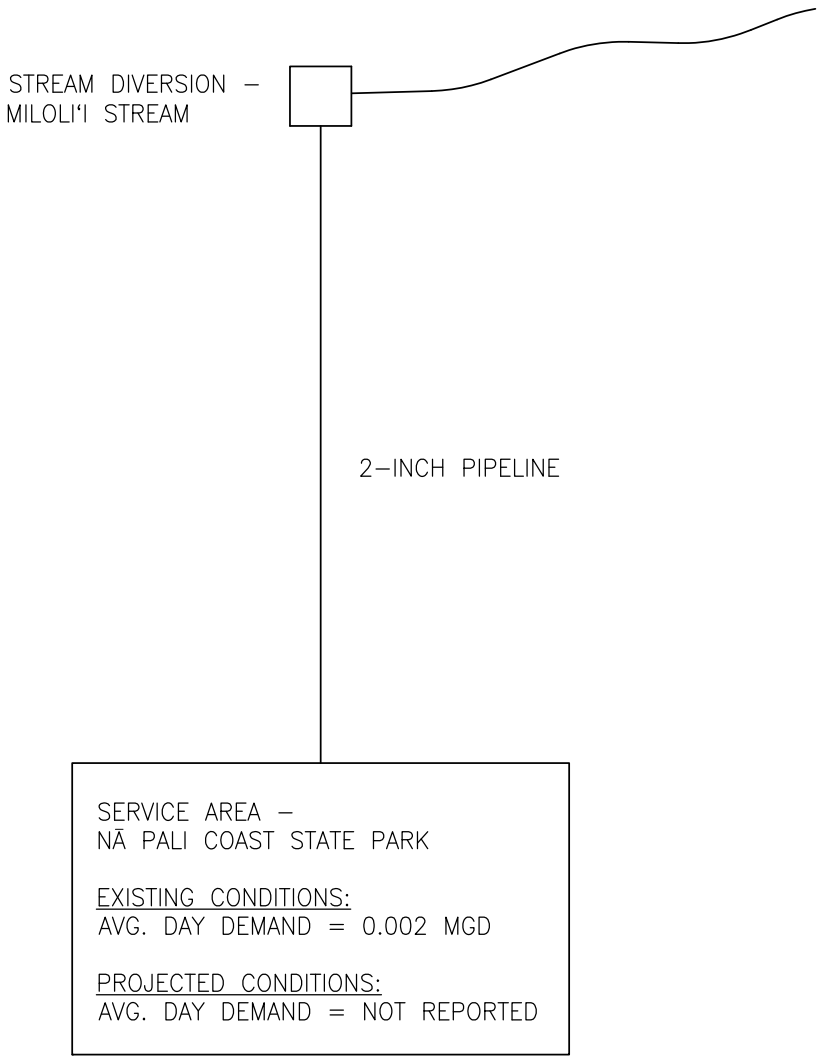
KŌKE‘E STATE PARK (KAUA‘I) - DLNR-PARKS
PUBLIC WATER SYSTEM NO. 425



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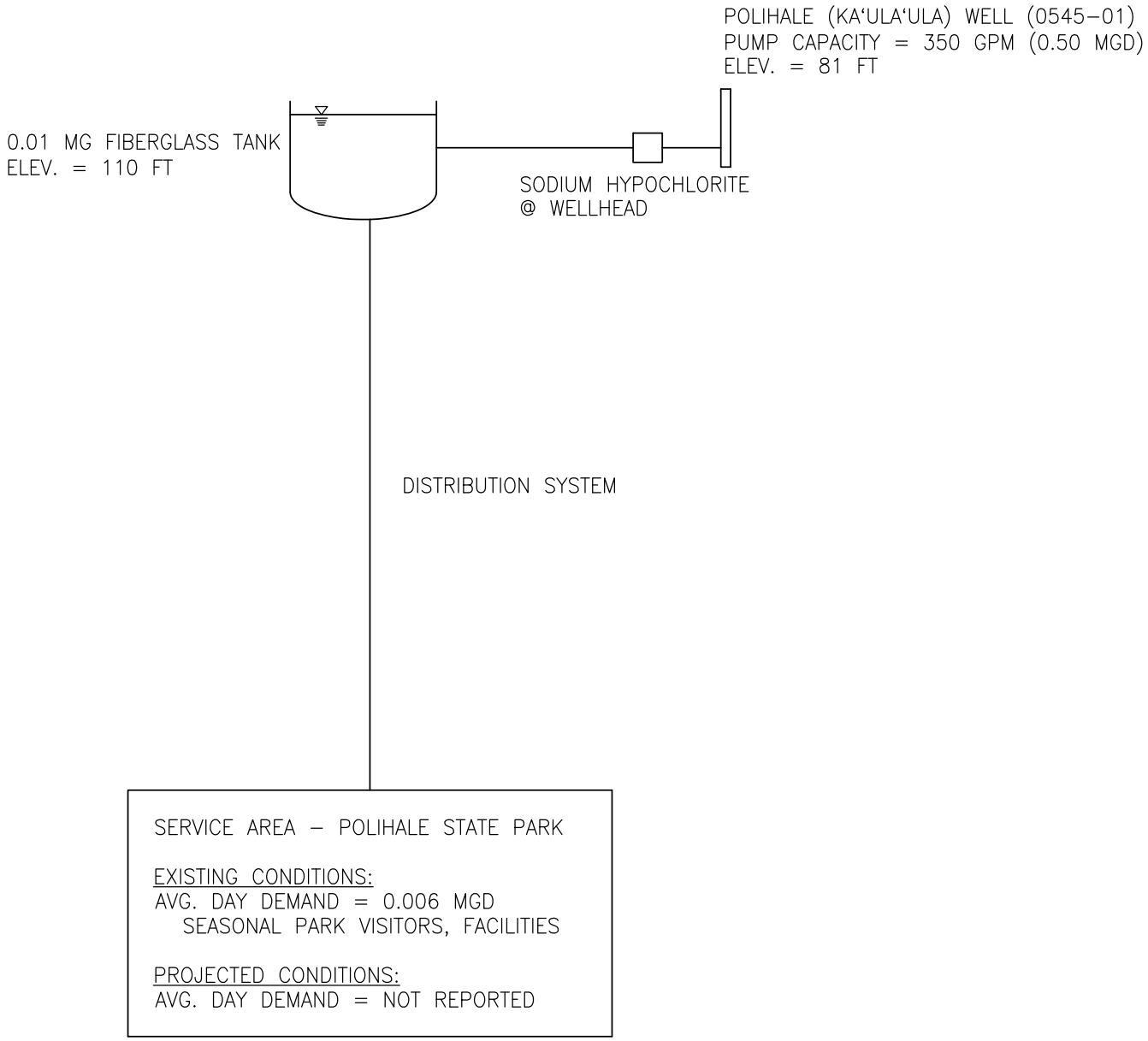
NĀ PALI COAST STATE WILDERNESS PARK (KAUA‘I) - DLNR-PARKS



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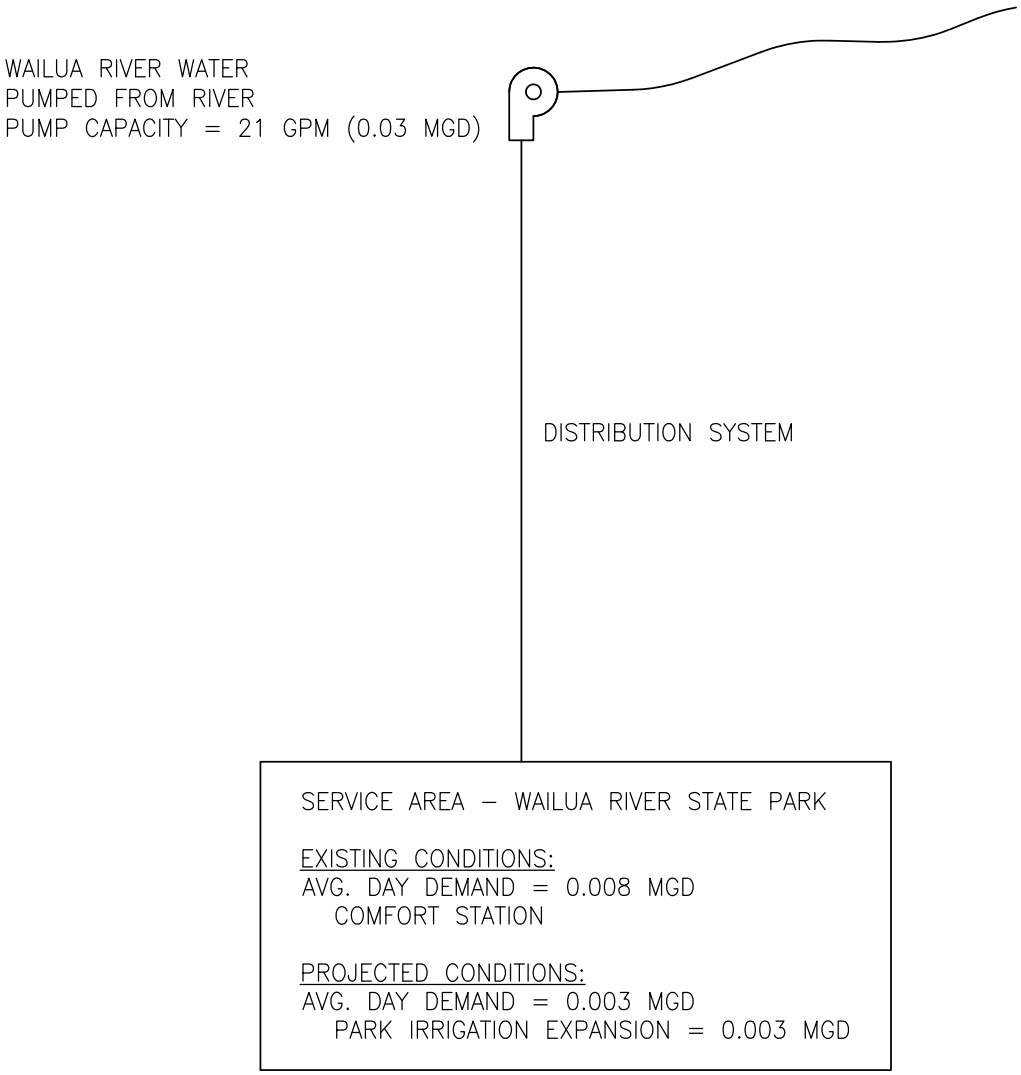
POLIHALE STATE PARK (KAUA'I) - DLNR-PARKS
PUBLIC WATER SYSTEM NO. 426



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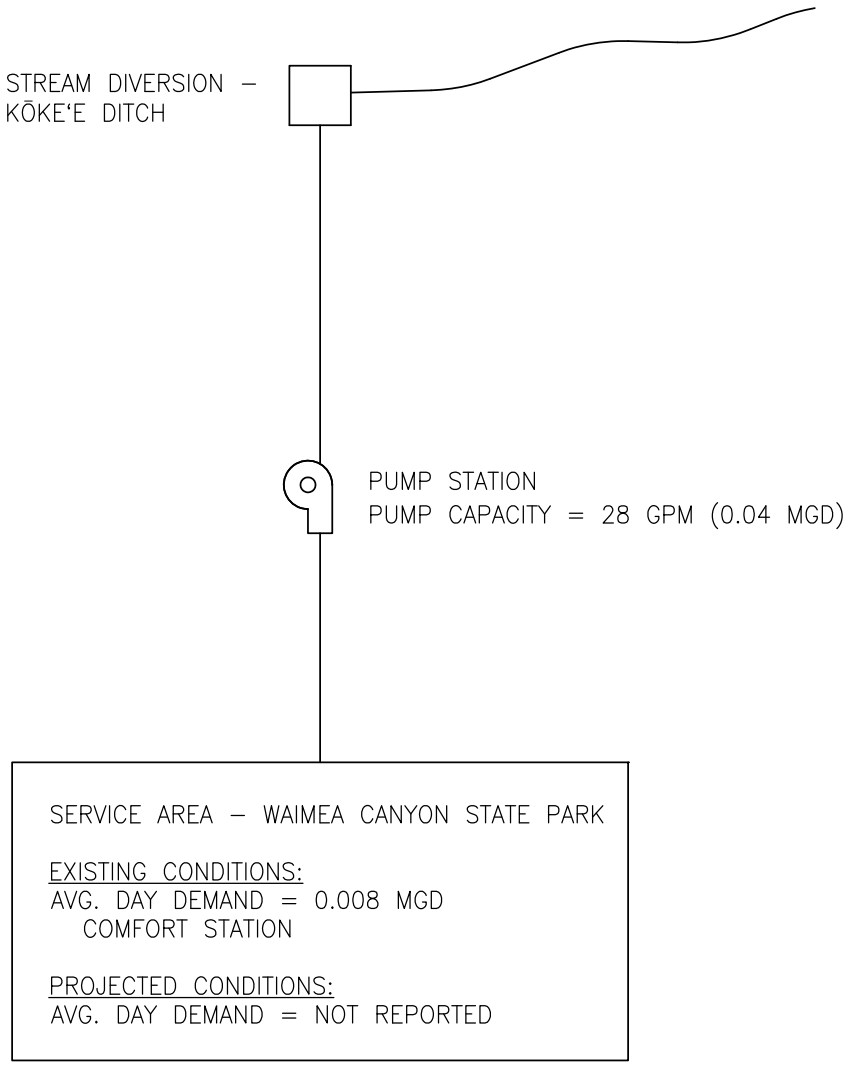
WAILUA RIVER STATE PARK (KAUA'I) - DLNR-PARKS



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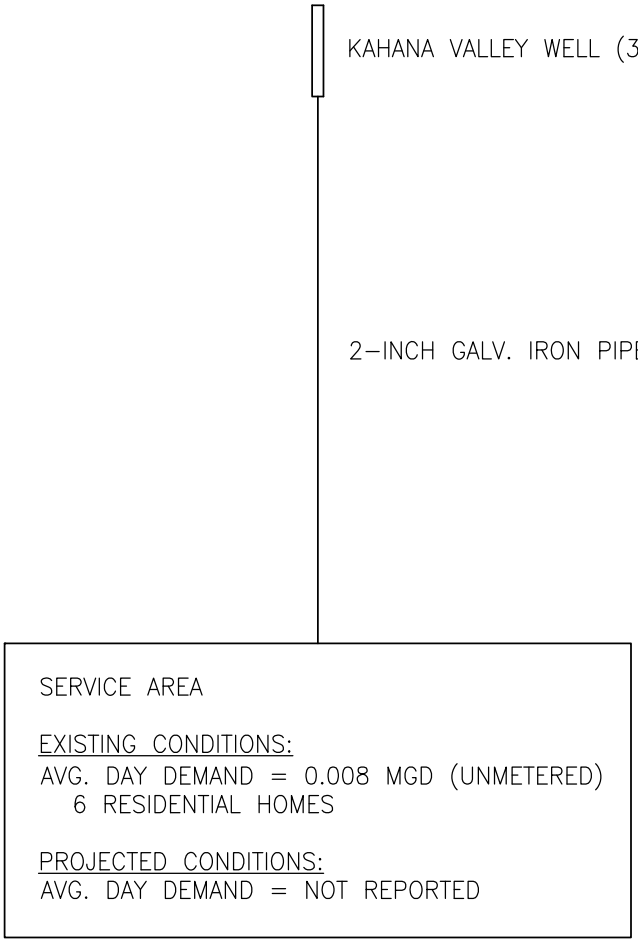
WAIMEA CANYON STATE PARK (KAUA'I) - DLNR-PARKS



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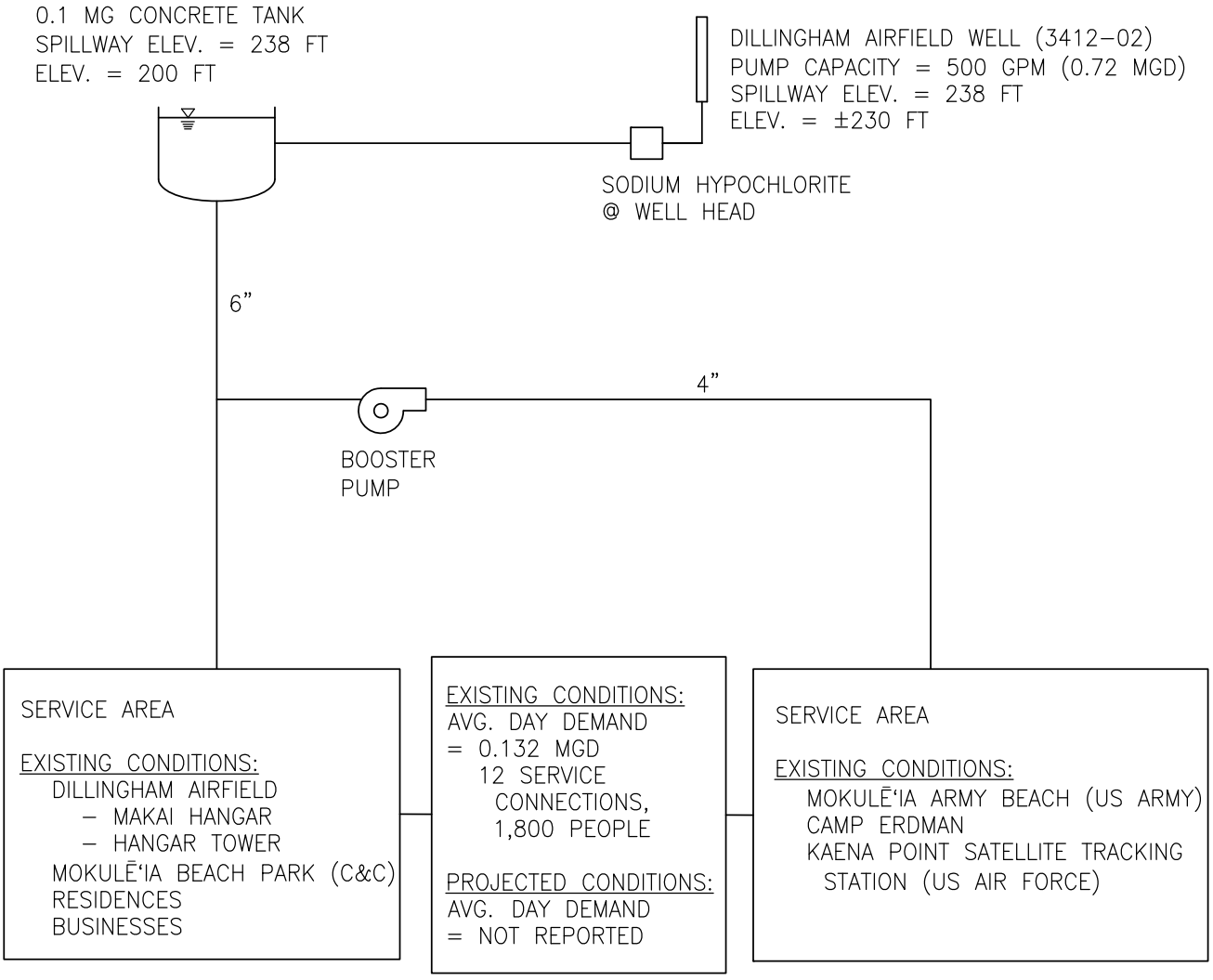
AHUPUA‘A ‘O KAHANA STATE PARK (O‘AHU) - DLNR-PARKS



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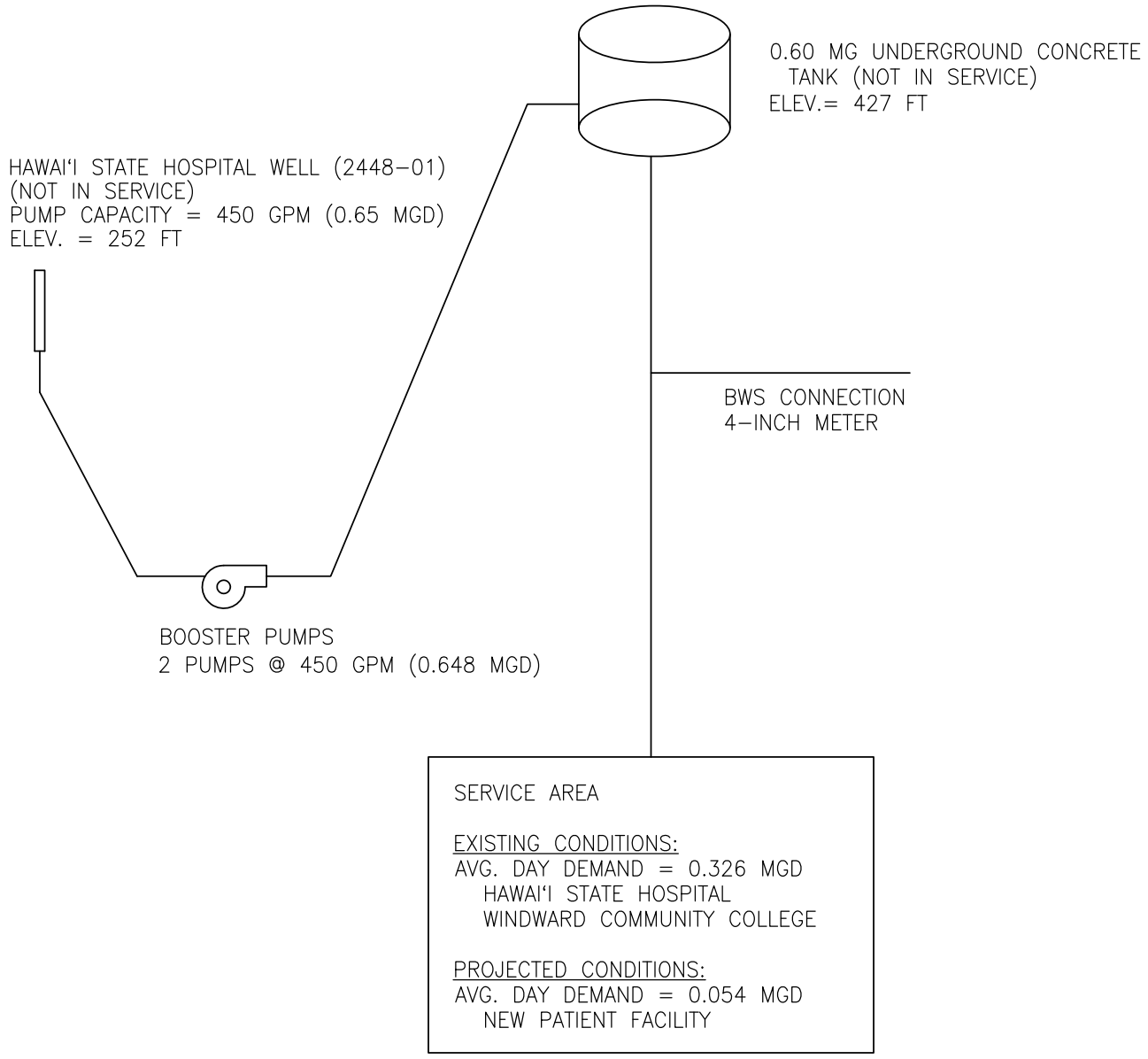
DILLINGHAM AIRFIELD WATER SYSTEM (O‘AHU) - DOT-AIR
PUBLIC WATER SYSTEM NO. 338



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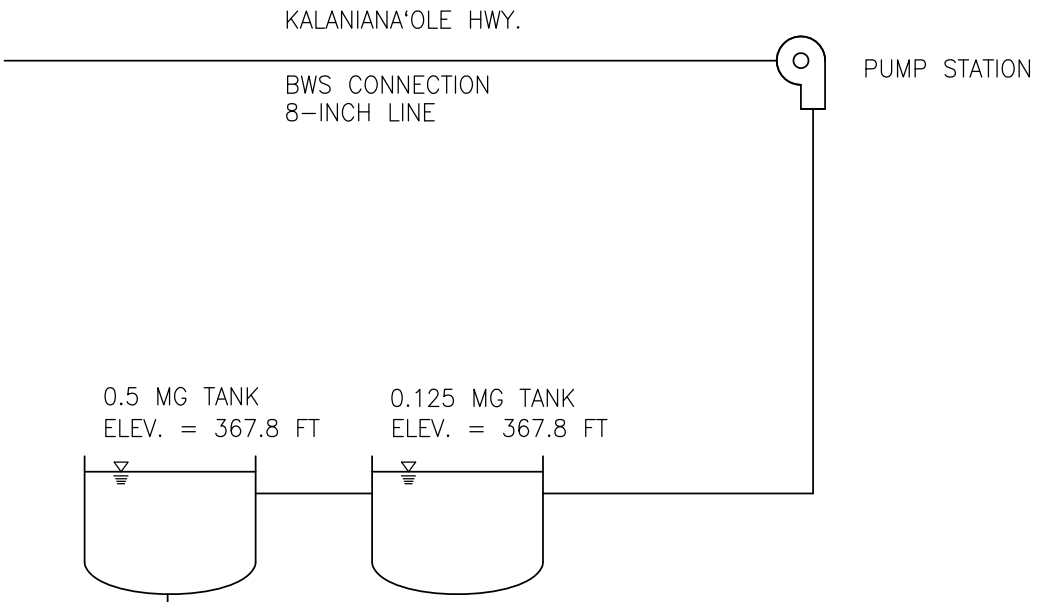
HAWAI‘I STATE HOSPITAL WATER SYSTEM (O‘AHU) - DOH



DISTRIBUTION LINES
8–INCH LINE, 1,000 LF

SERVICE AREA

EXISTING CONDITIONS:
AVG. DAY DEMAND = NOT REPORTED
HAWAI‘I YOUTH CORRECTIONAL FACILITY
DEPT. OF EDUCATION OLOMANA SCHOOL
DEPT. OF PUBLIC SAFETY OFFICER TRAINING FACILITY

PROJECTED CONDITIONS:
AVG. DAY DEMAND = NOT REPORTED

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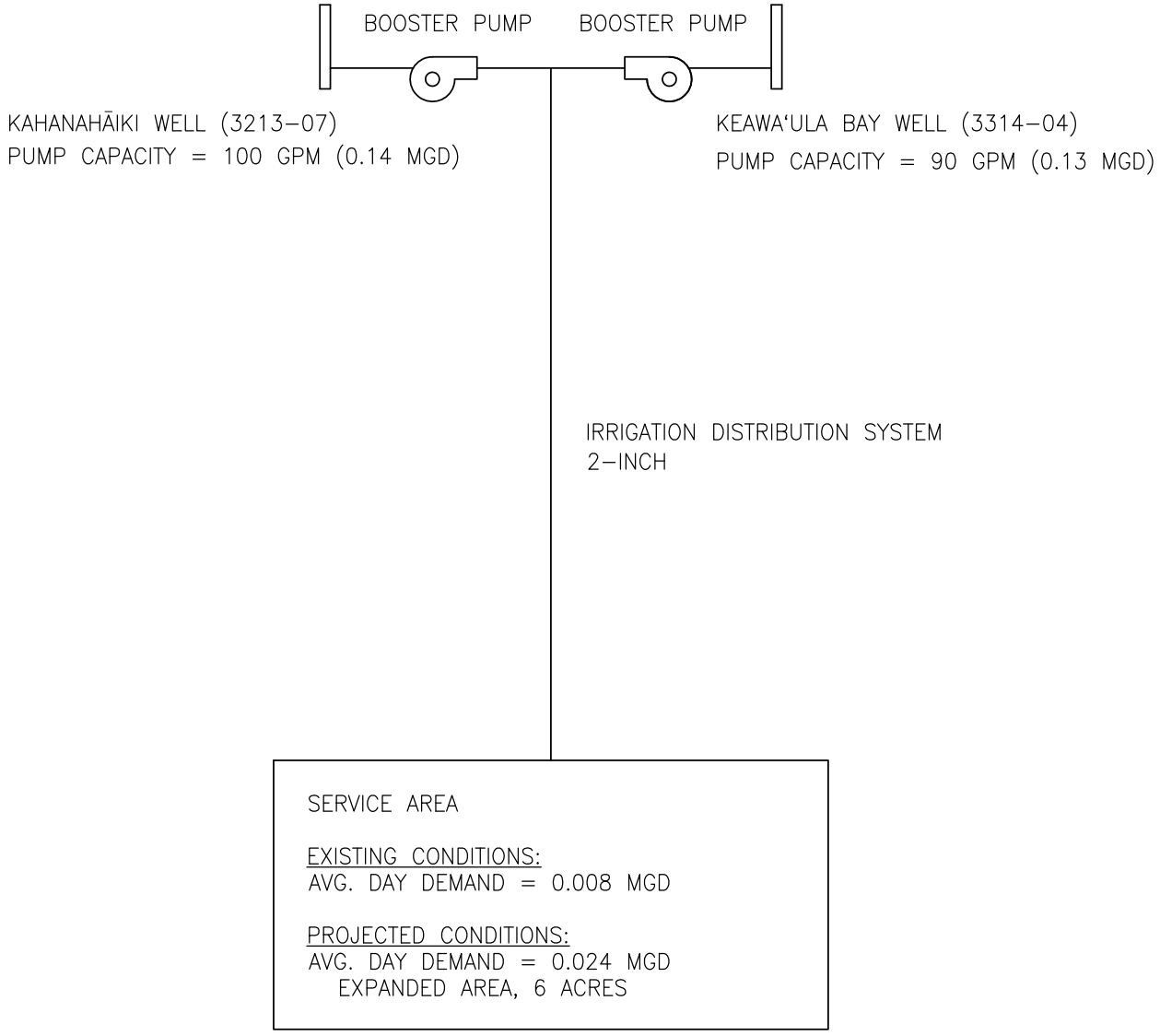
HAWAI‘I YOUTH CORRECTIONAL FACILITY (O‘AHU) - DHS



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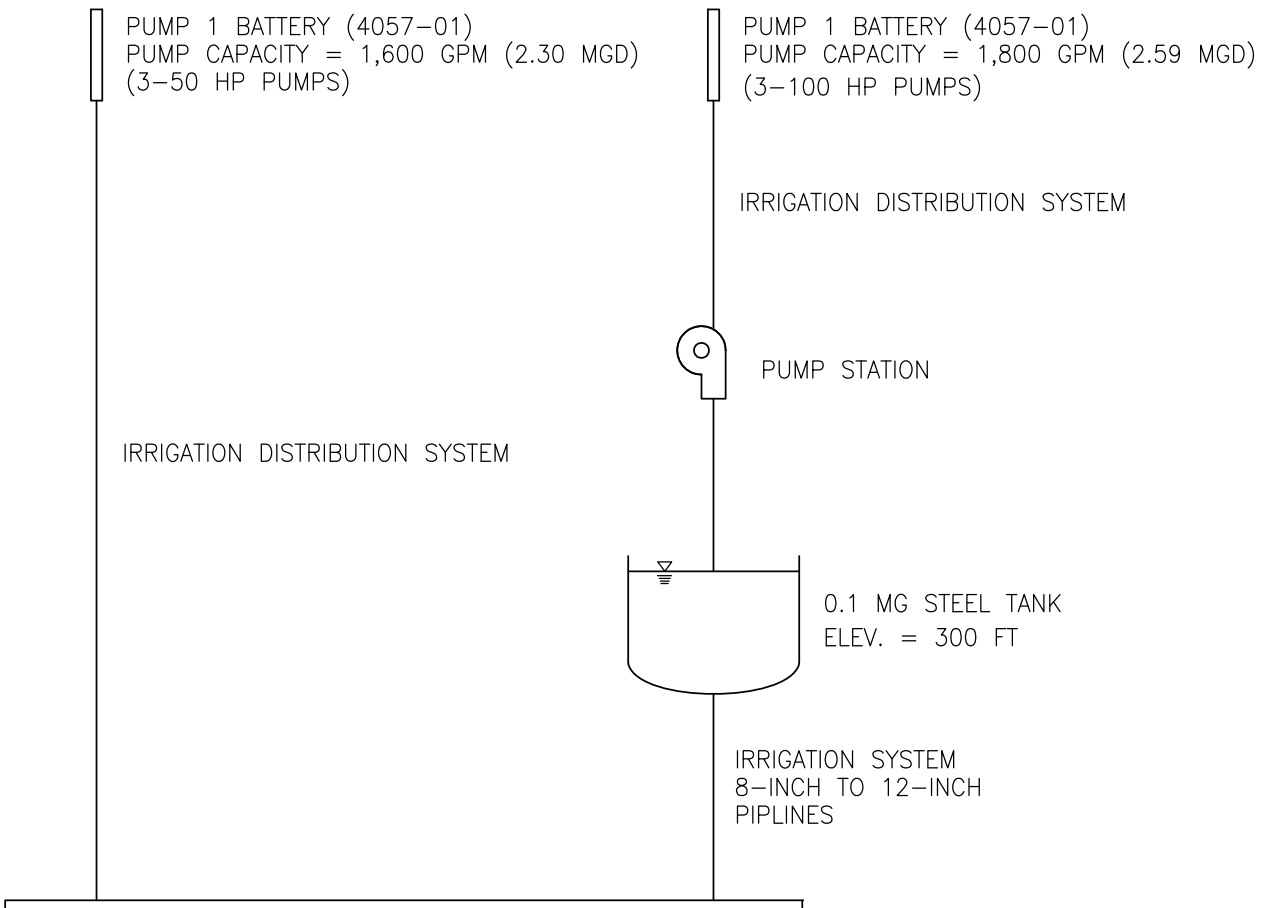
KA‘ENA POINT STATE PARK - KEAWA‘ULA SECTION (O‘AHU) - DLNR-PARKS



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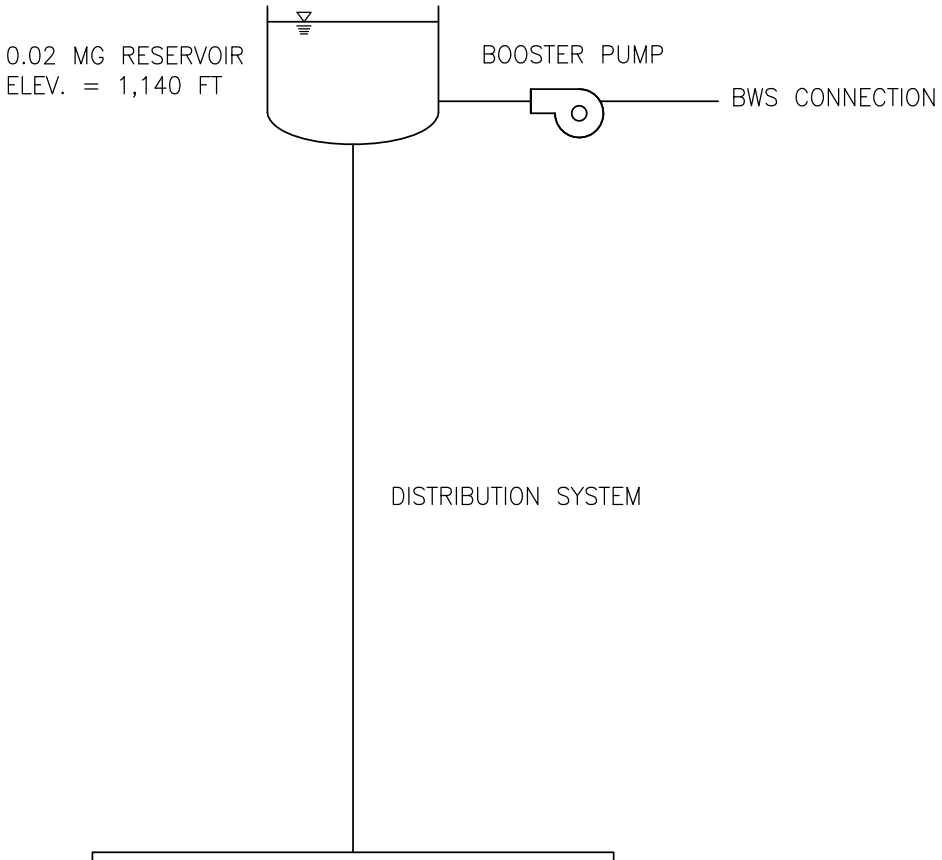
KAHUKU IRRIGATION SYSTEM (O'AHU) - DOA-ARMD



SERVICE AREA –
KEAĪWA HEIAU STATE RECREATION AREA

EXISTING CONDITIONS:
AVG. DAY DEMAND = 0.002 MGD
PARK FACILITIES
PARK IRRIGATION

PROJECTED CONDITIONS:
AVG. DAY DEMAND = NOT REPORTED

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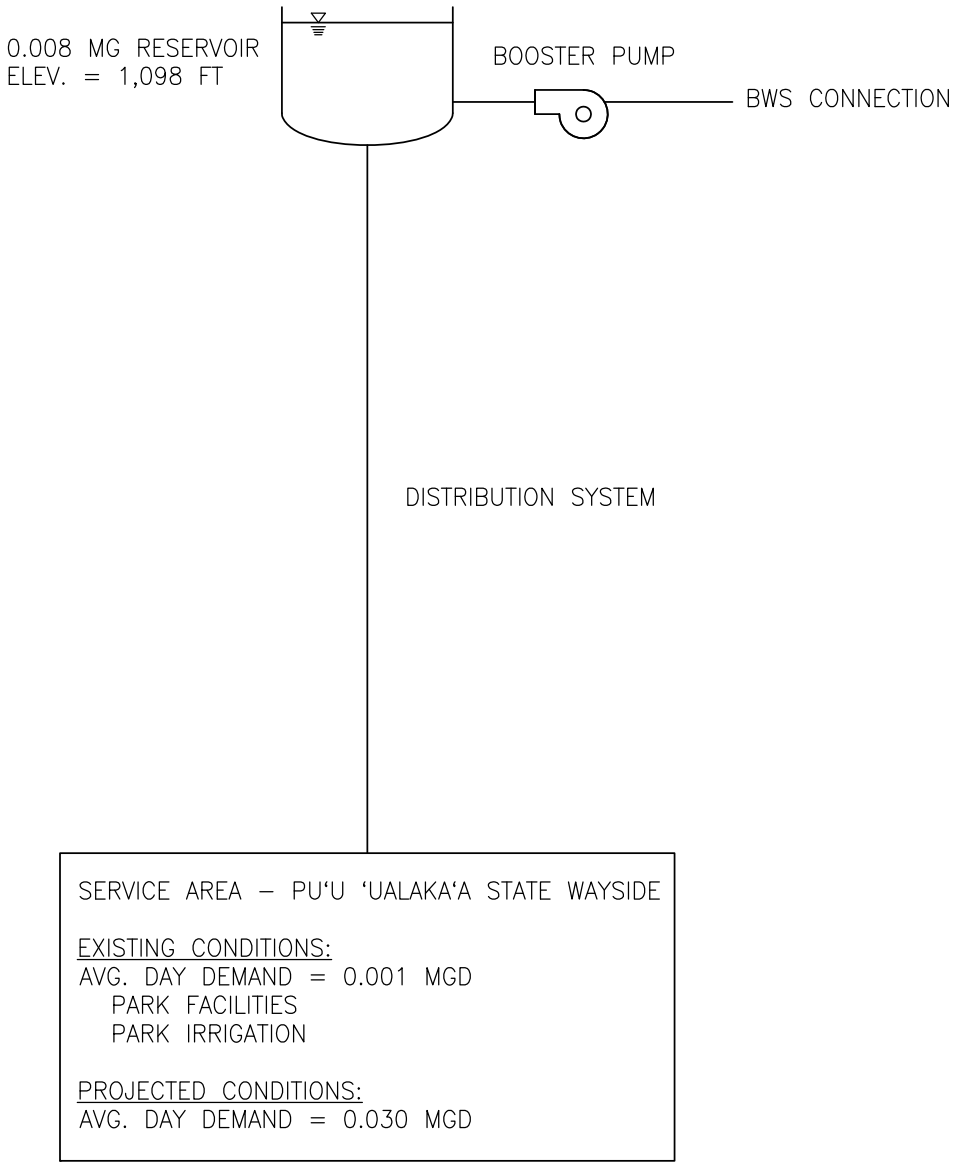
KEAĪWA HEIAU STATE RECREATION AREA (O‘AHU) - DLNR-PARKS



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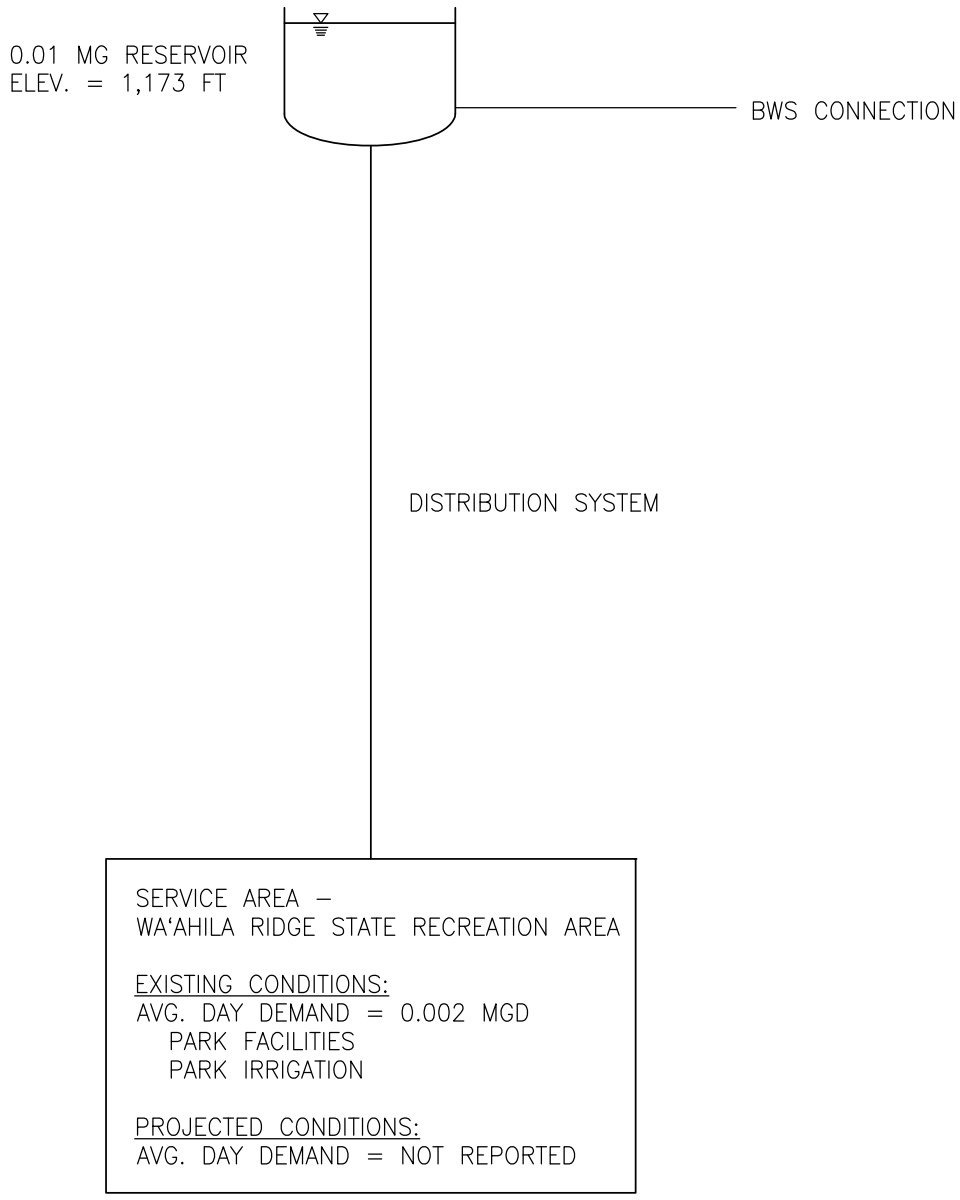
PU‘U ‘UALAKA‘A STATE WAYSIDE (O‘AHU) - DLNR PARKS



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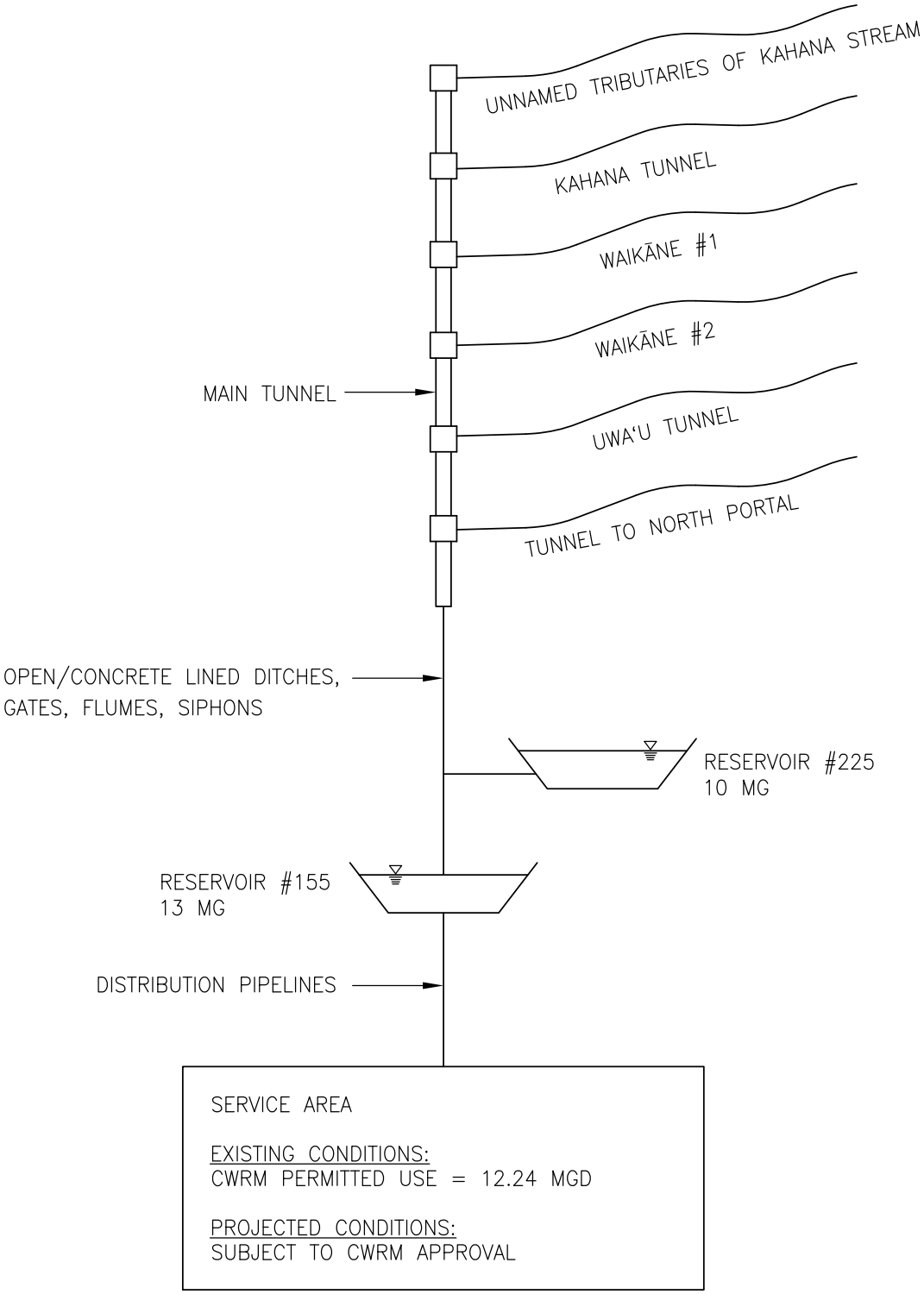
WA‘AHILA RIDGE STATE RECREATION AREA (O‘AHU) - DLNR-PARKS



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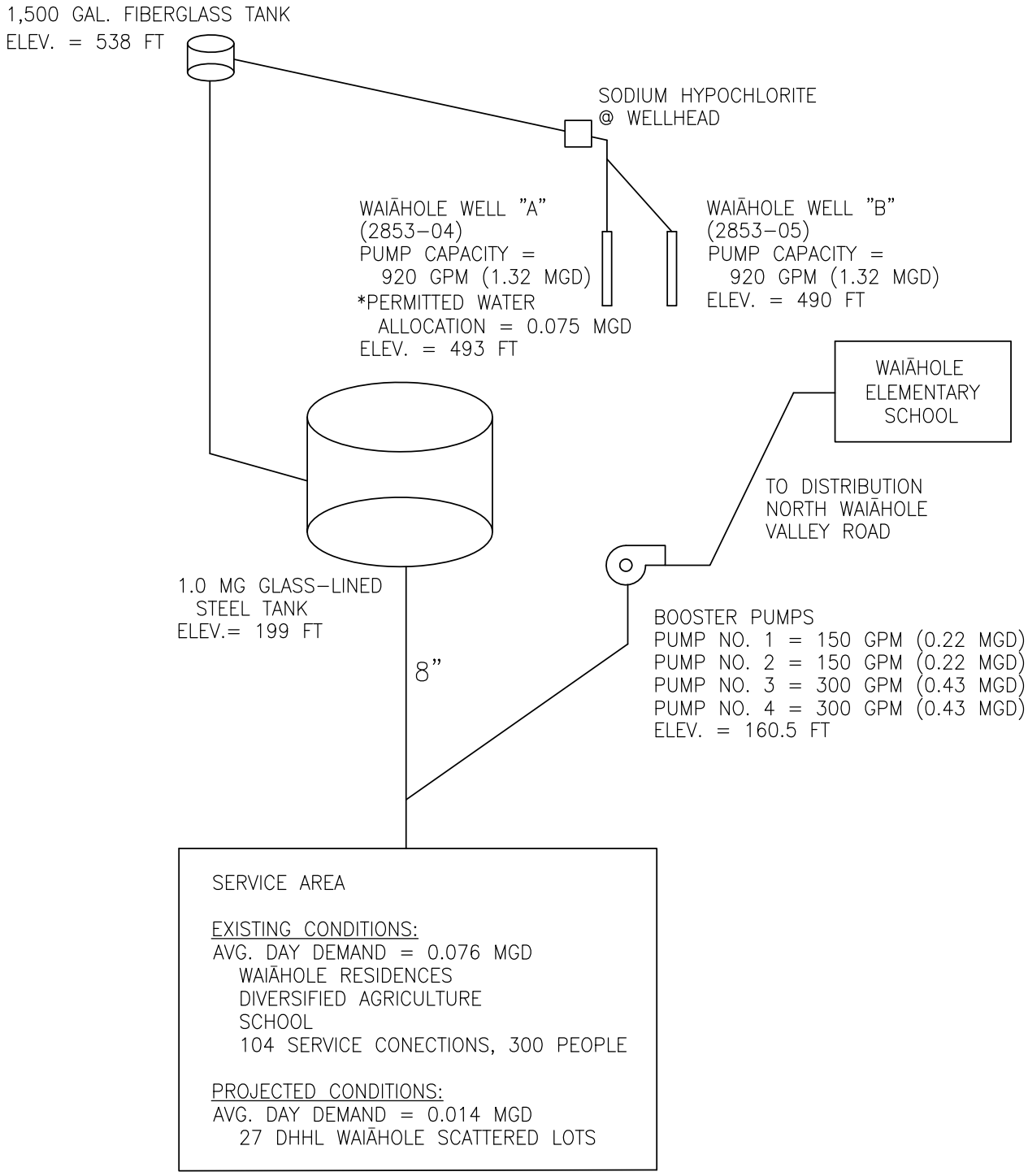
State Water Projects Plan Update - Statewide

WAIĀHOLE DITCH IRRIGATION SYSTEM (O‘AHU) - DOA-ADC



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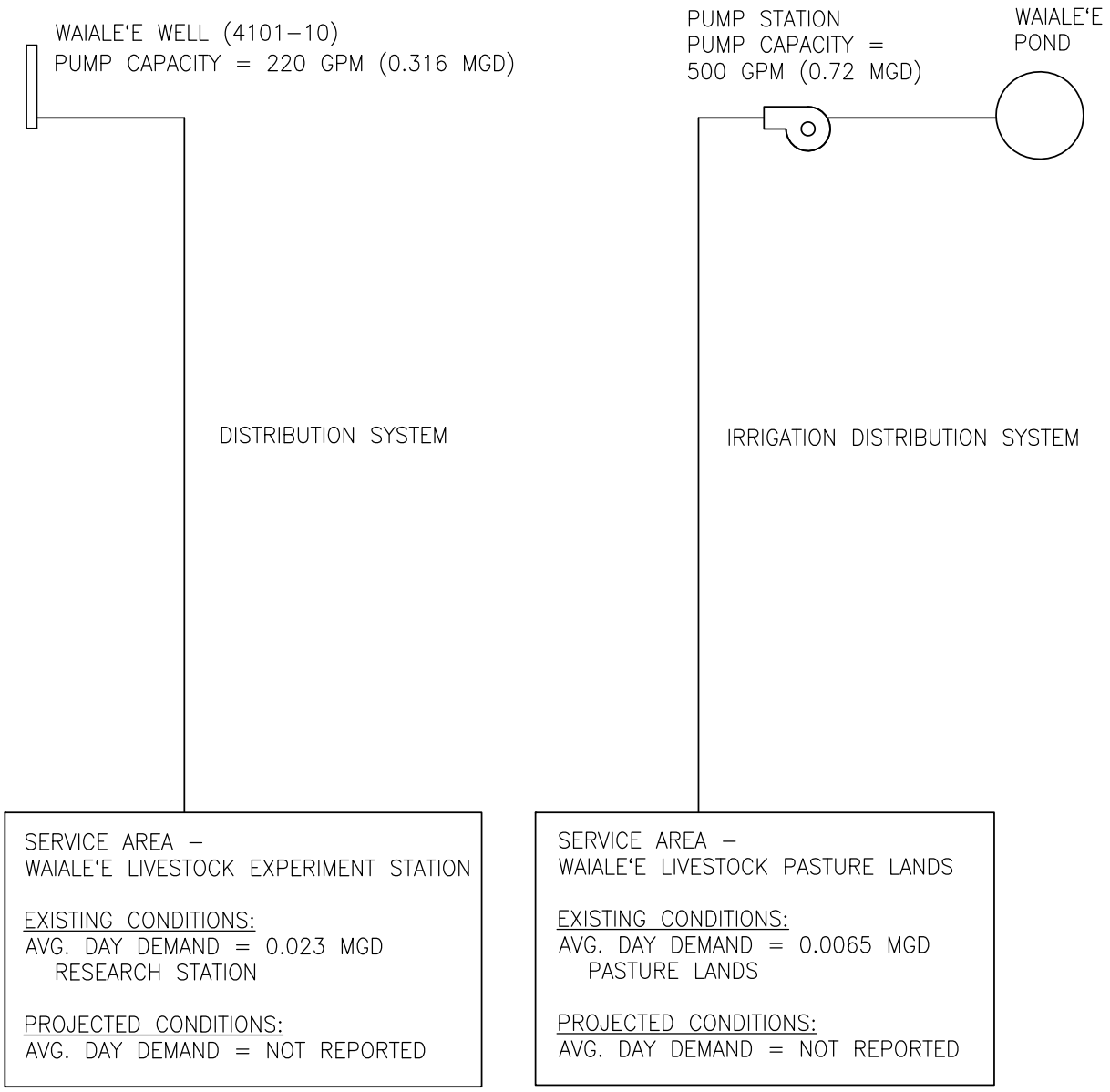
WAIĀHOLE WATER SYSTEM (O‘AHU) - DBEDT-HHFDC
PUBLIC WATER SYSTEM NO. 368



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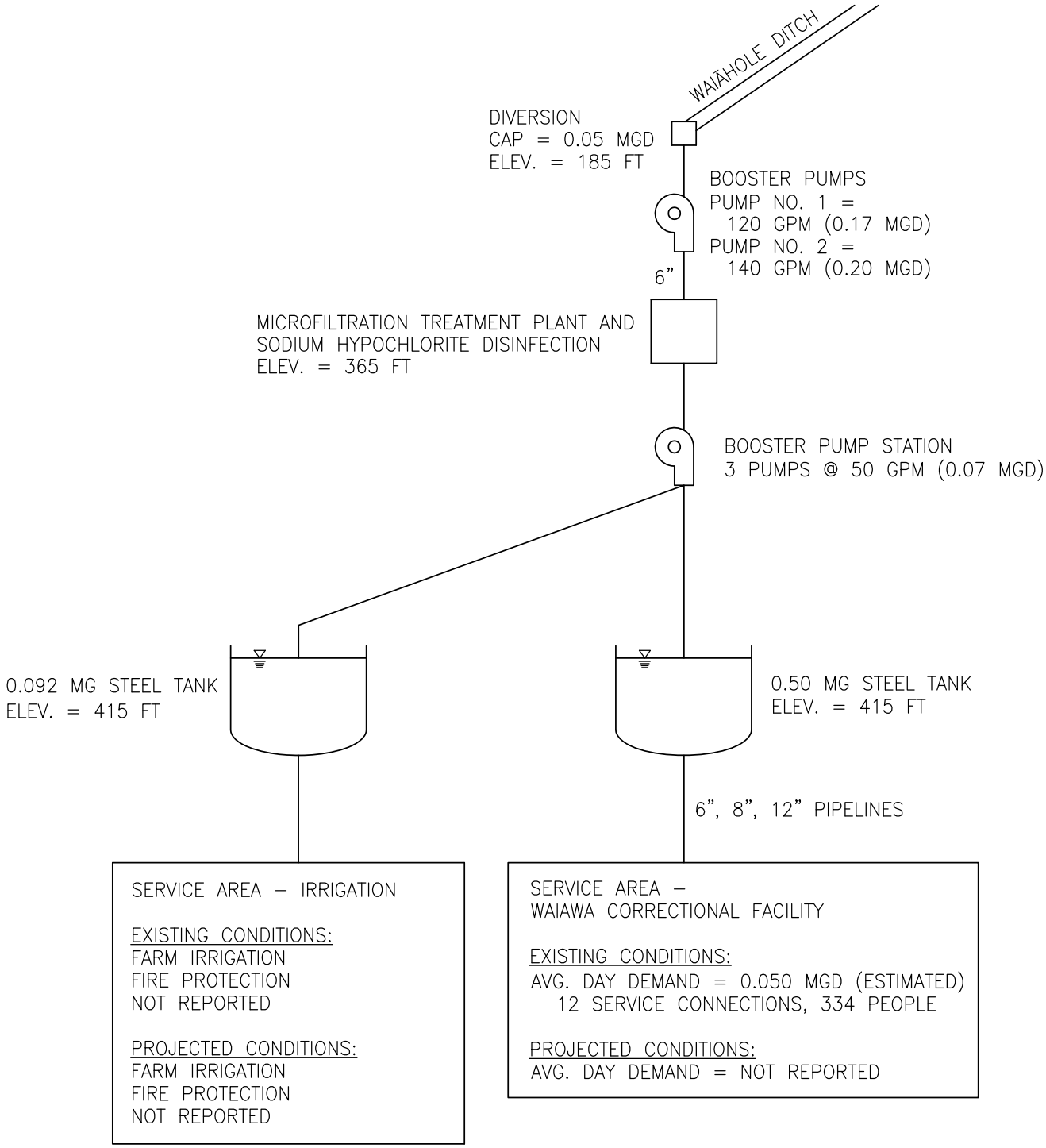
WAIALE'E LIVESTOCK EXPERIMENT STATION (O'AHU) - UH



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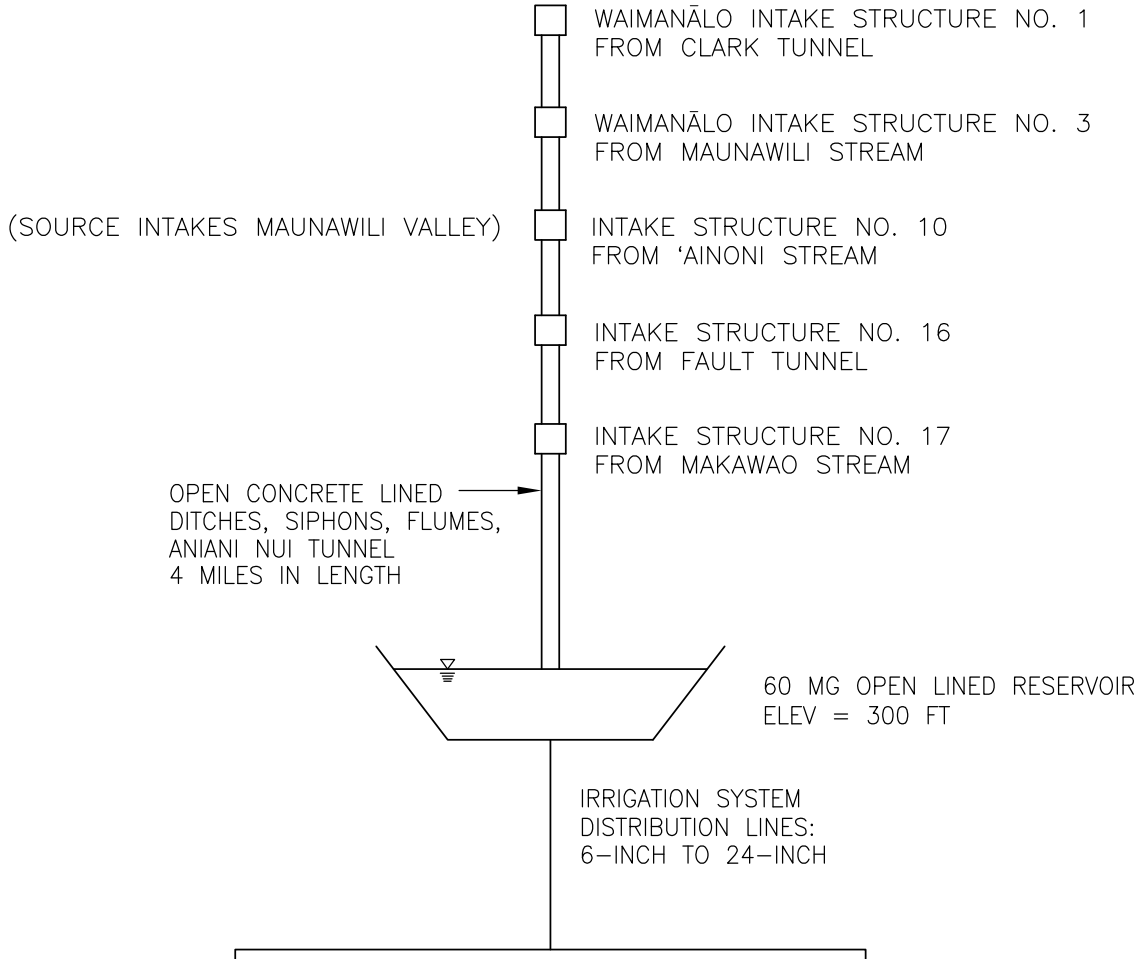
WAIAWA CORRECTIONAL FACILITY (O'AHU) - DPS
PUBLIC WATER SYSTEM NO. 348



SERVICE AREA –
WAIMĀNALO AGRICULTURAL FARM LOTS

EXISTING CONDITIONS:
AVG. DAY DEMAND = 0.158 MGD
1,027 AC
157 SERVICE CONNECTIONS
SMALL DIVERSIFIED AGRICULTURAL FARMS

PROJECTED CONDITIONS:
AVG. DAY DEMAND = NOT REPORTED

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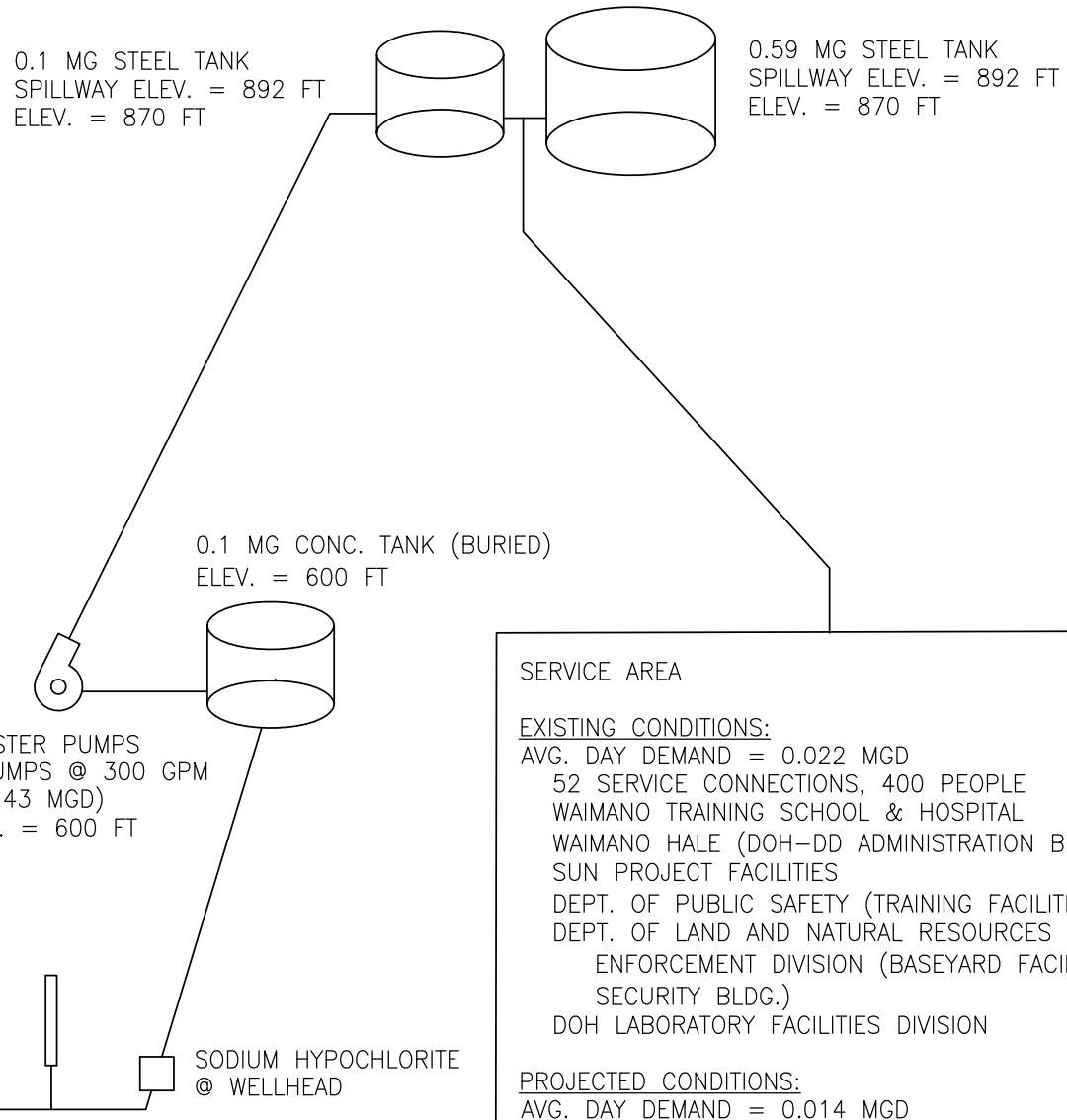
WAIMĀNALO IRRIGATION SYSTEM (O‘AHU) - DOA



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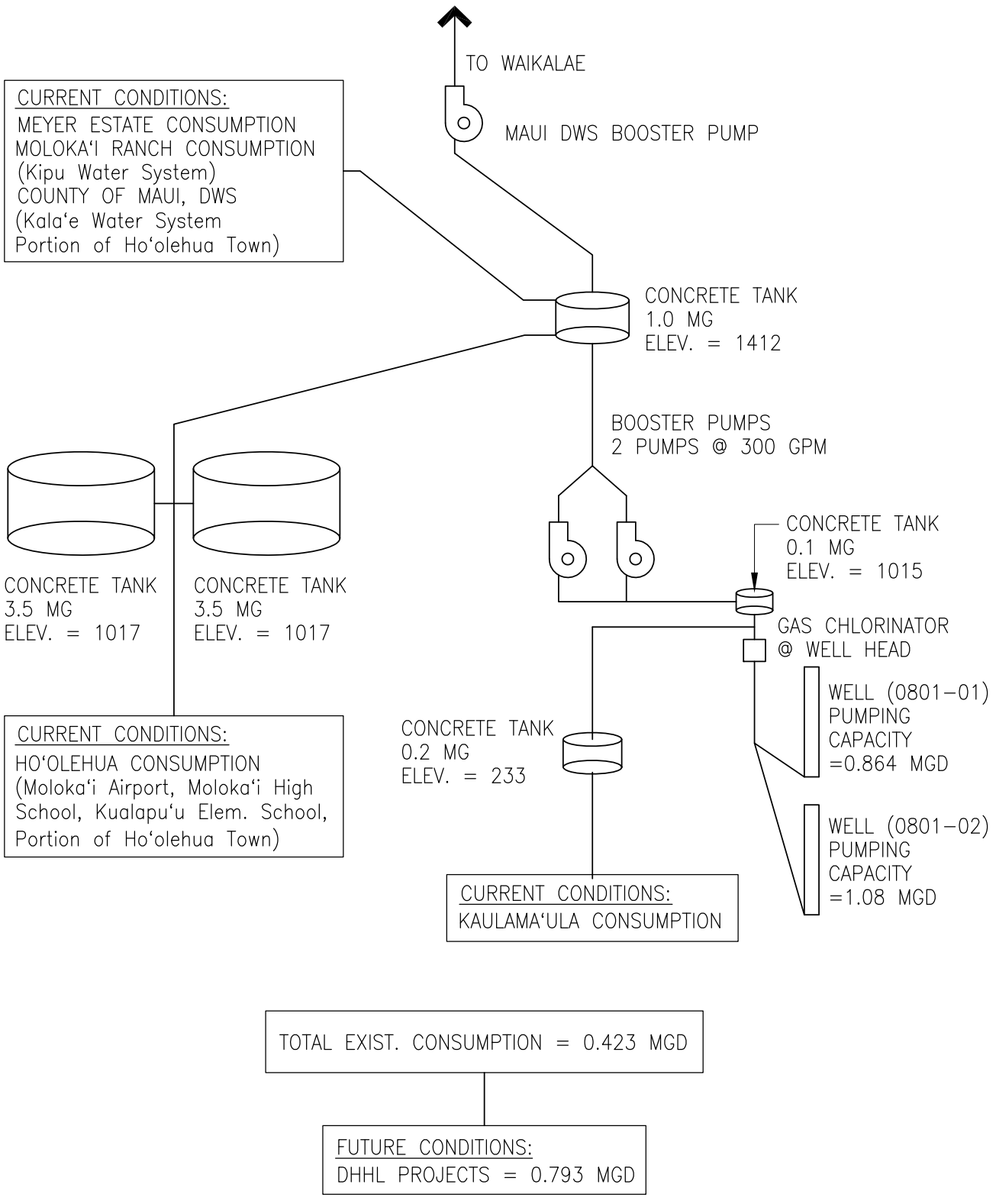
WAIMANO RIDGE WATER SYSTEM (OAH'U) - DOH
PUBLIC WATER SYSTEM NO. 306

MOLOKA'I



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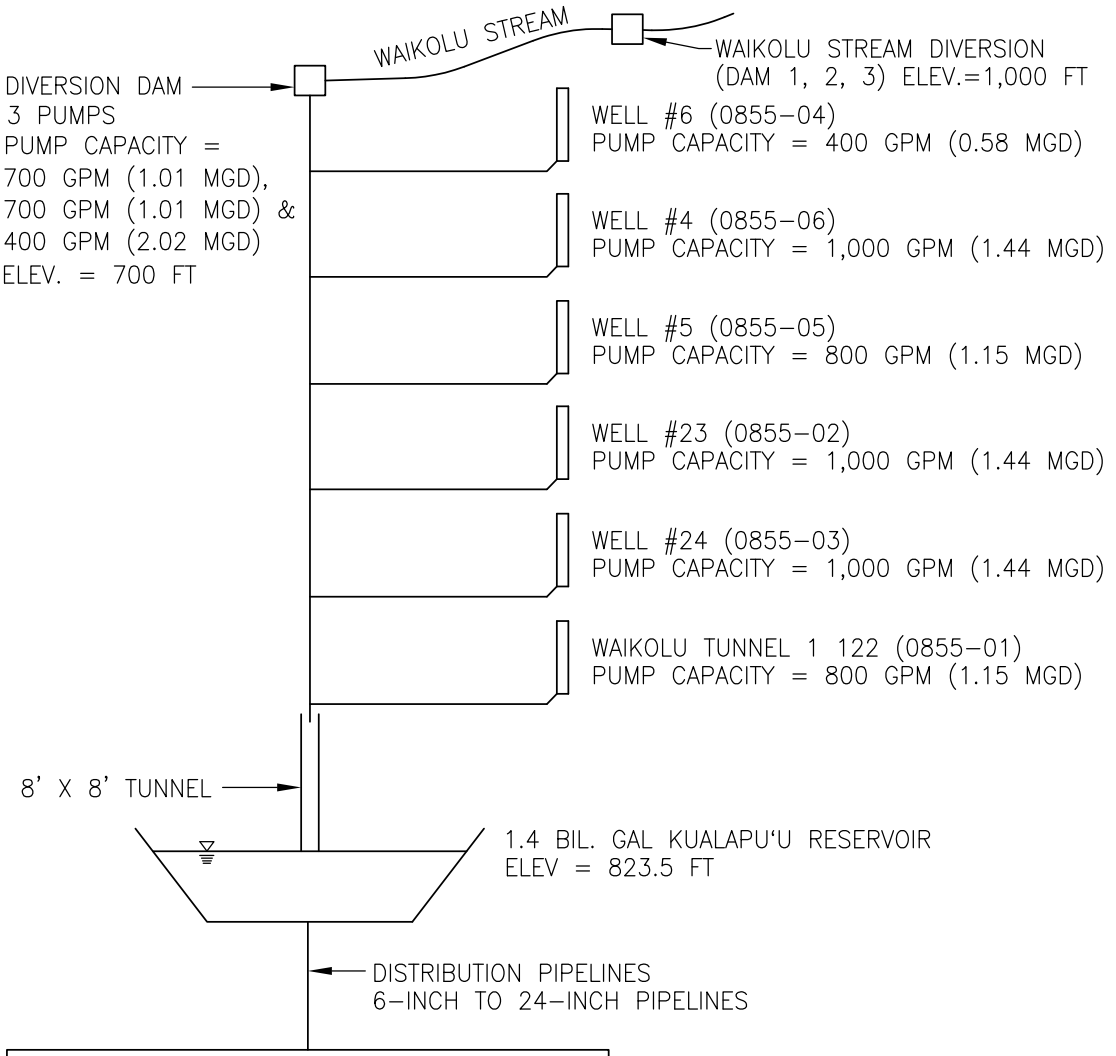
HO'OLEHUA WATER SYSTEM (MOLOKA'I) - DHHL
PUBLIC WATER SYSTEM NO. 230



SERVICE AREA

EXISTING CONDITIONS:

AVG. DAY DEMAND = 2.37 MGD

3,360 AC

250 SERVICE CONNECTIONS
MOLOKA'I AGRICULTURAL PARK
MOLOKA'I RANCH
DHHL HOMESTEAD FARMERS
PRIVATE FARMERS

PROJECTED CONDITIONS:

AVG. DAY DEMAND = 6.09 MGD

DHHL HO'OLEHUA & KALAMA'ULA TRACTS

Department of Land and Natural Resources - Engineering Division

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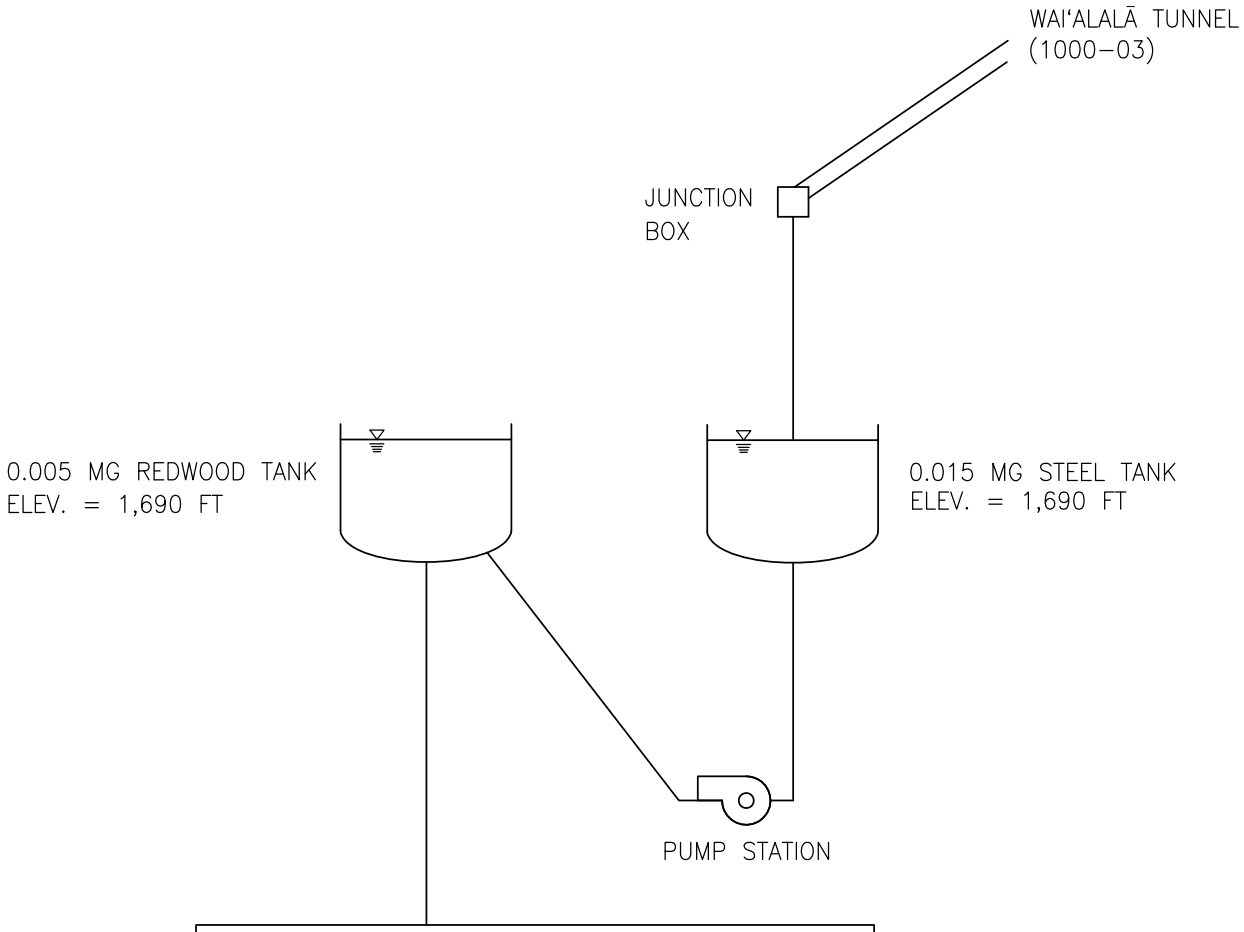
State Water Projects Plan Update - Statewide

MOLOKA'I IRRIGATION SYSTEM (MOLOKA'I) - DOA-ARMD



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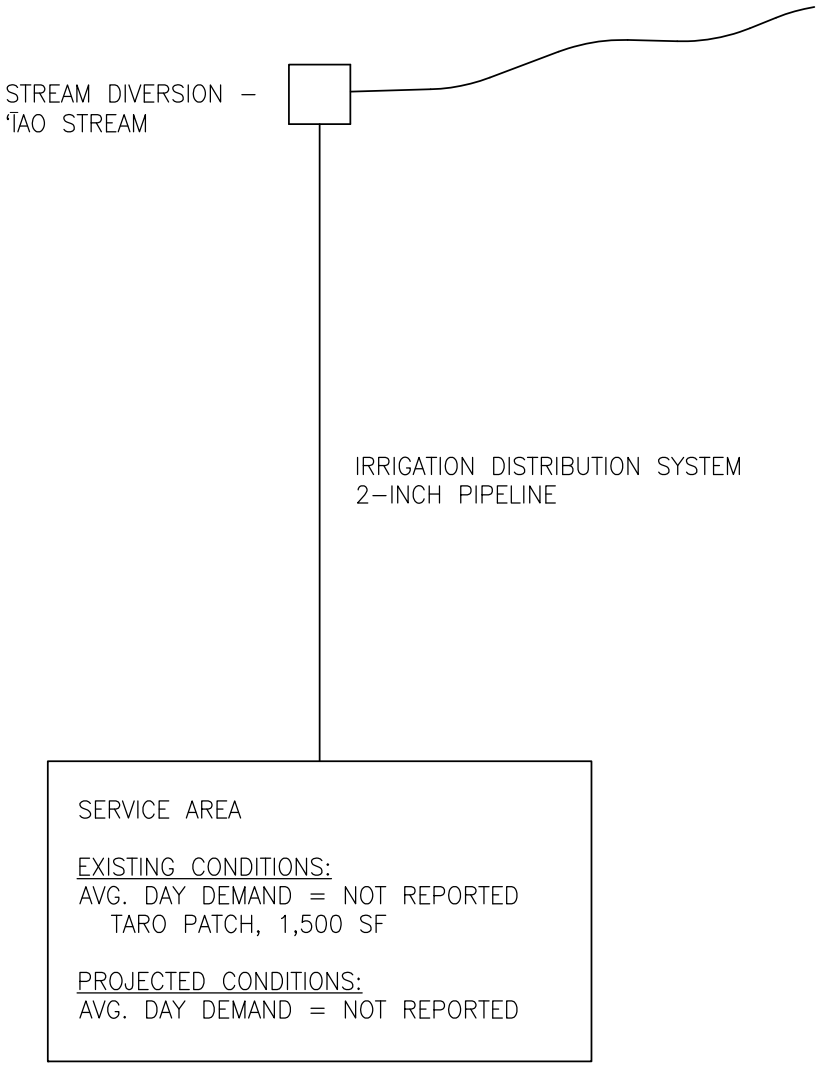
WAI'ALALĀ STATE PARK WATER SYSTEM (MOLOKA'I) - DLNR-PARKS



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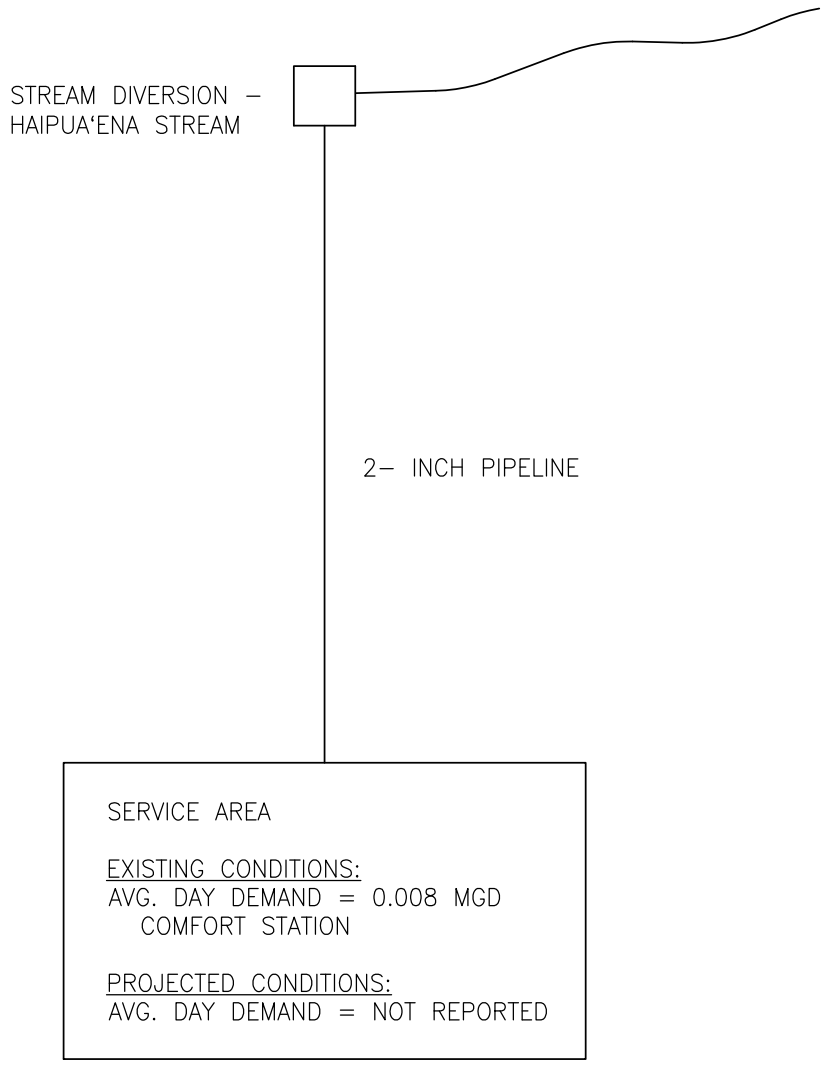
ʻĪAO VALLEY STATE MONUMENT (MAUI) - DLNR-PARKS



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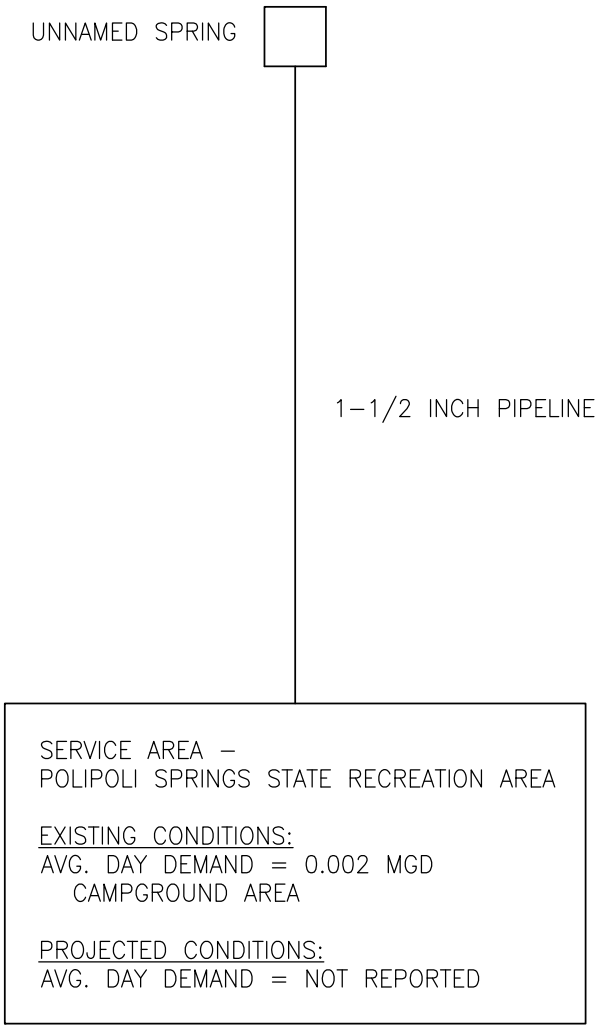
KAUMAHINA STATE WAYSIDE (MAUI) - DLNR-PARKS



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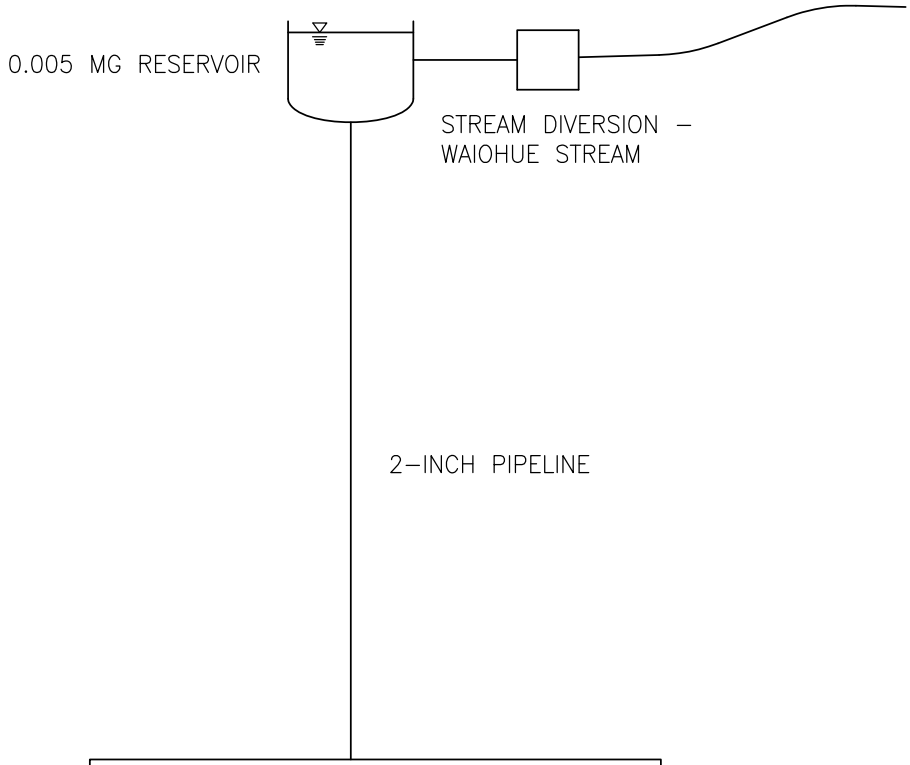
POLIPOLI SPRINGS STATE RECREATION AREA (MAUI) - DLNR-PARKS



SERVICE AREA – PUA'A KA'A STATE WAYSIDE

EXISTING CONDITIONS:
AVG. DAY DEMAND = 0.006 MGD
COMFORT STATION

PROJECTED CONDITIONS:
AVG. DAY DEMAND = NOT REPORTED

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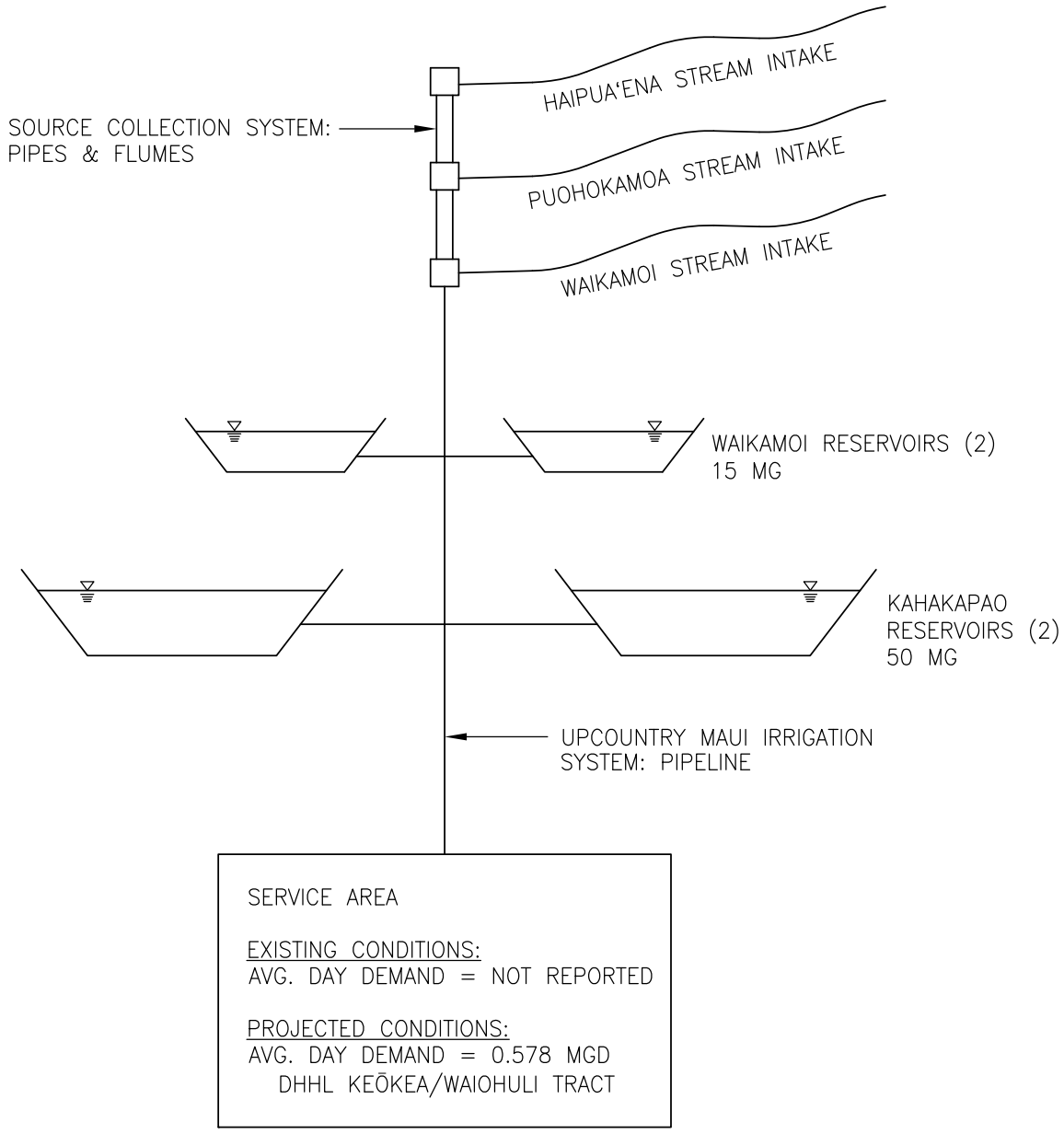
PUA'A KA'A STATE WAYSIDE (MAUI) - DLNR-PARKS



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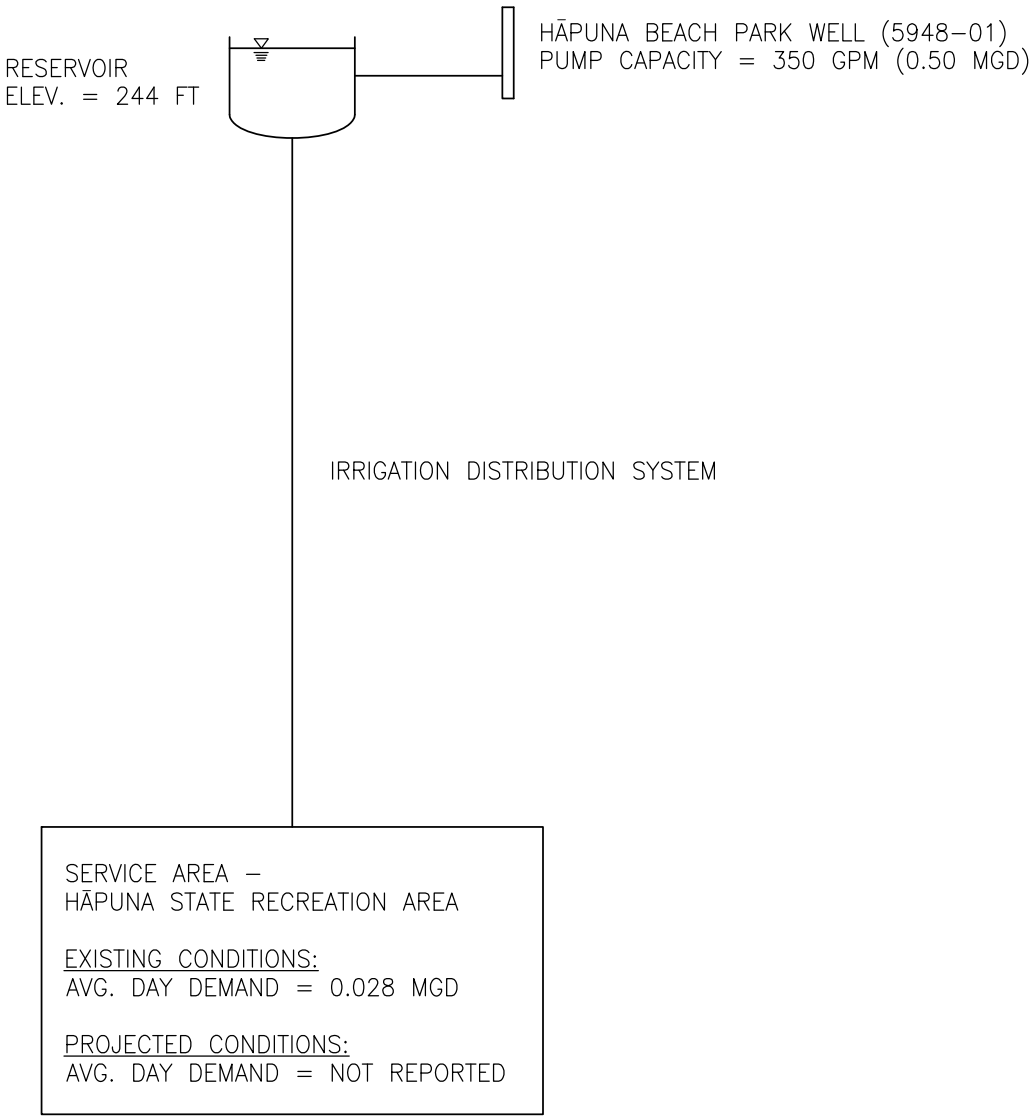
UPCOUNTRY MAUI IRRIGATION SYSTEM (MAUI) - DOA-ARMD



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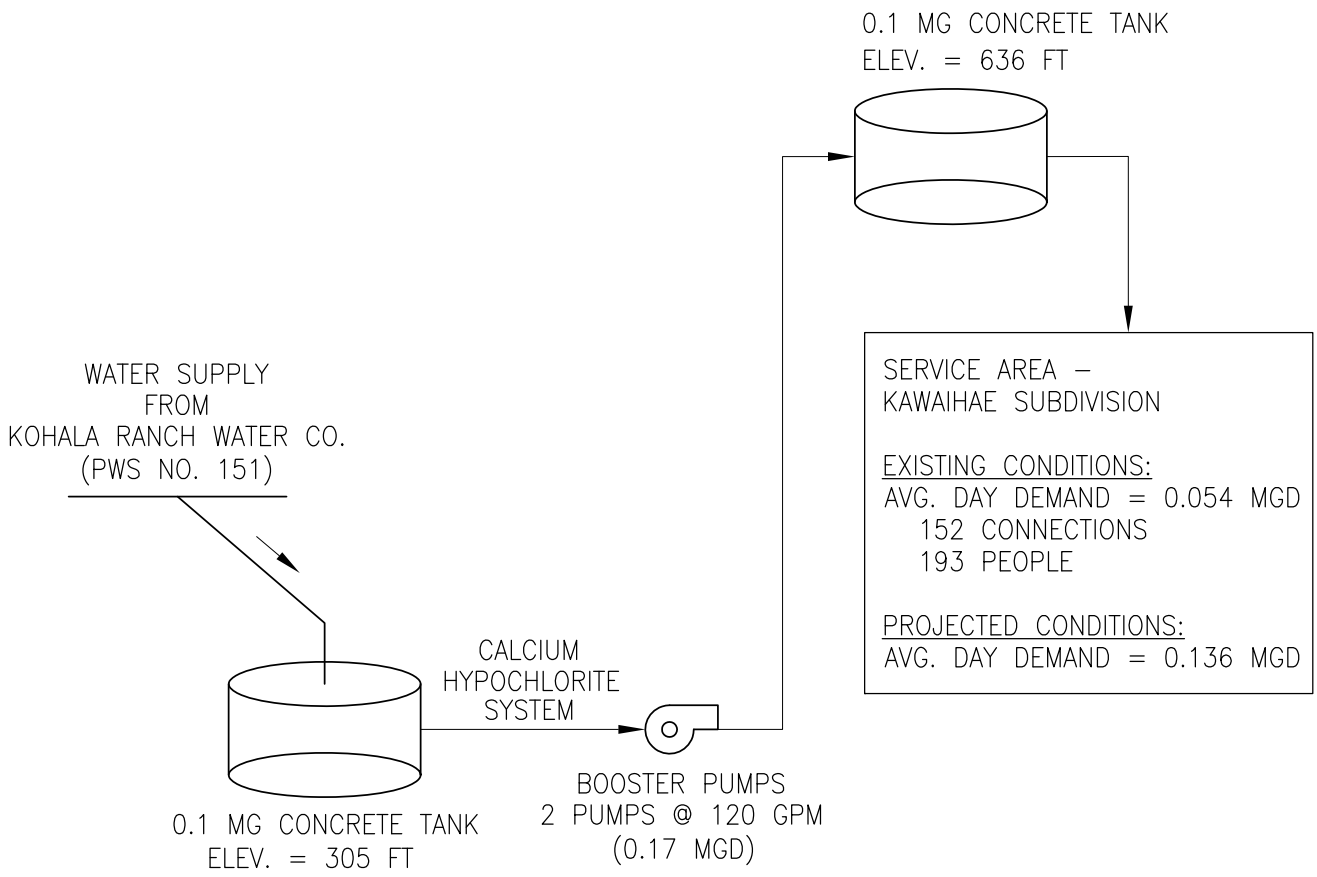
HĀPUNA BEACH STATE RECREATION AREA (HAWAIʻI) - DLNR-PARKS



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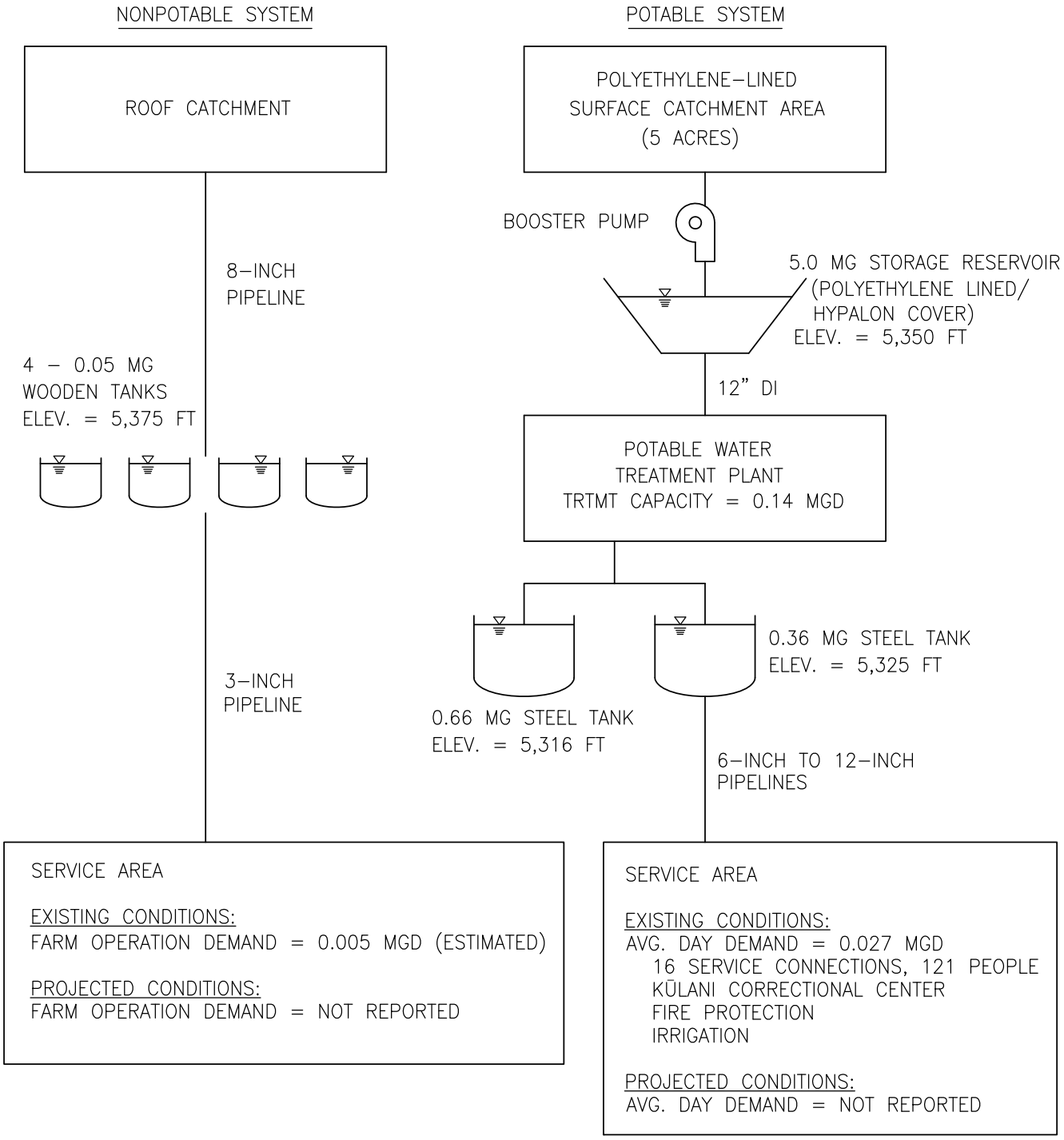
KAWAIHAE UNIT #1 WATER SYSTEM (HAWAI'I) - DHHL
PUBLIC WATER SYSTEM NO. 164



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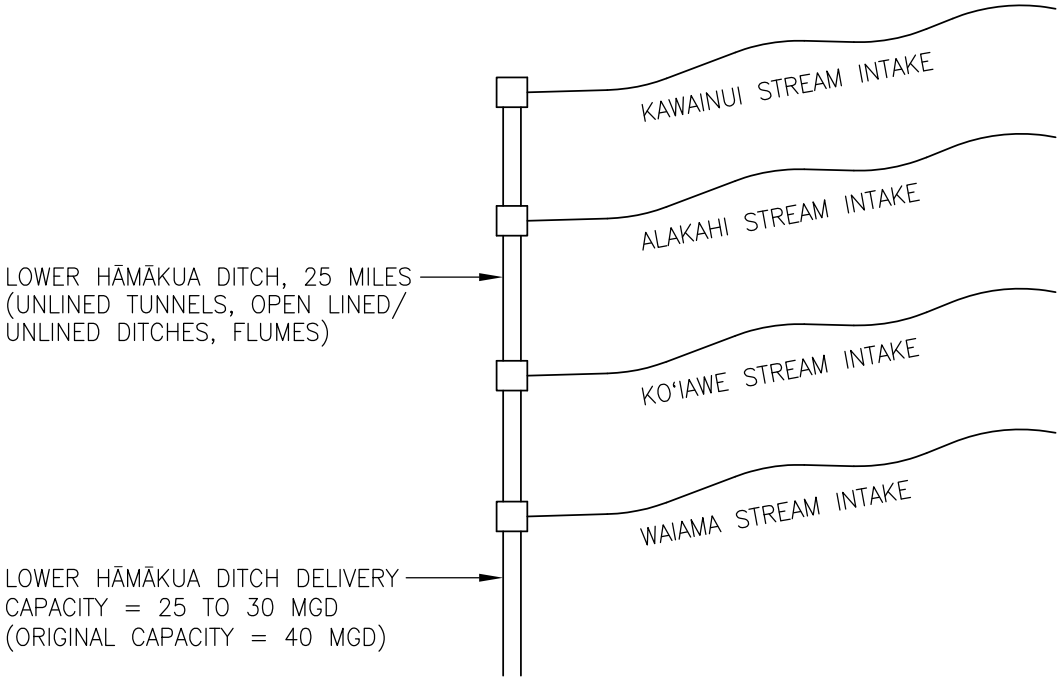
KŪLANI CORRECTIONAL FACILITY (HAWAIʻI) - DPS
PUBLIC WATER SYSTEM NO. 153



SERVICE AREA

EXISTING CONDITIONS:
AVG. DAY DEMAND = 0.063 MGD
FARMERS
HĀMĀKUA/NORTH HILO AGRICULTURAL COOPERATIVE (HNHAC) FARMERS/PRIVATE FARMERS/LAND OWNERS/RANCHERS

PROJECTED CONDITIONS:
AVG. DAY DEMAND = NOT REPORTED

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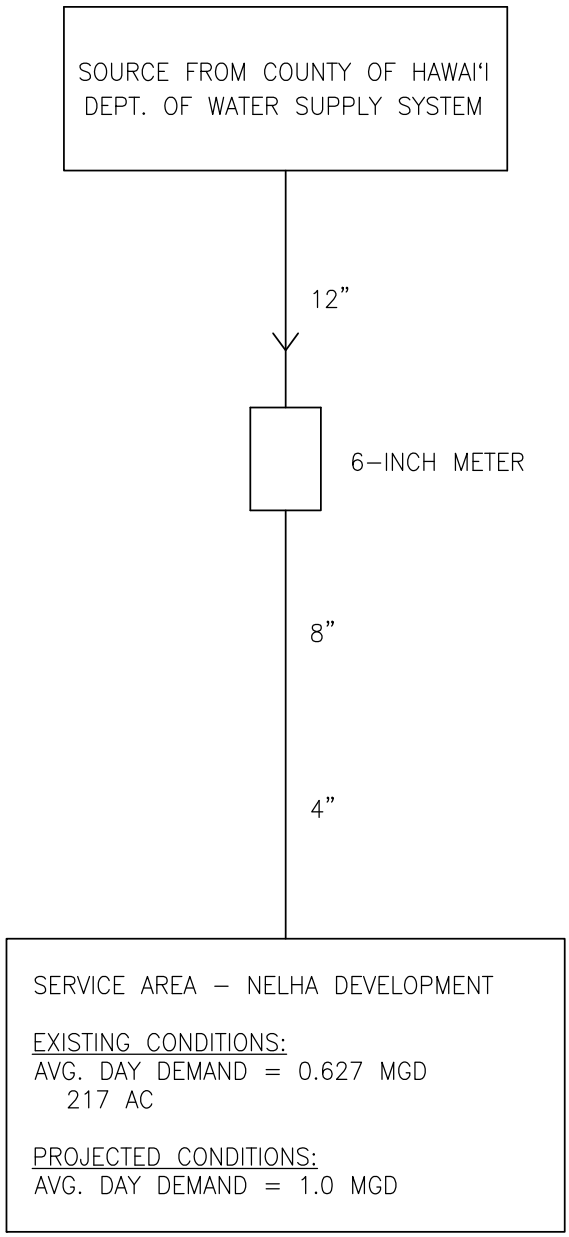
LOWER HĀMĀKUA DITCH IRRIGATION SYSTEM (HAWAIʻI) - DOA-ARMD



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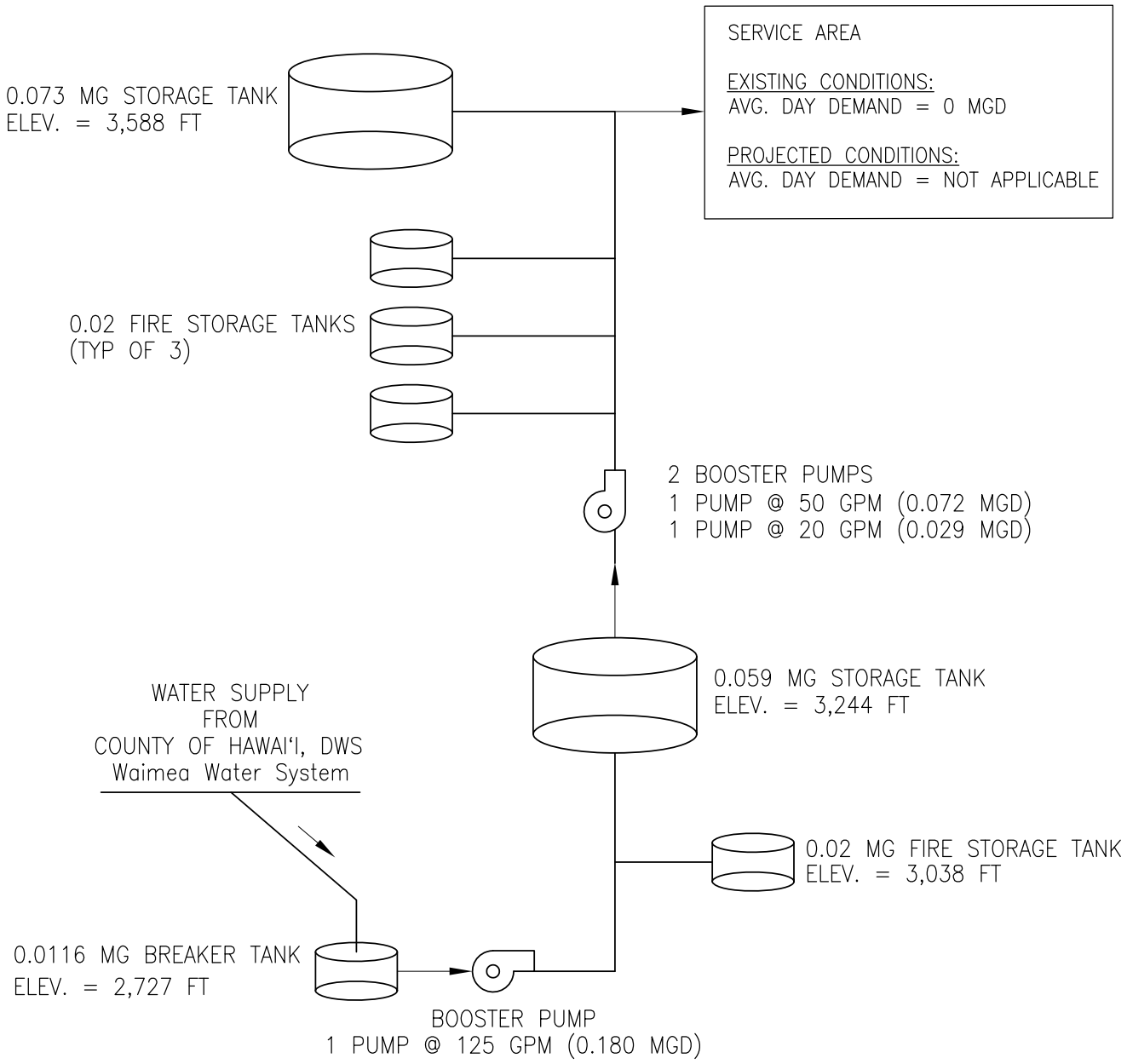
NATURAL ENERGY LABORATORY OF HAWAIʻI (HAWAIʻI) - DBEDT-NELHA



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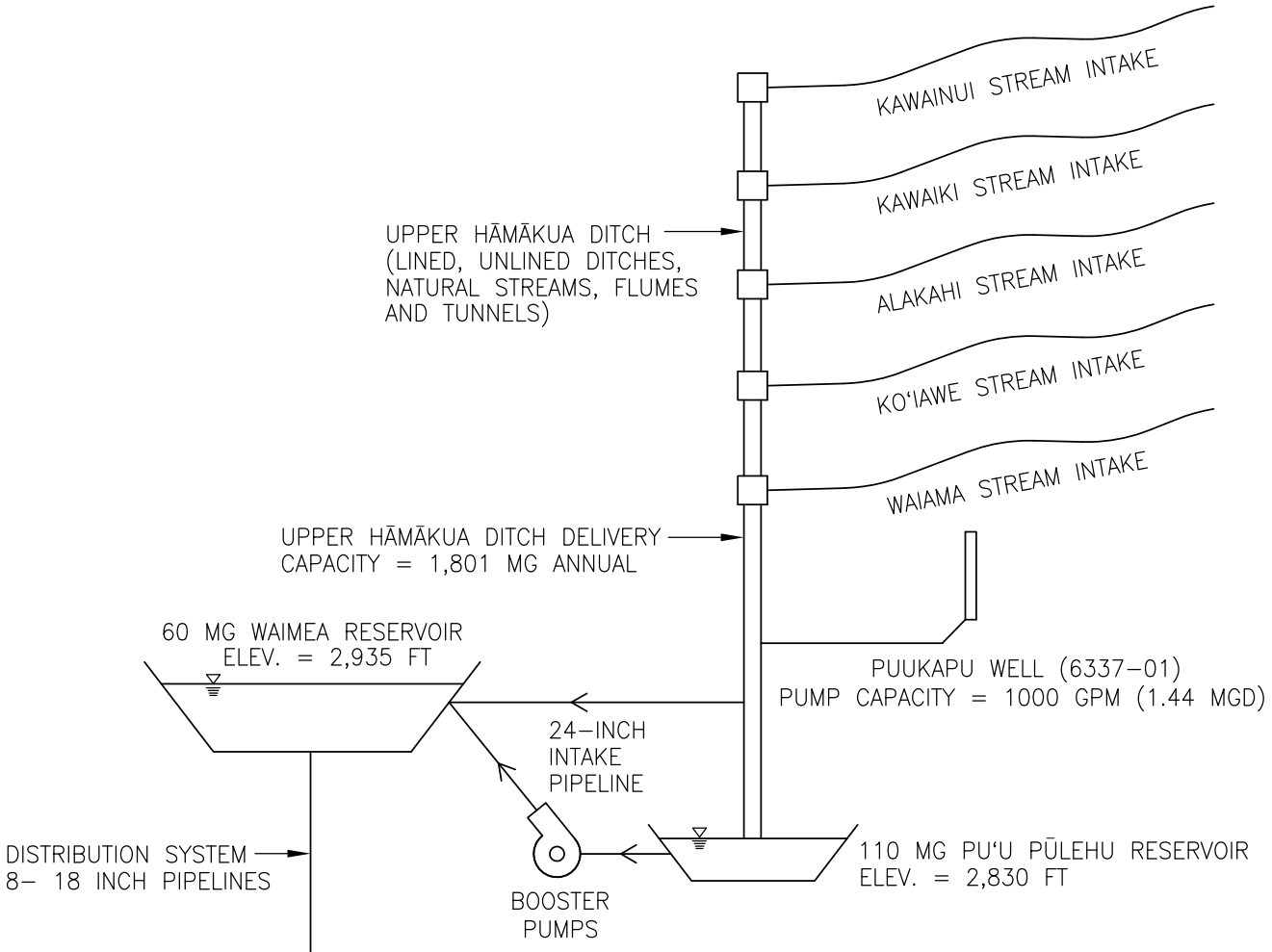
PUʻUKAPU HYBRID WATER SYSTEM (HAWAIʻI) - DHHL



SERVICE AREA

EXISTING CONDITIONS:
AVG. DAY DEMAND = 0.705 MGD
767 AC
LALAMILO FARMERS
PUʻUKAPU FARMERS
DHHL FARMERS

PROJECTED CONDITIONS:
AVG. DAY DEMAND = NOT REPORTED

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State Water Projects Plan Update - Statewide

WAIMEA IRRIGATION SYSTEM (HAWAIʻI) - DOA

APPENDIX F

SWPP Project Water Demands
by State Department – Potable

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SWPP Project Water Demands by State Department - Potable

State Department / Branch/Division	Proj. ID	Project	Island	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Department of Accounting and General Services												
Planning												
	DAG-002	Hawaii Community Correctional Center New Intake Unit	Hawaii	0.0000	0.0000	0.0000	0.0060	0.0060	0.0060	0.0060	0.0060	(3)-2-3-023:005
	DAG-007	Kona Judiciary Complex	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0146	0.0146	0.0146	0.0146	(3)-7-4-020:010 POR
	DAG-012	Puna Public Library Planning	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0136	0.0136	0.0136	(3)-1-5-007:017
	DAG-013	Waikoloa Public Library Planning	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0136	0.0136	0.0136	(3)-6-8-002:051
	DAG-015	West Hawaii Veterans Center	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0150	0.0150	0.0150	(3)-7-3-010:056
	DAG-005	Kauai Community Correctional Center New Segregation Housing	Kauai	0.0000	0.0000	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	(4)-3-9-005:013
	DAG-006	Kauai Community Correctional Center Restroom and Shower Improv.	Kauai	0.0000	0.0000	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	(4)-3-9-005:013
	DAG-009	Maui Regional Public Safety Complex	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2816	0.2816	(2)-3-8-008: por of 037 and 001
	DAG-001	Creative Media, Film, and Production Facility Planning	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0120	0.0120	0.0120	(1)-2-1-017:001
	DAG-003	Hawaii State Hospital Patient Facility	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0540	0.0540	0.0540	(1)-4-5-023:002 por
	DAG-004	Judiciary Multi-Use & HHFDC Housing Joint Development	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.1811	0.1811	0.1811	(1)-2-3-012:019
	DAG-008	Liliha Civic Center	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0480	0.0480	(1)-1-5-007:001
	DAG-011	Oahu Community Correctional Center Relocation & Expansion	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.1950	0.1950	0.1950	(1)-9-9-010:030

State Department / Branch/Division			Million Gallons Per Day								
Proj. ID	Project	Island	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Department of Accounting and General Services											
Project Management											
DAG-019	Hawaii Community Correctional Center New Medium Security Housing	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0105	0.0105	0.0105	(3)-2-3-023:005
DAG-016	Kauai Community Correctional Center New Medium Security Housing	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0105	0.0105	0.0105	(4)-3-9-005:013
DAG-018	Maui Community Correctional Center New Medium Security Housing	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0060	0.0060	(2)-3-8-046:005
DAG-010	Maui Veterans Cemetery Expansion and Improvements	Maui	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400	0.0400	0.0400	(2)-2-4-002:009
DAG-017	Women's Community Correctional Center New Housing	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0135	0.0135	0.0135	(1)-4-2-003:004
Subtotal	**Department of Accounting and General Services**		**0.0000**	**0.0000**	**0.0075**	**0.0535**	**0.0681**	**0.5929**	**0.9225**	**0.9225**	

State Department / Branch/Division	Proj. ID	Project	Island	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Department of Business, Economic Development & Tourism												
Hawaii Community Development Authority												
	HCD-001	630 Cooke Street Micro Unit Affordable Housing	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0312	0.0312	0.0312	(1)-2-1-051:014
	HCD-002	690 Pohukaina	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.2580	0.2580	0.2580	(1)-2-1-051:041
	HCD-003	Ola Ka 'Ilima Artspace Lofts	Oahu	0.0000	0.0000	0.0000	0.0000	0.0252	0.0252	0.0252	0.0252	(1)-2-3-003:040
Hawaii Housing Finance & Development Corpor												
	DBT-003	Kamakana Villages at Keahuolu	Hawaii	0.0000	0.0000	0.0680	0.0680	0.1880	0.8840	1.1140	1.1140	(3) 7-4-021: 020, 24-41, 44-48
	DBT-004	Villages of Leali'i	Maui	0.0000	0.0000	0.0000	0.0000	0.1458	0.5133	0.9954	1.8185	(2)-4-5-021:003-005, 13, 21, 22, (2)4-5-028:70
Natural Energy Laboratory of Hawaii Authority												
	DBT-002	Ongoing NELHA Expansion (Potable)	Hawaii	0.0000	0.0000	0.0571	0.1072	0.1519	0.1921	0.3739	0.3739	(3)-7-3-043:083
Subtotal	**Department of Business, Economic Development & Tourism**			**0.0000**	**0.0000**	**0.1251**	**0.1752**	**0.5109**	**1.9038**	**2.7977**	**3.6208**	
Department of Defense												
Hawaii Army National Guard												
	DOD-004	Kalaeloa AASF (Potable)	Oahu	0.0000	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	(1)-9-1-013:045
	DOD-005	Kalaeloa B117 ph2 Combined Support Maintenance Shop	Oahu	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	(1)-9-1-013:045
	DOD-002	Kalaeloa Bridgade Readiness Center (Potable)	Oahu	0.0050	0.0050	0.0050	0.0055	0.0055	0.0060	0.0060	0.0060	(1)-9-1-013:045
Subtotal	**Department of Defense**			**0.0070**	**0.0095**	**0.0095**	**0.0100**	**0.0100**	**0.0105**	**0.0105**	**0.0105**	

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DOE-010	Chiefess Kapiolani Elementary School - 4 Classroom Building	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-2-2-020:001
DOE-012	DeSilva Elementary School - 4 Classroom Building	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-2-5-008:013
DOE-011	DeSilva Elementary School - New Administration Building	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-2-5-008:013
DOE-019	Haaheo Elementary School New 4 Classroom Building	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-2-6-020:038
DOE-018	Haaheo Elementary School New Cafeteria	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(3)-2-6-020:038
DOE-020	Haaheo Elementary School New Library	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-2-6-020:038
DOE-027	Hilo High School - 4 Classroom Building	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(3)-2-3-015:001
DOE-026	Hilo High School - New Administration Building	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-2-3-015:001
DOE-028	Hilo Intermediate School - Building A Renovation Phase 1	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(3)-2-3-021:058
DOE-029	Hilo Union Elementary School - New 6 Classroom Building	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-2-3-016:037
DOE-033	Holualoa Elementary School New 6 Classroom Building	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108	(3)-7-6-004:002
DOE-034	Holualoa Elementary School New Library/Administration	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-7-6-004:002
DOE-035	Honaunau Elementary School New Cafeteria	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(3)-8-3-013:021
DOE-036	Honaunau Elementary School New Library/Administration	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-8-3-013:021
DOE-038	Honokaa Elementary School New 4 Classroom	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(3)-4-5-010:076

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			2015	2016	2017	2018	2019	2024	2029	2034	
DOE-037	Honokaa Elementary School New Administration	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-4-5-010:076
DOE-039	Honokaa High School New 15 Classroom	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(3)-4-5-005:002
DOE-040	Honokaa High School New 6 Classroom	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-4-5-005:002
DOE-044	Hookena Elementary School New 8 Classroom	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-8-6-010:009
DOE-042	Hookena Elementary School New Administration	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-8-6-010:009
DOE-043	Hookena Elementary School New Cafeteria	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(3)-8-6-010:009
DOE-045	Hookena Elementary School New Library	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015	(3)-8-6-010:009
DOE-063	Kalanianaole Elementary School - 8 Classroom Building	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-2-7-022:002
DOE-064	Kalanianaole Elementary School New Library	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-2-7-022:002
DOE-072	Kau High School and Pahala Elementary School 10 Classroom Building	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0180	0.0180	(3)-9-6-005:008
DOE-073	Kau High School and Pahala Elementary School 12 Classroom Building	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(3)-9-6-005:008
DOE-074	Kau High School and Pahala Elementary School 3 Classroom Building	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0002	(3)-9-6-005:008
DOE-077	Kaumana Elementary School - New 4 Classroom	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(3)-2-5-005:084
DOE-079	Keaau Intermediate School New Administration	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-1-6-002:001
DOE-080	Keaau Intermediate School New Band Building	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-1-6-002:001

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DOE-082	Kealakehe Elementary School New 8 Classroom	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	0.0005	(3)-7-4-019:044
DOE-081	Kealakehe Elementary School New Library/Administration	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-7-4-019:044
DOE-084	Kealakehe High School New 13 Classroom	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	0.0008	(3)-7-4-021:004
DOE-085	Kealakehe II Elementary School	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600	(3)-7-4-019:044
DOE-086	Kealakehe Intermediate School New 8 Classroom	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(3)-7-4-019:044
DOE-087	Keaukaha Elementary School New Library/Administration	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-2-1-020:001
DOE-088	Keonepoko Elementary School New 4 Classroom	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(3)-1-5-009:059
DOE-089	Keonepoko Elementary School New Library/Administration	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-1-5-009:059
DOE-099	Kohala Elementary School New Library/Administration	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-5-4-007:014
DOE-100	Kohala High School New 4 Classroom	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-5-4-007:014
DOE-102	Kohala High School New Auto/Tech Shop	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-5-4-007:014
DOE-101	Kohala High School New Music Building	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-5-4-007:014
DOE-106	Konawaena High School New Library	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(3)-8-1-002:038
DOE-107	Konawaena Intermediate School New Administration	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-8-1-002:038
DOE-108	Konawaena Intermediate School New PE Lockers & Showers	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012	(3)-8-1-002:038

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DOE-110	Konawaena Intermediate School Renovate 12 Classrooms	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(3)-8-1-002:038
DOE-109	Konawaena Intermediate School Renovate 17 Classrooms	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015	(3)-8-1-002:038
DOE-120	Laupahoehoe High School & Elementary School New Band/Chorus	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-3-5-005:001
DOE-143	Mountain View Elementary School New 12 Classroom	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(3)-1-8-001:007
DOE-141	Mountain View Elementary School New Administration	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-1-8-001:007
DOE-142	Mountain View Elementary School New Cafeteria	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029	0.0029	(3)-1-8-001:007
DOE-144	Naalehu Elementary School New Library	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-9-5-009:006
DOE-148	Pahoa Elementary School New 10 Classroom	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(3)-1-5-114:025
DOE-147	Pahoa Elementary School New Administration	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-1-5-114:025
DOE-149	Pahoa High School New Administration	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-1-5-003:038
DOE-160	Waiakea Elementary School New Library/Administration	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-2-4-001:015
DOE-161	Waiakea Intermediate School New PE Locker/Shower	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-2-4-001:015
DOE-162	Waiakeawaena Elementary School New Cafeteria	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029	0.0029	(3)-2-2-042:017
DOE-174	Waikoloa Elementary School 3rd Increment 8 Classroom/Library	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010	0.0010	(3)-6-8-002:038
DOE-176	Waimea Elementary School 2nd Increment	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(3)-6-7-002:015

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DOE-179	Waimea Intermediate School New 8 Classroom	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-6-7-002:015
DOE-180	Waimea Intermediate School New Music Building	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-6-7-002:015
DOE-181	Waimea Intermediate School New PE Locker/Shower	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-6-7-002:015
DOE-066	Kapaa Elementary School New Administration	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(4)-4-6-014:031
DOE-067	Kapaa Elementary School New Library	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(4)-4-6-014:031
DOE-068	Kapaa High School New Administration	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(4)-4-6-014:031
DOE-069	Kapaa II Elementary School	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(4)-4-6-014:031
DOE-092	Kilauea Elementary School New Administration	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(4)-5-2-009:006
DOE-093	Kilauea Elementary School New Library	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(4)-5-2-009:006
DOE-096	King Kaumualii Elementary School Administration Building	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(4)-3-7-003:009
DOE-104	Koloa Elementary School New 6 Classroom (Potable)	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0036	0.0036	(4)-2-8-010:011
DOE-105	Koloa II Elementary School	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(4)-2-8-010:011
DOE-177	Waimea High School New Library	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(4)-1-6-010:004
DOE-178	Waimea High School Revovation Bldg. C & H	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(4)-1-6-010:004
DOE-008	Central Maui Middle School (New School)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1000	0.1000	(2)-3-8-007:101

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DOE-021	Haiku Elementary School New 6 Classroom	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(2)-2-7-008:097
DOE-022	Hana High School & Elementary School New Administration	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-1-3-006:008
DOE-030	Hawaiian Language Immersion Program (HLIP) Maui - New School	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600	(2)-3-8-007:101
DOE-048	Iao Intermediate School New 12 Classroom (Armory)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0216	0.0216	(2)-3-4-009:004
DOE-049	Iao Intermediate School New 8 Classroom	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0126	0.0126	(2)-3-4-009:004
DOE-061	Kalama Intermediate School New Administration	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-2-4-032:109
DOE-090	Kihei Elementary School New Administration	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(2)-2-2-002:043
DOE-091	Kihei High School (New School)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200	0.1200	(2)-2-2-002:081
DOE-097	King Kekaulike High School New 6 Class	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108	(2)-2-3-007:032
DOE-113	Lahaina III Elementary School	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600	(2)-4-3-001:082
DOE-118	Lahaina Inter. School Locker/Shower Facility & Playfield (Potable)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-4-6-018:013
DOE-115	Lahaina Intermediate School New 8 Classroom	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(2)-4-6-018:013
DOE-114	Lahaina Intermediate School New Administration	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-4-6-018:013
DOE-116	Lahaina Intermediate School New Library	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-4-6-018:013
DOE-119	Lahainaluna High School New 8 Classroom	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0140	0.0140	0.0140	(2)-4-6-018:005

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DOE-125	Lokelani Intermediate School New Admin	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-2-2-002:043
DOE-126	Lokelani Intermediate School New Cafeteria	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0027	0.0027	(2)-2-2-002:043
DOE-127	Lokelani Intermediate School New Class	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108	(2)-2-2-002:043
DOE-130	Makawao Elementary School 12 Classroom Building	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0216	0.0216	(2)-2-4-005:010
DOE-131	Makawao Elementary School 8 Classroom Building	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(2)-2-4-005:010
DOE-145	Nahienaena Elementary School New Library/Admin	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0016	0.0016	(2)-4-6-018:013
DOE-150	Paia Elementary School New Administration	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(2)-2-5-005:004
DOE-153	Pukalani Elementary School - Administration/Library/Renovate 4 Classrooms	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(2)-2-3-009:035
DOE-155	Puukolii Elementary School 1st Increment (New School)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	(2)-4-4-002:040
DOE-156	Puukolii Elementary School 2nd Increment (New School)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	(2)-4-4-002:040
DOE-172	Waihee Elementary School New 8 Classroom	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(2)-3-2-007:021
DOE-171	Waihee Elementary School New Admin	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(2)-3-2-007:021
DOE-078	Kaunakakai Elementary School New 8 Classroom	Molokai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010	(2)-5-3-002:052
DOE-094	Kilohana Elementary School New Cafeteria	Molokai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(2)-5-3-002:052
DOE-095	Kilohana Elementary School New Library	Molokai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-5-3-002:052

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Proj. ID	Project	Island	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
DOE-111	Kualapuu Elementary School 6 Classroom Building	Molokai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(2)-5-2-013:027
DOE-132	Maunaloa Elementary School New 4 Classroom	Molokai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(2)-5-1-009:103
DOE-133	Maunaloa Elementary School New Library	Molokai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-5-1-009:103
DOE-140	Molokai High School 8 Classroom Building	Molokai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(2)-5-2-015:001
DOE-139	Molokai High School Cafeteria	Molokai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030	(2)-5-2-015:001
DOE-138	Molokai High School New Administration	Molokai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-5-2-015:001
DOE-002	Aiea High School Applied Technology Center	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010	(1)-9-9-005:001
DOE-001	Aiea High School Library Expansion	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0013	0.0013	(1)-9-8-031:017
DOE-003	Campbell High School New 27 Classroom Building	Oahu	0.0000	0.0000	0.0000	0.0500	0.0500	0.0500	0.0500	0.0500	(1)-9-1-001:002
DOE-004	Castle High School Cafeteria Expansion	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0060	(1)-4-5-034:014
DOE-005	Central Intermediate - Renovate Bldg A Ph 1 15 Classroom	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017	(1)-2-1-005:001, (1)-2-1-009:001,002,003
DOE-006	Central Intermediate - Renovate Bldg C 16 Classroom	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0022	0.0022	(1)-2-1-005:001, (1)-2-1-009:001,002,003
DOE-007	Central Middle School - Renovate Cafeteria	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0023	0.0023	(1)-2-1-005:001, (1)-2-1-009:001,002,003
DOE-009	Central Oahu High School	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200	(1)-9-4-006:038
DOE-013	East Kapolei Elementary School (New School)	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(1)-9-1-160:024

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Proj. ID	Project	Island	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
DOE-014	East Kapolei High School (New School)	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200	(1)-9-1-018:012
DOE-015	East Kapolei Middle School (New School)	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(1)-9-1-017:110
DOE-016	Ewa Makai Middle School New 25 Classroom Building	Oahu	0.0000	0.0000	0.0000	0.0500	0.0500	0.0500	0.0500	0.0500	(1)-9-1-148:018
DOE-017	Farrington High School Campus Modernization	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500	(1)-1-6-021:005
DOE-031	Hawaiian Language Immersion Program (HLIP) New School	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(1)-3-4-003:001
DOE-023	Helemano Elementary School New Library	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(1)-7-1-002:017
DOE-024	Hickam Elementary School - New Administration Building	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-9-9-001:013
DOE-025	Hickam Elementary School - New Cafeteria and Library Expansion	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0033	0.0033	(1)-9-9-001:013
DOE-032	Holomua Elementary School New Classroom	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500	(1)-9-1-102:028
DOE-041	Honowai Elementary School Phase 1B of Administrative Building	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-9-4-032:043
DOE-046	Hoopili Elementary School New School	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(1)-9-1-018:010
DOE-047	Hoopili High School New School	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200	(1)-9-1-017:004
DOE-050	Kaaawa Elementary School New Cafeteria	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-5-1-002:018
DOE-051	Kaaawa Elementary School New Library/Adminstration	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011	(1)-5-1-002:018
DOE-052	Kaelepulu Elementary School, New Administration Building	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-4-2-090:074

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DOE-054	Kahuku Intermediate School & High School New Cafeteria	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0066	0.0066	(1)-5-6-006:003
DOE-055	Kahuku Intermediate School & High School New Gymnasium	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0040	(1)-5-6-006:003
DOE-056	Kahuku Intermediate School & High School New PE Lockers & Showers	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(1)-5-6-006:003
DOE-057	Kailua Elementary School Library Expansion	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(1)-4-3-056:003
DOE-058	Kainalu Elementary School New Admin	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-4-3-076:015
DOE-059	Kakaako Elementary New School	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600	(1)-2-1-052:008
DOE-060	Kalakaua Middle School - Renovate Bldgs G & H3 Classroom	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(1)-1-5-024:029,040; (1)-1-5-025:001,002
DOE-062	Kalani High School Multipurpose Athletic Facility	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012	(1)-3-5-020:004
DOE-065	Kamaile Elementary School New 8 Classroom	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(1)-8-5-002:037
DOE-070	Kapolei High School New Classroom	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0200	0.0200	0.0200	(1)-9-1-016:074
DOE-071	Kapolei Middle School New Classroom	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400	(1)-9-1-016:082
DOE-075	Kauluwela Elementary - 6 Classroom Bldg	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108	(1)-1-7-023:041; (1)-1-7-022:015
DOE-076	Kauluwela Elementary - New Cafeteria	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017	(1)-1-7-023:041,042
DOE-098	Koa Ridge Elementary School	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600	(1)-9-4-006:001
DOE-112	Kunia Elementary School New School	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(1)-9-4-012:011

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DOE-121	Leihoku Elementary School New 6 Classrooms	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108	(1)-8-6-001:054
DOE-122	Leilehua High School New Science/Classroom Building	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108	(1)-7-4-018:001
DOE-124	Linapuni Elementary School New Administration Building	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-1-3-039:005
DOE-128	Makaha Elementary School New Library	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(1)-8-4-025:010
DOE-129	Makalapa Elementary School - Admin and Renovation	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-9-9-075:028
DOE-134	McKinley High School - Renovate Industrial Arts Educ. Bldg 6 Classroom	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0019	0.0019	(1)-2-3-009:001
DOE-135	Mililani Middle School New Classroom	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1000	0.1000	(1)-9-5-002:040
DOE-136	Moanalua High School Performing Arts Center	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010	(1)-1-1-063:011
DOE-137	Mokapu Elementary School - Campus Wide Improvements	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(1)-4-4-009:007
DOE-146	Nanakuli High School New 8 Classroom	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(1)-8-9-007:009
DOE-151	Pearl Harbor Elementary School New 4 Classroom Building	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(1)-1-1-010:027
DOE-152	Pearl Harbor Kai Elementary School Building "F" Renovation 2 Classroom	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0002	(1)-9-9-001:012
DOE-154	Puohala Elementary School Expansion of Library and Administration	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011	(1)-4-5-030:038
DOE-157	Roosevelt High School - Renovate Bldg A Phase 1: Admin, Library, Cafeteria, 43 Classrooms	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0080	0.0080	(1)-2-4-032:001
DOE-158	Shafter Elementary School Replacement Campus	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(1)-1-1-008:008

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Department of Education											
DOE-159	Solomon Elementary School Campus-Wide Improvements	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(1)-7-7-001:007
DOE-163	Waialua Elementary School New Administration	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-6-7-001:010
DOE-164	Waianae High School New Administration	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(1)-8-5-015:001
DOE-165	Waianae High School New Cafeteria	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0074	0.0074	(1)-8-5-015:001
DOE-166	Waianae Intermediate School New 4 Classroom	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(1)-8-5-028:042
DOE-167	Waiau Elementary School Admin/Library	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011	(1)-9-8-050:071
DOE-168	Waiawa I Elementary School 1st Increment	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(1)-9-6-004:024
DOE-169	Waiawa Intermediate School 1st Increment	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	(1)-9-6-004:024
DOE-170	Waiawa Intermediate School 2nd Increment	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	(1)-9-6-004:024
DOE-175	Waimalu ES - Renovate Building A (6 Classrooms)	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(1)-9-8-008:007
DOE-182	Waipahu High School New Cafeteria	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0077	0.0077	(1)-9-4-008:020
DOE-183	Wheeler Elementary School - 8 Classroom Building	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(1)-7-7-001:002
Subtotal	**Department of Education**		**0.0000**	**0.0000**	**0.0000**	**0.1000**	**0.1000**	**0.1763**	**1.2169**	**2.1570**	

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			2015	2016	2017	2018	2019	2024	2029	2034	
Department of Hawaiian Home Lands											
DHL-001	Hilo Kanoelehua	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0360	0.0360	0.0360	(3)-2-2-060:001-010,085-089
DHL-002	Honokaia, Kamoku-Kapulena, Nienie 1	Hawaii	0.0000	0.0100	0.0100	0.0100	0.0100	0.0600	0.0948	0.0948	(3)-4-6-011, 012; (3)-4-7-006, 007
DHL-003	Honokaia, Kamoku-Kapulena, Nienie 2	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3012	(3)-4-6-011, 012; (3)-4-7-006, 007
DHL-004	Honokohau, Hawaii	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.6000	0.6000	0.6000	(3)-7-4-008:072
DHL-005	Honokohau, Keahuolu, Kealakehe	Hawaii	0.0000	0.3270	0.3270	0.3270	0.3270	0.3270	0.3270	0.5098	(3)-7-4-008:065,072; (3)-7-4-020, 021, 022, 023
DHL-006	Honomu-Kuhua	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0832	0.0832	(3)-2-8-011:009,011,019
DHL-007	Humuula-Piihonua	Hawaii	0.0000	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.2496	(3)-2-6-018:002; (3)-3-8-001; (3)-4-4-015:001
DHL-008	Kalaoa	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1132	0.1132	(3)-7-3-010:040,041
DHL-009	Kalaoa, Kaone	Hawaii	0.0000	0.3900	0.3900	0.3900	0.3900	0.3900	0.3900	0.3900	(3)-7-3-010:039
DHL-010	Kalaoa, Kona	Hawaii	0.0000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	(3)-7-3-010:007
DHL-011	Kamaoa-Puueo	Hawaii	0.0000	0.0380	0.0380	0.0380	0.0380	0.0836	0.0836	0.1046	(3)-9-3-001:002,003,007,010-013
DHL-013	Kawaihae Existing	Hawaii	0.0000	0.1356	0.1356	0.1356	0.1356	0.1356	0.1356	0.1356	(3)-6-1-007, 008, 009
DHL-014	Kawaihae Harbor	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600	(3)-6-1-002:065,069,070
DHL-015	Kawaihae Mauka	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.9812	(3)-6-1-001, 003, 006
DHL-016	Keaukaha, Waiakea-Panaewa	Hawaii	0.0000	0.0760	0.0760	0.0760	0.0760	0.0760	0.0760	1.3360	(3)-2-1; (3)-2-2; (3)-2-4

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			2015	2016	2017	2018	2019	2024	2029	2034	
Department of Hawaiian Home Lands											
DHL-018	Kurtistown-Olaa	Hawaii	0.0000	0.0252	0.0252	0.0252	0.0252	0.0252	0.0252	0.0252	(3)-1-8-011:012,016,023-025
DHL-020	Lalamilo Phase 2A, Increment 1	Hawaii	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	(3)-6-6-001:077
DHL-021	Lalamilo Phase 2A, Increment 2	Hawaii	0.0156	0.0308	0.0308	0.0308	0.0308	0.0308	0.0308	0.0308	(3)-6-6-001:077
DHL-022	Lalamilo Phase 2B	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0536	0.0536	0.0536	(3)-6-6-001:077
DHL-023	Lalamilo Phase 2C	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0496	0.0496	(3)-6-6-001:077
DHL-024	Lalamilo, Pauahi, Keoniki 1	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0468	0.0468	0.0468	(3)-6-6-001:077
DHL-025	Lalamilo, Pauahi, Keoniki 2	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0092	0.0092	0.0132	(3)-6-6-001:077
DHL-026	Lower Piihonua	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1400	(3)-2-6-009:005,027
DHL-027	Makuu-Keonepoko	Hawaii	0.0560	0.0760	0.0760	0.0760	0.0760	0.1760	0.2760	0.6600	(3)-1-5-008:003; (3)-1-5-010:005,006,036; (3)-1-5-
DHL-028	Old Hilo Airport	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0360	0.0360	0.0360	(3)-2-1-012:070
DHL-029	Puukapu 1	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0792	(3)-6-4-036, 037, 038
DHL-030	Puukapu 2	Hawaii	0.0847	0.0847	0.0847	0.0847	0.0847	0.0847	0.4787	0.5307	(3)-6-4-002, 004, 008, 038; (3)-6-5-001
DHL-031	Upolu Point	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1480	0.1480	(3)-5-6-001:080
DHL-032	Villages of Laiopua	Hawaii	0.0800	0.1000	0.1000	0.1000	0.1000	0.2000	0.3000	0.4000	(3)-7-4-021, 022, 023
DHL-033	Waiakea Expansion	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.2800	0.2800	0.2800	(3)-2-1-025:043-048,090,091

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Department of Hawaiian Home Lands											
DHL-034	Wailau	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500	(3)-9-5-019:016
DHL-035	Waiohinu	Hawaii	0.0000	0.0100	0.0100	0.0100	0.0100	0.0304	0.0304	0.0304	(3)-9-5-005:002
DHL-036	Anahola 1	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0932	0.0932	(4)-4-7; (4)-4-8
DHL-037	Anahola 2	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0585	0.0585	0.0585	(4)-4-7; (4)-4-8
DHL-038	Anahola 3	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.7218	1.1518	(4)-4-7; (4)-4-8
DHL-039	Hanapepe	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3010	0.4045	(4)-1-8-007:003; (4)-1-8-008:035
DHL-041	Kapaa	Kauai	0.0000	0.0640	0.0640	0.0640	0.0640	0.0640	0.0640	0.0674	(4)-4-5-005:006; (4)-4-5-015:034,047,048,051
DHL-042	Kekaha	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0480	0.0725	(4)-1-2-017; (4)-1-2-002:045; (4)-1-3-002
DHL-043	Moloaa	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0235	(4)-4-9-010:002,005
DHL-044	Piilani Mai Ke Kai - Phase 2	Kauai	0.0255	0.0255	0.0255	0.0255	0.0255	0.0255	0.0255	0.0255	(4)-4-7; (4)-4-8
DHL-045	Piilani Mai Ke Kai - Phase 3	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0505	0.0505	0.0505	(4)-4-7; (4)-4-8
DHL-046	Wailua	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0250	(4)-3-9-002:003,012,017,024-028
DHL-047	Wailua Commercial & Resort	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.2795	0.2795	0.2795	(4)-3-9-006:009,011
DHL-048	Wailua Residential	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.1775	0.3025	0.4030	(4)-3-9-002:003,012,017,024-028
DHL-049	Waimea - Mauka Village	Kauai	0.0000	0.2635	0.2635	0.2635	0.2635	0.2635	0.2635	0.2635	(4)-1-2-002:016-020,023,029,033

State Department
Branch/Division

Proj. ID	Project	Island	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Department of Hawaiian Home Lands											
DHL-050	Lanai City	Lanai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0672	(2)-4-9-002:057
DHL-051	Honokowai	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0612	0.3179	0.3179	(2)-4-4-001:999; (2)-4-4-002:003,008,009,011,015,0
DHL-052	Kaanapali, Honokowai	Maui	0.0000	0.3000	0.3000	0.3000	0.3000	0.3000	0.3000	0.3000	(2)-4-4-001:999; (2)-4-4-002:003,008,009,011,015,0
DHL-053	Kahikinui	Maui	0.0000	0.0630	0.0630	0.0630	0.0630	0.0630	0.0630	0.0630	(2)-1-9-001:003,007,008,011
DHL-055	Keanae	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0034	0.0034	0.0034	(2)-1-1-003:060,069; (2)-1-1-008:008
DHL-056	Keokea/Waiohuli	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.4608	0.4608	(2)-2-2-002:014,055,071; (2)-2-2-004:069,070
DHL-057	Keokea/Waiohuli Development Phase 1-4 1	Maui	0.0000	0.0960	0.0960	0.0960	0.0960	0.2810	0.2810	0.2810	(2)-2-2-002:014,055,071; (2)-2-2-004:069,070
DHL-058	Keokea/Waiohuli Development Phase 1-4 2	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0679	0.0679	0.0679	(2)-2-2-002:014,055,071; (2)-2-2-004:069,070
DHL-059	Leialii 1B	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.1517	0.1517	0.1517	(2)-4-5-021:020; (2)-4-5-036:001-108,111
DHL-060	Paukukalo	Maui	0.0000	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	(2)-3-3-005, 006
DHL-061	Puunene	Maui	0.0000	1.7340	1.7340	1.7340	1.7340	1.7340	1.7340	1.7340	(2)-3-8-008:008,034-036
DHL-062	Ulupalakua	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0034	(2)-2-1-008:050
DHL-063	Waiehu	Maui	0.0000	0.0170	0.0170	0.0170	0.0170	0.0170	0.0170	0.0170	(2)-3-2-021, 022, 023, 024
DHL-064	Wakiu	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0325	0.0565	0.1177	(2)-1-3-004:012,023
DHL-065	Hoolehua	Molokai	0.0000	0.1302	0.1302	0.1302	0.1302	0.4266	0.5116	0.5116	(2)-5-2-001 - 007, 015, 017, 021 - 027, 030; (2)-5-

State Department

Branch/Division

Department of Hawaiian Home Lands

Proj. ID	Project	Island	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
DHL-066	Kalamaula	Molokai	0.0000	0.1292	0.1292	0.1292	0.1292	0.2072	0.2810	0.2810	(2)-5-2-008, 009, 010, 032, 033; (2)-5-2-
DHL-067	Kalaupapa, Palaau	Molokai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0478	0.0478	(2)-5-2-013:006; (2)-6-1-001:001
DHL-068	Kapaakea, Kamiloloa, Makakupaia	Molokai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1716	0.1716	(2)-5-4-002:014; (2)-5-4-003, 006, 007, 008
DHL-069	Ualapue	Molokai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0282	0.0493	0.0493	(2)-5-6-002:001,024-027,036; (2)-5-6-006:017
DHL-070	East Kapolei I - B3	Oahu	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	(1)-9-1-151:002
DHL-071	East Kapolei I - Kanehili	Oahu	0.0000	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	(1)-9-1-151:057,058
DHL-072	East Kapolei II - B	Oahu	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800	(1)-9-1-017:110
DHL-073	East Kapolei II - C	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.1064	0.5441	0.5441	(1)-9-1-017:110
DHL-074	Haiku	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0400	(1)-4-5-041:005; (1)-4-6-015:009; (1)-9-9-
DHL-075	Kakaina	Oahu	0.0220	0.0220	0.0220	0.0220	0.0220	0.0220	0.0220	0.0220	(1)-4-1-008:010,011,081,091; (1)-
DHL-076	Kalaeloa - All Others	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.0280	2.0280	(1)-9-1-013:009,024,027,029,038,0
DHL-077	Kalaeloa 3	Oahu	0.1720	0.1720	0.1720	0.1720	0.1720	0.1720	0.1720	0.1720	(1)-9-1-013:117-119
DHL-078	Kalawahine	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0090	0.0090	(1)-2-4-034:023-025; (1)-2-4-043; (1)-2-5-019:016
DHL-079	Kapolei Regional Mall (DeBartolo)	Oahu	0.2919	0.2919	0.2919	0.2919	0.2919	0.2919	0.2919	0.2919	(1)-9-1-016:142
DHL-080	Lualualei	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1290	0.1290	(1)-8-6-001, 003; (1)-8-6-014:001

State Department

Branch/Division

Department of Hawaiian Home Lands

Proj. ID	Project	Island	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
DHL-082	Maili 1	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0660	0.0660	0.0660	(1)-8-7-010:030,031
DHL-083	Maili 2	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500	0.1300	0.1300	(1)-8-7-010:030,031
DHL-084	Moiliili (Isenberg)	Oahu	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	(1)-2-7-008:018,020
DHL-085	Nanakuli	Oahu	0.0000	0.0544	0.0544	0.0544	0.0544	0.0544	1.3069	1.3069	(1)-8-9-002:001,067; (1)-8-9-007:002,004,011; (1)-8-
DHL-086	Papakolea	Oahu	0.0000	0.0520	0.0520	0.0520	0.0520	0.0520	0.0865	0.0865	(1)-2-2-005:005; (1)-2-2-014:015,024; (1)-2-2-015;
DHL-087	Pearl City (Waihona)	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0160	0.0160	(1)-9-7-024:050
DHL-088	Shafter Flats	Oahu	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	(1)-1-1-064:008-022,031-035
DHL-089	Waiahole	Oahu	0.0085	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	(1)-4-8-008:029; (1)-4-8-009; (1)-4-8-011; (1)-4-8-
DHL-090	Waianae	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.1240	0.1240	(1)-8-5-003:020; (1)-8-5-004, (1)-8-5-005:036, (1)-8-
DHL-092	Waimanalo	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1780	0.3140	(1)-4-1-002:001; (1)-4-1-003, 008, 011, 014, 017,
Subtotal	**Department of Hawaiian Home Lands**		**0.9039**	**5.3311**	**5.3311**	**5.3311**	**5.3311**	**8.4454**	**16.2427**	**21.9959**	

State Department / Branch/Division			Million Gallons Per Day								
Proj. ID	Project	Island	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Department of Health											
DOH-001	Halawa Vector Control Facility Office Space and Accessibility Improvements	Oahu	0.0000	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	(1)-9-9-010:055
DOH-002	Uluakupu Building Interior Renovation	Oahu	0.0000	0.0141	0.0141	0.0141	0.0141	0.0141	0.0141	0.0141	(1)-9-7-025:001
Subtotal	**Department of Health**		**0.0000**	**0.0190**	**0.0190**	**0.0190**	**0.0190**	**0.0190**	**0.0190**	**0.0190**	
Department of Human Services											
Hawaii Public Housing Authority											
DHS-003	HPHA School Street Campus Redevelopment	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.1530	0.1530	0.1530	(1) 1-6-009:003
DHS-001	Kuhio Park Redevelopment (Excluding Towers & Community Bldg)	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.1736	0.1736	0.1736	(1)-1-3-039:006, (1)-1-3-039-007,(1)-1-3-039-008,
DHS-002	Mayor Wright Homes	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0680	0.0680	(1)-1-7-029-003
Subtotal	**Department of Human Services**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.3266**	**0.3946**	**0.3946**	

State Department / Branch/Division			Million Gallons Per Day								
Proj. ID	Project	Island	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Department of Land and Natural Resources											
Division of Forestry and Wildlife											
DLN-001	DLNR West Kauai Field Operations Facility	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400	(4)-1-8-008:020 por 020
Division of State Parks											
DLN-013	Kealakekua Bay State Park	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	(3)-8-2-004:001
DLN-003	Malaekahana SRA, Kahuku Section Park Improvements	Oahu	0.0000	0.0000	0.1300	0.1300	0.1300	0.1300	0.1300	0.1300	(1)-5-6-001:024
Divison of Forestry and Wildlife											
DLN-010	Pulehunui Baseyard	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0243	0.0243	(2)-3-8-008:001
DLN-008	Kawainui Baseyard	Oahu	0.0000	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	(1)-4-2-013:005
Engineering Division											
DLN-005	DLNR Community Center & Admin Facility	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0037	0.0037	0.0037	0.0037	(3)-7-4-008:003 (por)
Land Division											
DLN-014	DLNR Industrial and Business Park	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.5971	0.5971	0.5971	(2)-3-8-008:001
DLN-015	DLNR East Kapolei Lands, Phase 1	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2820	0.2820	(1)-9-1-017:097
DLN-016	DLNR East Kapolei Lands, Phase 2	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2967	(1)-9-1-017:097
Subtotal	**Department of Land and Natural Resources**		**0.0000**	**0.0300**	**0.1600**	**0.1600**	**0.1637**	**0.8008**	**1.1071**	**1.4050**	

State Department / Branch/Division			Million Gallons Per Day								
Proj. ID	Project	Island	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Department of Transportation											
Airports Division											
DOT-004	Kona International Airport Improvements	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.2286	0.2491	0.2506	(3)-7-3-043:003
DOT-005	LIH ConRAC	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0530	(4)-3-5-001:008
DOT-006	OGG ConRAC	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0680	(2)-3-8-001:019
DOT-007	OGG Subdivision	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0759	(2)-3-8-001:019
DOT-026	HNL Airport Expansion	Oahu	0.0000	0.0231	0.0462	0.0692	0.0923	0.2077	0.3231	0.4385	(1)-1-1-003:001
DOT-001	HNL ConRAC 2A	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0290	(1)-1-1-003:001
DOT-002	HNL ConRAC 2B	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0747	(1)-1-1-003:001
DOT-003	Honolulu Mauka Concourse	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0505	(1)-1-1-003:001
DOT-027	JCF Airport Expansion	Oahu	0.0000	0.0004	0.0008	0.0012	0.0016	0.0036	0.0055	0.0075	(1)-9-1-013:032
Harbors Division											
DOT-008	Hilo Pier 4	Hawaii	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	(3)-2-1-009:007
DOT-018	Kawaihae Cargo Terminal	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	(3)-6-1-003:023
DOT-019	Kawaihae Pier Extensions	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(3)-6-1-003:023
DOT-009	Radio Bay Cargo Yard	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	(3)-2-1-009:007
DOT-020	Nawiliwili Hawaii Gas	Kauai	0.0000	0.0000	0.0000	0.0101	0.0101	0.0101	0.0101	0.0101	(4)-3-2-004:021, 023, 053

State Department / Branch/Division			Million Gallons Per Day								
Proj. ID	Project	Island	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Department of Transportation											
Harbors Division											
DOT-021	Nawiliwili Kauai Petroleum Fuel Terminal	Kauai	0.0000	0.0000	0.0000	0.0079	0.0079	0.0079	0.0079	0.0079	(4)-3-2-004:016
DOT-012	Kahului Cargo Yard With Amenities	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0060	(2)-3-7-011:017,023
DOT-014	Kahului Harbor New Office	Maui	0.0000	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	(2) 3-7-010:036
DOT-013	Kahului Hawaiian Cement Relocation	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030	0.0030	(2)-3-7-008:004
DOT-025	Kalaeloa Fuel Pier	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0160	0.0160	0.0160	(1)-9-1-014:024
DOT-015	Kalaeloa Potential Applicant A	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0800	0.0800	(1)-9-1-014:024
DOT-016	Kalaeloa Potential Applicant B	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(1)-9-1-014:024
DOT-017	Kalaeloa Potential Applicant C	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0800	0.0800	(1)-9-1-014:024
DOT-010	Potential Industrial Center/ 100 employees	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0460	0.0460	0.0460	(1)-1-5-039:022
DOT-011	Potential Residential/Hotel 250 units	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0159	0.0159	0.0159	(1)-2-1-001:057
Highways Division											
DOT-023	Saddle Road Baseyard	Hawaii	0.0000	0.0000	0.0000	0.0040	0.0040	0.0040	0.0040	0.0040	(3)-4-4-016:003
Subtotal	**Department of Transportation**		**0.0000**	**0.0235**	**0.0475**	**0.0929**	**0.1164**	**0.5434**	**0.8478**	**1.3788**	

State Department / Branch/Division			Million Gallons Per Day								
Proj. ID	Project	Island	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Judiciary											
JUD-003	Maui Judiciary Complex - Potable	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0090	0.0090	0.0090	(2)-3-4-013:013
JUD-001	Oahu Judiciary Proxy - Potable	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0066	(1)-2-1-025:003
Subtotal	**Judiciary**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0090**	**0.0090**	**0.0156**	
Office of Hawaiian Affairs											
OHA-007	Kekaha Armory	Kauai	0.0000	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	(4)1-3-002: 023
OHA-001	Kaka'ako Makai - Parcel A	Oahu	0.0000	0.0002	0.0004	0.0006	0.0008	0.0010	0.0130	0.0370	(1)-2-1-058:129
OHA-002	Kaka'ako Makai - Parcel B/C	Oahu	0.0000	0.0005	0.0009	0.0013	0.0017	0.0021	0.0141	0.0381	(1)-2-1-058:130
OHA-003	Kaka'ako Makai - Parcel D	Oahu	0.0000	0.0010	0.0020	0.0030	0.0040	0.0050	0.0060	0.0080	(1)-2-1-060:027
OHA-004	Kaka'ako Makai - Parcel E	Oahu	0.0000	0.0010	0.0020	0.0030	0.0040	0.0050	0.0060	0.0520	(1)-2-1-058:006
OHA-005	Kaka'ako Makai - Parcel F/G	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0560	(1)-2-1-060:026
OHA-006	Kaka'ako Makai - Parcel I	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1248	(1)-2-1-015:061
OHA-009	Kukaniloko (Potable)	Oahu	0.0000	0.0000	0.0000	0.0010	0.0010	0.0446	0.0446	0.0446	(1)-7-1-001:045, 046, 047, 048, 049 and 051
OHA-012	Waialua Court House	Oahu	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	(1)-6-6-009-023
Subtotal	**Office of Hawaiian Affairs**		**0.0000**	**0.0045**	**0.0071**	**0.0107**	**0.0133**	**0.0595**	**0.0855**	**0.3623**	

State Department / Branch/Division			Million Gallons Per Day								
Proj. ID	Project	Island	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
University of Hawaii											
Community Colleges											
UHC-001	Hawai'i Community College - Palamanui, Phase II	Hawaii	0.0000	0.0000	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027	(3)-7-2-005:001
UHC-005	Kauai Community College - Food Innovation Center	Kauai	0.0000	0.0000	0.0000	0.0000	0.0021	0.0021	0.0021	0.0021	(4)-3-4-007:003
UHC-006	Kauai Community College - Imu	Kauai	0.0000	0.0000	0.0000	0.0021	0.0021	0.0021	0.0021	0.0021	(4)-3-4-007:003
UHC-009	Maui College - Hospitality Academy Renovation	Maui	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	(2)-3-8-007:040
UHC-011	Maui College - Pilina Kitchen	Maui	0.0000	0.0000	0.0000	0.0014	0.0014	0.0014	0.0014	0.0014	(2)-3-8-007:040
UHC-010	Maui College - Moloka'i Education Center	Molokai	0.0000	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	(2)-5-3-005:012
UHC-002	Honolulu Community College - Advanced Technology Training Center	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	0.0009	(1)-1-5-017:006
UHC-003	Kapi'olani Community College - Culinary Institute of the Pacific, Phase I	Oahu	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	(1)-3-1-042:009
UHC-004	Kapi'olani Community College - Culinary Institute of the Pacific, Phase II	Oahu	0.0000	0.0000	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027	(1)-3-1-042:009
UHC-007	Leeward Community College - Native Hawaiian Center for Excellence	Oahu	0.0000	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	(1)-9-6-003:048
UHC-008	Leeward Community College - Waianae Education Center	Oahu	0.0000	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	(1)-8-7-004:041
Hilo											
UHH-002	University of Hawaii - Hilo - Water Infrastructure Improvements	Hawaii	0.0304	0.0608	0.0912	0.1216	0.1520	0.3720	0.5920	0.8120	(3)-2-4-001:167
Manoa											
UHM-001	University of Hawaii at Manoa - Water Master Plan	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1437	(1)-2-8-015:001; (1)-2-8-023:003,009,013,016; (1)-

State Department / Branch/Division	Proj. ID	Project	Island	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
University of Hawaii												
West Oahu												
	UHW-001	Creative Media Building	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0060	0.0060	(1)-9-1-016: 220
	UHW-004	University of Hawaii - West Oahu - Allied Heath Building	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030	0.0030	(1)-9-1-016:220
	UHW-003	University of Hawaii - West Oahu - Long Range Master Plan (Potable)	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.8821	(1)-9-1-016:220
Subtotal	**University of Hawaii**			**0.0304**	**0.0635**	**0.0970**	**0.1369**	**0.1693**	**0.3992**	**0.6192**	**1.8651**	
		TOTAL STATE		**0.9414**	**5.4812**	**5.8039**	**6.0894**	**6.5019**	**13.2864**	**24.2726**	**34.1471**	

APPENDIX G

SWPP Project Water Demands
by State Department – Non-Potable

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SWPP Project Demands by State Department - Non-Potable

State Department / Branch/Division	Proj ID	Project	Island	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Department of Accounting and General Services												
Project Management	DAG-014	West Hawaii Veteran's Cemetery	Hawaii	0.0000	0.0000	0.0000	0.0000	0.3100	0.3100	0.3100	0.3100	(3)-7-2-004:021
Subtotal	**Department of Accounting and General Services**			**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.3100**	**0.3100**	**0.3100**	**0.3100**	
Department of Agriculture												
Agribusiness Development Corporation	ADC-001	Alternative 2: Wahiawa WWTP R-1 & Lake Wilson - North Fork	Oahu	0.0000	4.1690	4.1690	4.1690	4.1690	4.1690	4.1690	4.1690	(1)-7-1-002:004 and (1)-7-1-002:009
Agricultural Resource Management Division	DOA-002	Upcounty Maui Irrigation System (Non-Potable)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.8800	(2) 2-2 AND 2-3
	DOA-001	Kunia Agricultural Park (Non-Potable)	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5550	(1) 9-4-002:080
Subtotal	**Department of Agriculture**			**0.0000**	**4.1690**	**4.1690**	**4.1690**	**4.1690**	**4.1690**	**4.1690**	**6.6040**	
Department of Business, Economic Development & Tourism												
Natural Energy Laboratory of Hawaii Authority	DBT-001	Ongoing NELHA Expansion (Non-Potable)	Hawaii	0.0000	0.0000	3.3625	6.7006	10.0179	13.3175	35.9561	35.9561	(3)-7-3-043:083
Subtotal	**Department of Business, Economic Development & Tourism**			**0.0000**	**0.0000**	**3.3625**	**6.7006**	**10.0179**	**13.3175**	**35.9561**	**35.9561**	

State Department

Branch/Division

Proj ID	Project	Island	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Department of Defense											
Hawaii Army National Guard											
DOD-003	Kalaeloa AASF (Non-Potable)	Oahu	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	(1)-9-1-013:045
DOD-001	Kalaeloa Bridgade Readiness Center (Non-Potable)	Oahu	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	(1)-9-1-013:045
Subtotal	**Department of Defense**		**0.0010**	**0.0012**	**0.0012**	**0.0012**	**0.0012**	**0.0012**	**0.0012**	**0.0012**	
Department of Education											
DOE-083	Kealakehe Elementary School - Playfield/Retention Basion (Non-Potable Using Potable)	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0120	0.0120	(3)-7-4-019:044
DOE-103	Koloa Elementary School New 6 Classroom (Non-Potable using Potable)	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0075	0.0075	(4)-2-8-010:011
DOE-123	Lihue 1 New School (Non-Potable using Potable)	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(4)-3-7-001:001
DOE-117	Lahaina Inter. School Locker/Shower Facility & Playfield (Non-Potable using Potable)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0068	0.0068	(2)-4-6-018:013
DOE-173	Waihee Elementary School - Playfield/Water Retention Basin (Non-Potable using Potable)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0051	0.0051	(2)-3-2-007:021
DOE-053	Kahuku High School - Athletic Field (Non-Potable using Potable)	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0380	(1)-5-6-006:003
Subtotal	**Department of Education**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0314**	**0.1294**	

State Department

Branch/Division

Proj ID	Project	Island	Million Gallons Per Day								Tax Map Key
			2015	2016	2017	2018	2019	2024	2029	2034	
Department of Hawaiian Home Lands											
DHL-093	Honokaia, Kamoku-Kapulena, Nienie (Non-Potable)	Hawaii	0.0000	0.1700	0.1700	0.1700	0.1700	1.0200	1.6116	1.6550	(3)-4-6-011, 012; (3)-4-7-006, 007
DHL-094	Honomu-Kuhua (Non-Potable 1)	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.8500	1.1305	1.1305	(3)-2-8-011:009,011,019
DHL-095	Honomu-Kuhua (Non-Potable 2)	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.8500	1.1305	1.1305	(3)-2-8-011:009,011,019
DHL-096	Humuula-Piihonua (Non-Potable 1)	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.9720	(3)-2-6-018:002; (3)-3-8-001; (3)-4-4-015:001
DHL-097	Humuula-Piihonua (Non-Potable 2)	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.4000	(3)-2-6-018:002; (3)-3-8-001; (3)-4-4-015:001
DHL-012	Kamaoa-Puueo (Non-Potable Using Potable)	Hawaii	0.0000	0.3924	0.3924	0.3924	0.3924	0.4701	0.4701	0.4701	(3)-9-3-001:002,003,007,010-
DHL-098	Keaukaha, Waiakea-Panaewa (Non-Potable)	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.3838	(3)-2-1; (3)-2-2; (3)-2-4
DHL-017	Keoniki (Non-Potable Using Potable)	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	(3)-6-5-001:010
DHL-019	Kurtistown-Olaa (Non-Potable Using Potable)	Hawaii	0.0000	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	(3)-1-8-011:012,016,023-025
DHL-099	Lower Piihonua (Non-Potable)	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.5946	(3)-2-6-009:005,027
DHL-100	Makuu-Keonepoko (Non-Potable)	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.3830	(3)-1-5-008:003; (3)-1-5-010:005,006,036;
DHL-101	Puukapu (Non-Potable)	Hawaii	0.1020	0.1020	0.1020	0.1020	0.1020	0.1360	0.1360	0.8114	(3)-6-4-002, 004, 008, 038; (3)-6-5-001

State Department

Branch/Division

Proj ID	Project	Island	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
DHL-102	Waimanu (Non-Potable)	Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	15.0000	(3)-4-9-014:012
DHL-103	Waiohinu (Non-Potable 1)	Hawaii	0.0000	0.1275	0.1275	0.1275	0.1275	0.3876	0.3876	0.3876	(3)-9-5-005:002
DHL-104	Waiohinu (Non-Potable 2)	Hawaii	0.0000	0.1275	0.1275	0.1275	0.1275	0.3876	0.3876	0.3876	(3)-9-5-005:002
DHL-105	Anahola (Non-Potable 1)	Kauai	0.0000	2.5959	2.5959	2.5959	2.5959	2.5959	2.5959	2.5959	(4)-4-7; (4)-4-8
DHL-106	Anahola (Non-Potable 2)	Kauai	0.4097	0.7820	0.7820	0.7820	0.7820	1.2799	1.2799	1.2799	(4)-4-7; (4)-4-8
DHL-107	Anahola (Non-Potable 3)	Kauai	0.4097	0.7820	0.7820	0.7820	0.7820	1.2799	1.2799	1.2799	(4)-4-7; (4)-4-8
DHL-040	Hanapepe (Non-Potable Using Potable)	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2448	(4)-1-8-007:003; (4)-1-8-008:035
DHL-108	Hanapepe (Non-Potable)	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2924	(4)-1-8-007:003; (4)-1-8-008:035
DHL-109	Moloaa (Non-Potable 1)	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.2500	2.2500	(4)-4-9-010:002,005
DHL-110	Moloaa (Non-Potable 2)	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.6800	(4)-4-9-010:002,005
DHL-111	Wailua Residential (Non-Potable)	Kauai	0.0000	0.0000	0.0000	0.0000	0.0000	0.3366	0.3366	0.3366	(4)-3-9-002:003,012,017,024-
DHL-112	Waimea (Non-Potable 1)	Kauai	0.0000	12.4557	12.4557	12.4557	12.4557	12.4557	12.4557	12.4557	(4)-1-2-002:016-020,023,029,033
DHL-113	Waimea (Non-Potable 2)	Kauai	0.0000	13.3500	13.3500	13.3500	13.3500	13.3500	13.3500	13.3500	(4)-1-2-002:016-020,023,029,033

State Department

Branch/Division

Proj ID	Project	Island	Million Gallons Per Day								Tax Map Key
			2015	2016	2017	2018	2019	2024	2029	2034	
DHL-114	Honokowai (Non-Potable 1)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	1.0404	1.0404	1.0404	(2)-4-4-001:999; (2)-4-4-
DHL-115	Honokowai (Non-Potable 2)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	1.0404	1.0404	1.0404	(2)-4-4-001:999; (2)-4-4-
DHL-054	Kahikinui (Non-Potable Using Potable)	Maui	0.0000	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	(2)-1-9-001:003,007,008,011
DHL-116	Keanae (Non-Potable 1)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	4.2750	4.2750	4.2750	(2)-1-1-003:060,069; (2)-1-1-008:008
DHL-117	Keanae (Non-Potable 2)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.3128	0.3128	0.3128	(2)-1-1-003:060,069; (2)-1-1-008:008
DHL-118	Keokea-Waiohuli Development Phase 1-4 (Non-Potable 1)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.2890	0.2890	0.2890	(2)-2-2-002:014,055,071; (2)-
DHL-119	Keokea-Waiohuli Development Phase 1-4 (Non-Potable 2)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.2890	0.2890	0.2890	(2)-2-2-002:014,055,071; (2)-
DHL-120	Puunene (Non-Potable)	Maui	0.0000	1.8564	1.8564	1.8564	1.8564	1.8564	1.8564	1.8564	(2)-3-8-008:008,034-036
DHL-121	Wailua (Non-Potable 1)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	2.1000	2.1000	2.1000	(2)-1-1-004:007,008,033,034,0
DHL-122	Wailua (Non-Potable 2)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.1802	0.1802	0.1802	(2)-1-1-004:007,008,033,034,0
DHL-123	Wakiu (Non-Potable 1)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2086	(2)-1-3-004:012,023
DHL-124	Wakiu (Non-Potable 2)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0464	(2)-1-3-004:012,023
DHL-125	Hoolehua (Non-Potable)	Molokai	0.0000	4.7207	4.7207	4.7207	4.7207	5.3599	5.3599	5.3599	(2)-5-2-001 - 007, 015, 017, 021 - 027, 030;

State Department

Branch/Division

Proj ID	Project	Island	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
DHL-126	Kalamaula (Non-Potable)	Molokai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.7316	0.7316	(2)-5-2-008, 009, 010, 032, 033; (2)-5-2-
DHL-127	Haiku (Non-Potable)	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	10.2750	10.2750	(1)-4-5-041:005; (1)-4-6-015:009; (1)-9-9-
DHL-128	Kaala Farm (Non-Potable)	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	7.2750	7.2750	(1)-8-5-005:036
DHL-081	Lualualei (Non-Potable Using Potable)	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0714	0.0714	(1)-8-6-001, 003; (1)-8-6-014:001
DHL-129	Waiahole (Non-Potable)	Oahu	0.0000	1.8000	1.8000	1.8000	1.8000	1.8000	1.8000	1.8000	(1)-4-8-008:029; (1)-4-8-009; (1)-4-8-011; (1)-
DHL-091	Waianae (Non-Potable Using Potable)	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0136	0.0136	0.0136	(1)-8-5-003:020; (1)-8-5-004, (1)-8-5-
DHL-130	Waimanalo (Non-Potable)	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0680	0.0680	(1)-4-1-002:001; (1)-4-1-003, 008, 011, 014,
Subtotal	**Department of Hawaiian Home Lands**		**0.9214**	**39.2880**	**39.2880**	**39.2880**	**39.2880**	**53.9819**	**75.8055**	**103.7320**	

Department of Transportation

Highways Division

DOT-024	Hana Highway Paia Bypass - Paia Relief Route	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.2880	0.2880	0.2880	(2)-2-5-005:018, (2)-3-8-001:007
DOT-022	Honoapiilani Hwy (Lahaina Bypass) Ph. 1C - Keawe St. Ext. to Kaanapali Connector	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	0.0300	(2)-4-5-021:022
Subtotal	**Department of Transportation**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2880**	**0.3180**	**0.3180**	

State Department

Branch/Division

Proj ID	Project	Island	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Judiciary											
JUD-004	Maui Judiciary Complex - Non-Potable (Using Potable)	Maui	0.0000	0.0000	0.0000	0.0000	0.0000	0.0066	0.0066	0.0066	(2)-3-4-013:013
JUD-002	Oahu Judiciary Proxy - Non-Potable (Using Potable)	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0039	(1)-2-1-025:003
Subtotal	**Judiciary**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0066**	**0.0066**	**0.0105**	
Office of Hawaiian Affairs											
OHA-011	Palauea Cultural Preserve	Maui	0.0000	0.0000	0.0000	0.0000	0.0040	0.0040	0.0040	0.0040	(2)-2-1-023:034
OHA-008	Kukaniloko (Non-Potable)	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	1.0000	(1)-7-1-001:045, 046, 047, 048, 049 and 051
OHA-010	Pahua Heiau	Oahu	0.0000	0.0000	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	(1) 3-9-056:038
Subtotal	**Office of Hawaiian Affairs**		**0.0000**	**0.0000**	**0.0010**	**0.0010**	**0.0050**	**1.0050**	**1.0050**	**1.0050**	
University of Hawaii											
West Oahu											
UHW-002	University of Hawaii - West Oahu - Long Range Master Plan (Non-Potable)	Oahu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000	(1)-9-1-016:220
Subtotal	**University of Hawaii**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.5000**	
	TOTAL STATE		**0.9224**	**43.4582**	**46.8217**	**50.1598**	**53.7911**	**73.0792**	**117.6028**	**148.5662**	

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APPENDIX H

SWPP Project Water Demands
by Island – Potable

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SWPP Project Water Demands by Island - Potable

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Hawaii										
Department of Accounting and General Services										
Planning										
DAG-002	Hawaii Community Correctional Center New Intake Unit	0.0000	0.0000	0.0000	0.0060	0.0060	0.0060	0.0060	0.0060	(3)-2-3-023:005
DAG-007	Kona Judiciary Complex	0.0000	0.0000	0.0000	0.0000	0.0146	0.0146	0.0146	0.0146	(3)-7-4-020:010 POR
DAG-012	Puna Public Library Planning	0.0000	0.0000	0.0000	0.0000	0.0000	0.0136	0.0136	0.0136	(3)-1-5-007:017
DAG-013	Waikoloa Public Library Planning	0.0000	0.0000	0.0000	0.0000	0.0000	0.0136	0.0136	0.0136	(3)-6-8-002:051
DAG-015	West Hawaii Veterans Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0150	0.0150	0.0150	(3)-7-3-010:056
Project Management										
DAG-019	Hawaii Community Correctional Center New Medium Security Housing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0105	0.0105	0.0105	(3)-2-3-023:005
Subtotal Hawaii	**Department of Accounting and General Services**	**0.0000**	**0.0000**	**0.0000**	**0.0060**	**0.0206**	**0.0733**	**0.0733**	**0.0733**	
Department of Business, Economic Development & Tourism										
Hawaii Housing Finance & Development Corporation										
DBT-003	Kamakana Villages at Keahuolu	0.0000	0.0000	0.0680	0.0680	0.1880	0.8840	1.1140	1.1140	(3) 7-4-021: 020, 24-41, 44-48

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Hawaii									
	Natural Energy Laboratory of Hawaii Authority									
DBT-002	Ongoing NELHA Expansion (Potable)	0.0000	0.0000	0.0571	0.1072	0.1519	0.1921	0.3739	0.3739	(3)-7-3-043:083
Subtotal Hawaii	**Department of Business, Economic Development & Tourism**	**0.0000**	**0.0000**	**0.1251**	**0.1752**	**0.3399**	**1.0761**	**1.4879**	**1.4879**	
	Department of Education									
DOE-010	Chiefess Kapiolani Elementary School - 4 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-2-2-020:001
DOE-011	DeSilva Elementary School - New Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-2-5-008:013
DOE-012	DeSilva Elementary School - 4 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-2-5-008:013
DOE-018	Haaheo Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(3)-2-6-020:038
DOE-019	Haaheo Elementary School New 4 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-2-6-020:038
DOE-020	Haaheo Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-2-6-020:038
DOE-026	Hilo High School - New Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-2-3-015:001
DOE-027	Hilo High School - 4 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(3)-2-3-015:001

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Hawaii									
DOE-028	Hilo Intermediate School - Building A Renovation Phase 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(3)-2-3-021:058
DOE-029	Hilo Union Elementary School - New 6 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-2-3-016:037
DOE-033	Holualoa Elementary School New 6 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108	(3)-7-6-004:002
DOE-034	Holualoa Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-7-6-004:002
DOE-035	Honaunau Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(3)-8-3-013:021
DOE-036	Honaunau Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-8-3-013:021
DOE-037	Honokaa Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-4-5-010:076
DOE-038	Honokaa Elementary School New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(3)-4-5-010:076
DOE-039	Honokaa High School New 15 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(3)-4-5-005:002
DOE-040	Honokaa High School New 6 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-4-5-005:002
DOE-042	Hookena Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-8-6-010:009
DOE-043	Hookena Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(3)-8-6-010:009

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
					Hawaii					
DOE-044	Hookena Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-8-6-010:009
DOE-045	Hookena Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015	(3)-8-6-010:009
DOE-063	Kalanianaole Elementary School - 8 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-2-7-022:002
DOE-064	Kalanianaole Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-2-7-022:002
DOE-072	Kau High School and Pahala Elementary School 10 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0180	0.0180	(3)-9-6-005:008
DOE-073	Kau High School and Pahala Elementary School 12 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(3)-9-6-005:008
DOE-074	Kau High School and Pahala Elementary School 3 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0002	(3)-9-6-005:008
DOE-077	Kaumana Elementary School - New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(3)-2-5-005:084
DOE-079	Keaau Intermediate School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-1-6-002:001
DOE-080	Keaau Intermediate School New Band Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-1-6-002:001
DOE-081	Kealakehe Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-7-4-019:044
DOE-082	Kealakehe Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	0.0005	(3)-7-4-019:044

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
					Hawaii					
DOE-084	Kealakehe High School New 13 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	0.0008	(3)-7-4-021:004
DOE-085	Kealakehe II Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600	(3)-7-4-019:044
DOE-086	Kealakehe Intermediate School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(3)-7-4-019:044
DOE-087	Keaukaha Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-2-1-020:001
DOE-088	Keonepoko Elementary School New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(3)-1-5-009:059
DOE-089	Keonepoko Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-1-5-009:059
DOE-099	Kohala Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-5-4-007:014
DOE-100	Kohala High School New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-5-4-007:014
DOE-101	Kohala High School New Music Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-5-4-007:014
DOE-102	Kohala High School New Auto/Tech Shop	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-5-4-007:014
DOE-106	Konawaena High School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(3)-8-1-002:038
DOE-107	Konawaena Intermediate School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-8-1-002:038

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
					Hawaii					
DOE-108	Konawaena Intermediate School New PE Lockers & Showers	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012	(3)-8-1-002:038
DOE-109	Konawaena Intermediate School Renovate 17 Classrooms	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015	(3)-8-1-002:038
DOE-110	Konawaena Intermediate School Renovate 12 Classrooms	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(3)-8-1-002:038
DOE-120	Laupahoehoe High School & Elementary School New Band/Chorus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-3-5-005:001
DOE-141	Mountain View Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-1-8-001:007
DOE-142	Mountain View Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029	0.0029	(3)-1-8-001:007
DOE-143	Mountain View Elementary School New 12 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(3)-1-8-001:007
DOE-144	Naalehu Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-9-5-009:006
DOE-147	Pahoa Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-1-5-114:025
DOE-148	Pahoa Elementary School New 10 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(3)-1-5-114:025
DOE-149	Pahoa High School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-1-5-003:038
DOE-160	Waiakea Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-2-4-001:015

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Hawaii									
DOE-161	Waiakea Intermediate School New PE Locker/Shower	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-2-4-001:015
DOE-162	Waiakeawaena Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029	0.0029	(3)-2-2-042:017
DOE-174	Waikoloa Elementary School 3rd Increment 8 Classroom/Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010	0.0010	(3)-6-8-002:038
DOE-176	Waimea Elementary School 2nd Increment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(3)-6-7-002:015
DOE-179	Waimea Intermediate School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-6-7-002:015
DOE-180	Waimea Intermediate School New Music Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-6-7-002:015
DOE-181	Waimea Intermediate School New PE Locker/Shower	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-6-7-002:015
Subtotal Hawaii	**Department of Education**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0023**	**0.1676**	**0.1678**	
	Department of Hawaiian Home Lands									
DHL-001	Hilo Kanoelehua	0.0000	0.0000	0.0000	0.0000	0.0000	0.0360	0.0360	0.0360	(3)-2-2-060:001-010,085-089
DHL-002	Honokaia, Kamoku-Kapulena, Nienie 1	0.0000	0.0100	0.0100	0.0100	0.0100	0.0600	0.0948	0.0948	(3)-4-6-011, 012; (3)-4-7-006, 007
DHL-003	Honokaia, Kamoku-Kapulena, Nienie 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3012	(3)-4-6-011, 012; (3)-4-7-006, 007

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
					Hawaii					
DHL-004	Honokohau, Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.6000	0.6000	0.6000	(3)-7-4-008:072
DHL-005	Honokohau, Keahuolu, Kealakehe	0.0000	0.3270	0.3270	0.3270	0.3270	0.3270	0.3270	0.5098	(3)-7-4-008:065,072; (3)-7-4-020, 021, 022, 023
DHL-006	Honomu-Kuhua	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0832	0.0832	(3)-2-8-011:009,011,019
DHL-007	Humuula-Piihonua	0.0000	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.2496	(3)-2-6-018:002; (3)-3-8-001; (3)-4-4-015:001
DHL-008	Kalaoa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1132	0.1132	(3)-7-3-010:040,041
DHL-009	Kalaoa, Kaone	0.0000	0.3900	0.3900	0.3900	0.3900	0.3900	0.3900	0.3900	(3)-7-3-010:039
DHL-010	Kalaoa, Kona	0.0000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	(3)-7-3-010:007
DHL-011	Kamaoa-Puueo	0.0000	0.0380	0.0380	0.0380	0.0380	0.0836	0.0836	0.1046	(3)-9-3-001:002,003,007,010-013
DHL-013	Kawaihae Existing	0.0000	0.1356	0.1356	0.1356	0.1356	0.1356	0.1356	0.1356	(3)-6-1-007, 008, 009
DHL-014	Kawaihae Harbor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600	(3)-6-1-002:065,069,070
DHL-015	Kawaihae Mauka	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.9812	(3)-6-1-001, 003, 006
DHL-016	Keaukaha, Waiakea-Panaewa	0.0000	0.0760	0.0760	0.0760	0.0760	0.0760	0.0760	1.3360	(3)-2-1; (3)-2-2; (3)-2-4

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
					Hawaii					
DHL-018	Kurtistown-Olaa	0.0000	0.0252	0.0252	0.0252	0.0252	0.0252	0.0252	0.0252	(3)-1-8-011:012,016,023-025
DHL-020	Lalamilo Phase 2A, Increment 1	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	(3)-6-6-001:077
DHL-021	Lalamilo Phase 2A, Increment 2	0.0156	0.0308	0.0308	0.0308	0.0308	0.0308	0.0308	0.0308	(3)-6-6-001:077
DHL-022	Lalamilo Phase 2B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0536	0.0536	0.0536	(3)-6-6-001:077
DHL-023	Lalamilo Phase 2C	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0496	0.0496	(3)-6-6-001:077
DHL-024	Lalamilo, Pauahi, Keoniki 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0468	0.0468	0.0468	(3)-6-6-001:077
DHL-025	Lalamilo, Pauahi, Keoniki 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0092	0.0092	0.0132	(3)-6-6-001:077
DHL-026	Lower Piihonua	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1400	(3)-2-6-009:005,027
DHL-027	Makuu-Keonepoko	0.0560	0.0760	0.0760	0.0760	0.0760	0.1760	0.2760	0.6600	(3)-1-5-008:003; (3)-1-5-010:005,006,036; (3)-1-5-118, 119, 120, 121
DHL-028	Old Hilo Airport	0.0000	0.0000	0.0000	0.0000	0.0000	0.0360	0.0360	0.0360	(3)-2-1-012:070
DHL-029	Puukapu 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0792	(3)-6-4-036, 037, 038
DHL-030	Puukapu 2	0.0847	0.0847	0.0847	0.0847	0.0847	0.0847	0.4787	0.5307	(3)-6-4-002, 004, 008, 038; (3)-6-5-001

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Hawaii									
DHL-031	Upolu Point	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1480	0.1480	(3)-5-6-001:080
DHL-032	Villages of Laiopua	0.0800	0.1000	0.1000	0.1000	0.1000	0.2000	0.3000	0.4000	(3)-7-4-021, 022, 023
DHL-033	Waiakea Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.2800	0.2800	0.2800	(3)-2-1-025:043-048,090,091
DHL-034	Wailau	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500	(3)-9-5-019:016
DHL-035	Waiohinu	0.0000	0.0100	0.0100	0.0100	0.0100	0.0304	0.0304	0.0304	(3)-9-5-005:002
Subtotal Hawaii	**Department of Hawaiian Home Lands**	**0.2695**	**1.7665**	**1.7665**	**1.7665**	**1.7665**	**3.1841**	**4.2269**	**9.0019**	
	Department of Land and Natural Resources									
	Division of State Parks									
DLN-013	Kealakekua Bay State Park	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	(3)-8-2-004:001
	Engineering Division									
DLN-005	DLNR Community Center & Admin Facility	0.0000	0.0000	0.0000	0.0000	0.0037	0.0037	0.0037	0.0037	(3)-7-4-008:003 (por)
Subtotal Hawaii	**Department of Land and Natural Resources**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0037**	**0.0037**	**0.0037**	**0.0049**	

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Hawaii									
Department of Transportation										
Airports Division										
DOT-004	Kona International Airport Improvements	0.0000	0.0000	0.0000	0.0000	0.0000	0.2286	0.2491	0.2506	(3)-7-3-043:003
Harbors Division										
DOT-008	Hilo Pier 4	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	(3)-2-1-009:007
DOT-009	Radio Bay Cargo Yard	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	(3)-2-1-009:007
DOT-018	Kawaihae Cargo Terminal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	(3)-6-1-003:023
DOT-019	Kawaihae Pier Extensions	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(3)-6-1-003:023
Highways Division										
DOT-023	Saddle Road Baseyard	0.0000	0.0000	0.0000	0.0040	0.0040	0.0040	0.0040	0.0040	(3)-4-4-016:003
Subtotal Hawaii	**Department of Transportation**	**0.0000**	**0.0000**	**0.0003**	**0.0043**	**0.0043**	**0.2329**	**0.2541**	**0.2566**	
University of Hawaii										
Community Colleges										
UHC-001	Hawai'i Community College - Palamanui, Phase II	0.0000	0.0000	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027	(3)-7-2-005:001

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Hawaii									
Hilo										
UHH-002	University of Hawaii - Hilo - Water Infrastructure Improvements	0.0304	0.0608	0.0912	0.1216	0.1520	0.3720	0.5920	0.8120	(3)-2-4-001:167
Subtotal Hawaii	**University of Hawaii**	**0.0304**	**0.0608**	**0.0912**	**0.1243**	**0.1547**	**0.3747**	**0.5947**	**0.8147**	
	Total Island of Hawaii	0.2999	1.8273	1.9831	2.0764	2.2898	4.9472	6.8083	11.8071	
	Kauai									
Department of Accounting and General Services										
Planning										
DAG-005	Kauai Community Correctional Center New Segregation Housing	0.0000	0.0000	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	(4)-3-9-005:013
DAG-006	Kauai Community Correctional Center Restroom and Shower Improv.	0.0000	0.0000	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	(4)-3-9-005:013
Project Management										
DAG-016	Kauai Community Correctional Center New Medium Security Housing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0105	0.0105	0.0105	(4)-3-9-005:013
Subtotal Kauai	**Department of Accounting and General Services**	**0.0000**	**0.0000**	**0.0075**	**0.0075**	**0.0075**	**0.0180**	**0.0180**	**0.0180**	
Department of Education										
DOE-066	Kapaa Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(4)-4-6-014:031

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Kauai									
DOE-067	Kapaa Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(4)-4-6-014:031
DOE-068	Kapaa High School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(4)-4-6-014:031
DOE-069	Kapaa II Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(4)-4-6-014:031
DOE-092	Kilauea Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(4)-5-2-009:006
DOE-093	Kilauea Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(4)-5-2-009:006
DOE-096	King Kaumualii Elementary School Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(4)-3-7-003:009
DOE-104	Koloa Elementary School New 6 Classroom (Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0036	0.0036	(4)-2-8-010:011
DOE-105	Koloa II Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(4)-2-8-010:011
DOE-177	Waimea High School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(4)-1-6-010:004
DOE-178	Waimea High School Revovation Bldg. C & H	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(4)-1-6-010:004
Subtotal Kauai	**Department of Education**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0074**	**0.1274**	

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
					Kauai					
Department of Hawaiian Home Lands										
DHL-036	Anahola 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0932	0.0932	(4)-4-7; (4)-4-8
DHL-037	Anahola 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0585	0.0585	0.0585	(4)-4-7; (4)-4-8
DHL-038	Anahola 3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.7218	1.1518	(4)-4-7; (4)-4-8
DHL-039	Hanapepe	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3010	0.4045	(4)-1-8-007:003; (4)-1-8-008:035
DHL-041	Kapaa	0.0000	0.0640	0.0640	0.0640	0.0640	0.0640	0.0640	0.0674	(4)-4-5-005:006; (4)-4-5-015:034,047,048,051
DHL-042	Kekaha	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0480	0.0725	(4)-1-2-017; (4)-1-2-002:045; (4)-1-3-002
DHL-043	Moloaa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0235	(4)-4-9-010:002,005
DHL-044	Piilani Mai Ke Kai - Phase 2	0.0255	0.0255	0.0255	0.0255	0.0255	0.0255	0.0255	0.0255	(4)-4-7; (4)-4-8
DHL-045	Piilani Mai Ke Kai - Phase 3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0505	0.0505	0.0505	(4)-4-7; (4)-4-8
DHL-046	Wailua	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0250	(4)-3-9-002:003,012,017,024-028
DHL-047	Wailua Commercial & Resort	0.0000	0.0000	0.0000	0.0000	0.0000	0.2795	0.2795	0.2795	(4)-3-9-006:009,011

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Kauai									
DHL-048	Wailua Residential	0.0000	0.0000	0.0000	0.0000	0.0000	0.1775	0.3025	0.4030	(4)-3-9-002:003,012,017,024-028
DHL-049	Waimea - Mauka Village	0.0000	0.2635	0.2635	0.2635	0.2635	0.2635	0.2635	0.2635	(4)-1-2-002:016-020,023,029,033
Subtotal Kauai	**Department of Hawaiian Home Lands**	**0.0255**	**0.3530**	**0.3530**	**0.3530**	**0.3530**	**0.9190**	**2.2080**	**2.9184**	
	Department of Land and Natural Resources									
	Division of Forestry and Wildlife									
DLN-001	DLNR West Kauai Field Operations Facility	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400	(4)-1-8-008:020 por 020
Subtotal Kauai	**Department of Land and Natural Resources**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0400**	**0.0400**	**0.0400**	
	Department of Transportation									
	Airports Division									
DOT-005	LIH ConRAC	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0530	(4)-3-5-001:008
	Harbors Division									
DOT-020	Nawiliwili Hawaii Gas	0.0000	0.0000	0.0000	0.0101	0.0101	0.0101	0.0101	0.0101	(4)-3-2-004:021, 023, 053
DOT-021	Nawiliwili Kauai Petroleum Fuel Terminal	0.0000	0.0000	0.0000	0.0079	0.0079	0.0079	0.0079	0.0079	(4)-3-2-004:016
Subtotal Kauai	**Department of Transportation**	**0.0000**	**0.0000**	**0.0000**	**0.0180**	**0.0180**	**0.0180**	**0.0180**	**0.0710**	

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Kauai										
Office of Hawaiian Affairs										
OHA-007	Kekaha Armory	0.0000	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	(4)1-3-002: 023
Subtotal Kauai	**Office of Hawaiian Affairs**	**0.0000**	**0.0015**	**0.0015**	**0.0015**	**0.0015**	**0.0015**	**0.0015**	**0.0015**	
University of Hawaii										
Community Colleges										
UHC-005	Kauai Community College - Food Innovation Center	0.0000	0.0000	0.0000	0.0000	0.0021	0.0021	0.0021	0.0021	(4)-3-4-007:003
UHC-006	Kauai Community College - Imu	0.0000	0.0000	0.0000	0.0021	0.0021	0.0021	0.0021	0.0021	(4)-3-4-007:003
Subtotal Kauai	**University of Hawaii**	**0.0000**	**0.0000**	**0.0000**	**0.0021**	**0.0042**	**0.0042**	**0.0042**	**0.0042**	
	Total Island of Kauai	0.0255	0.3545	0.3620	0.3821	0.3842	1.0007	2.2971	3.1805	
Lanai										
Department of Hawaiian Home Lands										
DHL-050	Lanai City	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0672	(2)-4-9-002:057
Subtotal Lanai	**Department of Hawaiian Home Lands**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0672**	

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Lanai									
	Total Island of Lanai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0672	
	Maui									
	Department of Accounting and General Services									
	Planning									
DAG-009	Maui Regional Public Safety Complex	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2816	0.2816	(2)-3-8-008: por of 037 and 001
	Project Management									
DAG-010	Maui Veterans Cemetery Expansion and Improvements	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400	0.0400	0.0400	(2)-2-4-002:009
DAG-018	Maui Community Correctional Center New Medium Security Housing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0060	0.0060	(2)-3-8-046:005
Subtotal Maui	**Department of Accounting and General Services**	**0.0000**	**0.0000**	**0.0000**	**0.0400**	**0.0400**	**0.0460**	**0.3276**	**0.3276**	
	Department of Business, Economic Development & Tourism									
	Hawaii Housing Finance & Development Corporation									
DBT-004	Villages of Leali'i	0.0000	0.0000	0.0000	0.0000	0.1458	0.5133	0.9954	1.8185	(2)-4-5-021:003-005, 13, 21, 22, (2)4-5-028:70
Subtotal Maui	**Department of Business, Economic Development & Tourism**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1458**	**0.5133**	**0.9954**	**1.8185**	

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Maui									
Department of Education										
DOE-008	Central Maui Middle School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1000	0.1000	(2)-3-8-007:101
DOE-021	Haiku Elementary School New 6 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(2)-2-7-008:097
DOE-022	Hana High School & Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-1-3-006:008
DOE-030	Hawaiian Language Immersion Program (HLIP) Maui - New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600	(2)-3-8-007:101
DOE-048	Iao Intermediate School New 12 Classroom (Armory)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0216	0.0216	(2)-3-4-009:004
DOE-049	Iao Intermediate School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0126	0.0126	(2)-3-4-009:004
DOE-061	Kalama Intermediate School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-2-4-032:109
DOE-090	Kihei Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(2)-2-2-002:043
DOE-091	Kihei High School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200	0.1200	(2)-2-2-002:081
DOE-097	King Kekaulike High School New 6 Class	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108	(2)-2-3-007:032
DOE-113	Lahaina III Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600	(2)-4-3-001:082

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Maui									
DOE-114	Lahaina Intermediate School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-4-6-018:013
DOE-115	Lahaina Intermediate School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(2)-4-6-018:013
DOE-116	Lahaina Intermediate School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-4-6-018:013
DOE-118	Lahaina Inter. School Locker/Shower Facility & Playfield (Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-4-6-018:013
DOE-119	Lahainaluna High School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0140	0.0140	0.0140	(2)-4-6-018:005
DOE-125	Lokelani Intermediate School New Admin	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-2-2-002:043
DOE-126	Lokelani Intermediate School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0027	0.0027	(2)-2-2-002:043
DOE-127	Lokelani Intermediate School New Class	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108	(2)-2-2-002:043
DOE-130	Makawao Elementary School 12 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0216	0.0216	(2)-2-4-005:010
DOE-131	Makawao Elementary School 8 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(2)-2-4-005:010
DOE-145	Nahienaena Elementary School New Library/Admin	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0016	0.0016	(2)-4-6-018:013
DOE-150	Paia Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(2)-2-5-005:004

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Maui									
DOE-153	Pukalani Elementary School - Administration/Library/Renovate 4 Classrooms	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(2)-2-3-009:035
DOE-155	Puukolii Elementary School 1st Increment (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	(2)-4-4-002:040
DOE-156	Puukolii Elementary School 2nd Increment (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	(2)-4-4-002:040
DOE-171	Waihee Elementary School New Admin	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(2)-3-2-007:021
DOE-172	Waihee Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(2)-3-2-007:021
Subtotal Maui	**Department of Education**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0140**	**0.4940**	**0.5540**	
	Department of Hawaiian Home Lands									
DHL-051	Honokowai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0612	0.3179	0.3179	(2)-4-4-001:999; (2)-4-4-002:003,008,009,011,015,018
DHL-052	Kaanapali, Honokowai	0.0000	0.3000	0.3000	0.3000	0.3000	0.3000	0.3000	0.3000	(2)-4-4-001:999; (2)-4-4-002:003,008,009,011,015,018
DHL-053	Kahikinui	0.0000	0.0630	0.0630	0.0630	0.0630	0.0630	0.0630	0.0630	(2)-1-9-001:003,007,008,011
DHL-055	Keanae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0034	0.0034	0.0034	(2)-1-1-003:060,069; (2)-1-1-008:008
DHL-056	Keokea/Waiohuli	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.4608	0.4608	(2)-2-2-002:014,055,071; (2)-2-2-004:069,070

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Maui									
DHL-057	Keokea/Waiohuli Development Phase 1-4 1	0.0000	0.0960	0.0960	0.0960	0.0960	0.2810	0.2810	0.2810	(2)-2-2-002:014,055,071; (2)-2-2-004:069,070
DHL-058	Keokea/Waiohuli Development Phase 1-4 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0679	0.0679	0.0679	(2)-2-2-002:014,055,071; (2)-2-2-004:069,070
DHL-059	Leialii 1B	0.0000	0.0000	0.0000	0.0000	0.0000	0.1517	0.1517	0.1517	(2)-4-5-021:020; (2)-4-5-036:001-108,111
DHL-060	Paukukalo	0.0000	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	(2)-3-3-005, 006
DHL-061	Puunene	0.0000	1.7340	1.7340	1.7340	1.7340	1.7340	1.7340	1.7340	(2)-3-8-008:008,034-036
DHL-062	Ulupalakua	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0034	(2)-2-1-008:050
DHL-063	Waiehu	0.0000	0.0170	0.0170	0.0170	0.0170	0.0170	0.0170	0.0170	(2)-3-2-021, 022, 023, 024
DHL-064	Wakiu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0325	0.0565	0.1177	(2)-1-3-004:012,023
Subtotal Maui	**Department of Hawaiian Home Lands**	**0.0000**	**2.2134**	**2.2134**	**2.2134**	**2.2134**	**2.7151**	**3.4566**	**3.5212**	
	Department of Land and Natural Resources									
	Divison of Forestry and Wildlife									
DLN-010	Pulehunui Baseyard	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0243	0.0243	(2)-3-8-008:001

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Maui										
Land Division										
DLN-014	DLNR Industrial and Business Park	0.0000	0.0000	0.0000	0.0000	0.0000	0.5971	0.5971	0.5971	(2)-3-8-008:001
Subtotal Maui	**Department of Land and Natural Resources**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.5971**	**0.6214**	**0.6214**	
Department of Transportation										
Airports Division										
DOT-006	OGG ConRAC	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0680	(2)-3-8-001:019
DOT-007	OGG Subdivision	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0759	(2)-3-8-001:019
Harbors Division										
DOT-012	Kahului Cargo Yard With Amenities	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0060	(2)-3-7-011:017,023
DOT-013	Kahului Hawaiian Cement Relocation	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030	0.0030	(2)-3-7-008:004
DOT-014	Kahului Harbor New Office	0.0000	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	(2) 3-7-010:036
Subtotal Maui	**Department of Transportation**	**0.0000**	**0.0000**	**0.0002**	**0.0002**	**0.0002**	**0.0032**	**0.0092**	**0.1531**	

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Maui										
Judiciary										
JUD-003	Maui Judiciary Complex - Potable	0.0000	0.0000	0.0000	0.0000	0.0000	0.0090	0.0090	0.0090	(2)-3-4-013:013
Subtotal Judiciary Maui		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0090**	**0.0090**	**0.0090**	
University of Hawaii										
Community Colleges										
UHC-009	Maui College - Hospitality Academy Renovation	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	(2)-3-8-007:040
UHC-011	Maui College - Pilina Kitchen	0.0000	0.0000	0.0000	0.0014	0.0014	0.0014	0.0014	0.0014	(2)-3-8-007:040
Subtotal University of Hawaii Maui		**0.0000**	**0.0000**	**0.0003**	**0.0016**	**0.0016**	**0.0016**	**0.0016**	**0.0016**	
	Total Island of Maui	0.0000	2.2134	2.2139	2.2552	2.4010	3.8993	5.9148	7.0064	
Molokai										
Department of Education										
DOE-078	Kaunakakai Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010	(2)-5-3-002:052
DOE-094	Kilohana Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(2)-5-3-002:052

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Molokai									
DOE-095	Kilohana Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-5-3-002:052
DOE-111	Kualapuu Elementary School 6 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(2)-5-2-013:027
DOE-132	Maunaloa Elementary School New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(2)-5-1-009:103
DOE-133	Maunaloa Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-5-1-009:103
DOE-138	Molokai High School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-5-2-015:001
DOE-139	Molokai High School Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030	(2)-5-2-015:001
DOE-140	Molokai High School 8 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(2)-5-2-015:001
Subtotal Molokai	**Department of Education**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0295**	**0.0295**	

Department of Hawaiian Home Lands

DHL-065	Hoolehua	0.0000	0.1302	0.1302	0.1302	0.1302	0.4266	0.5116	0.5116	(2)-5-2-001 - 007, 015, 017, 021 - 027, 030; (2)-5-2-011:004,015-019,777
DHL-066	Kalamaula	0.0000	0.1292	0.1292	0.1292	0.1292	0.2072	0.2810	0.2810	(2)-5-2-008, 009, 010, 032, 033; (2)-5-2-011:001,001,021,033
DHL-067	Kalaupapa, Palaau	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0478	0.0478	(2)-5-2-013:006; (2)-6-1-001:001

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Molokai										
DHL-068	Kapaakea, Kamiloloa, Makakupaia	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1716	0.1716	(2)-5-4-002:014; (2)-5-4-003, 006, 007, 008
DHL-069	Ualapue	0.0000	0.0000	0.0000	0.0000	0.0000	0.0282	0.0493	0.0493	(2)-5-6-002:001,024-027,036; (2)-5-6-006:017
Subtotal Molokai	**Department of Hawaiian Home Lands**	**0.0000**	**0.2594**	**0.2594**	**0.2594**	**0.2594**	**0.6620**	**1.0613**	**1.0613**	
University of Hawaii										
Community Colleges										
UHC-010	Maui College - Moloka'i Education Center	0.0000	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	(2)-5-3-005:012
Subtotal Molokai	**University of Hawaii**	**0.0000**	**0.0000**	**0.0000**	**0.0003**	**0.0003**	**0.0003**	**0.0003**	**0.0003**	
	Total Island of Molokai	0.0000	0.2594	0.2594	0.2597	0.2597	0.6623	1.0911	1.0911	
Oahu										
Department of Accounting and General Services										
Planning										
DAG-001	Creative Media, Film, and Production Facility Planning	0.0000	0.0000	0.0000	0.0000	0.0000	0.0120	0.0120	0.0120	(1)-2-1-017:001
DAG-003	Hawaii State Hospital Patient Facility	0.0000	0.0000	0.0000	0.0000	0.0000	0.0540	0.0540	0.0540	(1)-4-5-023:002 por
DAG-004	Judiciary Multi-Use & HHFDC Housing Joint Development	0.0000	0.0000	0.0000	0.0000	0.0000	0.1811	0.1811	0.1811	(1)-2-3-012:019

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Oahu									
DAG-008	Liliha Civic Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0480	0.0480	(1)-1-5-007:001
DAG-011	Oahu Community Correctional Center Relocation & Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.1950	0.1950	0.1950	(1)-9-9-010:030
	Project Management									
DAG-017	Women's Community Correctional Center New Housing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0135	0.0135	0.0135	(1)-4-2-003:004
Subtotal Oahu	**Department of Accounting and General Services**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.4556**	**0.5036**	**0.5036**	
	Department of Business, Economic Development & Tourism									
	Hawaii Community Development Authority									
HCD-001	630 Cooke Street Micro Unit Affordable Housing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0312	0.0312	0.0312	(1)-2-1-051:014
HCD-002	690 Pohukaina	0.0000	0.0000	0.0000	0.0000	0.0000	0.2580	0.2580	0.2580	(1)-2-1-051:041
HCD-003	Ola Ka 'Ilima Artspace Lofts	0.0000	0.0000	0.0000	0.0000	0.0252	0.0252	0.0252	0.0252	(1)-2-3-003:040
Subtotal Oahu	**Department of Business, Economic Development & Tourism**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0252**	**0.3144**	**0.3144**	**0.3144**	
	Department of Defense									
	Hawaii Army National Guard									
DOD-002	Kalaeloa Bridgade Readiness Center (Potable)	0.0050	0.0050	0.0050	0.0055	0.0055	0.0060	0.0060	0.0060	(1)-9-1-013:045

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Oahu									
DOD-004	Kalaeloa AASF (Potable)	0.0000	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	(1)-9-1-013:045
DOD-005	Kalaeloa B117 ph2 Combined Support Maintenance Shop	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	(1)-9-1-013:045
Subtotal Oahu	**Department of Defense**	**0.0070**	**0.0095**	**0.0095**	**0.0100**	**0.0100**	**0.0105**	**0.0105**	**0.0105**	
	Department of Education									
DOE-001	Aiea High School Library Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0013	0.0013	(1)-9-8-031:017
DOE-002	Aiea High School Applied Technology Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010	(1)-9-9-005:001
DOE-003	Campbell High School New 27 Classroom Building	0.0000	0.0000	0.0000	0.0500	0.0500	0.0500	0.0500	0.0500	(1)-9-1-001:002
DOE-004	Castle High School Cafeteria Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0060	(1)-4-5-034:014
DOE-005	Central Intermediate - Renovate Bldg A Ph 1 15 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017	(1)-2-1-005:001, (1)-2-1-009:001,002,003
DOE-006	Central Intermediate - Renovate Bldg C 16 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0022	0.0022	(1)-2-1-005:001, (1)-2-1-009:001,002,003
DOE-007	Central Middle School - Renovate Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0023	0.0023	(1)-2-1-005:001, (1)-2-1-009:001,002,003
DOE-009	Central Oahu High School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200	(1)-9-4-006:038

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Oahu									
DOE-013	East Kapolei Elementary School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(1)-9-1-160:024
DOE-014	East Kapolei High School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200	(1)-9-1-018:012
DOE-015	East Kapolei Middle School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(1)-9-1-017:110
DOE-016	Ewa Makai Middle School New 25 Classroom Building	0.0000	0.0000	0.0000	0.0500	0.0500	0.0500	0.0500	0.0500	(1)-9-1-148:018
DOE-017	Farrington High School Campus Modernization	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500	(1)-1-6-021:005
DOE-023	Helemano Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(1)-7-1-002:017
DOE-024	Hickam Elementary School - New Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-9-9-001:013
DOE-025	Hickam Elementary School - New Cafeteria and Library Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0033	0.0033	(1)-9-9-001:013
DOE-031	Hawaiian Language Immersion Program (HLIP) New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(1)-3-4-003:001
DOE-032	Holomua Elementary School New Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500	(1)-9-1-102:028
DOE-041	Honowai Elementary School Phase 1B of Administrative Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-9-4-032:043
DOE-046	Hoopili Elementary School New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(1)-9-1-018:010

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Oahu									
DOE-047	Hoopili High School New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200	(1)-9-1-017:004
DOE-050	Kaaawa Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-5-1-002:018
DOE-051	Kaaawa Elementary School New Library/Adminstration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011	(1)-5-1-002:018
DOE-052	Kaelepulu Elementary School, New Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-4-2-090:074
DOE-054	Kahuku Intermediate School & High School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0066	0.0066	(1)-5-6-006:003
DOE-055	Kahuku Intermediate School & High School New Gymnasium	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0040	(1)-5-6-006:003
DOE-056	Kahuku Intermediate School & High School New PE Lockers & Showers	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(1)-5-6-006:003
DOE-057	Kailua Elementary School Library Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(1)-4-3-056:003
DOE-058	Kainalu Elementary School New Admin	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-4-3-076:015
DOE-059	Kakaako Elementary New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600	(1)-2-1-052:008
DOE-060	Kalakaua Middle School - Renovate Bldgs G & H3 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(1)-1-5-024:029,040; (1)-1-5-025:001,002
DOE-062	Kalani High School Multipurpose Athletic Facility	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012	(1)-3-5-020:004

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
					Oahu					
DOE-065	Kamaile Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(1)-8-5-002:037
DOE-070	Kapolei High School New Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0200	0.0200	0.0200	(1)-9-1-016:074
DOE-071	Kapolei Middle School New Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400	(1)-9-1-016:082
DOE-075	Kauluwela Elementary - 6 Classroom Bldg	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108	(1)-1-7-023:041; (1)-1-7-022:015
DOE-076	Kauluwela Elementary - New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017	(1)-1-7-023:041,042
DOE-098	Koa Ridge Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600	(1)-9-4-006:001
DOE-112	Kunia Elementary School New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(1)-9-4-012:011
DOE-121	Leihoku Elementary School New 6 Classrooms	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108	(1)-8-6-001:054
DOE-122	Leilehua High School New Science/Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108	(1)-7-4-018:001
DOE-124	Linapuni Elementary School New Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-1-3-039:005
DOE-128	Makaha Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(1)-8-4-025:010
DOE-129	Makalapa Elementary School - Admin and Renovation	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-9-9-075:028

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Oahu									
DOE-134	McKinley High School - Renovate Industrial Arts Educ. Bldg 6 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0019	0.0019	(1)-2-3-009:001
DOE-135	Mililani Middle School New Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1000	0.1000	(1)-9-5-002:040
DOE-136	Moanalua High School Performing Arts Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010	(1)-1-1-063:011
DOE-137	Mokapu Elementary School - Campus Wide Improvements	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(1)-4-4-009:007
DOE-146	Nanakuli High School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(1)-8-9-007:009
DOE-151	Pearl Harbor Elementary School New 4 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(1)-1-1-010:027
DOE-152	Pearl Harbor Kai Elementary School Building "F" Renovation 2 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0002	(1)-9-9-001:012
DOE-154	Puohala Elementary School Expansion of Library and Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011	(1)-4-5-030:038
DOE-157	Roosevelt High School - Renovate Bldg A Phase 1: Admin, Library, Cafeteria, 43 Classrooms	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0080	0.0080	(1)-2-4-032:001
DOE-158	Shafter Elementary School Replacement Campus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(1)-1-1-008:008
DOE-159	Solomon Elementary School Campus-Wide Improvements	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(1)-7-7-001:007
DOE-163	Waialua Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-6-7-001:010

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Oahu									
DOE-164	Waianae High School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(1)-8-5-015:001
DOE-165	Waianae High School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0074	0.0074	(1)-8-5-015:001
DOE-166	Waianae Intermediate School New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(1)-8-5-028:042
DOE-167	Waiau Elementary School Admin/Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011	(1)-9-8-050:071
DOE-168	Waiawa I Elementary School 1st Increment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(1)-9-6-004:024
DOE-169	Waiawa Intermediate School 1st Increment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	(1)-9-6-004:024
DOE-170	Waiawa Intermediate School 2nd Increment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	(1)-9-6-004:024
DOE-175	Waimalu ES - Renovate Building A (6 Classrooms)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(1)-9-8-008:007
DOE-182	Waipahu High School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0077	0.0077	(1)-9-4-008:020
DOE-183	Wheeler Elementary School - 8 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(1)-7-7-001:002
Subtotal Oahu	**Department of Education**	**0.0000**	**0.0000**	**0.0000**	**0.1000**	**0.1000**	**0.1600**	**0.5184**	**1.2784**	

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
					Oahu					
Department of Hawaiian Home Lands										
DHL-070	East Kapolei I - B3	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	(1)-9-1-151:002
DHL-071	East Kapolei I - Kanehili	0.0000	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	(1)-9-1-151:057,058
DHL-072	East Kapolei II - B	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800	(1)-9-1-017:110
DHL-073	East Kapolei II - C	0.0000	0.0000	0.0000	0.0000	0.0000	0.1064	0.5441	0.5441	(1)-9-1-017:110
DHL-074	Haiku	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0400	(1)-4-5-041:005; (1)-4-6-015:009; (1)-9-9-011:004,006
DHL-075	Kakaina	0.0220	0.0220	0.0220	0.0220	0.0220	0.0220	0.0220	0.0220	(1)-4-1-008:010,011,081,091; (1)-4-1-023:065
DHL-076	Kalaeloa - All Others	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.0280	2.0280	(1)-9-1-013:009,024,027,029,038,040,048,061
DHL-077	Kalaeloa 3	0.1720	0.1720	0.1720	0.1720	0.1720	0.1720	0.1720	0.1720	(1)-9-1-013:117-119
DHL-078	Kalawahine	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0090	0.0090	(1)-2-4-034:023-025; (1)-2-4-043; (1)-2-5-019:016
DHL-079	Kapolei Regional Mall (DeBartolo)	0.2919	0.2919	0.2919	0.2919	0.2919	0.2919	0.2919	0.2919	(1)-9-1-016:142
DHL-080	Lualualei	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1290	0.1290	(1)-8-6-001, 003; (1)-8-6-014:001

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Oahu									
DHL-082	Maili 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0660	0.0660	0.0660	(1)-8-7-010:030,031
DHL-083	Maili 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500	0.1300	0.1300	(1)-8-7-010:030,031
DHL-084	Moiliili (Isenberg)	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	(1)-2-7-008:018,020
DHL-085	Nanakuli	0.0000	0.0544	0.0544	0.0544	0.0544	0.0544	1.3069	1.3069	(1)-8-9-002:001,067; (1)-8-9-007:002,004,011; (1)-8-9-008:009; (1)-8-9-012:061
DHL-086	Papakolea	0.0000	0.0520	0.0520	0.0520	0.0520	0.0520	0.0865	0.0865	(1)-2-2-005:005; (1)-2-2-014:015,024; (1)-2-2-015; (1)-2-2-053:007; (1)-2-4-039 - 041; (1)-2-
DHL-087	Pearl City (Waihona)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0160	0.0160	(1)-9-7-024:050
DHL-088	Shafter Flats	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	(1)-1-1-064:008-022,031-035
DHL-089	Waiahole	0.0085	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	(1)-4-8-008:029; (1)-4-8-009; (1)-4-8-011; (1)-4-8-012
DHL-090	Waianae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.1240	0.1240	(1)-8-5-003:020; (1)-8-5-004, (1)-8-5-005:036, (1)-8-5-029 - 033, 036
DHL-092	Waimanalo	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1780	0.3140	(1)-4-1-002:001; (1)-4-1-003, 008, 011, 014, 017, 019
Subtotal Oahu	**Department of Hawaiian Home Lands**	**0.6090**	**0.7388**	**0.7388**	**0.7388**	**0.7388**	**0.9652**	**5.2899**	**5.4259**	

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Oahu									
Department of Health										
DOH-001	Halawa Vector Control Facility Office Space and Accessibility Improvements	0.0000	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	(1)-9-9-010:055
DOH-002	Uluakupu Building Interior Renovation	0.0000	0.0141	0.0141	0.0141	0.0141	0.0141	0.0141	0.0141	(1)-9-7-025:001
Subtotal Department of Health Oahu		**0.0000**	**0.0190**	**0.0190**	**0.0190**	**0.0190**	**0.0190**	**0.0190**	**0.0190**	
Department of Human Services										
Hawaii Public Housing Authority										
DHS-001	Kuhio Park Redevelopment (Excluding Towers & Community Bldg)	0.0000	0.0000	0.0000	0.0000	0.0000	0.1736	0.1736	0.1736	(1)-1-3-039:006, (1)-1-3-039-007,(1)-1-3-039-008, (1)-1-3-039:003
DHS-002	Mayor Wright Homes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0680	0.0680	(1)-1-7-029-003
DHS-003	HPHA School Street Campus Redevelopment	0.0000	0.0000	0.0000	0.0000	0.0000	0.1530	0.1530	0.1530	(1) 1-6-009:003
Subtotal Department of Human Services Oahu		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.3266**	**0.3946**	**0.3946**	
Department of Land and Natural Resources										
Division of State Parks										
DLN-003	Malaekahana SRA, Kahuku Section Park Improvements	0.0000	0.0000	0.1300	0.1300	0.1300	0.1300	0.1300	0.1300	(1)-5-6-001:024

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Oahu									
	Divison of Forestry and Wildlife									
DLN-008	Kawainui Baseyard	0.0000	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	(1)-4-2-013:005
	Land Division									
DLN-015	DLNR East Kapolei Lands, Phase 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2820	0.2820	(1)-9-1-017:097
DLN-016	DLNR East Kapolei Lands, Phase 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2967	(1)-9-1-017:097
Subtotal Oahu	**Department of Land and Natural Resources**	**0.0000**	**0.0300**	**0.1600**	**0.1600**	**0.1600**	**0.1600**	**0.4420**	**0.7387**	
	Department of Transportation									
	Airports Division									
DOT-001	HNL ConRAC 2A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0290	(1)-1-1-003:001
DOT-002	HNL ConRAC 2B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0747	(1)-1-1-003:001
DOT-003	Honolulu Mauka Concourse	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0505	(1)-1-1-003:001
DOT-026	HNL Airport Expansion	0.0000	0.0231	0.0462	0.0692	0.0923	0.2077	0.3231	0.4385	(1)-1-1-003:001
DOT-027	JCF Airport Expansion	0.0000	0.0004	0.0008	0.0012	0.0016	0.0036	0.0055	0.0075	(1)-9-1-013:032

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Oahu									
Harbors Division										
DOT-010	Potential Industrial Center/ 100 employees	0.0000	0.0000	0.0000	0.0000	0.0000	0.0460	0.0460	0.0460	(1)-1-5-039:022
DOT-011	Potential Residential/Hotel 250 units	0.0000	0.0000	0.0000	0.0000	0.0000	0.0159	0.0159	0.0159	(1)-2-1-001:057
DOT-015	Kalaeloa Potential Applicant A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0800	0.0800	(1)-9-1-014:024
DOT-016	Kalaeloa Potential Applicant B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(1)-9-1-014:024
DOT-017	Kalaeloa Potential Applicant C	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0800	0.0800	(1)-9-1-014:024
DOT-025	Kalaeloa Fuel Pier	0.0000	0.0000	0.0000	0.0000	0.0000	0.0160	0.0160	0.0160	(1)-9-1-014:024
Subtotal	**Department of Transportation**	**0.0000**	**0.0235**	**0.0470**	**0.0704**	**0.0939**	**0.2892**	**0.5665**	**0.8981**	
	Oahu									
Judiciary										
JUD-001	Oahu Judiciary Proxy - Potable	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0066	(1)-2-1-025:003
Subtotal	**Judiciary**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0066**	
	Oahu									

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Oahu									
Office of Hawaiian Affairs										
OHA-001	Kaka'ako Makai - Parcel A	0.0000	0.0002	0.0004	0.0006	0.0008	0.0010	0.0130	0.0370	(1)-2-1-058:129
OHA-002	Kaka'ako Makai - Parcel B/C	0.0000	0.0005	0.0009	0.0013	0.0017	0.0021	0.0141	0.0381	(1)-2-1-058:130
OHA-003	Kaka'ako Makai - Parcel D	0.0000	0.0010	0.0020	0.0030	0.0040	0.0050	0.0060	0.0080	(1)-2-1-060:027
OHA-004	Kaka'ako Makai - Parcel E	0.0000	0.0010	0.0020	0.0030	0.0040	0.0050	0.0060	0.0520	(1)-2-1-058:006
OHA-005	Kaka'ako Makai - Parcel F/G	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0560	(1)-2-1-060:026
OHA-006	Kaka'ako Makai - Parcel I	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1248	(1)-2-1-015:061
OHA-009	Kukaniloko (Potable)	0.0000	0.0000	0.0000	0.0010	0.0010	0.0446	0.0446	0.0446	(1)-7-1-001:045, 046, 047, 048, 049 and 051
OHA-012	Waialua Court House	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	(1)-6-6-009-023
Subtotal Office of Hawaiian Affairs		**0.0000**	**0.0030**	**0.0056**	**0.0092**	**0.0118**	**0.0580**	**0.0840**	**0.3608**	
Oahu										
University of Hawaii										
Community Colleges										
UHC-002	Honolulu Community College - Advanced Technology Training Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	0.0009	(1)-1-5-017:006

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Oahu									
UHC-003	Kapi'olani Community College - Culinary Institute of the Pacific, Phase I	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	(1)-3-1-042:009
UHC-004	Kapi'olani Community College - Culinary Institute of the Pacific, Phase II	0.0000	0.0000	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027	(1)-3-1-042:009
UHC-007	Leeward Community College - Native Hawaiian Center for Excellence	0.0000	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	(1)-9-6-003:048
UHC-008	Leeward Community College - Waianae Education Center	0.0000	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	(1)-8-7-004:041
Manoa										
UHM-001	University of Hawaii at Manoa - Water Master Plan	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1437	(1)-2-8-015:001; (1)-2-8-023:003,009,013,016; (1)-2-8-026:014; (1)-2-8-029:001; (1)-2-9-
West Oahu										
UHW-001	Creative Media Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0060	0.0060	(1)-9-1-016: 220
UHW-003	University of Hawaii - West Oahu - Long Range Master Plan (Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.8821	(1)-9-1-016:220
UHW-004	University of Hawaii - West Oahu - Allied Heath Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030	0.0030	(1)-9-1-016:220
Subtotal Oahu	**University of Hawaii**	**0.0000**	**0.0027**	**0.0055**	**0.0085**	**0.0085**	**0.0184**	**0.0184**	**1.0443**	
	Total Island of Oahu	0.6160	0.8266	0.9855	1.1160	1.1673	2.7770	8.1613	10.9948	

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	TOTAL STATE	**0.9414**	**5.4812**	**5.8039**	**6.0894**	**6.5019**	**13.2864**	**24.2726**	**34.1471**	

APPENDIX I

SWPP Project Water Demands
by Island – Non-Potable

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SWPP Project Water Demands by Island - Non-Potable

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Hawaii										
Department of Accounting and General Services										
Project Management										
DAG-014	West Hawaii Veteran's Cemetery	0.0000	0.0000	0.0000	0.0000	0.3100	0.3100	0.3100	0.3100	(3)-7-2-004:021
Subtotal Hawaii	**Department of Accounting and General Services**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.3100**	**0.3100**	**0.3100**	**0.3100**	
Department of Business, Economic Development & Tourism										
Natural Energy Laboratory of Hawaii Authority										
DBT-001	Ongoing NELHA Expansion (Non-Potable)	0.0000	0.0000	3.3625	6.7006	10.0179	13.3175	35.9561	35.9561	(3)-7-3-043:083
Subtotal Hawaii	**Department of Business, Economic Development & Tourism**	**0.0000**	**0.0000**	**3.3625**	**6.7006**	**10.0179**	**13.3175**	**35.9561**	**35.9561**	
Department of Education										
DOE-083	Kealakehe Elementary School - Playfield/Retention Basion (Non-Potable Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0120	0.0120	(3)-7-4-019:044
Subtotal Hawaii	**Department of Education**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0120**	**0.0120**	

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
					Hawaii					
Department of Hawaiian Home Lands										
DHL-012	Kamaoa-Puueo (Non-Potable Using Potable)	0.0000	0.3924	0.3924	0.3924	0.3924	0.4701	0.4701	0.4701	(3)-9-3-001:002,003,007,010-013
DHL-017	Keoniki (Non-Potable Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	(3)-6-5-001:010
DHL-019	Kurtistown-Olaa (Non-Potable Using Potable)	0.0000	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	(3)-1-8-011:012,016,023-025
DHL-093	Honokaia, Kamoku-Kapulena, Nienie (Non-Potable)	0.0000	0.1700	0.1700	0.1700	0.1700	1.0200	1.6116	1.6550	(3)-4-6-011, 012; (3)-4-7-006, 007
DHL-094	Honomu-Kuhua (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	0.8500	1.1305	1.1305	(3)-2-8-011:009,011,019
DHL-095	Honomu-Kuhua (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.8500	1.1305	1.1305	(3)-2-8-011:009,011,019
DHL-096	Humuula-Piihonua (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.9720	(3)-2-6-018:002; (3)-3-8-001; (3)-4-4-015:001
DHL-097	Humuula-Piihonua (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.4000	(3)-2-6-018:002; (3)-3-8-001; (3)-4-4-015:001
DHL-098	Keaukaha, Waiakea-Panaewa (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.3838	(3)-2-1; (3)-2-2; (3)-2-4
DHL-099	Lower Piihonua (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.5946	(3)-2-6-009:005,027

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Hawaii										
DHL-100	Makuu-Keonepoko (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.3830	(3)-1-5-008:003; (3)-1-5-010:005,006,036; (3)-1-5-118, 119, 120, 121
DHL-101	Puukapu (Non-Potable)	0.1020	0.1020	0.1020	0.1020	0.1020	0.1360	0.1360	0.8114	(3)-6-4-002, 004, 008, 038; (3)-6-5-001
DHL-102	Waimanu (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	15.0000	(3)-4-9-014:012
DHL-103	Waiohinu (Non-Potable 1)	0.0000	0.1275	0.1275	0.1275	0.1275	0.3876	0.3876	0.3876	(3)-9-5-005:002
DHL-104	Waiohinu (Non-Potable 2)	0.0000	0.1275	0.1275	0.1275	0.1275	0.3876	0.3876	0.3876	(3)-9-5-005:002
Subtotal Hawaii	**Department of Hawaiian Home Lands**	**0.1020**	**0.9319**	**0.9319**	**0.9319**	**0.9319**	**4.1138**	**5.2664**	**31.7207**	
	Total Island of Hawaii	0.1020	0.9319	4.2944	7.6325	11.2598	17.7413	41.5445	67.9988	
Kauai										
Department of Education										
DOE-103	Koloa Elementary School New 6 Classroom (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0075	0.0075	(4)-2-8-010:011
DOE-123	Lihue 1 New School (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(4)-3-7-001:001
Subtotal Kauai	**Department of Education**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0075**	**0.0675**	

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
					Kauai					
Department of Hawaiian Home Lands										
DHL-040	Hanapepe (Non-Potable Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2448	(4)-1-8-007:003; (4)-1-8-008:035
DHL-105	Anahola (Non-Potable 1)	0.0000	2.5959	2.5959	2.5959	2.5959	2.5959	2.5959	2.5959	(4)-4-7; (4)-4-8
DHL-106	Anahola (Non-Potable 2)	0.4097	0.7820	0.7820	0.7820	0.7820	1.2799	1.2799	1.2799	(4)-4-7; (4)-4-8
DHL-107	Anahola (Non-Potable 3)	0.4097	0.7820	0.7820	0.7820	0.7820	1.2799	1.2799	1.2799	(4)-4-7; (4)-4-8
DHL-108	Hanapepe (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2924	(4)-1-8-007:003; (4)-1-8-008:035
DHL-109	Moloaa (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.2500	2.2500	(4)-4-9-010:002,005
DHL-110	Moloaa (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.6800	(4)-4-9-010:002,005
DHL-111	Wailua Residential (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.3366	0.3366	0.3366	(4)-3-9-002:003,012,017,024-028
DHL-112	Waimea (Non-Potable 1)	0.0000	12.4557	12.4557	12.4557	12.4557	12.4557	12.4557	12.4557	(4)-1-2-002:016-020,023,029,033
DHL-113	Waimea (Non-Potable 2)	0.0000	13.3500	13.3500	13.3500	13.3500	13.3500	13.3500	13.3500	(4)-1-2-002:016-020,023,029,033

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Kauai									
Subtotal Kauai	**Department of Hawaiian Home Lands**	**0.8194**	**29.9656**	**29.9656**	**29.9656**	**29.9656**	**31.2980**	**33.5480**	**34.7652**	
	Total Island of Kauai	0.8194	29.9656	29.9656	29.9656	29.9656	31.2980	33.5555	34.8327	
	Maui									
	Department of Agriculture									
	Agricultural Resource Management Division									
DOA-002	Upcounty Maui Irrigation System (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.8800	(2) 2-2 AND 2-3
Subtotal Maui	**Department of Agriculture**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.8800**	
	Department of Education									
DOE-117	Lahaina Inter. School Locker/Shower Facility & Playfield (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0068	0.0068	(2)-4-6-018:013
DOE-173	Waihee Elementary School - Playfield/Water Retention Basin (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0051	0.0051	(2)-3-2-007:021
Subtotal Maui	**Department of Education**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0119**	**0.0119**	
	Department of Hawaiian Home Lands									
DHL-054	Kahikinui (Non-Potable Using Potable)	0.0000	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	(2)-1-9-001:003,007,008,011

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
					Maui					
DHL-114	Honokowai (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	1.0404	1.0404	1.0404	(2)-4-4-001:999; (2)-4-4-002:003,008,009,011,015,018
DHL-115	Honokowai (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	1.0404	1.0404	1.0404	(2)-4-4-001:999; (2)-4-4-002:003,008,009,011,015,018
DHL-116	Keanae (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	4.2750	4.2750	4.2750	(2)-1-1-003:060,069; (2)-1-1-008:008
DHL-117	Keanae (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.3128	0.3128	0.3128	(2)-1-1-003:060,069; (2)-1-1-008:008
DHL-118	Keokea-Waiohuli Development Phase 1-4 (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	0.2890	0.2890	0.2890	(2)-2-2-002:014,055,071; (2)-2-2-004:069,070
DHL-119	Keokea-Waiohuli Development Phase 1-4 (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.2890	0.2890	0.2890	(2)-2-2-002:014,055,071; (2)-2-2-004:069,070
DHL-120	Puunene (Non-Potable)	0.0000	1.8564	1.8564	1.8564	1.8564	1.8564	1.8564	1.8564	(2)-3-8-008:008,034-036
DHL-121	Wailua (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	2.1000	2.1000	2.1000	(2)-1-1-004:007,008,033,034,041; (2)-1-1-005:001,008,022,035,038,047; (2)-1-1-006:013,031,069,073; (2)-1-1-008:014
DHL-122	Wailua (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.1802	0.1802	0.1802	(2)-1-1-004:007,008,033,034,041; (2)-1-1-005:001,008,022,035,038,047; (2)-1-1-006:013,031,069,073; (2)-1-1-008:014
DHL-123	Wakiu (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2086	(2)-1-3-004:012,023
DHL-124	Wakiu (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0464	(2)-1-3-004:012,023

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Maui									
Subtotal Maui	**Department of Hawaiian Home Lands**	**0.0000**	**1.8699**	**1.8699**	**1.8699**	**1.8699**	**11.3967**	**11.3967**	**11.6517**	
Department of Transportation										
	Highways Division									
DOT-022	Honoapiilani Hwy (Lahaina Bypass) Ph. 1C - Keawe St. Ext. to Kaanapali Connector	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	0.0300	(2)-4-5-021:022
DOT-024	Hana Highway Paia Bypass - Paia Relief Route	0.0000	0.0000	0.0000	0.0000	0.0000	0.2880	0.2880	0.2880	(2)-2-5-005:018, (2)-3-8-001:007
Subtotal Maui	**Department of Transportation**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2880**	**0.3180**	**0.3180**	
Judiciary										
JUD-004	Maui Judiciary Complex - Non-Potable (Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0066	0.0066	0.0066	(2)-3-4-013:013
Subtotal Maui	**Judiciary**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0066**	**0.0066**	**0.0066**	
Office of Hawaiian Affairs										
OHA-011	Palauea Cultural Preserve	0.0000	0.0000	0.0000	0.0000	0.0040	0.0040	0.0040	0.0040	(2)-2-1-023:034
Subtotal Maui	**Office of Hawaiian Affairs**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0040**	**0.0040**	**0.0040**	**0.0040**	
	Total Island of Maui	0.0000	1.8699	1.8699	1.8699	1.8739	11.6953	11.7372	13.8722	

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Molokai										
Department of Hawaiian Home Lands										
DHL-125	Hoolehua (Non-Potable)	0.0000	4.7207	4.7207	4.7207	4.7207	5.3599	5.3599	5.3599	(2)-5-2-001 - 007, 015, 017, 021 - 027, 030; (2)-5-2-011:004,015-019,777
DHL-126	Kalamaula (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.7316	0.7316	(2)-5-2-008, 009, 010, 032, 033; (2)-5-2-011:001,001,021,033
Subtotal Molokai	**Department of Hawaiian Home Lands**	**0.0000**	**4.7207**	**4.7207**	**4.7207**	**4.7207**	**5.3599**	**6.0914**	**6.0914**	
	Total Island of Molokai	0.0000	4.7207	4.7207	4.7207	4.7207	5.3599	6.0914	6.0914	
Oahu										
Department of Agriculture										
Agribusiness Development Corporation										
ADC-001	Alternative 2: Wahiawa WWTP R-1 & Lake Wilson - North Fork	0.0000	4.1690	4.1690	4.1690	4.1690	4.1690	4.1690	4.1690	(1)-7-1-002:004 and (1)-7-1-002:009
Agricultural Resource Management Division										
DOA-001	Kunia Agricultural Park (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5550	(1) 9-4-002:080
Subtotal Oahu	**Department of Agriculture**	**0.0000**	**4.1690**	**4.1690**	**4.1690**	**4.1690**	**4.1690**	**4.1690**	**4.7240**	

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Oahu									
Department of Defense										
Hawaii Army National Guard										
DOD-001	Kalaeloa Bridgade Readiness Center (Non-Potable)	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	(1)-9-1-013:045
DOD-003	Kalaeloa AASF (Non-Potable)	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	(1)-9-1-013:045
Subtotal Oahu	**Department of Defense**	**0.0010**	**0.0012**	**0.0012**	**0.0012**	**0.0012**	**0.0012**	**0.0012**	**0.0012**	
Department of Education										
DOE-053	Kahuku High School - Athletic Field (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0380	(1)-5-6-006:003
Subtotal Oahu	**Department of Education**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0380**	
Department of Hawaiian Home Lands										
DHL-081	Lualualei (Non-Potable Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0714	0.0714	(1)-8-6-001, 003; (1)-8-6-014:001
DHL-091	Waianae (Non-Potable Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0136	0.0136	0.0136	(1)-8-5-003:020; (1)-8-5-004, (1)-8-5-005:036, (1)-8-5-029 - 033, 036
DHL-127	Haiku (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	10.2750	10.2750	(1)-4-5-041:005; (1)-4-6-015:009; (1)-9-9-011:004,006

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
					Oahu					
DHL-128	Kaala Farm (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	7.2750	7.2750	(1)-8-5-005:036
DHL-129	Waiahole (Non-Potable)	0.0000	1.8000	1.8000	1.8000	1.8000	1.8000	1.8000	1.8000	(1)-4-8-008:029; (1)-4-8-009; (1)-4-8-011; (1)-4-8-012
DHL-130	Waimanalo (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0680	0.0680	(1)-4-1-002:001; (1)-4-1-003, 008, 011, 014, 017, 019
Subtotal Oahu	**Department of Hawaiian Home Lands**	**0.0000**	**1.8000**	**1.8000**	**1.8000**	**1.8000**	**1.8136**	**19.5030**	**19.5030**	
Judiciary										
JUD-002	Oahu Judiciary Proxy - Non-Potable (Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0039	(1)-2-1-025:003
Subtotal Oahu	**Judiciary**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0039**	
Office of Hawaiian Affairs										
OHA-008	Kukaniloko (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	1.0000	(1)-7-1-001:045, 046, 047, 048, 049 and 051
OHA-010	Pahua Heiau	0.0000	0.0000	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	(1) 3-9-056:038
Subtotal Oahu	**Office of Hawaiian Affairs**	**0.0000**	**0.0000**	**0.0010**	**0.0010**	**0.0010**	**1.0010**	**1.0010**	**1.0010**	

Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Oahu									
University of Hawaii										
West Oahu										
UHW-002	University of Hawaii - West Oahu - Long Range Master Plan (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000	(1)-9-1-016:220
Subtotal Oahu	**University of Hawaii**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.5000**	
	Total Island of Oahu	0.0010	5.9702	5.9712	5.9712	5.9712	6.9848	24.6742	25.7711	
	TOTAL STATE	**0.9224**	**43.4582**	**46.8217**	**50.1598**	**53.7911**	**73.0792**	**117.6028**	**148.5662**	

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APPENDIX J

SWPP Project Water Demands
Sorted by Groundwater
Hydrologic Unit – Potable

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SWPP Project Water Demands by Ground Water Hydrologic Unit - Potable

Aquifer Sector

Aquifer System

Proj ID	Project	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
					Hawaii					
802 East Mauna Kea										
80203 Hakalau										
DHL-006	Honomu-Kuhua	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0832	0.0832	(3)-2-8-011:009,011,019
DOE-120	Laupahoehoe High School & Elementary School New Band/Chorus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-3-5-005:001
80201 Honokaa										
DHL-002	Honokaia, Kamoku-Kapulena, Nienie 1	0.0000	0.0100	0.0100	0.0100	0.0100	0.0600	0.0948	0.0948	(3)-4-6-011, 012; (3)-4-7-006, 007
DHL-003	Honokaia, Kamoku-Kapulena, Nienie 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3012	(3)-4-6-011, 012; (3)-4-7-006, 007
DOE-037	Honokaa Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-4-5-010:076
DOE-038	Honokaa Elementary School New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(3)-4-5-010:076
DOE-039	Honokaa High School New 15 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(3)-4-5-005:002
DOE-040	Honokaa High School New 6 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-4-5-005:002
80204 Onomea										
DHL-007	Humuula-Piihonua	0.0000	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.2496	(3)-2-6-018:002; (3)-3-8-001; (3)-4-4-015:001
DOE-018	Haaheo Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(3)-2-6-020:038
DOE-019	Haaheo Elementary School New 4 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-2-6-020:038

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Hawaii										
802 East Mauna Kea										
80204 Onomea										
DOE-020	Haaheo Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-2-6-020:038
DOE-063	Kalanianaole Elementary School - 8 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-2-7-022:002
DOE-064	Kalanianaole Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-2-7-022:002
	Subtotal East Mauna Kea	**0.0000**	**0.0400**	**0.0400**	**0.0400**	**0.0400**	**0.1300**	**0.2195**	**0.7404**	
809 Hualalai										
80901 Keauhou										
DAG-007	Kona Judiciary Complex	0.0000	0.0000	0.0000	0.0000	0.0146	0.0146	0.0146	0.0146	(3)-7-4-020:010 POR
DBT-002	Ongoing NELHA Expansion (Potable)	0.0000	0.0000	0.0571	0.1072	0.1519	0.1921	0.3739	0.3739	(3)-7-3-043:083
DBT-003	Kamakana Villages at Keahuolu	0.0000	0.0000	0.0680	0.0680	0.1880	0.8840	1.1140	1.1140	(3) 7-4-021: 020, 24-41, 44-48
DHL-004	Honokohau, Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.6000	0.6000	0.6000	(3)-7-4-008:072
DHL-005	Honokohau, Keahuolu, Kealakehe	0.0000	0.3270	0.3270	0.3270	0.3270	0.3270	0.3270	0.5098	(3)-7-4-008:065,072; (3)-7-4-020, 021, 022,
DHL-008	Kalaoa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1132	0.1132	(3)-7-3-010:040,041
DHL-009	Kalaoa, Kaone	0.0000	0.3900	0.3900	0.3900	0.3900	0.3900	0.3900	0.3900	(3)-7-3-010:039
DHL-010	Kalaoa, Kona	0.0000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	(3)-7-3-010:007

Aquifer Sector

Aquifer System

Proj ID	Project	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
					Hawaii					
809	**Hualalai**									
80901	**Keauhou**									
DHL-032	Villages of Laiopua	0.0800	0.1000	0.1000	0.1000	0.1000	0.2000	0.3000	0.4000	(3)-7-4-021, 022, 023
DLN-005	DLNR Community Center & Admin Facility	0.0000	0.0000	0.0000	0.0000	0.0037	0.0037	0.0037	0.0037	(3)-7-4-008:003 (por)
DOE-033	Holualoa Elementary School New 6 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108	(3)-7-6-004:002
DOE-034	Holualoa Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-7-6-004:002
DOE-081	Kealakehe Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-7-4-019:044
DOE-082	Kealakehe Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	0.0005	(3)-7-4-019:044
DOE-084	Kealakehe High School New 13 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	0.0008	(3)-7-4-021:004
DOE-085	Kealakehe II Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600	(3)-7-4-019:044
DOE-086	Kealakehe Intermediate School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(3)-7-4-019:044
DOT-004	Kona International Airport Improvements	0.0000	0.0000	0.0000	0.0000	0.0000	0.2286	0.2491	0.2506	(3)-7-3-043:003
UHC-001	Hawai'i Community College - Palamanui, Phase II	0.0000	0.0000	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027	(3)-7-2-005:001
	Subtotal **Hualalai**	**0.0800**	**1.2170**	**1.3421**	**1.3950**	**1.5780**	**3.2441**	**3.9763**	**4.2606**	

Aquifer Sector / Aquifer System	Proj ID	Project	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Hawaii											
808 Kilauea											
80801 Pahoa											
	DAG-012	Puna Public Library Planning	0.0000	0.0000	0.0000	0.0000	0.0000	0.0136	0.0136	0.0136	(3)-1-5-007:017
	DHL-027	Makuu-Keonepoko	0.0560	0.0760	0.0760	0.0760	0.0760	0.1760	0.2760	0.6600	(3)-1-5-008:003; (3)-1-5-010:005,006,036; (3)-1-
	DOE-088	Keonepoko Elementary School New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(3)-1-5-009:059
	DOE-089	Keonepoko Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-1-5-009:059
	DOE-147	Pahoa Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-1-5-114:025
	DOE-148	Pahoa Elementary School New 10 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(3)-1-5-114:025
	DOE-149	Pahoa High School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-1-5-003:038
		Subtotal Kilauea	**0.0560**	**0.0760**	**0.0760**	**0.0760**	**0.0760**	**0.1896**	**0.2990**	**0.6830**	
801 Kohala											
80101 Hawi											
	DHL-031	Upolu Point	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1480	0.1480	(3)-5-6-001:080
	DOE-099	Kohala Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-5-4-007:014
	DOE-100	Kohala High School New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-5-4-007:014
	DOE-101	Kohala High School New Music Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-5-4-007:014

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Hawaii										
801 Kohala										
80101 Hawi										
DOE-102	Kohala High School New Auto/Tech Shop	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-5-4-007:014
80103 Mahukona										
DHL-013	Kawaihae Existing	0.0000	0.1356	0.1356	0.1356	0.1356	0.1356	0.1356	0.1356	(3)-6-1-007, 008, 009
DHL-014	Kawaihae Harbor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600	(3)-6-1-002:065,069,070
DHL-015	Kawaihae Mauka	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.9812	(3)-6-1-001, 003, 006
DHL-020	Lalamilo Phase 2A, Increment 1	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	(3)-6-6-001:077
DHL-021	Lalamilo Phase 2A, Increment 2	0.0156	0.0308	0.0308	0.0308	0.0308	0.0308	0.0308	0.0308	(3)-6-6-001:077
DHL-022	Lalamilo Phase 2B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0536	0.0536	0.0536	(3)-6-6-001:077
DHL-023	Lalamilo Phase 2C	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0496	0.0496	(3)-6-6-001:077
DHL-024	Lalamilo, Pauahi, Keoniki 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0468	0.0468	0.0468	(3)-6-6-001:077
DHL-025	Lalamilo, Pauahi, Keoniki 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0092	0.0092	0.0132	(3)-6-6-001:077
DHL-029	Puukapu 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0792	(3)-6-4-036, 037, 038
DHL-030	Puukapu 2	0.0847	0.0847	0.0847	0.0847	0.0847	0.0847	0.4787	0.5307	(3)-6-4-002, 004, 008, 038; (3)-6-5-001

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Hawaii										
801 Kohala										
80103 Mahukona										
DOT-018	Kawaihae Cargo Terminal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	(3)-6-1-003:023
DOT-019	Kawaihae Pier Extensions	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(3)-6-1-003:023
	Subtotal Kohala	0.1335	0.2843	0.2843	0.2843	0.2843	0.3939	1.0480	3.1651	
804 Northeast Mauna Loa										
80401 Hilo										
DAG-002	Hawaii Community Correctional Center New Intake Unit	0.0000	0.0000	0.0000	0.0060	0.0060	0.0060	0.0060	0.0060	(3)-2-3-023:005
DAG-019	Hawaii Community Correctional Center New Medium Security Housing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0105	0.0105	0.0105	(3)-2-3-023:005
DHL-001	Hilo Kanoelehua	0.0000	0.0000	0.0000	0.0000	0.0000	0.0360	0.0360	0.0360	(3)-2-2-060:001-010,085-089
DHL-026	Lower Piihonua	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1400	(3)-2-6-009:005,027
DHL-028	Old Hilo Airport	0.0000	0.0000	0.0000	0.0000	0.0000	0.0360	0.0360	0.0360	(3)-2-1-012:070
DHL-033	Waiakea Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.2800	0.2800	0.2800	(3)-2-1-025:043-048,090,091
DOE-010	Chiefess Kapiolani Elementary School - 4 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-2-2-020:001
DOE-011	DeSilva Elementary School - New Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-2-5-008:013
DOE-012	DeSilva Elementary School - 4 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-2-5-008:013

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Hawaii										
804 Northeast Mauna Loa										
80401 Hilo										
DOE-026	Hilo High School - New Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-2-3-015:001
DOE-027	Hilo High School - 4 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(3)-2-3-015:001
DOE-028	Hilo Intermediate School - Building A Renovation Phase 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(3)-2-3-021:058
DOE-029	Hilo Union Elementary School - New 6 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-2-3-016:037
DOE-077	Kaumana Elementary School - New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(3)-2-5-005:084
DOE-087	Keaukaha Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-2-1-020:001
DOE-160	Waiakea Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-2-4-001:015
DOE-161	Waiakea Intermediate School New PE Locker/Shower	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-2-4-001:015
DOT-008	Hilo Pier 4	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	(3)-2-1-009:007
DOT-009	Radio Bay Cargo Yard	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	(3)-2-1-009:007
UHH-002	UHH Water Infrastructure Improvements	0.0304	0.0608	0.0912	0.1216	0.1520	0.3720	0.5920	0.8120	(3)-2-4-001:167
80402 Keaau										
DHL-016	Keaukaha, Waiakea-Panaewa	0.0000	0.0760	0.0760	0.0760	0.0760	0.0760	0.0760	1.3360	(3)-2-1; (3)-2-2; (3)-2-4

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Hawaii										
804 Northeast Mauna Loa										
80402 Keaau										
DOE-079	Keaau Intermediate School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-1-6-002:001
DOE-080	Keaau Intermediate School New Band Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-1-6-002:001
DOE-141	Mountain View Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-1-8-001:007
DOE-142	Mountain View Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029	0.0029	(3)-1-8-001:007
DOE-143	Mountain View Elementary School New 12 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(3)-1-8-001:007
DOE-162	Waiakeawaena Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029	0.0029	(3)-2-2-042:017
	Subtotal Northeast Mauna Loa	**0.0304**	**0.1368**	**0.1675**	**0.2039**	**0.2343**	**0.8168**	**1.0624**	**2.6827**	
805 Southeast Mauna Loa										
80503 Naalehu										
DHL-011	Kamaoa-Puueo	0.0000	0.0380	0.0380	0.0380	0.0380	0.0836	0.0836	0.1046	(3)-9-3-001:002,003,007,010-
DHL-034	Wailau	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500	(3)-9-5-019:016
DHL-035	Waiohinu	0.0000	0.0100	0.0100	0.0100	0.0100	0.0304	0.0304	0.0304	(3)-9-5-005:002
DOE-072	Kau High School and Pahala Elementary School 10 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0180	0.0180	(3)-9-6-005:008
DOE-073	Kau High School and Pahala Elementary School 12 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(3)-9-6-005:008

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Hawaii										
805 Southeast Mauna Loa										
80503 Naalehu										
DOE-074	Kau High School and Pahala Elementary School 3 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0002	(3)-9-6-005:008
DOE-144	Naalehu Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-9-5-009:006
80501 Olaa										
DHL-018	Kurtistown-Olaa	0.0000	0.0252	0.0252	0.0252	0.0252	0.0252	0.0252	0.0252	(3)-1-8-011:012,016,023-025
	Subtotal Southeast Mauna Loa	**0.0000**	**0.0732**	**0.0732**	**0.0732**	**0.0732**	**0.1392**	**0.1586**	**0.2296**	
806 Southwest Mauna Loa										
80602 Kaapuna										
DOE-042	Hookena Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(3)-8-6-010:009
DOE-043	Hookena Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(3)-8-6-010:009
DOE-044	Hookena Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-8-6-010:009
DOE-045	Hookena Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015	(3)-8-6-010:009
80603 Kealakekua										
DLN-013	Kealakekua Bay State Historic Park	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	(3)-8-2-004:001
DOE-035	Honaunau Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(3)-8-3-013:021

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Hawaii										
806 Southwest Mauna Loa										
80603 Kealakekua										
DOE-036	Honaunau Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(3)-8-3-013:021
DOE-106	Konawaena High School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(3)-8-1-002:038
DOE-107	Konawaena Intermediate School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-8-1-002:038
DOE-108	Konawaena Intermediate School New PE Lockers & Showers	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012	(3)-8-1-002:038
DOE-109	Konawaena Intermediate School Renovate 17 Classrooms	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015	(3)-8-1-002:038
DOE-110	Konawaena Intermediate School Renovate 12 Classrooms	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(3)-8-1-002:038
	Subtotal Southwest Mauna Loa	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0097**	**0.0109**	
803 West Mauna Kea										
80301 Waimea										
DAG-013	Waikoloa Public Library Planning	0.0000	0.0000	0.0000	0.0000	0.0000	0.0136	0.0136	0.0136	(3)-6-8-002:051
DAG-015	West Hawaii Veterans Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0150	0.0150	0.0150	(3)-7-3-010:056
DOE-174	Waikoloa Elementary School 3rd Increment 8 Classroom/Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010	0.0010	(3)-6-8-002:038
DOE-176	Waimea Elementary School 2nd Increment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(3)-6-7-002:015
DOE-179	Waimea Intermediate School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(3)-6-7-002:015

Aquifer Sector / Aquifer System	Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
			Million Gallons Per Day								
Hawaii											
803 West Mauna Kea											
80301 Waimea											
	DOE-180	Waimea Intermediate School New Music Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-6-7-002:015
	DOE-181	Waimea Intermediate School New PE Locker/Shower	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(3)-6-7-002:015
	DOT-023	Saddle Road Baseyard	0.0000	0.0000	0.0000	0.0040	0.0040	0.0040	0.0040	0.0040	(3)-4-4-016:003
		Subtotal West Mauna Kea	**0.0000**	**0.0000**	**0.0000**	**0.0040**	**0.0040**	**0.0336**	**0.0349**	**0.0349**	
Kauai											
201 Lihue											
20104 Anahola											
	DHL-036	Anahola 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0932	0.0932	(4)-4-7; (4)-4-8
	DHL-037	Anahola 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0585	0.0585	0.0585	(4)-4-7; (4)-4-8
	DHL-038	Anahola 3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.7218	1.1518	(4)-4-7; (4)-4-8
	DHL-041	Kapaa	0.0000	0.0640	0.0640	0.0640	0.0640	0.0640	0.0640	0.0674	(4)-4-5-005:006; (4)-4-5-015:034,047,048,051
	DHL-043	Moloaa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0235	(4)-4-9-010:002,005
	DHL-044	Piilani Mai Ke Kai - Phase 2	0.0255	0.0255	0.0255	0.0255	0.0255	0.0255	0.0255	0.0255	(4)-4-7; (4)-4-8
	DHL-045	Piilani Mai Ke Kai - Phase 3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0505	0.0505	0.0505	(4)-4-7; (4)-4-8

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Kauai										
201 Lihue										
20104 Anahola										
DOE-066	Kapaa Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(4)-4-6-014:031
DOE-067	Kapaa Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(4)-4-6-014:031
DOE-068	Kapaa High School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(4)-4-6-014:031
DOE-069	Kapaa II Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(4)-4-6-014:031
20102 Hanamaulu										
DAG-016	Kauai Community Correctional Center New Medium Security Housing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0105	0.0105	0.0105	(4)-3-9-005:013
DAG-005	Kauai Community Correctional Center New Segregation Housing	0.0000	0.0000	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	(4)-3-9-005:013
DAG-006	Kauai Community Correctional Center Restroom and Shower Improv.	0.0000	0.0000	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	(4)-3-9-005:013
DOE-096	King Kaumualii Elementary School Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(4)-3-7-003:009
DOT-005	LIH ConRAC	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0530	(4)-3-5-001:008
DOT-020	Nawiliwili Hawaii Gas	0.0000	0.0000	0.0000	0.0101	0.0101	0.0101	0.0101	0.0101	(4)-3-2-004:021, 023, 053
DOT-021	Nawiliwili Kauai Petroleum Fuel Terminal	0.0000	0.0000	0.0000	0.0079	0.0079	0.0079	0.0079	0.0079	(4)-3-2-004:016
UHC-005	Kaua‘i Community College - Food Innovation Center	0.0000	0.0000	0.0000	0.0000	0.0021	0.0021	0.0021	0.0021	(4)-3-4-007:003

Aquifer Sector / Aquifer System	Proj ID	Project	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Kauai											
201 Lihue											
20102 Hanamaulu											
	UHC-006	Kaua'i Community College - Imu	0.0000	0.0000	0.0000	0.0021	0.0021	0.0021	0.0021	0.0021	(4)-3-4-007:003
20105 Kilauea											
	DOE-092	Kilauea Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	(4)-5-2-009:006
	DOE-093	Kilauea Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(4)-5-2-009:006
20101 Koloa											
	DOE-104	Koloa Elementary School New 6 Classroom (Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0036	0.0036	(4)-2-8-010:011
	DOE-105	Koloa II Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(4)-2-8-010:011
20103 Wailua											
	DHL-046	Wailua	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0250	(4)-3-9-002:003,012,017,024-
	DHL-047	Wailua Commercial & Resort	0.0000	0.0000	0.0000	0.0000	0.0000	0.2795	0.2795	0.2795	(4)-3-9-006:009,011
	DHL-048	Wailua Residential	0.0000	0.0000	0.0000	0.0000	0.0000	0.1775	0.3025	0.4030	(4)-3-9-002:003,012,017,024-
		Subtotal Lihue	**0.0255**	**0.0895**	**0.0970**	**0.1171**	**0.1192**	**0.6957**	**1.6416**	**2.3970**	

Aquifer Sector / Aquifer System	Proj ID	Project	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Kauai											
203 Waimea											
20301 Kekaha											
	DHL-042	Kekaha	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0480	0.0725	(4)-1-2-017; (4)-1-2-002:045; (4)-1-3-002
	DHL-049	Waimea - Mauka Village	0.0000	0.2635	0.2635	0.2635	0.2635	0.2635	0.2635	0.2635	(4)-1-2-002:016-020,023,029,033
	OHA-007	Kekaha Armory	0.0000	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	(4)1-3-002: 023
20303 Makaweli											
	DHL-039	Hanapepe	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3010	0.4045	(4)-1-8-007:003; (4)-1-8-008:035
	DLN-001	DLNR West Kauai Field Operations Facility	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400	(4)-1-8-008:020 por 020
20302 Waimea											
	DOE-177	Waimea High School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(4)-1-6-010:004
	DOE-178	Waimea High School Revovation Bldg. C & H	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(4)-1-6-010:004
		Subtotal Waimea	**0.0000**	**0.2650**	**0.2650**	**0.2650**	**0.2650**	**0.3050**	**0.6555**	**0.7835**	
Lanai											
501 Central											
50102 Leeward											
	DHL-050	Lanai City	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0672	(2)-4-9-002:057

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Lanai										
501 Central										
Subtotal	**Central**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0672**	
Maui										
603 Central										
60301 Kahului										
DAG-009	Maui Regional Public Safety Complex	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2816	0.2816	(2)-3-8-008: por of 037 and 001
DLN-014	DLNR Industrial and Business Park	0.0000	0.0000	0.0000	0.0000	0.0000	0.5971	0.5971	0.5971	(2)-3-8-008:001
DOE-008	Central Maui Middle School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1000	0.1000	(2)-3-8-007:101
DOE-030	Hawaiian Language Immersion Program (HLIP) Maui - New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600	(2)-3-8-007:101
DLN-010	Pulehunui Baseyard	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0243	0.0243	(2)-3-8-008:001
DOT-006	OGG ConRAC	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0680	(2)-3-8-001:019
DOT-007	OGG Subdivision	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0759	(2)-3-8-001:019
DOT-012	Kahului Cargo Yard With Amenities	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0060	(2)-3-7-011:017,023
DOT-013	Kahului Hawaiian Cement Relocation	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030	0.0030	(2)-3-7-008:004
DOT-014	Kahului Harbor New Office	0.0000	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	(2) 3-7-010:036
UHC-009	Maui College - Hospitality Academy Renovation	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	(2)-3-8-007:040

Aquifer Sector / Aquifer System	Proj ID	Project	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Maui											
603 Central											
60301 Kahului											
	UHC-011	Maui College - Pilina Kitchen	0.0000	0.0000	0.0000	0.0014	0.0014	0.0014	0.0014	0.0014	(2)-3-8-007:040
60304 Kamaole											
	DHL-056	Keokea/Waiohuli	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.4608	0.4608	(2)-2-2-002:014,055,071; (2)-2-
	DHL-057	Keokea/Waiohuli Development Phase 1-4 1	0.0000	0.0960	0.0960	0.0960	0.0960	0.2810	0.2810	0.2810	(2)-2-2-002:014,055,071; (2)-2-
	DHL-058	Keokea/Waiohuli Development Phase 1-4 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0679	0.0679	0.0679	(2)-2-2-002:014,055,071; (2)-2-
	DHL-061	Puunene	0.0000	1.7340	1.7340	1.7340	1.7340	1.7340	1.7340	1.7340	(2)-3-8-008:008,034-036
	DHL-062	Ulupalakua	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0034	(2)-2-1-008:050
	DOE-090	Kihei Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(2)-2-2-002:043
	DOE-091	Kihei High School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200	0.1200	(2)-2-2-002:081
	DOE-125	Lokelani Intermediate School New Admin	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-2-2-002:043
	DOE-126	Lokelani Intermediate School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0027	0.0027	(2)-2-2-002:043
	DOE-127	Lokelani Intermediate School New Class	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108	(2)-2-2-002:043
60303 Makawao											
	DAG-010	Maui Veterans Cemetery Expansion and Improvements	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400	0.0400	0.0400	(2)-2-4-002:009

Aquifer Sector / Aquifer System	Proj ID	Project	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Maui											
603 Central											
60303 Makawao											
	DOE-061	Kalama Intermediate School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-2-4-032:109
	DOE-097	King Kekaulike High School New 6 Class	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108	(2)-2-3-007:032
	DOE-130	Makawao Elementary School 12 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0216	0.0216	(2)-2-4-005:010
	DOE-131	Makawao Elementary School 8 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(2)-2-4-005:010
	DOE-153	Pukalani Elementary School - Administration/Library/Renovate 4 Classrooms	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(2)-2-3-009:035
60302 Paia											
	DOE-150	Paia Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(2)-2-5-005:004
		Subtotal Central	**0.0000**	**1.8300**	**1.8305**	**1.8718**	**1.8718**	**2.7248**	**3.8480**	**3.9953**	
605 Hana											
60502 Kawaipapa											
	DHL-064	Wakiu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0325	0.0565	0.1177	(2)-1-3-004:012,023
	DOE-022	Hana High School & Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-1-3-006:008
		Subtotal Hana	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0325**	**0.0574**	**0.1186**	

Aquifer Sector / Aquifer System	Proj ID	Project	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Maui											
606 Kahikinui											
60603 Lualailua											
	DHL-053	Kahikinui	0.0000	0.0630	0.0630	0.0630	0.0630	0.0630	0.0630	0.0630	(2)-1-9-001:003,007,008,011
		Subtotal Kahikinui	**0.0000**	**0.0630**	**0.0630**	**0.0630**	**0.0630**	**0.0630**	**0.0630**	**0.0630**	
604 Koolau											
60401 Haiku											
	DOE-021	Haiku Elementary School New 6 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	(2)-2-7-008:097
60404 Keanae											
	DHL-055	Keanae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0034	0.0034	0.0034	(2)-1-1-003:060,069; (2)-1-1-008:008
		Subtotal Koolau	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0034**	**0.0042**	**0.0042**	
602 Lahaina											
60203 Honokowai											
	DBT-004	Villages of Leali'i	0.0000	0.0000	0.0000	0.0000	0.1458	0.5133	0.9954	1.8185	(2)-4-5-021:003-005, 13, 21, 22, (2)4-5-
	DHL-051	Honokowai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0612	0.3179	0.3179	(2)-4-4-001:999; (2)-4-4-002:003,008,009,011,01
	DHL-052	Kaanapali, Honokowai	0.0000	0.3000	0.3000	0.3000	0.3000	0.3000	0.3000	0.3000	(2)-4-4-001:999; (2)-4-4-002:003,008,009,011,01
	DHL-059	Leialii 1B	0.0000	0.0000	0.0000	0.0000	0.0000	0.1517	0.1517	0.1517	(2)-4-5-021:020; (2)-4-5-036:001-108,111

Aquifer Sector / Aquifer System	Proj ID	Project	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Maui											
602 Lahaina											
60203 Honokowai											
	DOE-155	Puukolii Elementary School 1st Increment (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	(2)-4-4-002:040
	DOE-156	Puukolii Elementary School 2nd Increment (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	(2)-4-4-002:040
60204 Launipoko											
	DOE-113	Lahaina III Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600	(2)-4-3-001:082
	DOE-114	Lahaina Intermediate School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-4-6-018:013
	DOE-115	Lahaina Intermediate School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(2)-4-6-018:013
	DOE-116	Lahaina Intermediate School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-4-6-018:013
	DOE-118	Lahaina Inter. School Locker/Shower Facility & Playfield (Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-4-6-018:013
	DOE-119	Lahainaluna High School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0140	0.0140	0.0140	(2)-4-6-018:005
	DOE-145	Nahienaena Elementary School New Library/Admin	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0016	0.0016	(2)-4-6-018:013
		Subtotal Lahaina	**0.0000**	**0.3000**	**0.3000**	**0.3000**	**0.4458**	**1.0402**	**1.8576**	**2.7407**	
601 Wailuku											
60102 Iao											
	DAG-018	Maui Community Correctional Center New Medium Security Housing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0060	0.0060	(2)-3-8-046:005

Aquifer Sector / Aquifer System	Proj ID	Project	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Maui											
601 Wailuku											
60102 Iao											
	DHL-060	Paukukalo	0.0000	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	(2)-3-3-005, 006
	DHL-063	Waiehu	0.0000	0.0170	0.0170	0.0170	0.0170	0.0170	0.0170	0.0170	(2)-3-2-021, 022, 023, 024
	DOE-048	Iao Intermediate School New 12 Classroom (Armory)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0216	0.0216	(2)-3-4-009:004
	DOE-049	Iao Intermediate School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0126	0.0126	(2)-3-4-009:004
	DOE-171	Waihee Elementary School New Admin	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(2)-3-2-007:021
	DOE-172	Waihee Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(2)-3-2-007:021
	JUD-003	Maui Judiciary Complex - Potable	0.0000	0.0000	0.0000	0.0000	0.0000	0.0090	0.0090	0.0090	(2)-3-4-013:013
	Subtotal	**Wailuku**	**0.0000**	**0.0204**	**0.0204**	**0.0204**	**0.0204**	**0.0354**	**0.0846**	**0.0846**	
Molokai											
402 Central											
40203 Kualapuu											
	DHL-065	Hoolehua	0.0000	0.1302	0.1302	0.1302	0.1302	0.4266	0.5116	0.5116	(2)-5-2-001 - 007, 015, 017, 021 - 027, 030; (2)-
	DHL-066	Kalamaula	0.0000	0.1292	0.1292	0.1292	0.1292	0.2072	0.2810	0.2810	(2)-5-2-008, 009, 010, 032, 033; (2)-5-2-
	DHL-067	Kalaupapa, Palaau	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0478	0.0478	(2)-5-2-013:006; (2)-6-1-001:001

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Molokai										
402 Central										
40203 Kualapuu										
DOE-111	Kualapuu Elementary School 6 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(2)-5-2-013:027
DOE-138	Molokai High School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-5-2-015:001
DOE-139	Molokai High School Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030	(2)-5-2-015:001
DOE-140	Molokai High School 8 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(2)-5-2-015:001
	Subtotal Central	**0.0000**	**0.2594**	**0.2594**	**0.2594**	**0.2594**	**0.6338**	**0.8593**	**0.8593**	
403 Southeast										
40301 Kamiloloa										
DOE-078	Kaunakakai Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010	(2)-5-3-002:052
DOE-094	Kilohana Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(2)-5-3-002:052
DOE-095	Kilohana Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-5-3-002:052
UHC-010	Maui College - Moloka‘i Education Center	0.0000	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	(2)-5-3-005:012
40302 Kawela										
DHL-068	Kapaakea, Kamiloloa, Makakupaia	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1716	0.1716	(2)-5-4-002:014; (2)-5-4-003, 006, 007, 008

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Molokai										
403 Southeast										
40303 Ualapue										
DHL-069	Ualapue	0.0000	0.0000	0.0000	0.0000	0.0000	0.0282	0.0493	0.0493	(2)-5-6-002:001,024-027,036; (2)-5-6-
	Subtotal Southeast	**0.0000**	**0.0000**	**0.0000**	**0.0003**	**0.0003**	**0.0285**	**0.2237**	**0.2237**	
401 West										
40101 Kaluakoi										
DOE-132	Maunaloa Elementary School New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(2)-5-1-009:103
DOE-133	Maunaloa Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	(2)-5-1-009:103
	Subtotal West	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0081**	**0.0081**	
Oahu										
305 Central										
30501 Wahiawa										
DOE-023	Helemano Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(1)-7-1-002:017
DOE-112	Kunia Elementary School New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(1)-9-4-012:011
DOE-122	Leilehua High School New Science/Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108	(1)-7-4-018:001
DOE-159	Solomon Elementary School Campus-Wide Improvements	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(1)-7-7-001:007

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Oahu										
305 Central										
30501 Wahiawa										
DOE-183	Wheeler Elementary School - 8 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(1)-7-7-001:002
OHA-009	Kukaniloko (Potable)	0.0000	0.0000	0.0000	0.0010	0.0010	0.0446	0.0446	0.0446	(1)-7-1-001:045, 046, 047, 048, 049 and 051
	Subtotal Central	**0.0000**	**0.0000**	**0.0000**	**0.0010**	**0.0010**	**0.0446**	**0.0568**	**0.1168**	
301 Honolulu										
30103 Kalihi										
DHS-002	Mayor Wright Homes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0680	0.0680	(1)-1-7-029-003
DOE-017	Farrington High School Campus Modernization	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500	(1)-1-6-021:005
DOE-060	Kalakaua Middle School - Renovate Bldgs G & H3 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(1)-1-5-024:029,040; (1)-1-5-025:001,002
DOT-010	Potential Industrial Center/ 100 employees	0.0000	0.0000	0.0000	0.0000	0.0000	0.0460	0.0460	0.0460	(1)-1-5-039:022
UHC-002	Honolulu Community College - Advanced Technology Training Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	0.0009	(1)-1-5-017:006
30104 Moanalua										
DHL-088	Shafter Flats	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	(1)-1-1-064:008-022,031-035
DHS-001	Kuhio Park Redevelopment (Excluding Towers & Community Bldg)	0.0000	0.0000	0.0000	0.0000	0.0000	0.1736	0.1736	0.1736	(1)-1-3-039:006, (1)-1-3-039-007,(1)-1-3-039-
DOE-124	Linapuni Elementary School New Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-1-3-039:005

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Oahu										
301 Honolulu										
30104 Moanalua										
DOE-136	Moanalua High School Performing Arts Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010	(1)-1-1-063:011
DOE-151	Pearl Harbor Elementary School New 4 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	(1)-1-1-010:027
DOE-158	Shafter Elementary School Replacement Campus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(1)-1-1-008:008
DOT-026	HNL Airport Expansion	0.0000	0.0231	0.0462	0.0692	0.0923	0.2077	0.3231	0.4385	(1)-1-1-003:001
DOT-001	HNL ConRAC 2A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0290	(1)-1-1-003:001
DOT-002	HNL ConRAC 2B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0747	(1)-1-1-003:001
DOT-003	Honolulu Mauka Concourse	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0505	(1)-1-1-003:001
30102 Nuuanu										
DAG-001	Creative Media, Film, and Production Facility Planning	0.0000	0.0000	0.0000	0.0000	0.0000	0.0120	0.0120	0.0120	(1)-2-1-017:001
DAG-004	Judiciary Multi-Use & HHFDC Housing Joint Development	0.0000	0.0000	0.0000	0.0000	0.0000	0.1811	0.1811	0.1811	(1)-2-3-012:019
DAG-008	Liliha Civic Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0480	0.0480	(1)-1-5-007:001
DHL-078	Kalawahine	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0090	0.0090	(1)-2-4-034:023-025; (1)-2-4-043; (1)-2-5-
DHL-086	Papakolea	0.0000	0.0520	0.0520	0.0520	0.0520	0.0520	0.0865	0.0865	(1)-2-2-005:005; (1)-2-2-014:015,024; (1)-2-2-

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Oahu										
301 Honolulu										
30102 Nuuanu										
DHS-003	HPHA School Street Campus Redevelopment	0.0000	0.0000	0.0000	0.0000	0.0000	0.1530	0.1530	0.1530	(1) 1-6-009:003
DOE-005	Central Intermediate - Renovate Bldg A Ph 1 15 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017	(1)-2-1-005:001, (1)-2-1-009:001,002,003
DOE-006	Central Intermediate - Renovate Bldg C 16 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0022	0.0022	(1)-2-1-005:001, (1)-2-1-009:001,002,003
DOE-007	Central Middle School - Renovate Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0023	0.0023	(1)-2-1-005:001, (1)-2-1-009:001,002,003
DOE-059	Kakaako Elementary New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600	(1)-2-1-052:008
DOE-075	Kauluwela Elementary - 6 Classroom Bldg	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108	(1)-1-7-023:041; (1)-1-7-022:015
DOE-076	Kauluwela Elementary - New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017	(1)-1-7-023:041,042
DOE-134	McKinley High School - Renovate Industrial Arts Educ. Bldg 6 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0019	0.0019	(1)-2-3-009:001
DOE-157	Roosevelt High School - Renovate Bldg A Phase 1: Admin, Library, Cafeteria, 43 Classrooms	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0080	0.0080	(1)-2-4-032:001
DOT-011	Potential Residential/Hotel 250 units	0.0000	0.0000	0.0000	0.0000	0.0000	0.0159	0.0159	0.0159	(1)-2-1-001:057
HCD-001	630 Cooke Street Micro Unit Affordable Housing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0312	0.0312	0.0312	(1)-2-1-051:014
HCD-002	690 Pohukaina	0.0000	0.0000	0.0000	0.0000	0.0000	0.2580	0.2580	0.2580	(1)-2-1-051:041
HCD-003	Ola Ka 'Ilima Artspace Lofts	0.0000	0.0000	0.0000	0.0000	0.0252	0.0252	0.0252	0.0252	(1)-2-3-003:040

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Oahu										
301 Honolulu										
30102 Nuuanu										
JUD-001	Oahu Judiciary Proxy - Potable	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0066	(1)-2-1-025:003
OHA-001	Kaka'ako Makai - Parcel A	0.0000	0.0002	0.0004	0.0006	0.0008	0.0010	0.0130	0.0370	(1)-2-1-058:129
OHA-002	Kaka'ako Makai - Parcel B/C	0.0000	0.0005	0.0009	0.0013	0.0017	0.0021	0.0141	0.0381	(1)-2-1-058:130
OHA-003	Kaka'ako Makai - Parcel D	0.0000	0.0010	0.0020	0.0030	0.0040	0.0050	0.0060	0.0080	(1)-2-1-060:027
OHA-004	Kaka'ako Makai - Parcel E	0.0000	0.0010	0.0020	0.0030	0.0040	0.0050	0.0060	0.0520	(1)-2-1-058:006
OHA-005	Kaka'ako Makai - Parcel F/G	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0560	(1)-2-1-060:026
OHA-006	Kaka'ako Makai - Parcel I	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1248	(1)-2-1-015:061
30101 Palolo										
DHL-084	Moiliili (Isenberg)	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	(1)-2-7-008:018,020
DOE-031	Hawaiian Language Immersion Program (HLIP) New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(1)-3-4-003:001
UHM-001	University of Hawaii at Manoa Water Master Plan	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1437	(1)-2-8-015:001; (1)-2-8-023:003,009,013,016;
30106 Waialae-East										
DOE-062	Kalani High School Multipurpose Athletic Facility	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012	(1)-3-5-020:004

Aquifer Sector / Aquifer System	Proj ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
			Million Gallons Per Day								
Oahu											
301 Honolulu											
30105 Waialae-West											
	UHC-003	Kapi'olani Community College - Culinary Institute of the Pacific, Phase I	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	(1)-3-1-042:009
	UHC-004	Kapi'olani Community College - Culinary Institute of the Pacific, Phase II	0.0000	0.0000	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027	(1)-3-1-042:009
		Subtotal Honolulu	**0.0147**	**0.0952**	**0.1209**	**0.1493**	**0.2002**	**1.1898**	**1.5829**	**2.3895**	
304 North											
30402 Waialua											
	DOE-163	Waialua Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-6-7-001:010
	OHA-012	Waialua Court House	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	(1)-6-6-009-023
		Subtotal North	**0.0000**	**0.0003**	**0.0003**	**0.0003**	**0.0003**	**0.0003**	**0.0008**	**0.0008**	
302 Pearl Harbor											
30208 Ewa Caprock - Kapolei											
	DOD-002	Kalaeloa Brigade Readiness Center (Potable)	0.0050	0.0050	0.0050	0.0055	0.0055	0.0060	0.0060	0.0060	(1)-9-1-013:045
	DOD-004	Kalaeloa AASF (Potable)	0.0000	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	(1)-9-1-013:045
	DOD-005	Kalaeloa B117 ph2 Combined Support Maintenance Shop	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	(1)-9-1-013:045

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Oahu										
302 Pearl Harbor										
30204 Ewa-Kunia										
DHL-070	East Kapolei I - B3	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	(1)-9-1-151:002
DHL-071	East Kapolei I - Kanehili	0.0000	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	(1)-9-1-151:057,058
DHL-076	Kalaeloa - All Others	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.0280	2.0280	(1)-9-1-013:009,024,027,029,03
DHL-077	Kalaeloa 3	0.1720	0.1720	0.1720	0.1720	0.1720	0.1720	0.1720	0.1720	(1)-9-1-013:117-119
DHL-079	Kapolei Regional Mall (DeBartolo)	0.2919	0.2919	0.2919	0.2919	0.2919	0.2919	0.2919	0.2919	(1)-9-1-016:142
DLN-015	DLNR East Kapolei Lands, Phase 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2820	0.2820	(1)-9-1-017:097
DLN-016	DLNR East Kapolei Lands, Phase 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2967	(1)-9-1-017:097
DOE-013	East Kapolei Elementary School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(1)-9-1-160:024
DOE-014	East Kapolei High School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200	(1)-9-1-018:012
DOE-016	Ewa Makai Middle School New 25 Classroom Building	0.0000	0.0000	0.0000	0.0500	0.0500	0.0500	0.0500	0.0500	(1)-9-1-148:018
DOE-070	Kapolei High School New Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0200	0.0200	0.0200	(1)-9-1-016:074
DOE-071	Kapolei Middle School New Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400	(1)-9-1-016:082
DOT-027	JCF Airport Expansion	0.0000	0.0004	0.0008	0.0012	0.0016	0.0036	0.0055	0.0075	(1)-9-1-013:032

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Oahu										
302 Pearl Harbor										
30204 Ewa-Kunia										
DOT-025	Kalaeloa Fuel Pier	0.0000	0.0000	0.0000	0.0000	0.0000	0.0160	0.0160	0.0160	(1)-9-1-014:024
DOT-015	Kalaeloa Potential Applicant A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0800	0.0800	(1)-9-1-014:024
DOT-016	Kalaeloa Potential Applicant B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(1)-9-1-014:024
DOT-017	Kalaeloa Potential Applicant C	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0800	0.0800	(1)-9-1-014:024
UHW-004	University of Hawaii - West Oahu - Allied Heath Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030	0.0030	(1)-9-1-016:220
UHW-001	Creative Media Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0060	0.0060	(1)-9-1-016: 220
UHW-003	University of Hawaii - West Oahu - Long Range Master Plan (Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.8821	(1)-9-1-016:220
30201 Waimalu										
DAG-011	Oahu Community Correctional Center Relocation & Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.1950	0.1950	0.1950	(1)-9-9-010:030
DOE-001	Aiea High School Library Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0013	0.0013	(1)-9-8-031:017
DOE-002	Aiea High School Applied Technology Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010	(1)-9-9-005:001
DOE-024	Hickam Elementary School - New Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-9-9-001:013
DOE-025	Hickam Elementary School - New Cafeteria and Library Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0033	0.0033	(1)-9-9-001:013

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Oahu										
302 Pearl Harbor										
30201 Waimalu										
DOE-129	Makalapa Elementary School - Admin and Renovation	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-9-9-075:028
DOE-152	Pearl Harbor Kai Elementary School Building "F" Renovation 2 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0002	(1)-9-9-001:012
DOE-167	Waiau Elementary School Admin/Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011	(1)-9-8-050:071
DOE-175	Waimalu ES - Renovate Building A (6 Classrooms)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	(1)-9-8-008:007
DOH-001	Halawa Vector Control Facility Office Space and Accessibility Improvements	0.0000	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	(1)-9-9-010:055
DOH-002	Uluakupu Building Interior Renovation	0.0000	0.0141	0.0141	0.0141	0.0141	0.0141	0.0141	0.0141	(1)-9-7-025:001
30203 Waipahu-Waiawa										
DHL-072	East Kapolei II - B	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800	(1)-9-1-017:110
DHL-073	East Kapolei II - C	0.0000	0.0000	0.0000	0.0000	0.0000	0.1064	0.5441	0.5441	(1)-9-1-017:110
DHL-087	Pearl City (Waihona)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0160	0.0160	(1)-9-7-024:050
DOE-003	Campbell High School New 27 Classroom Building	0.0000	0.0000	0.0000	0.0500	0.0500	0.0500	0.0500	0.0500	(1)-9-1-001:002
DOE-009	Central Oahu High School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200	(1)-9-4-006:038
DOE-015	East Kapolei Middle School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(1)-9-1-017:110

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Oahu										
302 Pearl Harbor										
30203 Waipahu-Waiawa										
DOE-032	Holomua Elementary School New Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500	(1)-9-1-102:028
DOE-041	Honowai Elementary School Phase 1B of Administrative Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-9-4-032:043
DOE-046	Hoopili Elementary School New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(1)-9-1-018:010
DOE-047	Hoopili High School New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200	(1)-9-1-017:004
DOE-098	Koa Ridge Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600	(1)-9-4-006:001
DOE-135	Mililani Middle School New Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1000	0.1000	(1)-9-5-002:040
DOE-168	Waiawa I Elementary School 1st Increment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(1)-9-6-004:024
DOE-169	Waiawa Intermediate School 1st Increment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	(1)-9-6-004:024
DOE-170	Waiawa Intermediate School 2nd Increment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	(1)-9-6-004:024
DOE-182	Waipahu High School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0077	0.0077	(1)-9-4-008:020
UHC-007	Leeward Community College - Native Hawaiian Center for Excellence	0.0000	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	(1)-9-6-003:048
	Subtotal Pearl Harbor	**0.5709**	**0.6111**	**0.6115**	**0.7127**	**0.7131**	**1.1020**	**4.2042**	**6.0350**	

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Oahu										
303 Waianae										
30302 Lualualei										
DHL-080	Lualualei	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1290	0.1290	(1)-8-6-001, 003; (1)-8-6-014:001
DHL-082	Maili 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0660	0.0660	0.0660	(1)-8-7-010:030,031
DHL-083	Maili 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500	0.1300	0.1300	(1)-8-7-010:030,031
DOE-121	Leihoku Elementary School New 6 Classrooms	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108	(1)-8-6-001:054
UHC-008	Leeward Community College - Waianae Education Center	0.0000	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	(1)-8-7-004:041
30304 Makaha										
DOE-128	Makaha Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(1)-8-4-025:010
30301 Nanakuli										
DHL-085	Nanakuli	0.0000	0.0544	0.0544	0.0544	0.0544	0.0544	1.3069	1.3069	(1)-8-9-002:001,067; (1)-8-9-
DOE-146	Nanakuli High School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(1)-8-9-007:009
30303 Waianae										
DHL-090	Waianae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.1240	0.1240	(1)-8-5-003:020; (1)-8-5-004, (1)-8-5-005:036,
DOE-065	Kamaile Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144	(1)-8-5-002:037
DOE-164	Waianae High School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(1)-8-5-015:001

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Oahu										
303 Waianae										
30303 Waianae										
DOE-165	Waianae High School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0074	0.0074	(1)-8-5-015:001
DOE-166	Waianae Intermediate School New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072	(1)-8-5-028:042
	Subtotal Waianae	**0.0000**	**0.0544**	**0.0572**	**0.0572**	**0.0572**	**0.1772**	**1.8142**	**1.8142**	
306 Windward										
30602 Kahana										
DOE-050	Kaaawa Elementary School Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-5-1-002:018
DOE-051	Kaaawa Elementary School New Library/Adminstration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011	(1)-5-1-002:018
30601 Koolauloa										
DLN-003	Malaekahana SRA, Kahuku Section Park Improvements	0.0000	0.0000	0.1300	0.1300	0.1300	0.1300	0.1300	0.1300	(1)-5-6-001:024
DOE-054	Kahuku Intermediate School & High School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0066	0.0066	(1)-5-6-006:003
DOE-055	Kahuku Intermediate School & High School New Gymnasium	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0040	(1)-5-6-006:003
DOE-056	Kahuku Intermediate School & High School New PE Lockers & Showers	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(1)-5-6-006:003
30603 Koolaupoko										
DAG-003	Hawaii State Hospital Patient Facility	0.0000	0.0000	0.0000	0.0000	0.0000	0.0540	0.0540	0.0540	(1)-4-5-023:002 por

Aquifer Sector / Aquifer System	Project	Million Gallons Per Day								
Proj ID		2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Oahu										
306 Windward										
30603 Koolaupoko										
DHL-074	Haiku	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0400	(1)-4-5-041:005; (1)-4-6-015:009; (1)-9-9-
DHL-089	Waiahole	0.0085	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	(1)-4-8-008:029; (1)-4-8-009; (1)-4-8-011; (1)-4-
DOE-004	Castle High School Cafeteria Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0060	(1)-4-5-034:014
DOE-154	Puohala Elementary School Expansion of Library and Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011	(1)-4-5-030:038
30604 Waimanalo										
DAG-017	Women's Community Correctional Center New Housing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0135	0.0135	0.0135	(1)-4-2-003:004
DHL-075	Kakaina	0.0220	0.0220	0.0220	0.0220	0.0220	0.0220	0.0220	0.0220	(1)-4-1-008:010,011,081,091;
DHL-092	Waimanalo	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1780	0.3140	(1)-4-1-002:001; (1)-4-1-003, 008, 011, 014, 017,
DOE-052	Kaelepulu Elementary School, New Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-4-2-090:074
DOE-057	Kailua Elementary School Library Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	(1)-4-3-056:003
DOE-058	Kainalu Elementary School New Admin	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	(1)-4-3-076:015
DOE-137	Mokapu Elementary School - Campus Wide Improvements	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(1)-4-4-009:007
DLN-008	Kawainui Baseyard	0.0000	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	(1)-4-2-013:005
Subtotal	**Windward**	**0.0305**	**0.0655**	**0.1955**	**0.1955**	**0.1955**	**0.2630**	**0.5026**	**0.6386**	

Aquifer Sector / Aquifer System	Proj ID	Project	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
		TOTAL STATE	0.9414	5.4812	5.8039	6.0894	6.5019	13.2864	24.2726	34.1471	

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APPENDIX K

SWPP Project Water Demands
Sorted by Surface Water
Hydrologic Unit – Non-Potable

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SWPP Project Water Demands by Surface Water Hydrologic Unit - Non-Potable

Surface Water Hydrologic Unit / Proj. ID	Project	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Hawaii										
8146 Hilea										
DHL-103	Waiohinu (Non-Potable 1)	0.0000	0.1275	0.1275	0.1275	0.1275	0.3876	0.3876	0.3876	(3)-9-5-005:002
DHL-012	Kamaoa-Puueo (Non-Potable Using Potable)	0.0000	0.3924	0.3924	0.3924	0.3924	0.4701	0.4701	0.4701	(3)-9-3-001:002,003,007,010-
8051 Honokaia										
DHL-093	Honokaia, Kamoku-Kapulena, Nienie (Non-Potable)	0.0000	0.1700	0.1700	0.1700	0.1700	1.0200	1.6116	1.6550	(3)-4-6-011, 012; (3)-4-7-006, 007
8113 Honomu										
DHL-095	Honomu-Kuhua (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.8500	1.1305	1.1305	(3)-2-8-011:009,011,019
8140 Kaahakini										
DHL-100	Makuu-Keonepoko (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.3830	(3)-1-5-008:003; (3)-1-5-010:005,006,036; (3)-1-
DHL-019	Kurtistown-Olaa (Non-Potable Using Potable)	0.0000	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	(3)-1-8-011:012,016,023-025
DHL-098	Keaukaha, Waiakea-Panaewa (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.3838	(3)-2-1; (3)-2-2; (3)-2-4
8155 Keahole										
DBT-001	Ongoing NELHA Expansion (Non-Potable)	0.0000	0.0000	3.3625	6.7006	10.0179	13.3175	35.9561	35.9561	(3)-7-3-043:083

Surface Water Hydrologic Unit		Million Gallons Per Day								
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
					Hawaii					
8156 Kiholo										
DAG-014	West Hawaii Veteran's Cemetery	0.0000	0.0000	0.0000	0.0000	0.3100	0.3100	0.3100	0.3100	(3)-7-2-004:021
8147 Naalehu										
DHL-104	Waiohinu (Non-Potable 2)	0.0000	0.1275	0.1275	0.1275	0.1275	0.3876	0.3876	0.3876	(3)-9-5-005:002
8112 Paheehee										
DHL-094	Honomu-Kuhua (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	0.8500	1.1305	1.1305	(3)-2-8-011:009,011,019
8153 Waiaha										
DOE-083	Kealakehe Elementary School - Playfield/Retention Basion (Non-Potable Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0120	0.0120	(3)-7-4-019:044
8161 Waikoloa										
DHL-017	Keoniki (Non-Potable Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	(3)-6-5-001:010
8041 Wailoa/Waipio										
DHL-101	Puukapu (Non-Potable)	0.1020	0.1020	0.1020	0.1020	0.1020	0.1360	0.1360	0.8114	(3)-6-4-002, 004, 008, 038; (3)-6-5-001
8138 Wailuku										
DHL-099	Lower Piihonua (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.5946	(3)-2-6-009:005,027
DHL-096	Humuula-Piihonua (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.9720	(3)-2-6-018:002; (3)-3-8-001; (3)-4-4-015:001

Surface Water Hydrologic Unit		Million Gallons Per Day								
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Hawaii									
DHL-097	Humuula-Piihonua (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.4000	(3)-2-6-018:002; (3)-3-8-001; (3)-4-4-015:001
8035 Waimanu										
DHL-102	Waimanu (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	15.0000	(3)-4-9-014:012
	Subtotal Hawaii	**0.1020**	**0.9319**	**4.2944**	**7.6325**	**11.2598**	**17.7413**	**41.5445**	**67.9988**	
	Kauai									
2035 Anahola										
DHL-106	Anahola (Non-Potable 2)	0.4097	0.7820	0.7820	0.7820	0.7820	1.2799	1.2799	1.2799	(4)-4-7; (4)-4-8
DHL-105	Anahola (Non-Potable 1)	0.0000	2.5959	2.5959	2.5959	2.5959	2.5959	2.5959	2.5959	(4)-4-7; (4)-4-8
2042 Hanamaulu										
DOE-123	Lihue 1 New School (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	(4)-3-7-001:001
2063 Hoea										
DHL-113	Waimea (Non-Potable 2)	0.0000	13.3500	13.3500	13.3500	13.3500	13.3500	13.3500	13.3500	(4)-1-2-002:016-020,023,029,033
2037 Kapaa										
DHL-107	Anahola (Non-Potable 3)	0.4097	0.7820	0.7820	0.7820	0.7820	1.2799	1.2799	1.2799	(4)-4-7; (4)-4-8
2055 Kukamahu										
DHL-108	Hanapepe (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2924	(4)-1-8-007:003; (4)-1-8-008:035

Surface Water Hydrologic Unit / Proj. ID	Project	Million Gallons Per Day 2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Kauai										
DHL-040	Hanapepe (Non-Potable Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2448	(4)-1-8-007:003; (4)-1-8-008:035
2032 Moloaa										
DHL-110	Moloaa (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.6800	(4)-4-9-010:002,005
DHL-109	Moloaa (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.2500	2.2500	(4)-4-9-010:002,005
2049 Waikomo										
DOE-103	Koloa Elementary School New 6 Classroom (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0075	0.0075	(4)-2-8-010:011
2040 Wailua										
DHL-111	Wailua Residential (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.3366	0.3366	0.3366	(4)-3-9-002:003,012,017,024-
2060 Waimea										
DHL-112	Waimea (Non-Potable 1)	0.0000	12.4557	12.4557	12.4557	12.4557	12.4557	12.4557	12.4557	(4)-1-2-002:016-020,023,029,033
Subtotal	**Kauai**	**0.8194**	**29.9656**	**29.9656**	**29.9656**	**29.9656**	**31.2980**	**33.5555**	**34.8327**	
Maui										
6049 Haipuaena										
DHL-119	Keokea-Waiohuli Development Phase 1-4 (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.2890	0.2890	0.2890	(2)-2-2-002:014,055,071; (2)-2-
6014 Honokohau										
DHL-115	Honokowai (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	1.0404	1.0404	1.0404	(2)-4-4-001:999; (2)-4-4-002:003,008,009,011,01

Surface Water Hydrologic Unit		Million Gallons Per Day								
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Maui										
6013 Honolua										
DHL-114	Honokowai (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	1.0404	1.0404	1.0404	(2)-4-4-001:999; (2)-4-4-002:003,008,009,011,01
6075 Honomaele										
DHL-123	Wakiu (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2086	(2)-1-3-004:012,023
6024 Iao										
JUD-004	Maui Judiciary Complex - Non-Potable (Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0066	0.0066	0.0066	(2)-3-4-013:013
6008 Kahoma										
DOT-022	Honoapiilani Hwy (Lahaina Bypass) Ph. 1C - Keawe St. Ext. to Kaanapali Connector	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	0.0300	(2)-4-5-021:022
6026 Kailua Gulch										
DOT-024	Hana Highway Paia Bypass - Paia Relief Route	0.0000	0.0000	0.0000	0.0000	0.0000	0.2880	0.2880	0.2880	(2)-2-5-005:018, (2)-3-8-001:007
6007 Kauaula										
DOE-117	Lahaina Inter. School Locker/Shower Facility & Playfield (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0068	0.0068	(2)-4-6-018:013
6076 Kawaipapa										
DHL-124	Wakiu (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0464	(2)-1-3-004:012,023
6106 Kipapa										
DHL-054	Kahikinui (Non-Potable Using Potable)	0.0000	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	(2)-1-9-001:003,007,008,011

Surface Water Hydrologic Unit		Million Gallons Per Day								
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
					Maui					
6027 Maliko										
DOA-002	Upcounty Maui Irrigation System (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.8800	(2) 2-2 AND 2-3
6053 Piinaau										
DHL-116	Keanae (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	4.2750	4.2750	4.2750	(2)-1-1-003:060,069; (2)-1-1-008:008
DHL-117	Keanae (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.3128	0.3128	0.3128	(2)-1-1-003:060,069; (2)-1-1-008:008
6112 Waiakoa										
DHL-120	Puunene (Non-Potable)	0.0000	1.8564	1.8564	1.8564	1.8564	1.8564	1.8564	1.8564	(2)-3-8-008:008,034-036
6023 Waiehu										
DOE-173	Waihee Elementary School - Playfield/Water Retention Basin (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0051	0.0051	(2)-3-2-007:021
6047 Waikamoi										
DHL-118	Keokea-Waiohuli Development Phase 1-4 (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	0.2890	0.2890	0.2890	(2)-2-2-002:014,055,071; (2)-2-
6110 Wailea										
OHA-011	Palauea Cultural Preserve	0.0000	0.0000	0.0000	0.0000	0.0040	0.0040	0.0040	0.0040	(2)-2-1-023:034
6055 Waiokamilo										
DHL-121	Wailua (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	2.1000	2.1000	2.1000	(2)-1-1-004:007,008,033,034,04

Surface Water Hydrologic Unit		Million Gallons Per Day								
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Maui									
DHL-122	Wailua (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.1802	0.1802	0.1802	(2)-1-1-004:007,008,033,034,04
	Subtotal Maui	**0.0000**	**1.8699**	**1.8699**	**1.8699**	**1.8739**	**11.6953**	**11.7372**	**13.8722**	
	Molokai									
4003	**Waikolu**									
DHL-125	Hoolehua (Non-Potable)	0.0000	4.7207	4.7207	4.7207	4.7207	5.3599	5.3599	5.3599	(2)-5-2-001 - 007, 015, 017, 021 - 027, 030; (2)-
DHL-126	Kalamaula (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.7316	0.7316	(2)-5-2-008, 009, 010, 032, 033; (2)-5-2-
	Subtotal Molokai	**0.0000**	**4.7207**	**4.7207**	**4.7207**	**4.7207**	**5.3599**	**6.0914**	**6.0914**	
	Oahu									
3028	**Heeia**									
DHL-127	Haiku (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	10.2750	10.2750	(1)-4-5-041:005; (1)-4-6-015:009; (1)-9-9-
3066	**Kaloi**									
DOD-001	Kalaeloa Bridgade Readiness Center (Non-Potable)	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	(1)-9-1-013:045
UHW-002	University of Hawaii - West Oahu - Long Range Master Plan (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000	(1)-9-1-016:220
DOD-003	Kalaeloa AASF (Non-Potable)	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	(1)-9-1-013:045

Surface Water Hydrologic Unit		Million Gallons Per Day								
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
Oahu										
3042 Kamilonui										
OHA-010	Pahua Heiau	0.0000	0.0000	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	(1) 3-9-056:038
3071 Kaupuni										
DHL-128	Kaala Farm (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	7.2750	7.2750	(1)-8-5-005:036
3033 Kawainui										
DHL-130	Waimanalo (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0680	0.0680	(1)-4-1-002:001; (1)-4-1-003, 008, 011, 014, 017,
3082 Kiikii										
ADC-001	Alternative 2: Wahiawa WWTP R-1 & Lake Wilson - North Fork	0.0000	4.1690	4.1690	4.1690	4.1690	4.1690	4.1690	4.1690	(1)-7-1-002:004 and (1)-7-1-002:009
OHA-008	Kukaniloko (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	1.0000	(1)-7-1-001:045, 046, 047, 048, 049 and 051
3070 Mailiili										
DHL-081	Lualualei (Non-Potable Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0714	0.0714	(1)-8-6-001, 003; (1)-8-6-014:001
DHL-091	Waianae (Non-Potable Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0136	0.0136	0.0136	(1)-8-5-003:020; (1)-8-5-004, (1)-8-5-005:036,
3006 Malaekahana										
DOE-053	Kahuku High School - Athletic Field (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0380	(1)-5-6-006:003

Surface Water Hydrologic Unit		Million Gallons Per Day								
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034	Tax Map Key
	Oahu									
3090 Nuuanu										
JUD-002	Oahu Judiciary Proxy - Non-Potable (Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0039	(1)-2-1-025:003
3024 Waiahole										
DOA-001	Kunia Agricultural Park (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5550	(1) 9-4-002:080
DHL-129	Waiahole (Non-Potable)	0.0000	1.8000	1.8000	1.8000	1.8000	1.8000	1.8000	1.8000	(1)-4-8-008:029; (1)-4-8-009; (1)-4-8-011; (1)-4-8-
	Subtotal Oahu	**0.0010**	**5.9702**	**5.9712**	**5.9712**	**5.9712**	**6.9848**	**24.6742**	**25.7711**	
	TOTAL STATE	**0.9224**	**43.4582**	**46.8217**	**50.1598**	**53.7911**	**73.0792**	**117.6028**	**148.5662**	

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APPENDIX L

SWPP Project Water Demands by Water Development Strategy – Potable

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SWPP Project Demand by Waters Development Strategy - Potable

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
COUNTY-BWSALL											
Oahu	Lualualei	DHL-082	Maili 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0660	0.0660	0.0660
			Subtotal - COUNTY-BWSALL	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0660**	**0.0660**	**0.0660**
COUNTY-CREDIT											
Hawaii	Keauhou	DAG-007	Kona Judiciary Complex	0.0000	0.0000	0.0000	0.0000	0.0146	0.0146	0.0146	0.0146
Hawaii	Keauhou	DBT-003	Kamakana Villages at Keahuolu	0.0000	0.0000	0.0680	0.0680	0.1880	0.8840	1.1140	1.1140
Kauai	Anahola	DHL-036	Anahola 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0932	0.0932
Kauai	Anahola	DHL-044	Piilani Mai Ke Kai - Phase 2	0.0255	0.0255	0.0255	0.0255	0.0255	0.0255	0.0255	0.0255
Kauai	Anahola	DHL-045	Piilani Mai Ke Kai - Phase 3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0505	0.0505	0.0505
Maui	Kahului	DLN-014	DLNR Industrial and Business Park	0.0000	0.0000	0.0000	0.0000	0.0000	0.5971	0.5971	0.5971
Maui	Kamaole	DHL-057	Keokea/Waiohuli Development Phase 1-4 1	0.0000	0.0960	0.0960	0.0960	0.0960	0.2810	0.2810	0.2810
			Subtotal - COUNTY-CREDIT	**0.0255**	**0.1215**	**0.1895**	**0.1895**	**0.3241**	**1.8527**	**2.1759**	**2.1759**
COUNTY-EXEMPT											
Oahu	Koolaupoko	DAG-003	Hawaii State Hospital Patient Facility	0.0000	0.0000	0.0000	0.0000	0.0000	0.0540	0.0540	0.0540
			Subtotal - COUNTY-EXEMPT	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0540**	**0.0540**	**0.0540**
COUNTY-PRIVATEAGREE											
Hawaii	Waimea	DAG-013	Waikoloa Public Library Planning	0.0000	0.0000	0.0000	0.0000	0.0000	0.0136	0.0136	0.0136
Hawaii	Waimea	DOE-174	Waikoloa Elementary School 3rd Increment 8 Classroom/Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010	0.0010

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
COUNTY-PRIVATEAGREE											
Lanai	Leeward	DHL-050	Lanai City	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0672
Molokai	Kaluakoi	DOE-132	Maunaloa Elementary School New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072
Molokai	Kaluakoi	DOE-133	Maunaloa Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
Molokai	Kualapuu	DHL-067	Kalaupapa, Palaau	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0478	0.0478
Molokai	Kualapuu	DOE-111	Kualapuu Elementary School 6 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
Molokai	Kualapuu	DOE-138	Molokai High School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
Molokai	Kualapuu	DOE-139	Molokai High School Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030
Molokai	Kualapuu	DOE-140	Molokai High School 8 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144
Oahu	Moanalua	DOE-151	Pearl Harbor Elementary School New 4 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
Oahu	Moanalua	DOE-158	Shafter Elementary School Replacement Campus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Oahu	Wahiawa	DOE-159	Solomon Elementary School Campus-Wide Improvements	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Oahu	Wahiawa	DOE-183	Wheeler Elementary School - 8 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
Oahu	Waimalu	DOE-024	Hickam Elementary School - New Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
Oahu	Waimalu	DOE-025	Hickam Elementary School - New Cafeteria and Library Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0033	0.0033
Oahu	Waimalu	DOE-152	Pearl Harbor Kai Elementary School Building "F" Renovation 2 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0002
Oahu	Waimanalo	DOE-137	Mokapu Elementary School - Campus Wide Improvements	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
COUNTY-PRIVATEAGREE											
			Subtotal - COUNTY-PRIVATEAGREE	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0146**	**0.0944**	**0.1616**
EXSWS											
Kauai	Anahola	DHL-037	Anahola 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0585	0.0585	0.0585
Oahu	Koolaupoko	DHL-089	Waiahole	0.0085	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135
Oahu	Waimalu	DOH-002	Uluakupu Building Interior Renovation	0.0000	0.0141	0.0141	0.0141	0.0141	0.0141	0.0141	0.0141
Oahu	Waimanalo	DAG-017	Women's Community Correctional Center New Housing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0135	0.0135	0.0135
			Subtotal - EXSWS	**0.0085**	**0.0276**	**0.0276**	**0.0276**	**0.0276**	**0.0996**	**0.0996**	**0.0996**
MASTERPLAN											
Hawaii	Mahukona	DHL-020	Lalamilo Phase 2A, Increment 1	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332
Hawaii	Mahukona	DHL-021	Lalamilo Phase 2A, Increment 2	0.0156	0.0308	0.0308	0.0308	0.0308	0.0308	0.0308	0.0308
Hawaii	Mahukona	DHL-022	Lalamilo Phase 2B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0536	0.0536	0.0536
Hawaii	Mahukona	DHL-023	Lalamilo Phase 2C	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0496	0.0496
Hawaii	Mahukona	DHL-024	Lalamilo, Pauahi, Keoniki 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0468	0.0468	0.0468
Hawaii	Mahukona	DHL-029	Puukapu 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0792
Maui	Kamaole	DHL-061	Puunene	0.0000	1.7340	1.7340	1.7340	1.7340	1.7340	1.7340	1.7340
Molokai	Kualapuu	DHL-065	Hoolehua	0.0000	0.1302	0.1302	0.1302	0.1302	0.4266	0.5116	0.5116
Molokai	Kualapuu	DHL-066	Kalamaula	0.0000	0.1292	0.1292	0.1292	0.1292	0.2072	0.2810	0.2810

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
MASTERPLAN											
Oahu	Ewa Caprock - Kapolei	DOD-002	Kalaeloa Brigade Readiness Center (Potable)	0.0050	0.0050	0.0050	0.0055	0.0055	0.0060	0.0060	0.0060
Oahu	Ewa Caprock - Kapolei	DOD-004	Kalaeloa AASF (Potable)	0.0000	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Oahu	Ewa Caprock - Kapolei	DOD-005	Kalaeloa B117 ph2 Combined Support Maintenance Shop	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Oahu	Ewa-Kunia	DHL-070	East Kapolei I - B3	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200
Oahu	Ewa-Kunia	DHL-071	East Kapolei I - Kanehili	0.0000	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184
Oahu	Ewa-Kunia	DHL-076	Kalaeloa - All Others	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.0280	2.0280
Oahu	Ewa-Kunia	DHL-077	Kalaeloa 3	0.1720	0.1720	0.1720	0.1720	0.1720	0.1720	0.1720	0.1720
Oahu	Ewa-Kunia	DHL-079	Kapolei Regional Mall (DeBartolo)	0.2919	0.2919	0.2919	0.2919	0.2919	0.2919	0.2919	0.2919
Oahu	Ewa-Kunia	DLN-015	DLNR East Kapolei Lands, Phase 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2820	0.2820
Oahu	Ewa-Kunia	DLN-016	DLNR East Kapolei Lands, Phase 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2967
Oahu	Ewa-Kunia	DOE-013	East Kapolei Elementary School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Oahu	Ewa-Kunia	UHW-001	Creative Media Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0060	0.0060
Oahu	Ewa-Kunia	UHW-003	University of Hawaii - West Oahu - Long Range Master Plan (Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.8821
Oahu	Ewa-Kunia	UHW-004	University of Hawaii - West Oahu - Allied Heath Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030	0.0030
Oahu	Waipahu-Waiawa	DHL-072	East Kapolei II - B	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800
Oahu	Waipahu-Waiawa	DHL-073	East Kapolei II - C	0.0000	0.0000	0.0000	0.0000	0.0000	0.1064	0.5441	0.5441

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
MASTERPLAN											
Oahu	Waipahu-Waiawa	DOE-015	East Kapolei Middle School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
			Subtotal - MASTERPLAN	**0.6197**	**2.6492**	**2.6492**	**2.6497**	**2.6497**	**3.2404**	**6.1965**	**7.4545**
NEWSS											
Hawaii	Hilo	UHH-002	UHH Water Infrastructure Improvements	0.0304	0.0608	0.0912	0.1216	0.1520	0.3720	0.5920	0.8120
Hawaii	Keauhou	DBT-002	Ongoing NELHA Expansion (Potable)	0.0000	0.0000	0.0571	0.1072	0.1519	0.1921	0.3739	0.3739
Hawaii	Mahukona	DHL-013	Kawaihae Existing	0.0000	0.1356	0.1356	0.1356	0.1356	0.1356	0.1356	0.1356
Hawaii	Pahoa	DHL-027	Makuu-Keonepoko	0.0560	0.0760	0.0760	0.0760	0.0760	0.1760	0.2760	0.6600
Kauai	Wailua	DHL-046	Wailua	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0250
Kauai	Wailua	DHL-047	Wailua Commercial & Resort	0.0000	0.0000	0.0000	0.0000	0.0000	0.2795	0.2795	0.2795
Kauai	Wailua	DHL-048	Wailua Residential	0.0000	0.0000	0.0000	0.0000	0.0000	0.1775	0.3025	0.4030
Maui	Honokowai	DBT-004	Villages of Leali'i	0.0000	0.0000	0.0000	0.0000	0.1458	0.5133	0.9954	1.8185
Maui	Honokowai	DHL-051	Honokowai	0.0000	0.0000	0.0000	0.0000	0.0000	0.0612	0.3179	0.3179
Maui	Honokowai	DHL-052	Kaanapali, Honokowai	0.0000	0.3000	0.3000	0.3000	0.3000	0.3000	0.3000	0.3000
Maui	Honokowai	DHL-059	Leialii 1B	0.0000	0.0000	0.0000	0.0000	0.0000	0.1517	0.1517	0.1517
			Subtotal - NEWSS	**0.0864**	**0.5724**	**0.6599**	**0.7404**	**0.9613**	**2.3589**	**3.7245**	**5.2771**
NEWSWS											
Hawaii	Mahukona	DHL-015	Kawaihae Mauka	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.9812

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
NEWSWS											
Hawaii	Naalehu	DHL-034	Wailau	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500
Kauai	Kekaha	DHL-049	Waimea - Mauka Village	0.0000	0.2635	0.2635	0.2635	0.2635	0.2635	0.2635	0.2635
Kauai	Makaweli	DHL-039	Hanapepe	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3010	0.4045
Kauai	Makaweli	DHL-040	Hanapepe (Non-Potable Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2448
Maui	Kamaole	DHL-056	Keokea/Waiohuli	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.4608	0.4608
Maui	Kamaole	DHL-058	Keokea/Waiohuli Development Phase 1-4 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0679	0.0679	0.0679
Oahu	Koolaupoko	DHL-074	Haiku	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0400
			Subtotal - NEWSWS	**0.0000**	**0.2635**	**0.2635**	**0.2635**	**0.2635**	**0.3314**	**1.1332**	**3.5127**
OTHER - CATCHMENT											
Hawaii	Honokaa	DHL-002	Honokaia, Kamoku-Kapulena, Nienie 1	0.0000	0.0100	0.0100	0.0100	0.0100	0.0600	0.0948	0.0948
Hawaii	Olaa	DHL-018	Kurtistown-Olaa	0.0000	0.0252	0.0252	0.0252	0.0252	0.0252	0.0252	0.0252
Hawaii	Olaa	DHL-019	Kurtistown-Olaa (Non-Potable Using Potable)	0.0000	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125
Hawaii	Onomea	DHL-007	Humuula-Piihonua	0.0000	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.2496
Kauai	Anahola	DHL-043	Moloaa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0235
Maui	Lualailua	DHL-053	Kahikinui	0.0000	0.0630	0.0630	0.0630	0.0630	0.0630	0.0630	0.0630
Maui	Lualailua	DHL-054	Kahikinui (Non-Potable Using Potable)	0.0000	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135	0.0135
			Subtotal - OTHER - CATCHMENT	**0.0000**	**0.1542**	**0.1542**	**0.1542**	**0.1542**	**0.2042**	**0.2390**	**0.4821**

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
REMAIN											
Hawaii	Hakalau	DHL-006	Honomu-Kuhua	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0832	0.0832
Hawaii	Hakalau	DOE-120	Laupahoehoe High School & Elementary School New Band/Chorus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
Hawaii	Hawi	DHL-031	Upolu Point	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1480	0.1480
Hawaii	Hawi	DOE-099	Kohala Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008
Hawaii	Hawi	DOE-100	Kohala High School New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
Hawaii	Hawi	DOE-101	Kohala High School New Music Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
Hawaii	Hawi	DOE-102	Kohala High School New Auto/Tech Shop	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
Hawaii	Hilo	DAG-002	Hawaii Community Correctional Center New Intake Unit	0.0000	0.0000	0.0000	0.0060	0.0060	0.0060	0.0060	0.0060
Hawaii	Hilo	DAG-019	Hawaii Community Correctional Center New Medium Security Housing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0105	0.0105	0.0105
Hawaii	Hilo	DHL-001	Hilo Kanoelehua	0.0000	0.0000	0.0000	0.0000	0.0000	0.0360	0.0360	0.0360
Hawaii	Hilo	DHL-026	Lower Piihonua	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1400
Hawaii	Hilo	DHL-028	Old Hilo Airport	0.0000	0.0000	0.0000	0.0000	0.0000	0.0360	0.0360	0.0360
Hawaii	Hilo	DHL-033	Waiakea Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.2800	0.2800	0.2800
Hawaii	Hilo	DOE-010	Chiefess Kapiolani Elementary School - 4 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
Hawaii	Hilo	DOE-011	DeSilva Elementary School - New Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
Hawaii	Hilo	DOE-012	DeSilva Elementary School - 4 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
REMAIN											
Hawaii	Hilo	DOE-026	Hilo High School - New Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
Hawaii	Hilo	DOE-027	Hilo High School - 4 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072
Hawaii	Hilo	DOE-028	Hilo Intermediate School - Building A Renovation Phase 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hawaii	Hilo	DOE-029	Hilo Union Elementary School - New 6 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
Hawaii	Hilo	DOE-077	Kaumana Elementary School - New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072
Hawaii	Hilo	DOE-087	Keaukaha Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008
Hawaii	Hilo	DOE-160	Waiakea Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008
Hawaii	Hilo	DOE-161	Waiakea Intermediate School New PE Locker/Shower	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
Hawaii	Hilo	DOT-008	Hilo Pier 4	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Hawaii	Hilo	DOT-009	Radio Bay Cargo Yard	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003
Hawaii	Honokaa	DHL-003	Honokaia, Kamoku-Kapulena, Nienie 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3012
Hawaii	Honokaa	DOE-037	Honokaa Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
Hawaii	Honokaa	DOE-038	Honokaa Elementary School New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072
Hawaii	Honokaa	DOE-039	Honokaa High School New 15 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
Hawaii	Honokaa	DOE-040	Honokaa High School New 6 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
Hawaii	Kaapuna	DOE-042	Hookena Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
REMAIN											
Hawaii	Kaapuna	DOE-043	Hookena Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
Hawaii	Kaapuna	DOE-044	Hookena Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
Hawaii	Kaapuna	DOE-045	Hookena Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015
Hawaii	Keaau	DHL-016	Keaukaha, Waiakea-Panaewa	0.0000	0.0760	0.0760	0.0760	0.0760	0.0760	0.0760	1.3360
Hawaii	Keaau	DOE-079	Keaau Intermediate School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
Hawaii	Keaau	DOE-080	Keaau Intermediate School New Band Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
Hawaii	Keaau	DOE-141	Mountain View Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
Hawaii	Keaau	DOE-142	Mountain View Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029	0.0029
Hawaii	Keaau	DOE-143	Mountain View Elementary School New 12 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
Hawaii	Keaau	DOE-162	Waiakeawaena Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029	0.0029
Hawaii	Kealakekua	DLN-013	Kealakekua Bay State Historic Park	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012
Hawaii	Kealakekua	DOE-035	Honaunau Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
Hawaii	Kealakekua	DOE-036	Honaunau Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008
Hawaii	Kealakekua	DOE-106	Konawaena High School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
Hawaii	Kealakekua	DOE-107	Konawaena Intermediate School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
Hawaii	Kealakekua	DOE-108	Konawaena Intermediate School New PE Lockers & Showers	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
REMAIN											
Hawaii	Kealakekua	DOE-109	Konawaena Intermediate School Renovate 17 Classrooms	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015
Hawaii	Kealakekua	DOE-110	Konawaena Intermediate School Renovate 12 Classrooms	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
Hawaii	Keauhou	DHL-004	Honokohau, Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.6000	0.6000	0.6000
Hawaii	Keauhou	DHL-005	Honokohau, Keahuolu, Kealakehe	0.0000	0.3270	0.3270	0.3270	0.3270	0.3270	0.3270	0.5098
Hawaii	Keauhou	DHL-008	Kalaoa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1132	0.1132
Hawaii	Keauhou	DHL-009	Kalaoa, Kaone	0.0000	0.3900	0.3900	0.3900	0.3900	0.3900	0.3900	0.3900
Hawaii	Keauhou	DHL-010	Kalaoa, Kona	0.0000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000
Hawaii	Keauhou	DHL-032	Villages of Laiopua	0.0800	0.1000	0.1000	0.1000	0.1000	0.2000	0.3000	0.4000
Hawaii	Keauhou	DLN-005	DLNR Community Center & Admin Facility	0.0000	0.0000	0.0000	0.0000	0.0037	0.0037	0.0037	0.0037
Hawaii	Keauhou	DOE-033	Holualoa Elementary School New 6 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
Hawaii	Keauhou	DOE-034	Holualoa Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008
Hawaii	Keauhou	DOE-081	Kealakehe Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008
Hawaii	Keauhou	DOE-082	Kealakehe Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	0.0005
Hawaii	Keauhou	DOE-083	Kealakehe Elementary School - Playfield/Retention Basion (Non-Potable	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0120	0.0120
Hawaii	Keauhou	DOE-084	Kealakehe High School New 13 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	0.0008
Hawaii	Keauhou	DOE-085	Kealakehe II Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
REMAIN											
Hawaii	Keauhou	DOE-086	Kealakehe Intermediate School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144
Hawaii	Keauhou	DOT-004	Kona International Airport Improvements	0.0000	0.0000	0.0000	0.0000	0.0000	0.2286	0.2491	0.2506
Hawaii	Keauhou	UHC-001	Hawai'i Community College - Palamanui, Phase II	0.0000	0.0000	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027
Hawaii	Mahukona	DHL-014	Kawaihae Harbor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600
Hawaii	Mahukona	DHL-017	Keoniki (Non-Potable Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020
Hawaii	Mahukona	DHL-025	Lalamilo, Pauahi, Keoniki 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0092	0.0092	0.0132
Hawaii	Mahukona	DHL-030	Puukapu 2	0.0847	0.0847	0.0847	0.0847	0.0847	0.0847	0.4787	0.5307
Hawaii	Mahukona	DOT-018	Kawaihae Cargo Terminal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007
Hawaii	Mahukona	DOT-019	Kawaihae Pier Extensions	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
Hawaii	Naalehu	DHL-011	Kamaoa-Puueo	0.0000	0.0380	0.0380	0.0380	0.0380	0.0836	0.0836	0.1046
Hawaii	Naalehu	DHL-012	Kamaoa-Puueo (Non-Potable Using Potable)	0.0000	0.3924	0.3924	0.3924	0.3924	0.4701	0.4701	0.4701
Hawaii	Naalehu	DHL-035	Waiohinu	0.0000	0.0100	0.0100	0.0100	0.0100	0.0304	0.0304	0.0304
Hawaii	Naalehu	DOE-072	Kau High School and Pahala Elementary School 10 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0180	0.0180
Hawaii	Naalehu	DOE-073	Kau High School and Pahala Elementary School 12 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
Hawaii	Naalehu	DOE-074	Kau High School and Pahala Elementary School 3 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0002
Hawaii	Naalehu	DOE-144	Naalehu Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
REMAIN											
Hawaii	Onomea	DOE-018	Haaheo Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006
Hawaii	Onomea	DOE-019	Haaheo Elementary School New 4 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
Hawaii	Onomea	DOE-020	Haaheo Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
Hawaii	Onomea	DOE-063	Kalanianaole Elementary School - 8 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
Hawaii	Onomea	DOE-064	Kalanianaole Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
Hawaii	Pahoa	DAG-012	Puna Public Library Planning	0.0000	0.0000	0.0000	0.0000	0.0000	0.0136	0.0136	0.0136
Hawaii	Pahoa	DOE-088	Keonepoko Elementary School New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072
Hawaii	Pahoa	DOE-089	Keonepoko Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008
Hawaii	Pahoa	DOE-147	Pahoa Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
Hawaii	Pahoa	DOE-148	Pahoa Elementary School New 10 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006
Hawaii	Pahoa	DOE-149	Pahoa High School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
Hawaii	Waimea	DAG-015	West Hawaii Veterans Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0150	0.0150	0.0150
Hawaii	Waimea	DOE-176	Waimea Elementary School 2nd Increment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hawaii	Waimea	DOE-179	Waimea Intermediate School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
Hawaii	Waimea	DOE-180	Waimea Intermediate School New Music Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
Hawaii	Waimea	DOE-181	Waimea Intermediate School New PE Locker/Shower	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
REMAIN											
Hawaii	Waimea	DOT-023	Saddle Road Baseyard	0.0000	0.0000	0.0000	0.0040	0.0040	0.0040	0.0040	0.0040
Kauai	Anahola	DHL-038	Anahola 3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.7218	1.1518
Kauai	Anahola	DHL-041	Kapaa	0.0000	0.0640	0.0640	0.0640	0.0640	0.0640	0.0640	0.0674
Kauai	Anahola	DOE-066	Kapaa Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
Kauai	Anahola	DOE-067	Kapaa Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
Kauai	Anahola	DOE-068	Kapaa High School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
Kauai	Anahola	DOE-069	Kapaa II Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600
Kauai	Hanamaulu	DAG-005	Kauai Community Correctional Center New Segregation Housing	0.0000	0.0000	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030
Kauai	Hanamaulu	DAG-006	Kauai Community Correctional Center Restroom and Shower Improv.	0.0000	0.0000	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045
Kauai	Hanamaulu	DAG-016	Kauai Community Correctional Center New Medium Security Housing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0105	0.0105	0.0105
Kauai	Hanamaulu	DOE-096	King Kaumualii Elementary School Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
Kauai	Hanamaulu	DOE-123	Lihue 1 New School (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600
Kauai	Hanamaulu	DOT-005	LIH ConRAC	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0530
Kauai	Hanamaulu	DOT-020	Nawiliwili Hawaii Gas	0.0000	0.0000	0.0000	0.0101	0.0101	0.0101	0.0101	0.0101
Kauai	Hanamaulu	DOT-021	Nawiliwili Kauai Petroleum Fuel Terminal	0.0000	0.0000	0.0000	0.0079	0.0079	0.0079	0.0079	0.0079
Kauai	Hanamaulu	UHC-005	Kaua‘i Community College - Food Innovation Center	0.0000	0.0000	0.0000	0.0000	0.0021	0.0021	0.0021	0.0021

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
REMAIN											
Kauai	Hanamaulu	UHC-006	Kaua'i Community College - Imu	0.0000	0.0000	0.0000	0.0021	0.0021	0.0021	0.0021	0.0021
Kauai	Kekaha	DHL-042	Kekaha	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0480	0.0725
Kauai	Kekaha	OHA-007	Kekaha Armory	0.0000	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Kauai	Kilauea	DOE-092	Kilauea Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
Kauai	Kilauea	DOE-093	Kilauea Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
Kauai	Koloa	DOE-103	Koloa Elementary School New 6 Classroom (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0075	0.0075
Kauai	Koloa	DOE-104	Koloa Elementary School New 6 Classroom (Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0036	0.0036
Kauai	Koloa	DOE-105	Koloa II Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600
Kauai	Makaweli	DLN-001	DLNR West Kauai Field Operations Facility	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400
Kauai	Waimea	DOE-177	Waimea High School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
Kauai	Waimea	DOE-178	Waimea High School Revovation Bldg. C & H	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006
Maui	Haiku	DOE-021	Haiku Elementary School New 6 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008
Maui	Honokowai	DOE-155	Puukolii Elementary School 1st Increment (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300
Maui	Honokowai	DOE-156	Puukolii Elementary School 2nd Increment (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300
Maui	Honokowai	DOT-022	Honoapiilani Hwy (Lahaina Bypass) Ph. 1C - Keawe St. Ext. to Kaanapali Connector	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	0.0300
Maui	Iao	DAG-018	Maui Community Correctional Center New Medium Security Housing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0060	0.0060

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
REMAIN											
Maui	Iao	DHL-060	Paukukalo	0.0000	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034
Maui	Iao	DHL-063	Waiehu	0.0000	0.0170	0.0170	0.0170	0.0170	0.0170	0.0170	0.0170
Maui	Iao	DOE-048	Iao Intermediate School New 12 Classroom (Armory)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0216	0.0216
Maui	Iao	DOE-049	Iao Intermediate School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0126	0.0126
Maui	Iao	DOE-171	Waihee Elementary School New Admin	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006
Maui	Iao	DOE-172	Waihee Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144
Maui	Iao	DOE-173	Waihee Elementary School - Playfield/Water Retention Basin (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0051	0.0051
Maui	Iao	JUD-003	Maui Judiciary Complex - Potable	0.0000	0.0000	0.0000	0.0000	0.0000	0.0090	0.0090	0.0090
Maui	Iao	JUD-004	Maui Judiciary Complex - Non-Potable (Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0066	0.0066	0.0066
Maui	Kahului	DAG-009	Maui Regional Public Safety Complex	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2816	0.2816
Maui	Kahului	DLN-010	Pulehunui Baseyard	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0243	0.0243
Maui	Kahului	DOE-008	Central Maui Middle School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1000	0.1000
Maui	Kahului	DOE-030	Hawaiian Language Immersion Program (HLIP) Maui - New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600
Maui	Kahului	DOT-006	OGG ConRAC	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0680
Maui	Kahului	DOT-007	OGG Subdivision	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0759
Maui	Kahului	DOT-012	Kahului Cargo Yard With Amenities	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0060

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
REMAIN											
Maui	Kahului	DOT-013	Kahului Hawaiian Cement Relocation	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030	0.0030
Maui	Kahului	DOT-014	Kahului Harbor New Office	0.0000	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Maui	Kahului	UHC-009	Maui College - Hospitality Academy Renovation	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Maui	Kahului	UHC-011	Maui College - Pilina Kitchen	0.0000	0.0000	0.0000	0.0014	0.0014	0.0014	0.0014	0.0014
Maui	Kamaole	DHL-062	Ulupalakua	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0034
Maui	Kamaole	DOE-090	Kihei Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006
Maui	Kamaole	DOE-091	Kihei High School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200	0.1200
Maui	Kamaole	DOE-125	Lokelani Intermediate School New Admin	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
Maui	Kamaole	DOE-126	Lokelani Intermediate School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0027	0.0027
Maui	Kamaole	DOE-127	Lokelani Intermediate School New Class	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
Maui	Kamaole	OHA-011	Palauea Cultural Preserve	0.0000	0.0025	0.0025	0.0025	0.0040	0.0040	0.0040	0.0040
Maui	Kawaipapa	DHL-064	Wakiu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0325	0.0565	0.1177
Maui	Kawaipapa	DOE-022	Hana High School & Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
Maui	Keanae	DHL-055	Keanae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0034	0.0034	0.0034
Maui	Launipoko	DOE-113	Lahaina III Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600
Maui	Launipoko	DOE-114	Lahaina Intermediate School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
REMAIN											
Maui	Launipoko	DOE-115	Lahaina Intermediate School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144
Maui	Launipoko	DOE-116	Lahaina Intermediate School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
Maui	Launipoko	DOE-117	Lahaina Inter. School Locker/Shower Facility & Playfield (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0068	0.0068
Maui	Launipoko	DOE-118	Lahaina Inter. School Locker/Shower Facility & Playfield (Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
Maui	Launipoko	DOE-119	Lahainaluna High School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0140	0.0140	0.0140
Maui	Launipoko	DOE-145	Nahienaena Elementary School New Library/Admin	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0016	0.0016
Maui	Makawao	DAG-010	Maui Veterans Cemetery Expansion and Improvements	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400	0.0400	0.0400
Maui	Makawao	DOE-061	Kalama Intermediate School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
Maui	Makawao	DOE-097	King Kekaulike High School New 6 Class	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
Maui	Makawao	DOE-130	Makawao Elementary School 12 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0216	0.0216
Maui	Makawao	DOE-131	Makawao Elementary School 8 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144
Maui	Makawao	DOE-153	Pukalani Elementary School - Administration/Library/Renovate 4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072
Maui	Paia	DOE-150	Paia Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006
Maui	Paia	DOT-024	Hana Highway Paia Bypass - Paia Relief Route	0.0000	0.0000	0.0000	0.0000	0.0000	0.2880	0.2880	0.2880
Molokai	Kamiloloa	DOE-078	Kaunakakai Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010
Molokai	Kamiloloa	DOE-094	Kilohana Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
REMAIN											
Molokai	Kamiloloa	DOE-095	Kilohana Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
Molokai	Kamiloloa	UHC-010	Maui College - Moloka‘i Education Center	0.0000	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003
Molokai	Kawela	DHL-068	Kapaakea, Kamiloloa, Makakupaia	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1716	0.1716
Molokai	Ualapue	DHL-069	Ualapue	0.0000	0.0000	0.0000	0.0000	0.0000	0.0282	0.0493	0.0493
Oahu	Ewa-Kunia	DOE-014	East Kapolei High School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200
Oahu	Ewa-Kunia	DOE-016	Ewa Makai Middle School New 25 Classroom Building	0.0000	0.0000	0.0000	0.0500	0.0500	0.0500	0.0500	0.0500
Oahu	Ewa-Kunia	DOE-070	Kapolei High School New Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0200	0.0200	0.0200
Oahu	Ewa-Kunia	DOE-071	Kapolei Middle School New Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400
Oahu	Ewa-Kunia	DOT-015	Kalaeloa Potential Applicant A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0800	0.0800
Oahu	Ewa-Kunia	DOT-016	Kalaeloa Potential Applicant B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600
Oahu	Ewa-Kunia	DOT-017	Kalaeloa Potential Applicant C	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0800	0.0800
Oahu	Ewa-Kunia	DOT-025	Kalaeloa Fuel Pier	0.0000	0.0000	0.0000	0.0000	0.0000	0.0160	0.0160	0.0160
Oahu	Ewa-Kunia	DOT-027	JCF Airport Expansion	0.0000	0.0004	0.0008	0.0012	0.0016	0.0036	0.0055	0.0075
Oahu	Kahana	DOE-050	Kaaawa Elementary School Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
Oahu	Kahana	DOE-051	Kaaawa Elementary School New Library/Adminstration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011
Oahu	Kalihi	DHS-002	Mayor Wright Homes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0680	0.0680

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
REMAIN											
Oahu	Kalihi	DOE-017	Farrington High School Campus Modernization	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500
Oahu	Kalihi	DOE-060	Kalakaua Middle School - Renovate Bldgs G & H3 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006
Oahu	Kalihi	DOT-010	Potential Industrial Center/ 100 employees	0.0000	0.0000	0.0000	0.0000	0.0000	0.0460	0.0460	0.0460
Oahu	Kalihi	UHC-002	Honolulu Community College - Advanced Technology Training Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	0.0009
Oahu	Koolauloa	DLN-003	Malaekahana SRA, Kahuku Section Park Improvements	0.0000	0.0000	0.1300	0.1300	0.1300	0.1300	0.1300	0.1300
Oahu	Koolauloa	DOE-053	Kahuku High School - Athletic Field (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0380
Oahu	Koolauloa	DOE-054	Kahuku Intermediate School & High School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0066	0.0066
Oahu	Koolauloa	DOE-055	Kahuku Intermediate School & High School New Gymnasium	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0040
Oahu	Koolauloa	DOE-056	Kahuku Intermediate School & High School New PE Lockers & Showers	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
Oahu	Koolaupoko	DOE-004	Castle High School Cafeteria Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0060
Oahu	Koolaupoko	DOE-154	Puohala Elementary School Expansion of Library and Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011
Oahu	Lualualei	DHL-080	Lualualei	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1290	0.1290
Oahu	Lualualei	DHL-081	Lualualei (Non-Potable Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0714	0.0714
Oahu	Lualualei	DHL-083	Maili 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500	0.1300	0.1300
Oahu	Lualualei	DOE-121	Leihoku Elementary School New 6 Classrooms	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
Oahu	Lualualei	UHC-008	Leeward Community College - Waianae Education Center	0.0000	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
REMAIN											
Oahu	Makaha	DOE-128	Makaha Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
Oahu	Moanalua	DHL-088	Shafter Flats	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040
Oahu	Moanalua	DHS-001	Kuhio Park Redevelopment (Excluding Towers & Community Bldg)	0.0000	0.0000	0.0000	0.0000	0.0000	0.1736	0.1736	0.1736
Oahu	Moanalua	DOE-124	Linapuni Elementary School New Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
Oahu	Moanalua	DOE-136	Moanalua High School Performing Arts Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010
Oahu	Moanalua	DOT-001	HNL ConRAC 2A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0290
Oahu	Moanalua	DOT-002	HNL ConRAC 2B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0747
Oahu	Moanalua	DOT-003	Honolulu Mauka Concourse	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0505
Oahu	Moanalua	DOT-026	HNL Airport Expansion	0.0000	0.0231	0.0462	0.0692	0.0923	0.2077	0.3231	0.4385
Oahu	Nanakuli	DHL-085	Nanakuli	0.0000	0.0544	0.0544	0.0544	0.0544	0.0544	1.3069	1.3069
Oahu	Nanakuli	DOE-146	Nanakuli High School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144
Oahu	Nuuanu	DAG-001	Creative Media, Film, and Production Facility Planning	0.0000	0.0000	0.0000	0.0000	0.0000	0.0120	0.0120	0.0120
Oahu	Nuuanu	DAG-004	Judiciary Multi-Use & HHFDC Housing Joint Development	0.0000	0.0000	0.0000	0.0000	0.0000	0.1811	0.1811	0.1811
Oahu	Nuuanu	DAG-008	Liliha Civic Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0480	0.0480
Oahu	Nuuanu	DHL-078	Kalawahine	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0090	0.0090
Oahu	Nuuanu	DHL-086	Papakolea	0.0000	0.0520	0.0520	0.0520	0.0520	0.0520	0.0865	0.0865

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
REMAIN											
Oahu	Nuuanu	DHS-003	HPHA School Street Campus Redevelopment	0.0000	0.0000	0.0000	0.0000	0.0000	0.1530	0.1530	0.1530
Oahu	Nuuanu	DOE-005	Central Intermediate - Renovate Bldg A Ph 1 15 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017
Oahu	Nuuanu	DOE-006	Central Intermediate - Renovate Bldg C 16 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0022	0.0022
Oahu	Nuuanu	DOE-007	Central Middle School - Renovate Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0023	0.0023
Oahu	Nuuanu	DOE-059	Kakaako Elementary New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600
Oahu	Nuuanu	DOE-075	Kauluwela Elementary - 6 Classroom Bldg	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
Oahu	Nuuanu	DOE-076	Kauluwela Elementary - New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017
Oahu	Nuuanu	DOE-134	McKinley High School - Renovate Industrial Arts Educ. Bldg 6 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0019	0.0019
Oahu	Nuuanu	DOE-157	Roosevelt High School - Renovate Bldg A Phase 1: Admin, Library, Cafeteria, 43	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0080	0.0080
Oahu	Nuuanu	DOT-011	Potential Residential/Hotel 250 units	0.0000	0.0000	0.0000	0.0000	0.0000	0.0159	0.0159	0.0159
Oahu	Nuuanu	HCD-001	630 Cooke Street Micro Unit Affordable Housing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0312	0.0312	0.0312
Oahu	Nuuanu	HCD-002	690 Pohukaina	0.0000	0.0000	0.0000	0.0000	0.0000	0.2580	0.2580	0.2580
Oahu	Nuuanu	HCD-003	Ola Ka 'Ilima Artspace Lofts	0.0000	0.0000	0.0000	0.0000	0.0252	0.0252	0.0252	0.0252
Oahu	Nuuanu	JUD-001	Oahu Judiciary Proxy - Potable	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0066
Oahu	Nuuanu	JUD-002	Oahu Judiciary Proxy - Non-Potable (Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0039
Oahu	Nuuanu	OHA-001	Kaka'ako Makai - Parcel A	0.0000	0.0002	0.0004	0.0006	0.0008	0.0010	0.0130	0.0370

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
REMAIN											
Oahu	Nuuanu	OHA-002	Kaka'ako Makai - Parcel B/C	0.0000	0.0005	0.0009	0.0013	0.0017	0.0021	0.0141	0.0381
Oahu	Nuuanu	OHA-003	Kaka'ako Makai - Parcel D	0.0000	0.0010	0.0020	0.0030	0.0040	0.0050	0.0060	0.0080
Oahu	Nuuanu	OHA-004	Kaka'ako Makai - Parcel E	0.0000	0.0010	0.0020	0.0030	0.0040	0.0050	0.0060	0.0520
Oahu	Nuuanu	OHA-005	Kaka'ako Makai - Parcel F/G	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0560
Oahu	Nuuanu	OHA-006	Kaka'ako Makai - Parcel I	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1248
Oahu	Palolo	DHL-084	Moiliili (Isenberg)	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107
Oahu	Palolo	DOE-031	Hawaiian Language Immersion Program (HLIP) New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600
Oahu	Palolo	UHM-001	University of Hawaii at Manoa Water Master Plan	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1437
Oahu	Wahiawa	DOE-023	Helemano Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
Oahu	Wahiawa	DOE-112	Kunia Elementary School New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600
Oahu	Wahiawa	DOE-122	Leilehua High School New Science/Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
Oahu	Wahiawa	OHA-009	Kukaniloko (Potable)	0.0000	0.0000	0.0000	0.0010	0.0010	0.0446	0.0446	0.0446
Oahu	Waialae-East	DOE-062	Kalani High School Multipurpose Athletic Facility	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012
Oahu	Waialae-East	OHA-010	Pahua Heiau	0.0000	0.0000	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Oahu	Waialae-West	UHC-003	Kapiʻolani Community College - Culinary Institute of the Pacific, Phase I	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027
Oahu	Waialae-West	UHC-004	Kapiʻolani Community College - Culinary Institute of the Pacific, Phase II	0.0000	0.0000	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
REMAIN											
Oahu	Waialua	DOE-163	Waialua Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
Oahu	Waialua	OHA-012	Waialua Court House	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Oahu	Waianae	DHL-090	Waianae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.1240	0.1240
Oahu	Waianae	DHL-091	Waianae (Non-Potable Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0136	0.0136	0.0136
Oahu	Waianae	DOE-065	Kamaile Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144
Oahu	Waianae	DOE-164	Waianae High School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
Oahu	Waianae	DOE-165	Waianae High School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0074	0.0074
Oahu	Waianae	DOE-166	Waianae Intermediate School New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072
Oahu	Waimalu	DAG-011	Oahu Community Correctional Center Relocation & Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.1950	0.1950	0.1950
Oahu	Waimalu	DOE-001	Aiea High School Library Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0013	0.0013
Oahu	Waimalu	DOE-002	Aiea High School Applied Technology Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010
Oahu	Waimalu	DOE-129	Makalapa Elementary School - Admin and Renovation	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
Oahu	Waimalu	DOE-167	Waiau Elementary School Admin/Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011
Oahu	Waimalu	DOE-175	Waimalu ES - Renovate Building A (6 Classrooms)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006
Oahu	Waimalu	DOH-001	Halawa Vector Control Facility Office Space and Accessibility Improvements	0.0000	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049
Oahu	Waimanalo	DHL-075	Kakaina	0.0220	0.0220	0.0220	0.0220	0.0220	0.0220	0.0220	0.0220

Water Strategies

Million Gallons per Day (MGD)

Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
REMAIN											
Oahu	Waimanalo	DHL-092	Waimanalo	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1780	0.3140
Oahu	Waimanalo	DLN-008	Kawainui Baseyard	0.0000	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300
Oahu	Waimanalo	DOE-052	Kaelepulu Elementary School, New Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
Oahu	Waimanalo	DOE-057	Kailua Elementary School Library Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
Oahu	Waimanalo	DOE-058	Kainalu Elementary School New Admin	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
Oahu	Waipahu-Waiawa	DHL-087	Pearl City (Waihona)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0160	0.0160
Oahu	Waipahu-Waiawa	DOE-003	Campbell High School New 27 Classroom Building	0.0000	0.0000	0.0000	0.0500	0.0500	0.0500	0.0500	0.0500
Oahu	Waipahu-Waiawa	DOE-009	Central Oahu High School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200
Oahu	Waipahu-Waiawa	DOE-032	Holomua Elementary School New Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500
Oahu	Waipahu-Waiawa	DOE-041	Honowai Elementary School Phase 1B of Administrative Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
Oahu	Waipahu-Waiawa	DOE-046	Hoopili Elementary School New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600
Oahu	Waipahu-Waiawa	DOE-047	Hoopili High School New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200
Oahu	Waipahu-Waiawa	DOE-098	Koa Ridge Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600
Oahu	Waipahu-Waiawa	DOE-135	Mililani Middle School New Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1000	0.1000
Oahu	Waipahu-Waiawa	DOE-168	Waiawa I Elementary School 1st Increment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600
Oahu	Waipahu-Waiawa	DOE-169	Waiawa Intermediate School 1st Increment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300

Water Strategies				Million Gallons per Day (MGD)							
Island	Aquifer System	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
REMAIN											
Oahu	Waipahu-Waiawa	DOE-170	Waiawa Intermediate School 2nd Increment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300
Oahu	Waipahu-Waiawa	DOE-182	Waipahu High School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0077	0.0077
Oahu	Waipahu-Waiawa	UHC-007	Leeward Community College - Native Hawaiian Center for Excellence	0.0000	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003
			Subtotal - REMAIN	**0.2013**	**2.1137**	**2.2819**	**2.4864**	**2.5450**	**5.8739**	**11.4316**	**16.1545**
			TOTAL STATE (POTABLE)	**0.9414**	**5.9021**	**6.2258**	**6.5113**	**6.9253**	**14.0957**	**25.2147**	**35.4379**

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APPENDIX M

SWPP Project Water Demands by Water Development Strategy – Potable (REMAIN Only)

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SWPP Project Water Demands by Development Strategy - Potable (REMAIN ONLY)

Aquifer System		Million Gallons per Day (MGD)							
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
	Hawaii								
Hakalau									
DHL-006	Honomu-Kuhua	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0832	0.0832
DOE-120	Laupahoehoe High School & Elementary School New Band/Chorus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
	Subtotal - Hakalau	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0400**	**0.0836**	**0.0836**
Hawi									
DHL-031	Upolu Point	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1480	0.1480
DOE-099	Kohala Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008
DOE-100	Kohala High School New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
DOE-101	Kohala High School New Music Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
DOE-102	Kohala High School New Auto/Tech Shop	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
	Subtotal - Hawi	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1499**	**0.1499**
Hilo									
DAG-002	Hawaii Community Correctional Center New Intake Unit	0.0000	0.0000	0.0000	0.0060	0.0060	0.0060	0.0060	0.0060
DAG-019	Hawaii Community Correctional Center New Medium Security Housing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0105	0.0105	0.0105
DHL-001	Hilo Kanoelehua	0.0000	0.0000	0.0000	0.0000	0.0000	0.0360	0.0360	0.0360
DHL-026	Lower Piihonua	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1400

Aquifer System		Million Gallons per Day (MGD)							
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
	Hawaii								
Hilo									
DHL-028	Old Hilo Airport	0.0000	0.0000	0.0000	0.0000	0.0000	0.0360	0.0360	0.0360
DHL-033	Waiakea Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.2800	0.2800	0.2800
DOE-010	Chiefess Kapiolani Elementary School - 4 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
DOE-011	DeSilva Elementary School - New Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
DOE-012	DeSilva Elementary School - 4 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
DOE-026	Hilo High School - New Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
DOE-027	Hilo High School - 4 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072
DOE-028	Hilo Intermediate School - Building A Renovation Phase 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
DOE-029	Hilo Union Elementary School - New 6 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
DOE-077	Kaumana Elementary School - New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072
DOE-087	Keaukaha Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008
DOE-160	Waiakea Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008
DOE-161	Waiakea Intermediate School New PE Locker/Shower	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
DOT-008	Hilo Pier 4	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
DOT-009	Radio Bay Cargo Yard	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003

Aquifer System		Million Gallons per Day (MGD)							
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
	Hawaii								
Hilo									
	Subtotal - Hilo	**0.0000**	**0.0000**	**0.0003**	**0.0063**	**0.0063**	**0.3688**	**0.3868**	**0.5271**
Honokaa									
DHL-003	Honokaia, Kamoku-Kapulena, Nienie 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3012
DOE-037	Honokaa Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
DOE-038	Honokaa Elementary School New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072
DOE-039	Honokaa High School New 15 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
DOE-040	Honokaa High School New 6 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
	Subtotal - Honokaa	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0088**	**0.3100**
Kaapuna									
DOE-042	Hookena Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
DOE-043	Hookena Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
DOE-044	Hookena Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
DOE-045	Hookena Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015
	Subtotal - Kaapuna	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0033**	**0.0033**
Keaau									
DHL-016	Keaukaha, Waiakea-Panaewa	0.0000	0.0760	0.0760	0.0760	0.0760	0.0760	0.0760	1.3360
DOE-079	Keaau Intermediate School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004

Aquifer System / Proj. ID	Project	Million Gallons per Day (MGD) 2015	2016	2017	2018	2019	2024	2029	2034
	Hawaii								
Keaau									
DOE-080	Keaau Intermediate School New Band Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
DOE-141	Mountain View Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
DOE-142	Mountain View Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029	0.0029
DOE-143	Mountain View Elementary School New 12 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
DOE-162	Waiakeawaena Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029	0.0029
	Subtotal - Keaau	**0.0000**	**0.0760**	**0.0760**	**0.0760**	**0.0760**	**0.0760**	**0.0836**	**1.3436**
Kealakekua									
DLN-013	Kealakekua Bay State Historic Park	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012
DOE-035	Honaunau Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
DOE-036	Honaunau Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008
DOE-106	Konawaena High School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
DOE-107	Konawaena Intermediate School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
DOE-108	Konawaena Intermediate School New PE Lockers & Showers	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012
DOE-109	Konawaena Intermediate School Renovate 17 Classrooms	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015
DOE-110	Konawaena Intermediate School Renovate 12 Classrooms	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
	Subtotal - Kealakekua	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0064**	**0.0076**

Aquifer System		Million Gallons per Day (MGD)							
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
	Hawaii								
Keauhou									
DHL-004	Honokohau, Hawaii	0.0000	0.0000	0.0000	0.0000	0.0000	0.6000	0.6000	0.6000
DHL-005	Honokohau, Keahuolu, Kealakehe	0.0000	0.3270	0.3270	0.3270	0.3270	0.3270	0.3270	0.5098
DHL-008	Kalaoa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1132	0.1132
DHL-009	Kalaoa, Kaone	0.0000	0.3900	0.3900	0.3900	0.3900	0.3900	0.3900	0.3900
DHL-010	Kalaoa, Kona	0.0000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000
DHL-032	Villages of Laiopua	0.0800	0.1000	0.1000	0.1000	0.1000	0.2000	0.3000	0.4000
DLN-005	DLNR Community Center & Admin Facility	0.0000	0.0000	0.0000	0.0000	0.0037	0.0037	0.0037	0.0037
DOE-033	Holualoa Elementary School New 6 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
DOE-034	Holualoa Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008
DOE-081	Kealakehe Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008
DOE-082	Kealakehe Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	0.0005
DOE-083	Kealakehe Elementary School - Playfield/Retention Basion (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0120	0.0120
DOE-084	Kealakehe High School New 13 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	0.0008
DOE-085	Kealakehe II Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600
DOE-086	Kealakehe Intermediate School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144

Aquifer System / Proj. ID	Project	Million Gallons per Day (MGD) 2015	2016	2017	2018	2019	2024	2029	2034
	Hawaii								
Keauhou									
DOT-004	Kona International Airport Improvements	0.0000	0.0000	0.0000	0.0000	0.0000	0.2286	0.2491	0.2506
UHC-001	Hawai'i Community College - Palamanui, Phase II	0.0000	0.0000	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027
	Subtotal - Keauhou	**0.0800**	**1.2170**	**1.2170**	**1.2197**	**1.2235**	**2.1534**	**2.4858**	**2.7701**
Mahukona									
DHL-014	Kawaihae Harbor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600
DHL-017	Keoniki (Non-Potable Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020
DHL-025	Lalamilo, Pauahi, Keoniki 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0092	0.0092	0.0132
DHL-030	Puukapu 2	0.0847	0.0847	0.0847	0.0847	0.0847	0.0847	0.4787	0.5307
DOT-018	Kawaihae Cargo Terminal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007
DOT-019	Kawaihae Pier Extensions	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
	Subtotal - Mahukona	**0.0847**	**0.0847**	**0.0847**	**0.0847**	**0.0847**	**0.0939**	**0.5485**	**0.6072**
Naalehu									
DHL-011	Kamaoa-Puueo	0.0000	0.0380	0.0380	0.0380	0.0380	0.0836	0.0836	0.1046
DHL-012	Kamaoa-Puueo (Non-Potable Using Potable)	0.0000	0.3924	0.3924	0.3924	0.3924	0.4701	0.4701	0.4701
DHL-035	Waiohinu	0.0000	0.0100	0.0100	0.0100	0.0100	0.0304	0.0304	0.0304
DOE-072	Kau High School and Pahala Elementary School 10 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0180	0.0180

Aquifer System / Proj. ID	Project	Million Gallons per Day (MGD) 2015	2016	2017	2018	2019	2024	2029	2034
	Hawaii								
Naalehu									
DOE-073	Kau High School and Pahala Elementary School 12 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
DOE-074	Kau High School and Pahala Elementary School 3 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0002
DOE-144	Naalehu Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
	Subtotal - Naalehu	**0.0000**	**0.4404**	**0.4404**	**0.4404**	**0.4404**	**0.5841**	**0.6035**	**0.6245**
Onomea									
DOE-018	Haaheo Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006
DOE-019	Haaheo Elementary School New 4 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
DOE-020	Haaheo Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
DOE-063	Kalanianaole Elementary School - 8 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
DOE-064	Kalanianaole Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
	Subtotal - Onomea	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0023**	**0.0024**
Pahoa									
DAG-012	Puna Public Library Planning	0.0000	0.0000	0.0000	0.0000	0.0000	0.0136	0.0136	0.0136
DOE-088	Keonepoko Elementary School New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072
DOE-089	Keonepoko Elementary School New Library/Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008
DOE-147	Pahoa Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003

Aquifer System / Proj. ID	Project	Million Gallons per Day (MGD) 2015	2016	2017	2018	2019	2024	2029	2034
	Hawaii								
Pahoa									
DOE-148	Pahoa Elementary School New 10 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006
DOE-149	Pahoa High School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
	Subtotal - Pahoa	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0136**	**0.0230**	**0.0230**
Waimea									
DAG-015	West Hawaii Veterans Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0150	0.0150	0.0150
DOE-176	Waimea Elementary School 2nd Increment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
DOE-179	Waimea Intermediate School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
DOE-180	Waimea Intermediate School New Music Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
DOE-181	Waimea Intermediate School New PE Locker/Shower	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004
DOT-023	Saddle Road Baseyard	0.0000	0.0000	0.0000	0.0040	0.0040	0.0040	0.0040	0.0040
	Subtotal - Waimea	**0.0000**	**0.0000**	**0.0000**	**0.0040**	**0.0040**	**0.0190**	**0.0203**	**0.0203**
	TOTAL - Hawaii	**0.1647**	**1.8181**	**1.8184**	**1.8311**	**1.8349**	**3.3488**	**4.4057**	**6.4726**
	Kauai								
Anahola									
DHL-038	Anahola 3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.7218	1.1518
DHL-041	Kapaa	0.0000	0.0640	0.0640	0.0640	0.0640	0.0640	0.0640	0.0674

Aquifer System / Proj. ID	Project	Million Gallons per Day (MGD) 2015	2016	2017	2018	2019	2024	2029	2034
	Kauai								
Anahola									
DOE-066	Kapaa Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
DOE-067	Kapaa Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
DOE-068	Kapaa High School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
DOE-069	Kapaa II Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600
	Subtotal - Anahola	**0.0000**	**0.0640**	**0.0640**	**0.0640**	**0.0640**	**0.0640**	**0.7870**	**1.2804**
Hanamaulu									
DAG-005	Kauai Community Correctional Center New Segregation Housing	0.0000	0.0000	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030
DAG-006	Kauai Community Correctional Center Restroom and Shower Improv.	0.0000	0.0000	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045
DAG-016	Kauai Community Correctional Center New Medium Security Housing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0105	0.0105	0.0105
DOE-096	King Kaumualii Elementary School Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
DOE-123	Lihue 1 New School (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600
DOT-005	LIH ConRAC	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0530
DOT-020	Nawiliwili Hawaii Gas	0.0000	0.0000	0.0000	0.0101	0.0101	0.0101	0.0101	0.0101
DOT-021	Nawiliwili Kauai Petroleum Fuel Terminal	0.0000	0.0000	0.0000	0.0079	0.0079	0.0079	0.0079	0.0079
UHC-005	Kaua‘i Community College - Food Innovation Center	0.0000	0.0000	0.0000	0.0000	0.0021	0.0021	0.0021	0.0021
UHC-006	Kaua‘i Community College - Imu	0.0000	0.0000	0.0000	0.0021	0.0021	0.0021	0.0021	0.0021

Aquifer System / Proj. ID	Project	Million Gallons per Day (MGD) 2015	2016	2017	2018	2019	2024	2029	2034
	Kauai								
Hanamaulu									
	Subtotal - Hanamaulu	**0.0000**	**0.0000**	**0.0075**	**0.0276**	**0.0297**	**0.0402**	**0.0405**	**0.1535**
Kekaha									
DHL-042	Kekaha	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0480	0.0725
OHA-007	Kekaha Armory	0.0000	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
	Subtotal - Kekaha	**0.0000**	**0.0015**	**0.0015**	**0.0015**	**0.0015**	**0.0015**	**0.0495**	**0.0740**
Kilauea									
DOE-092	Kilauea Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003
DOE-093	Kilauea Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
	Subtotal - Kilauea	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0008**	**0.0008**
Koloa									
DOE-103	Koloa Elementary School New 6 Classroom (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0075	0.0075
DOE-104	Koloa Elementary School New 6 Classroom (Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0036	0.0036
DOE-105	Koloa II Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600
	Subtotal - Koloa	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0111**	**0.0711**
Makaweli									
DLN-001	DLNR West Kauai Field Operations Facility	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400
	Subtotal - Makaweli	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0400**	**0.0400**	**0.0400**

Aquifer System / Proj. ID	Project	Million Gallons per Day (MGD) 2015	2016	2017	2018	2019	2024	2029	2034
	Kauai								
Waimea									
DOE-177	Waimea High School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
DOE-178	Waimea High School Revovation Bldg. C & H	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006
	Subtotal - Waimea	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0015**	**0.0015**
	TOTAL - Kauai	**0.0000**	**0.0655**	**0.0730**	**0.0931**	**0.0952**	**0.1457**	**0.9304**	**1.6213**
	Maui								
Haiku									
DOE-021	Haiku Elementary School New 6 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008
	Subtotal - Haiku	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0008**	**0.0008**
Honokowai									
DOE-155	Puukolii Elementary School 1st Increment (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300
DOE-156	Puukolii Elementary School 2nd Increment (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300
DOT-022	Honoapiilani Hwy (Lahaina Bypass) Ph. 1C - Keawe St. Ext. to Kaanapali Connector	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	0.0300
	Subtotal - Honokowai	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0300**	**0.0900**
Iao									
DAG-018	Maui Community Correctional Center New Medium Security Housing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0060	0.0060
DHL-060	Paukukalo	0.0000	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034
DHL-063	Waiehu	0.0000	0.0170	0.0170	0.0170	0.0170	0.0170	0.0170	0.0170

Aquifer System		Million Gallons per Day (MGD)							
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
	Maui								
Iao									
DOE-048	Iao Intermediate School New 12 Classroom (Armory)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0216	0.0216
DOE-049	Iao Intermediate School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0126	0.0126
DOE-171	Waihee Elementary School New Admin	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006
DOE-172	Waihee Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144
DOE-173	Waihee Elementary School - Playfield/Water Retention Basin (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0051	0.0051
JUD-003	Maui Judiciary Complex - Potable	0.0000	0.0000	0.0000	0.0000	0.0000	0.0090	0.0090	0.0090
JUD-004	Maui Judiciary Complex - Non-Potable (Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0066	0.0066	0.0066
	Subtotal - Iao	**0.0000**	**0.0204**	**0.0204**	**0.0204**	**0.0204**	**0.0420**	**0.0963**	**0.0963**
Kahului									
DAG-009	Maui Regional Public Safety Complex	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2816	0.2816
DLN-010	Pulehunui Baseyard	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0243	0.0243
DOE-008	Central Maui Middle School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1000	0.1000
DOE-030	Hawaiian Language Immersion Program (HLIP) Maui - New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600
DOT-006	OGG ConRAC	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0680
DOT-007	OGG Subdivision	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0759
DOT-012	Kahului Cargo Yard With Amenities	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0060

Aquifer System / Proj. ID	Project	Million Gallons per Day (MGD) 2015	2016	2017	2018	2019	2024	2029	2034
	Maui								
Kahului									
DOT-013	Kahului Hawaiian Cement Relocation	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030	0.0030
DOT-014	Kahului Harbor New Office	0.0000	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
UHC-009	Maui College - Hospitality Academy Renovation	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
UHC-011	Maui College - Pilina Kitchen	0.0000	0.0000	0.0000	0.0014	0.0014	0.0014	0.0014	0.0014
	Subtotal - Kahului	**0.0000**	**0.0000**	**0.0005**	**0.0018**	**0.0018**	**0.0048**	**0.4767**	**0.6206**
Kamaole									
DHL-062	Ulupalakua	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0034
DOE-090	Kihei Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006
DOE-091	Kihei High School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200	0.1200
DOE-125	Lokelani Intermediate School New Admin	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
DOE-126	Lokelani Intermediate School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0027	0.0027
DOE-127	Lokelani Intermediate School New Class	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
OHA-011	Palauea Cultural Preserve	0.0000	0.0025	0.0025	0.0025	0.0040	0.0040	0.0040	0.0040
	Subtotal - Kamaole	**0.0000**	**0.0025**	**0.0025**	**0.0025**	**0.0040**	**0.0040**	**0.1390**	**0.1424**
Kawaipapa									
DHL-064	Wakiu	0.0000	0.0000	0.0000	0.0000	0.0000	0.0325	0.0565	0.1177

Aquifer System		Million Gallons per Day (MGD)							
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
	Maui								
Kawaipapa									
DOE-022	Hana High School & Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
	Subtotal - Kawaipapa	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0325**	**0.0574**	**0.1186**
Keanae									
DHL-055	Keanae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0034	0.0034	0.0034
	Subtotal - Keanae	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0034**	**0.0034**	**0.0034**
Launipoko									
DOE-113	Lahaina III Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600
DOE-114	Lahaina Intermediate School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
DOE-115	Lahaina Intermediate School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144
DOE-116	Lahaina Intermediate School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
DOE-117	Lahaina Inter. School Locker/Shower Facility & Playfield (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0068	0.0068
DOE-118	Lahaina Inter. School Locker/Shower Facility & Playfield (Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
DOE-119	Lahainaluna High School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0140	0.0140	0.0140
DOE-145	Nahienaena Elementary School New Library/Admin	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0016	0.0016
	Subtotal - Launipoko	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0140**	**0.0994**	**0.0994**
Makawao									
DAG-010	Maui Veterans Cemetery Expansion and Improvements	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400	0.0400	0.0400

Aquifer System		Million Gallons per Day (MGD)							
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
	Maui								
Makawao									
DOE-061	Kalama Intermediate School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
DOE-097	King Kekaulike High School New 6 Class	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
DOE-130	Makawao Elementary School 12 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0216	0.0216
DOE-131	Makawao Elementary School 8 Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144
DOE-153	Pukalani Elementary School - Administration/Library/Renovate 4 Classrooms	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072
	Subtotal - Makawao	**0.0000**	**0.0000**	**0.0000**	**0.0400**	**0.0400**	**0.0400**	**0.0949**	**0.0949**
Paia									
DOE-150	Paia Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006
DOT-024	Hana Highway Paia Bypass - Paia Relief Route	0.0000	0.0000	0.0000	0.0000	0.0000	0.2880	0.2880	0.2880
	Subtotal - Paia	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2880**	**0.2886**	**0.2886**
	TOTAL - Maui	**0.0000**	**0.0229**	**0.0234**	**0.0647**	**0.0662**	**0.4287**	**1.2865**	**1.5550**
	Molokai								
Kamiloloa									
DOE-078	Kaunakakai Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010
DOE-094	Kilohana Elementary School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006
DOE-095	Kilohana Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009

Aquifer System / Proj. ID	Project	Million Gallons per Day (MGD) 2015	2016	2017	2018	2019	2024	2029	2034
	Molokai								
Kamiloloa									
UHC-010	Maui College - Moloka'i Education Center	0.0000	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003
	Subtotal - Kamiloloa	**0.0000**	**0.0000**	**0.0000**	**0.0003**	**0.0003**	**0.0003**	**0.0028**	**0.0028**
Kawela									
DHL-068	Kapaakea, Kamiloloa, Makakupaia	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1716	0.1716
	Subtotal - Kawela	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1716**	**0.1716**
Ualapue									
DHL-069	Ualapue	0.0000	0.0000	0.0000	0.0000	0.0000	0.0282	0.0493	0.0493
	Subtotal - Ualapue	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0282**	**0.0493**	**0.0493**
	TOTAL - Molokai	**0.0000**	**0.0000**	**0.0000**	**0.0003**	**0.0003**	**0.0285**	**0.2237**	**0.2237**
	Oahu								
Ewa-Kunia									
DOE-014	East Kapolei High School (New School)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200
DOE-016	Ewa Makai Middle School New 25 Classroom Building	0.0000	0.0000	0.0000	0.0500	0.0500	0.0500	0.0500	0.0500
DOE-070	Kapolei High School New Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0200	0.0200	0.0200
DOE-071	Kapolei Middle School New Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400
DOT-015	Kalaeloa Potential Applicant A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0800	0.0800
DOT-016	Kalaeloa Potential Applicant B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600

Aquifer System		Million Gallons per Day (MGD)							
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
	Oahu								
Ewa-Kunia									
DOT-017	Kalaeloa Potential Applicant C	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0800	0.0800
DOT-025	Kalaeloa Fuel Pier	0.0000	0.0000	0.0000	0.0000	0.0000	0.0160	0.0160	0.0160
DOT-027	JCF Airport Expansion	0.0000	0.0004	0.0008	0.0012	0.0016	0.0036	0.0055	0.0075
	Subtotal - Ewa-Kunia	**0.0000**	**0.0004**	**0.0008**	**0.0512**	**0.0516**	**0.1296**	**0.2915**	**0.4735**
Kahana									
DOE-050	Kaaawa Elementary School Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
DOE-051	Kaaawa Elementary School New Library/Adminstration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011
	Subtotal - Kahana	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0017**	**0.0017**
Kalihi									
DHS-002	Mayor Wright Homes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0680	0.0680
DOE-017	Farrington High School Campus Modernization	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500
DOE-060	Kalakaua Middle School - Renovate Bldgs G & H3 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006
DOT-010	Potential Industrial Center/ 100 employees	0.0000	0.0000	0.0000	0.0000	0.0000	0.0460	0.0460	0.0460
UHC-002	Honolulu Community College - Advanced Technology Training Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	0.0009
	Subtotal - Kalihi	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0469**	**0.1155**	**0.1655**
Koolauloa									
DLN-003	Malaekahana SRA, Kahuku Section Park Improvements	0.0000	0.0000	0.1300	0.1300	0.1300	0.1300	0.1300	0.1300

Aquifer System		Million Gallons per Day (MGD)							
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
	Oahu								
Koolauloa									
DOE-053	Kahuku High School - Athletic Field (Non-Potable using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0380
DOE-054	Kahuku Intermediate School & High School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0066	0.0066
DOE-055	Kahuku Intermediate School & High School New Gymnasium	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0040
DOE-056	Kahuku Intermediate School & High School New PE Lockers & Showers	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
	Subtotal - Koolauloa	**0.0000**	**0.0000**	**0.1300**	**0.1300**	**0.1300**	**0.1300**	**0.1413**	**0.1793**
Koolaupoko									
DOE-004	Castle High School Cafeteria Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0060
DOE-154	Puohala Elementary School Expansion of Library and Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011
	Subtotal - Koolaupoko	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0071**	**0.0071**
Lualualei									
DHL-080	Lualualei	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1290	0.1290
DHL-081	Lualualei (Non-Potable Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0714	0.0714
DHL-083	Maili 2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500	0.1300	0.1300
DOE-121	Leihoku Elementary School New 6 Classrooms	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
UHC-008	Leeward Community College - Waianae Education Center	0.0000	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027
	Subtotal - Lualualei	**0.0000**	**0.0000**	**0.0027**	**0.0027**	**0.0027**	**0.0527**	**0.3439**	**0.3439**

Aquifer System / Proj. ID	Project	Million Gallons per Day (MGD) 2015	2016	2017	2018	2019	2024	2029	2034
	Oahu								
Makaha									
DOE-128	Makaha Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
	Subtotal - Makaha	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0007**	**0.0007**
Moanalua									
DHL-088	Shafter Flats	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040
DHS-001	Kuhio Park Redevelopment (Excluding Towers & Community Bldg)	0.0000	0.0000	0.0000	0.0000	0.0000	0.1736	0.1736	0.1736
DOE-124	Linapuni Elementary School New Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
DOE-136	Moanalua High School Performing Arts Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010
DOT-001	HNL ConRAC 2A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0290
DOT-002	HNL ConRAC 2B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0747
DOT-003	Honolulu Mauka Concourse	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0505
DOT-026	HNL Airport Expansion	0.0000	0.0231	0.0462	0.0692	0.0923	0.2077	0.3231	0.4385
	Subtotal - Moanalua	**0.0040**	**0.0271**	**0.0502**	**0.0732**	**0.0963**	**0.3853**	**0.5022**	**0.7718**
Nanakuli									
DHL-085	Nanakuli	0.0000	0.0544	0.0544	0.0544	0.0544	0.0544	1.3069	1.3069
DOE-146	Nanakuli High School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144
	Subtotal - Nanakuli	**0.0000**	**0.0544**	**0.0544**	**0.0544**	**0.0544**	**0.0544**	**1.3213**	**1.3213**

Aquifer System		Million Gallons per Day (MGD)							
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
	Oahu								
Nuuanu									
DAG-001	Creative Media, Film, and Production Facility Planning	0.0000	0.0000	0.0000	0.0000	0.0000	0.0120	0.0120	0.0120
DAG-004	Judiciary Multi-Use & HHFDC Housing Joint Development	0.0000	0.0000	0.0000	0.0000	0.0000	0.1811	0.1811	0.1811
DAG-008	Liliha Civic Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0480	0.0480
DHL-078	Kalawahine	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0090	0.0090
DHL-086	Papakolea	0.0000	0.0520	0.0520	0.0520	0.0520	0.0520	0.0865	0.0865
DHS-003	HPHA School Street Campus Redevelopment	0.0000	0.0000	0.0000	0.0000	0.0000	0.1530	0.1530	0.1530
DOE-005	Central Intermediate - Renovate Bldg A Ph 1 15 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017
DOE-006	Central Intermediate - Renovate Bldg C 16 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0022	0.0022
DOE-007	Central Middle School - Renovate Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0023	0.0023
DOE-059	Kakaako Elementary New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600
DOE-075	Kauluwela Elementary - 6 Classroom Bldg	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
DOE-076	Kauluwela Elementary - New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017
DOE-134	McKinley High School - Renovate Industrial Arts Educ. Bldg 6 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0019	0.0019
DOE-157	Roosevelt High School - Renovate Bldg A Phase 1: Admin, Library, Cafeteria, 43 Classrooms	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0080	0.0080
DOT-011	Potential Residential/Hotel 250 units	0.0000	0.0000	0.0000	0.0000	0.0000	0.0159	0.0159	0.0159

Aquifer System / Proj. ID	Project	Million Gallons per Day (MGD) 2015	2016	2017	2018	2019	2024	2029	2034
	Oahu								
Nuuanu									
HCD-001	630 Cooke Street Micro Unit Affordable Housing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0312	0.0312	0.0312
HCD-002	690 Pohukaina	0.0000	0.0000	0.0000	0.0000	0.0000	0.2580	0.2580	0.2580
HCD-003	Ola Ka 'Ilima Artspace Lofts	0.0000	0.0000	0.0000	0.0000	0.0252	0.0252	0.0252	0.0252
JUD-001	Oahu Judiciary Proxy - Potable	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0066
JUD-002	Oahu Judiciary Proxy - Non-Potable (Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0039
OHA-001	Kaka'ako Makai - Parcel A	0.0000	0.0002	0.0004	0.0006	0.0008	0.0010	0.0130	0.0370
OHA-002	Kaka'ako Makai - Parcel B/C	0.0000	0.0005	0.0009	0.0013	0.0017	0.0021	0.0141	0.0381
OHA-003	Kaka'ako Makai - Parcel D	0.0000	0.0010	0.0020	0.0030	0.0040	0.0050	0.0060	0.0080
OHA-004	Kaka'ako Makai - Parcel E	0.0000	0.0010	0.0020	0.0030	0.0040	0.0050	0.0060	0.0520
OHA-005	Kaka'ako Makai - Parcel F/G	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0560
OHA-006	Kaka'ako Makai - Parcel I	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1248
	Subtotal - Nuuanu	**0.0000**	**0.0547**	**0.0573**	**0.0599**	**0.0877**	**0.7415**	**0.9475**	**1.2347**
Palolo									
DHL-084	Moiliili (Isenberg)	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107
DOE-031	Hawaiian Language Immersion Program (HLIP) New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600
UHM-001	University of Hawaii at Manoa Water Master Plan	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1437

Aquifer System		Million Gallons per Day (MGD)							
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
	Oahu								
Palolo									
	Subtotal - Palolo	**0.0107**	**0.0107**	**0.0107**	**0.0107**	**0.0107**	**0.0107**	**0.0107**	**0.2144**
Wahiawa									
DOE-023	Helemano Elementary School New Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
DOE-112	Kunia Elementary School New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600
DOE-122	Leilehua High School New Science/Classroom Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
OHA-009	Kukaniloko (Potable)	0.0000	0.0000	0.0000	0.0010	0.0010	0.0446	0.0446	0.0446
	Subtotal - Wahiawa	**0.0000**	**0.0000**	**0.0000**	**0.0010**	**0.0010**	**0.0446**	**0.0561**	**0.1161**
Waialae-East									
DOE-062	Kalani High School Multipurpose Athletic Facility	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012
OHA-010	Pahua Heiau	0.0000	0.0000	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
	Subtotal - Waialae-East	**0.0000**	**0.0000**	**0.0010**	**0.0010**	**0.0010**	**0.0010**	**0.0022**	**0.0022**
Waialae-West									
UHC-003	Kapi‘olani Community College - Culinary Institute of the Pacific, Phase I	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027
UHC-004	Kapi‘olani Community College - Culinary Institute of the Pacific, Phase II	0.0000	0.0000	0.0000	0.0027	0.0027	0.0027	0.0027	0.0027
	Subtotal - Waialae-West	**0.0000**	**0.0027**	**0.0027**	**0.0055**	**0.0055**	**0.0055**	**0.0055**	**0.0055**
Waialua									
DOE-163	Waialua Elementary School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005

Aquifer System / Proj. ID	Project	Million Gallons per Day (MGD) 2015	2016	2017	2018	2019	2024	2029	2034
	Oahu								
Waialua									
OHA-012	Waialua Court House	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
	Subtotal - Waialua	**0.0000**	**0.0003**	**0.0003**	**0.0003**	**0.0003**	**0.0003**	**0.0008**	**0.0008**
Waianae									
DHL-090	Waianae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.1240	0.1240
DHL-091	Waianae (Non-Potable Using Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0136	0.0136	0.0136
DOE-065	Kamaile Elementary School New 8 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144
DOE-164	Waianae High School New Administration	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
DOE-165	Waianae High School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0074	0.0074
DOE-166	Waianae Intermediate School New 4 Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0072	0.0072
	Subtotal - Waianae	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0176**	**0.1672**	**0.1672**
Waimalu									
DAG-011	Oahu Community Correctional Center Relocation & Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.1950	0.1950	0.1950
DOE-001	Aiea High School Library Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0013	0.0013
DOE-002	Aiea High School Applied Technology Center	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010
DOE-129	Makalapa Elementary School - Admin and Renovation	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
DOE-167	Waiau Elementary School Admin/Library	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011

Aquifer System		Million Gallons per Day (MGD)							
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
	Oahu								
Waimalu									
DOE-175	Waimalu ES - Renovate Building A (6 Classrooms)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006
DOH-001	Halawa Vector Control Facility Office Space and Accessibility Improvements	0.0000	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049
	Subtotal - Waimalu	**0.0000**	**0.0049**	**0.0049**	**0.0049**	**0.0049**	**0.1999**	**0.2043**	**0.2043**
Waimanalo									
DHL-075	Kakaina	0.0220	0.0220	0.0220	0.0220	0.0220	0.0220	0.0220	0.0220
DHL-092	Waimanalo	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1780	0.3140
DLN-008	Kawainui Baseyard	0.0000	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300
DOE-052	Kaelepulu Elementary School, New Administration Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
DOE-057	Kailua Elementary School Library Expansion	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
DOE-058	Kainalu Elementary School New Admin	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
	Subtotal - Waimanalo	**0.0220**	**0.0520**	**0.0520**	**0.0520**	**0.0520**	**0.0520**	**0.2316**	**0.3676**
Waipahu-Waiawa									
DHL-087	Pearl City (Waihona)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0160	0.0160
DOE-003	Campbell High School New 27 Classroom Building	0.0000	0.0000	0.0000	0.0500	0.0500	0.0500	0.0500	0.0500
DOE-009	Central Oahu High School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200
DOE-032	Holomua Elementary School New Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500

Aquifer System		Million Gallons per Day (MGD)							
Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
	Oahu								
Waipahu-Waiawa									
DOE-041	Honowai Elementary School Phase 1B of Administrative Building	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005
DOE-046	Hoopili Elementary School New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600
DOE-047	Hoopili High School New School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200
DOE-098	Koa Ridge Elementary School	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0600
DOE-135	Mililani Middle School New Classroom	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1000	0.1000
DOE-168	Waiawa I Elementary School 1st Increment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600
DOE-169	Waiawa Intermediate School 1st Increment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300
DOE-170	Waiawa Intermediate School 2nd Increment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300
DOE-182	Waipahu High School New Cafeteria	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0077	0.0077
UHC-007	Leeward Community College - Native Hawaiian Center for Excellence	0.0000	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003	0.0003
	Subtotal - Waipahu-Waiawa	**0.0000**	**0.0000**	**0.0000**	**0.0503**	**0.0503**	**0.0503**	**0.2345**	**0.7045**
	TOTAL - Oahu	**0.0367**	**0.2073**	**0.3671**	**0.4971**	**0.5484**	**1.9223**	**4.5853**	**6.2819**
	TOTAL STATE (REMAIN)	**0.2013**	**2.1137**	**2.2819**	**2.4864**	**2.5450**	**5.8739**	**11.4316**	**16.1545**

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APPENDIX N

SWPP Project Water Demands by Water Development Strategy – Non-Potable

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SWPP Project Water Demands by Water Development Strategy - Non-Potable

Water Strategies				Million Gallons per Day (MGD)							
Island	Surface Water Hydrologic Unit	Proj. ID	Project	2015	2016	2017	2018	2019	2024	2029	2034
EXSWS											
Hawaii	Wailoa/Waipio	DHL-101	Puukapu (Non-Potable)	0.1020	0.1020	0.1020	0.1020	0.1020	0.1360	0.1360	0.8114
Kauai	Waimea	DHL-112	Waimea (Non-Potable 1)	0.0000	12.4557	12.4557	12.4557	12.4557	12.4557	12.4557	12.4557
Kauai	Wailua	DHL-111	Wailua Residential (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.3366	0.3366	0.3366
Maui	Honolua	DHL-114	Honokowai (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	1.0404	1.0404	1.0404
Maui	Honokohau	DHL-115	Honokowai (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	1.0404	1.0404	1.0404
Maui	Waikamoi	DHL-118	Keokea-Waiohuli Development Phase 1-4 (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	0.2890	0.2890	0.2890
Maui	Haipuaena	DHL-119	Keokea-Waiohuli Development Phase 1-4 (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.2890	0.2890	0.2890
Maui	Maliko	DOA-002	Upcounty Maui Irrigation System (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.8800
Molokai	Waikolu	DHL-125	Hoolehua (Non-Potable)	0.0000	4.7207	4.7207	4.7207	4.7207	5.3599	5.3599	5.3599
Molokai	Waikolu	DHL-126	Kalamaula (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.7316	0.7316
Oahu	Waiahole	DOA-001	Kunia Agricultural Park (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5550
Oahu	Kawainui	DHL-130	Waimanalo (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0680	0.0680
			EXSWS - Subtotal	**0.1020**	**17.2783**	**17.2783**	**17.2783**	**17.2783**	**20.9469**	**21.7465**	**24.8569**

Water Strategies

Island	Surface Water Hydrologic Unit	Proj. ID	Project	Million Gallons per Day (MGD) 2015	2016	2017	2018	2019	2024	2029	2034
MASTERPLAN											
Maui	Waiakoa	DHL-120	Puunene (Non-Potable)	0.0000	1.8564	1.8564	1.8564	1.8564	1.8564	1.8564	1.8564
Oahu	Kiikii	ADC-001	Alternative 2: Wahiawa WWTP R-1 & Lake Wilson - North Fork	0.0000	4.1690	4.1690	4.1690	4.1690	4.1690	4.1690	4.1690
Oahu	Kiikii	OHA-008	Kukaniloko (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	1.0000
			MASTERPLAN - Subtotal	**0.0000**	**6.0254**	**6.0254**	**6.0254**	**6.0254**	**7.0254**	**7.0254**	**7.0254**
NEWSS											
Hawaii	Kiholo	DAG-014	West Hawaii Veteran's Cemetery	0.0000	0.0000	0.0000	0.0000	0.3100	0.3100	0.3100	0.3100
			NEWSS - Subtotal	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.3100**	**0.3100**	**0.3100**	**0.3100**
NEWSWS											
Hawaii	Hilea	DHL-103	Waiohinu (Non-Potable 1)	0.0000	0.1275	0.1275	0.1275	0.1275	0.3876	0.3876	0.3876
Hawaii	Naalehu	DHL-104	Waiohinu (Non-Potable 2)	0.0000	0.1275	0.1275	0.1275	0.1275	0.3876	0.3876	0.3876
Kauai	Anahola	DHL-106	Anahola (Non-Potable 2)	0.4097	0.7820	0.7820	0.7820	0.7820	1.2799	1.2799	1.2799
Kauai	Kapaa	DHL-107	Anahola (Non-Potable 3)	0.4097	0.7820	0.7820	0.7820	0.7820	1.2799	1.2799	1.2799
			NEWSWS - Subtotal	**0.8194**	**1.8190**	**1.8190**	**1.8190**	**1.8190**	**3.3350**	**3.3350**	**3.3350**
NONE - AMBIENT MOISTURE											
Kauai	Kukamahu	DHL-108	Hanapepe (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2924
			NONE - AMBIENT MOISTURE - Subtotal	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2924**

Water Strategies

Island	Surface Water Hydrologic Unit	Proj. ID	Project	Million Gallons per Day (MGD) 2015	2016	2017	2018	2019	2024	2029	2034
NONE - AMBIENT RAINFALL											
Hawaii	Paheehee	DHL-094	Honomu-Kuhua (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	0.8500	1.1305	1.1305
Hawaii	Honomu	DHL-095	Honomu-Kuhua (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.8500	1.1305	1.1305
Hawaii	Wailuku	DHL-099	Lower Piihonua (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.5946
Hawaii	Honokaia	DHL-093	Honokaia, Kamoku-Kapulena, Nienie (Non-Potable)	0.0000	0.1700	0.1700	0.1700	0.1700	1.0200	1.6116	1.6550
Hawaii	Kaahakini	DHL-098	Keaukaha, Waiakea-Panaewa (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.3838
Hawaii	Wailuku	DHL-097	Humuula-Piihonua (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.4000
Hawaii	Kaahakini	DHL-100	Makuu-Keonepoko (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.3830
Kauai	Anahola	DHL-105	Anahola (Non-Potable 1)	0.0000	2.5959	2.5959	2.5959	2.5959	2.5959	2.5959	2.5959
Kauai	Moloaa	DHL-110	Moloaa (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.6800
Maui	Honomaele	DHL-123	Wakiu (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2086
Maui	Kawaipapa	DHL-124	Wakiu (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0464
Maui	Piinaau	DHL-117	Keanae (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.3128	0.3128	0.3128
Maui	Waiokamilo	DHL-122	Wailua (Non-Potable 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.1802	0.1802	0.1802
			NONE - AMBIENT RAINFALL - Subtotal	**0.0000**	**2.7659**	**2.7659**	**2.7659**	**2.7659**	**5.8089**	**6.9615**	**17.7013**

Water Strategies

Island	Surface Water Hydrologic Unit	Proj. ID	Project	Million Gallons per Day (MGD) 2015	2016	2017	2018	2019	2024	2029	2034
OTHER - CATCHMENT											
Oahu	Kaloi	DOD-003	Kalaeloa AASF (Non-Potable)	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
			OTHER - CATCHMENT - Subtotal	**0.0000**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
OTHER - RECYCLED											
Oahu	Kaloi	DOD-001	Kalaeloa Brigade Readiness Center (Non-Potable)	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Oahu	Kaloi	UHW-002	University of Hawaii - West Oahu - Long Range Master Plan (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000
			OTHER - RECYCLED - Subtotal	**0.0010**	**0.0010**	**0.0010**	**0.0010**	**0.0010**	**0.0010**	**0.0010**	**0.5010**
OTHER - SEAWATER											
Hawaii	Keahole	DBT-001	Ongoing NELHA Expansion (Non-Potable)	0.0000	0.0000	3.3625	6.7006	10.0179	13.3175	35.9561	35.9561
			OTHER - SEAWATER - Subtotal	**0.0000**	**0.0000**	**3.3625**	**6.7006**	**10.0179**	**13.3175**	**35.9561**	**35.9561**
OTHER - SPRING SOURCES											
Oahu	Kaupuni	DHL-128	Kaala Farm (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	7.2750	7.2750
			OTHER - SPRING SOURCES - Subtotal	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**7.2750**	**7.2750**
OTHER - STREAM DIVERSION											
Hawaii	Wailuku	DHL-096	Humuula-Piihonua (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.9720
Hawaii	Waimanu	DHL-102	Waimanu (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	15.0000
Kauai	Moloaa	DHL-109	Moloaa (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.2500	2.2500
Kauai	Hoea	DHL-113	Waimea (Non-Potable 2)	0.0000	13.3500	13.3500	13.3500	13.3500	13.3500	13.3500	13.3500

Water Strategies

Island	Surface Water Hydrologic Unit	Proj. ID	Project	Million Gallons per Day (MGD) 2015	2016	2017	2018	2019	2024	2029	2034
Maui	Piinaau	DHL-116	Keanae (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	4.2750	4.2750	4.2750
Maui	Waiokamilo	DHL-121	Wailua (Non-Potable 1)	0.0000	0.0000	0.0000	0.0000	0.0000	2.1000	2.1000	2.1000
Oahu	Heeia	DHL-127	Haiku (Non-Potable)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	10.2750	10.2750
Oahu	Waiahole	DHL-129	Waiahole (Non-Potable)	0.0000	1.8000	1.8000	1.8000	1.8000	1.8000	1.8000	1.8000
			OTHER - STREAM DIVERSION - Subtotal	**0.0000**	**15.1500**	**15.1500**	**15.1500**	**15.1500**	**21.5250**	**34.0500**	**50.0220**
			TOTAL STATE (NON-POTABLE)	**0.9224**	**43.0398**	**46.4023**	**49.7404**	**53.3677**	**72.2699**	**116.6607**	**147.2754**

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APPENDIX O

Water System Development
Cost Estimates

Note: The cost estimates are based on current County connection fees and are to be used for budgeting purposes only.

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			Estimated County Water Department Charges ($)								Strategy Option
Island	**Project ID**	**Project Name**	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**	
Hawaii	DLN-013	Kealakekua Bay State Historic Park	$0	$0	$0	$0	$0	$0	$0	$16,500	REMAIN-HDWS
Hawaii	DAG-019	Hawai'i Community Correctional Center New Medium Security Housing	$0	$0	$0	$0	$0	$148,500	$0	$0	REMAIN-HDWS
Hawaii	DHL-001	Hilo Kanoelehua	$0	$0	$0	$0	$0	$495,000	$0	$0	REMAIN-HDWS
Hawaii	DHL-003	Honokaia, Kamoku-Kapulena, Ni'eni'e 2	$0	$0	$0	$0	$0	$0	$0	$4,141,500	REMAIN-HDWS
Hawaii	DHL-004	Honokōhau, Hawai'i	$0	$0	$0	$0	$0	$8,250,000	$0	$0	REMAIN-HDWS
Hawaii	DHL-005	Honokōhau, Keahuolū, Kealakehe	$0	$4,499,000	$0	$0	$0	$0	$0	$2,513,500	REMAIN-HDWS
Hawaii	DHL-006	Honomū-Kuhua	$0	$0	$0	$0	$0	$550,000	$594,000	$0	REMAIN-HDWS
Hawaii	DHL-008	Kalaoa	$0	$0	$0	$0	$0	$0	$1,556,500	$0	REMAIN-HDWS
Hawaii	DHL-009	Kalaoa, Kaone	$0	$5,362,500	$0	$0	$0	$0	$0	$0	REMAIN-HDWS
Hawaii	DHL-010	Kalaoa, Kona	$0	$5,500,000	$0	$0	$0	$0	$0	$0	REMAIN-HDWS
Hawaii	DHL-011	Kamaō'a-Pu'u'eo	$0	$199,250	$0	$0	$0	$627,000	$0	$291,500	REMAIN-HDWS
Hawaii	DHL-012	Kamaō'a-Pu'u'eo (Non-Potable Using Potable)	$0	$5,395,500	$0	$0	$0	$1,072,500	$0	$0	REMAIN-HDWS
Hawaii	DHL-014	Kawaihae Harbor	$0	$0	$0	$0	$0	$0	$825,000	$0	REMAIN-HDWS
Hawaii	DHL-016	Keaukaha, Waiākea-Pana'ewa	$0	$1,045,000	$0	$0	$0	$0	$0	$17,325,000	REMAIN-HDWS
Hawaii	DHL-017	Keoniki (Non-Potable Using Potable)	$0	$0	$0	$0	$0	$0	$0	$27,500	REMAIN-HDWS
Hawaii	DHL-025	Lālāmilo, Pauahi, Keoniki 2	$0	$0	$0	$0	$0	$126,500	$0	$55,000	REMAIN-HDWS
Hawaii	DHL-026	Lower Pi'ihonua	$0	$0	$0	$0	$0	$0	$0	$1,925,000	REMAIN-HDWS
Hawaii	DHL-028	Old Hilo Airport	$0	$0	$0	$0	$0	$495,000	$0	$0	REMAIN-HDWS
Hawaii	DHL-030	Pu'ukapu 2	$1,166,000	$0	$0	$0	$0	$0	$5,417,500	$715,000	REMAIN-HDWS
Hawaii	DHL-031	Upolu Point	$0	$0	$0	$0	$0	$0	$2,035,000	$0	REMAIN-HDWS
Hawaii	DHL-032	Villages of La'i 'Ōpua	$1,100,000	$275,000	$0	$0	$0	$1,375,000	$1,375,000	$1,375,000	REMAIN-HDWS
Hawaii	DAG-002	Hawai'i Community Correctional Center New Intake Unit	$0	$0	$0	$82,500	$0	$0	$0	$0	REMAIN-HDWS
Hawaii	DAG-012	Puna Public Library Planning	$0	$0	$0	$0	$0	$187,000	$0	$0	REMAIN-HDWS
Hawaii	DAG-015	West Hawai'i Veterans Center	$0	$0	$0	$0	$0	$209,000	$0	$0	REMAIN-HDWS
Hawaii	DLN-005	DLNR Community Center & Admin Facility	$0	$0	$0	$0	$55,000	$0	$0	$0	REMAIN-HDWS
Hawaii	DOE-010	Chiefess Kapi'olani Elementary School - 4 Classroom Building	$0	$0	$0	$0	$0	$0	$5,500	$0	REMAIN-HDWS
Hawaii	DOE-011	DeSilva Elementary School - New Administration Building	$0	$0	$0	$0	$0	$0	$5,500	$0	REMAIN-HDWS
Hawaii	DOE-012	DeSilva Elementary School - 4 Classroom Building	$0	$0	$0	$0	$0	$0	$5,500	$0	REMAIN-HDWS
Hawaii	DOE-018	Ha'aheo Elementary School New Cafeteria	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-019	Ha'aheo Elementary School New 4 Classroom Building	$0	$0	$0	$0	$0	$0	$5,500	$5,500	REMAIN-HDWS
Hawaii	DOE-020	Ha'aheo Elementary School New Library	$0	$0	$0	$0	$0	$0	$11,000	$5,500	REMAIN-HDWS
Hawaii	DOE-026	Hilo High School - New Administration Building	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-027	Hilo High School - 4 Classroom Building	$0	$0	$0	$0	$0	$0	$99,000	$0	REMAIN-HDWS
Hawaii	DOE-028	Hilo Intermediate School - Building A Renovation Phase 1	$0	$0	$0	$0	$0	$0	$0	$0	REMAIN-HDWS
Hawaii	DOE-029	Hilo Union Elementary School - New 6 Classroom Building	$0	$0	$0	$0	$0	$0	$5,500	$0	REMAIN-HDWS
Hawaii	DOE-033	Holualoa Elementary School New 6 Classroom Building	$0	$0	$0	$0	$0	$0	$148,500	$0	REMAIN-HDWS

			Estimated County Water Department Charges ($)								Strategy Option
Island	**Project ID**	**Project Name**	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**	
Hawaii	DOE-034	Holualoa Elementary School New Library/Administration	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-035	Hōnaunau Elementary School New Cafeteria	$0	$0	$0	$0	$0	$0	$16,500	$0	REMAIN-HDWS
Hawaii	DOE-036	Hōnaunau Elementary School New Library/Administration	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-037	Honoka'a Elementary School New Administration	$0	$0	$0	$0	$0	$0	$5,500	$0	REMAIN-HDWS
Hawaii	DOE-038	Honoka'a Elementary School New 4 Classroom	$0	$0	$0	$0	$0	$0	$99,000	$0	REMAIN-HDWS
Hawaii	DOE-039	Honoka'a High School New 15 Classroom	$0	$0	$0	$0	$0	$0	$16,500	$0	REMAIN-HDWS
Hawaii	DOE-040	Honoka'a High School New 6 Classroom	$0	$0	$0	$0	$0	$0	$5,500	$5,500	REMAIN-HDWS
Hawaii	DOE-042	Ho'okena Elementary School New Administration	$0	$0	$0	$0	$0	$0	$5,500	$0	REMAIN-HDWS
Hawaii	DOE-043	Ho'okena Elementary School New Cafeteria	$0	$0	$0	$0	$0	$0	$16,500	$0	REMAIN-HDWS
Hawaii	DOE-044	Ho'okena Elementary School New 8 Classroom	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-045	Ho'okena Elementary School New Library	$0	$0	$0	$0	$0	$0	$22,000	$0	REMAIN-HDWS
Hawaii	DOE-063	Kalaniana'ole Elementary School - 8 Classroom Building	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-064	Kalaniana'ole Elementary School New Library	$0	$0	$0	$0	$0	$0	$11,000	$5,500	REMAIN-HDWS
Hawaii	DOE-072	Ka'ū High School and Pahala Elementary School 10 Classroom Building	$0	$0	$0	$0	$0	$0	$247,500	$0	REMAIN-HDWS
Hawaii	DOE-073	Ka'ū High School and Pahala Elementary School 12 Classroom Building	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-074	Ka'ū High School and Pahala Elementary School 3 Classroom Building	$0	$0	$0	$0	$0	$0	$5,500	$0	REMAIN-HDWS
Hawaii	DOE-077	Kaūmana Elementary School - New 4 Classroom	$0	$0	$0	$0	$0	$0	$99,000	$0	REMAIN-HDWS
Hawaii	DOE-079	Kea'au Intermediate School New Administration	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-080	Kea'au Intermediate School New Band Building	$0	$0	$0	$0	$0	$0	$5,500	$0	REMAIN-HDWS
Hawaii	DOE-081	Kealakehe Elementary School New Library/Administration	$0	$0	$0	$0	$0	$0	$11,000	$5,500	REMAIN-HDWS
Hawaii	DOE-082	Kealakehe Elementary School New 8 Classroom	$0	$0	$0	$0	$0	$11,000	$0	$0	REMAIN-HDWS
Hawaii	DOE-083	Kealakehe Elementary School - Playfield/Retention Basion (Non-Potable using Potable)	$0	$0	$0	$0	$0	$0	$165,000	$0	REMAIN-HDWS
Hawaii	DOE-084	Kealakehe High School New 13 Classroom	$0	$0	$0	$0	$0	$16,500	$0	$0	REMAIN-HDWS
Hawaii	DOE-085	Kealakehe II Elementary School	$0	$0	$0	$0	$0	$0	$825,000	$0	REMAIN-HDWS
Hawaii	DOE-086	Kealakehe Intermediate School New 8 Classroom	$0	$0	$0	$0	$0	$0	$198,000	$0	REMAIN-HDWS
Hawaii	DOE-087	Keaukaha Elementary School New Library/Administration	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-088	Keonepoko Elementary School New 4 Classroom	$0	$0	$0	$0	$0	$0	$99,000	$0	REMAIN-HDWS
Hawaii	DOE-089	Keonepoko Elementary School New Library/Administration	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-099	Kohala Elementary School New Library/Administration	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-100	Kohala High School New 4 Classroom	$0	$0	$0	$0	$0	$0	$5,500	$0	REMAIN-HDWS
Hawaii	DOE-101	Kohala High School New Music Building	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-102	Kohala High School New Auto/Tech Shop	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-106	Konawaena High School New Library	$0	$0	$0	$0	$0	$0	$16,500	$0	REMAIN-HDWS

			Estimated County Water Department Charges ($)								Strategy Option
Island	**Project ID**	**Project Name**	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**	
Hawaii	DOE-107	Konawaena Intermediate School New Administration	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-108	Konawaena Intermediate School New PE Lockers & Showers	$0	$0	$0	$0	$0	$0	$16,500	$0	REMAIN-HDWS
Hawaii	DOE-109	Konawaena Intermediate School Renovate 17 Classrooms	$0	$0	$0	$0	$0	$0	$22,000	$0	REMAIN-HDWS
Hawaii	DOE-110	Konawaena Intermediate School Renovate 12 Classrooms	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-120	Laupāhoehoe High School & Elementary School New Band/Chorus	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-141	Mountain View Elementary School New Administration	$0	$0	$0	$0	$0	$0	$5,500	$0	REMAIN-HDWS
Hawaii	DOE-142	Mountain View Elementary School New Cafeteria	$0	$0	$0	$0	$0	$0	$44,000	$0	REMAIN-HDWS
Hawaii	DOE-143	Mountain View Elementary School New 12 Classroom	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-144	Nā'ālehu Elementary School New Library	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-147	Pāhoa Elementary School New Administration	$0	$0	$0	$0	$0	$0	$5,500	$0	REMAIN-HDWS
Hawaii	DOE-148	Pāhoa Elementary School New 10 Classroom	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-149	Pāhoa High School New Administration	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-160	Waiākea Elementary School New Library/Administration	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-161	Waiākea Intermediate School New PE Locker/Shower	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-162	Waiākeawaena Elementary School New Cafeteria	$0	$0	$0	$0	$0	$0	$44,000	$0	REMAIN-HDWS
Hawaii	DOE-176	Waimea Elementary School 2nd Increment	$0	$0	$0	$0	$0	$0	$0	$0	REMAIN-HDWS
Hawaii	DOE-179	Waimea Intermediate School New 8 Classroom	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOE-180	Waimea Intermediate School New Music Building	$0	$0	$0	$0	$0	$0	$5,500	$0	REMAIN-HDWS
Hawaii	DOE-181	Waimea Intermediate School New PE Locker/Shower	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOT-004	KOA Subdivision (Kona Airport)	$0	$0	$0	$0	$0	$3,146,000	$286,000	$22,000	REMAIN-HDWS
Hawaii	DOT-008	Hilo Pier 4	$0	$0	$5,500	$0	$0	$0	$0	$0	REMAIN-HDWS
Hawaii	DOT-009	Radio Bay Cargo Yard	$0	$0	$0	$0	$0	$0	$0	$5,500	REMAIN-HDWS
Hawaii	DOT-018	Kawaihae Cargo Terminal	$0	$0	$0	$0	$0	$0	$0	$11,000	REMAIN-HDWS
Hawaii	DOT-019	Kawaihae Pier Extensions	$0	$0	$0	$0	$0	$0	$11,000	$0	REMAIN-HDWS
Hawaii	DOT-023	Saddle Road Baseyard	$0	$0	$0	$55,000	$0	$0	$0	$0	REMAIN-HDWS
Hawaii	UHC-001	Hawai'i Community College - Palamanui, Phase II	$0	$0	$0	$38,500	$0	$0	$0	$0	REMAIN-HDWS
Hawaii	DHL-033	Waiākea Expansion	$0	$0	$0	$0	$0	$3,850,000	$0	$0	REMAIN-HDWS
Hawaii	DHL-035	Wai'ōhinu	$0	$137,500	$0	$0	$0	$280,500	$0	$0	REMAIN-HDWS
		Total REMAIN - Hawai'i DWS	**$2,266,000**	**$22,413,750**	**$5,500**	**$176,000**	**$55,000**	**$20,839,500**	**$14,668,500**	**$28,451,500**	
Kauai	DAG-016	Kaua'i Community Correctional Center New Medium Security Housing	$0	$0	$0	$0	$0	$296,415	$0	$0	REMAIN-KDOW
Kauai	DAG-005	Kaua'i Community Correctional Center New Segregation Housing	$0	$0	$84,690	$0	$0	$0	$0	$0	REMAIN-KDOW
Kauai	DAG-006	Kaua'i Community Correctional Center Restroom and Shower Improv.	$0	$0	$127,035	$0	$0	$0	$0	$0	REMAIN-KDOW
Kauai	DLN-001	DLNR West Kaua'i Field Operations Facility	$0	$0	$0	$0	$0	$1,129,200	$0	$0	REMAIN-KDOW

			Estimated County Water Department Charges ($)								Strategy Option
Island	**Project ID**	**Project Name**	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**	
Kauai	DOE-066	Kapa'a Elementary School New Administration	$0	$0	$0	$0	$0	$0	$14,115	$0	REMAIN-KDOW
Kauai	DOE-067	Kapa'a Elementary School New Library	$0	$0	$0	$0	$0	$0	$14,115	$0	REMAIN-KDOW
Kauai	DOE-068	Kapa'a High School New Administration	$0	$0	$0	$0	$0	$0	$14,115	$0	REMAIN-KDOW
Kauai	DOE-069	Kapa'a II Elementary School	$0	$0	$0	$0	$0	$0	$0	$1,693,800	REMAIN-KDOW
Kauai	DOE-092	Kīlauea Elementary School New Administration	$0	$0	$0	$0	$0	$0	$14,115	$0	REMAIN-KDOW
Kauai	DOE-093	Kīlauea Elementary School New Library	$0	$0	$0	$0	$0	$0	$14,115	$0	REMAIN-KDOW
Kauai	DOE-096	King Kaumuali'i Elementary School Administration Building	$0	$0	$0	$0	$0	$0	$14,115	$0	REMAIN-KDOW
Kauai	DOE-103	Kōloa Elementary School New 6 Classroom (Non-Potable using Potable)	$0	$0	$0	$0	$0	$0	$211,725	$0	REMAIN-KDOW
Kauai	DOE-104	Kōloa Elementary School New 6 Classroom (Potable)	$0	$0	$0	$0	$0	$0	$112,920	$0	REMAIN-KDOW
Kauai	DOE-105	Kōloa II Elementary School	$0	$0	$0	$0	$0	$0	$0	$1,693,800	REMAIN-KDOW
Kauai	DOE-123	Līhu'e 1 New School (Non-Potable using Potable)	$0	$0	$0	$0	$0	$0	$0	$1,693,800	REMAIN-KDOW
Kauai	DOE-177	Waimea High School New Library	$0	$0	$0	$0	$0	$0	$28,230	$0	REMAIN-KDOW
Kauai	DOE-178	Waimea High School Revovation Bldg. C & H	$0	$0	$0	$0	$0	$0	$28,230	$0	REMAIN-KDOW
Kauai	DOT-005	LIH ConRAC	$0	$0	$0	$0	$0	$0	$0	$1,496,190	REMAIN-KDOW
Kauai	DOT-020	Nāwiliwili Hawaii Gas	$0	$0	$0	$296,415	$0	$0	$0	$0	REMAIN-KDOW
Kauai	DOT-021	Nāwiliwili Kauai Petroleum Fuel Terminal	$0	$0	$0	$225,840	$0	$0	$0	$0	REMAIN-KDOW
Kauai	OHA-007	Kekaha Armory	$0	$42,345	$0	$0	$0	$0	$0	$0	REMAIN-KDOW
Kauai	UHC-005	Kauaʻi Community College - Food Innovation Center	$0	$0	$0	$0	$70,575	$0	$0	$14,115	REMAIN-KDOW
Kauai	UHC-006	Kauaʻi Community College - Imu	$0	$0	$0	$70,575	$0	$0	$0	$0	REMAIN-KDOW
Kauai	DHL-038	Anahola 3	$0	$0	$0	$0	$0	$0	$20,382,060	$12,138,900	REMAIN-KDOW
Kauai	DHL-041	Kapa'a	$0	$1,806,720	$0	$0	$0	$0	$0	$98,805	REMAIN-KDOW
Kauai	DHL-042	Kekaha	$0	$0	$0	$0	$0	$0	$1,355,040	$691,635	REMAIN-KDOW
		Total REMAIN - Kauaʻi DOW	**$0**	**$1,849,065**	**$211,725**	**$592,830**	**$70,575**	**$1,425,615**	**$22,202,895**	**$19,521,045**	
Maui	JUD-003	Maui Judiciary Complex - Potable	$0	$0	$0	$0	$0	$180,900	$0	$0	REMAIN-MDWS
Maui	JUD-004	Maui Judiciary Complex - Non-Potable (Using Potable)	$0	$0	$0	$0	$0	$132,660	$0	$0	REMAIN-MDWS
Maui	DAG-018	Maui Community Correctional Center New Medium Security Housing	$0	$0	$0	$0	$0	$120,600	$0	$0	REMAIN-MDWS
Maui	DAG-009	Maui Regional Public Safety Complex	$0	$0	$0	$0	$0	$0	$5,668,200	$0	REMAIN-MDWS
Maui	DAG-010	Maui Veterans Cemetery Expansion and Improvements	$0	$0	$0	$808,020	$0	$0	$0	$0	REMAIN-MDWS
Maui	DOE-008	Central Maui Middle School (New School)	$0	$0	$0	$0	$0	$0	$2,014,020	$0	REMAIN-MDWS
Maui	DOE-021	Haʻikū Elementary School New 6 Classroom	$0	$0	$0	$0	$0	$0	$24,120	$0	REMAIN-MDWS
Maui	DOE-022	Hāna High School & Elementary School New Administration	$0	$0	$0	$0	$0	$0	$24,120	$0	REMAIN-MDWS
Maui	DOE-030	Hawaiian Language Immersion Program (HLIP) Maui - New School	$0	$0	$0	$0	$0	$0	$1,206,000	$0	REMAIN-MDWS
Maui	DOE-048	ʻĪao Intermediate School New 12 Classroom (Armory)	$0	$0	$0	$0	$0	$0	$434,160	$0	REMAIN-MDWS
Maui	DOE-049	ʻĪao Intermediate School New 8 Classroom	$0	$0	$0	$0	$0	$0	$253,260	$0	REMAIN-MDWS
Maui	DOE-061	Kalama Intermediate School New Administration	$0	$0	$0	$0	$0	$0	$24,120	$0	REMAIN-MDWS
Maui	DOE-090	Kīhei Elementary School New Administration	$0	$0	$0	$0	$0	$0	$24,120	$0	REMAIN-MDWS
Maui	DOE-091	Kīhei High School (New School)	$0	$0	$0	$0	$0	$0	$2,412,000	$0	REMAIN-MDWS
Maui	DOE-097	King Kekaulike High School New 6 Class	$0	$0	$0	$0	$0	$0	$217,080	$0	REMAIN-MDWS
Maui	DOE-113	Lahaina III Elementary School	$0	$0	$0	$0	$0	$0	$1,206,000	$0	REMAIN-MDWS
Maui	DOE-114	Lahaina Intermediate School New Administration	$0	$0	$0	$0	$0	$0	$24,120	$0	REMAIN-MDWS
Maui	DOE-115	Lahaina Intermediate School New 8 Classroom	$0	$0	$0	$0	$0	$0	$289,440	$0	REMAIN-MDWS
Maui	DOE-116	Lahaina Intermediate School New Library	$0	$0	$0	$0	$0	$0	$24,120	$0	REMAIN-MDWS

			Estimated County Water Department Charges ($)								Strategy Option
Island	**Project ID**	**Project Name**	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**	
Maui	DOE-117	Lahaina Inter. School Locker/Shower Facility & Playfield (Non-Potable using Potable)	$0	$0	$0	$0	$0	$0	$144,720	$0	REMAIN-MDWS
Maui	DOE-118	Lahaina Inter. School Locker/Shower Facility & Playfield (Potable)	$0	$0	$0	$0	$0	$0	$24,120	$0	REMAIN-MDWS
Maui	DOE-119	Lahainaluna High School New 8 Classroom	$0	$0	$0	$0	$0	$289,440	$0	$0	REMAIN-MDWS
Maui	DOE-125	Lokelani Intermediate School New Admin	$0	$0	$0	$0	$0	$0	$24,120	$0	REMAIN-MDWS
Maui	DOE-126	Lokelani Intermediate School New Cafeteria	$0	$0	$0	$0	$0	$0	$60,300	$0	REMAIN-MDWS
Maui	DOE-127	Lokelani Intermediate School New Class	$0	$0	$0	$0	$0	$0	$217,080	$0	REMAIN-MDWS
Maui	DOE-130	Makawao Elementary School 12 Classroom Building	$0	$0	$0	$0	$0	$0	$434,160	$0	REMAIN-MDWS
Maui	DOE-131	Makawao Elementary School 8 Classroom Building	$0	$0	$0	$0	$0	$0	$289,440	$0	REMAIN-MDWS
Maui	DOE-145	Nāhi'ena'ena Elementary School New Library/Admin	$0	$0	$0	$0	$0	$0	$36,180	$0	REMAIN-MDWS
Maui	DOE-150	Pā'ia Elementary School New Administration	$0	$0	$0	$0	$0	$0	$12,060	$0	REMAIN-MDWS
Maui	DOE-153	Pukalani Elementary School - Administration/Library/Renovate 4 Classrooms	$0	$0	$0	$0	$0	$0	$144,720	$0	REMAIN-MDWS
Maui	DOE-155	Pu'ukoli'i Elementary School 1st Increment (New School)	$0	$0	$0	$0	$0	$0	$0	$603,000	REMAIN-MDWS
Maui	DOE-156	Pu'ukoli'i Elementary School 2nd Increment (New School)	$0	$0	$0	$0	$0	$0	$0	$603,000	REMAIN-MDWS
Maui	DOE-171	Waihe'e Elementary School New Admin	$0	$0	$0	$0	$0	$0	$24,120	$0	REMAIN-MDWS
Maui	DOE-172	Waihe'e Elementary School New 8 Classroom	$0	$0	$0	$0	$0	$0	$289,440	$0	REMAIN-MDWS
Maui	DOE-173	Waihe'e Elementary School - Playfield/Water Retention Basin (Non-Potable using Potable)	$0	$0	$0	$0	$0	$0	$108,540	$0	REMAIN-MDWS
Maui	DLN-010	Pulehunui Baseyard	$0	$0	$0	$0	$0	$0	$494,460	$0	REMAIN-MDWS
Maui	DOT-006	OGG ConRAC	$0	$0	$0	$0	$0	$0	$0	$1,374,840	REMAIN-MDWS
Maui	DOT-007	OGG Subdivision	$0	$0	$0	$0	$0	$0	$0	$1,531,620	REMAIN-MDWS
Maui	DOT-012	Kahului Cargo Yard With Amenities	$0	$0	$0	$0	$0	$0	$120,600	$0	REMAIN-MDWS
Maui	DOT-013	Kahului Hawaiian Cement Relocation	$0	$0	$0	$0	$0	$60,300	$0	$0	REMAIN-MDWS
Maui	DOT-014	Kahului Harbor New Office	$0	$0	$12,060	$0	$0	$0	$0	$0	REMAIN-MDWS
Maui	DOT-022	Honoapi'ilani Hwy (Lahaina Bypass) Ph. 1C - Keawe St. Ext. to Kaanapali Connector	$0	$0	$0	$0	$0	$0	$603,000	$0	REMAIN-MDWS
Maui	OHA-011	Palau'ea Cultural Preserve	$0	$60,300	$0	$0	$36,180	$0	$0	$0	REMAIN-MDWS
Maui	UHC-009	Maui College - Hospitality Academy Renovation	$0	$0	$12,060	$0	$0	$0	$0	$0	REMAIN-MDWS
Maui	UHC-011	Maui College - Pilina Kitchen	$0	$0	$0	$36,180	$0	$0	$0	$0	REMAIN-MDWS
Maui	DOT-024	Hana Highway Pā'ia Bypass - Pā'ia Relief Route	$0	$0	$0	$0	$0	$5,788,800	$0	$0	REMAIN-MDWS
Maui	DHL-055	Ke'anae	$0	$0	$0	$0	$0	$72,360	$0	$0	REMAIN-MDWS
Maui	DHL-060	Paukūkalo	$0	$72,360	$0	$0	$0	$0	$0	$0	REMAIN-MDWS
Maui	DHL-062	'Ulupalakua	$0	$0	$0	$0	$0	$0	$0	$72,360	REMAIN-MDWS
Maui	DHL-063	Waiehu	$0	$349,740	$0	$0	$0	$0	$0	$0	REMAIN-MDWS
Maui	DHL-064	Wākiu	$0	$0	$0	$0	$0	$663,300	$482,400	$1,230,120	REMAIN-MDWS
Molokai	DOE-078	Kaunakakai Elementary School New 8 Classroom	$0	$0	$0	$0	$0	$0	$24,120	$0	REMAIN-MDWS
Molokai	DOE-094	Kilohana Elementary School New Cafeteria	$0	$0	$0	$0	$0	$0	$12,060	$0	REMAIN-MDWS
Molokai	DOE-095	Kilohana Elementary School New Library	$0	$0	$0	$0	$0	$0	$24,120	$0	REMAIN-MDWS
Molokai	UHC-010	Maui College - Moloka'i Education Center	$0	$0	$0	$12,060	$0	$0	$0	$0	REMAIN-MDWS
Molokai	DHL-068	Kapa'akea, Kamiloloa, Makakupai'a	$0	$0	$0	$0	$0	$0	$3,449,160	$0	REMAIN-MDWS
Molokai	DHL-069	'Ualapu'e	$0	$0	$0	$0	$0	$566,820	$434,160	$0	REMAIN-MDWS
		Total REMAIN - Maui DWS	**$0**	**$4,180,530**	**$447,570**	**$2,041,920**	**$177,330**	**$10,726,410**	**$65,703,750**	**$44,457,030**	
Oahu	DOT-025	Kalaeloa Fuel Pier	$0	$0	$0	$0	$0	$215,225	$0	$0	REMAIN-HBWS
Oahu	JUD-001	O'ahu Judiciary Proxy - Potable	$0	$0	$0	$0	$0	$0	$0	$93,043	REMAIN-HBWS
Oahu	JUD-002	O'ahu Judiciary Proxy - Non-Potable (Using Potable)	$0	$0	$0	$0	$0	$0	$0	$0	REMAIN-HBWS

			Estimated County Water Department Charges ($)								Strategy Option
Island	**Project ID**	**Project Name**	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**	
Oahu	DAG-001	Creative Media, Film, and Production Facility Planning	$0	$0	$0	$0	$0	$167,010	$0	$0	REMAIN-HBWS
Oahu	DAG-004	Judiciary Multi-Use & HHFDC Housing Joint Development	$0	$0	$0	$0	$0	$2,433,678	$0	$0	REMAIN-HBWS
Oahu	DAG-008	Liliha Civic Center	$0	$0	$0	$0	$0	$0	$645,623	$0	REMAIN-HBWS
Oahu	DAG-011	O'ahu Community Correctional Center Relocation & Expansion	$0	$0	$0	$0	$0	$2,621,058	$0	$0	REMAIN-HBWS
Oahu	DHS-001	Kuhio Park Redevelopment (Excluding Towers & Community Bldg)	$0	$0	$0	$0	$0	$991,950	$0	$0	REMAIN-HBWS
Oahu	DHS-002	Mayor Wright Homes	$0	$0	$0	$0	$0	$0	$0	$0	REMAIN-HBWS
Oahu	DHS-003	HPHA School Street Campus Redevelopment	$0	$0	$0	$0	$0	$899,790	$0	$0	REMAIN-HBWS
Oahu	DLN-003	Mālaekahana SRA, Kahuku Section Park Improvements	$0	$0	$1,748,270	$0	$0	$0	$0	$0	REMAIN-HBWS
Oahu	DOE-001	'Aiea High School Library Expansion	$0	$0	$0	$0	$0	$0	$19,422	$0	REMAIN-HBWS
Oahu	DOE-002	'Aiea High School Applied Technology Center	$0	$0	$0	$0	$0	$0	$15,900	$0	REMAIN-HBWS
Oahu	DOE-003	Campbell High School New 27 Classroom Building	$0	$0	$0	$672,487	$0	$0	$0	$0	REMAIN-HBWS
Oahu	DOE-004	Castle High School Cafeteria Expansion	$0	$0	$0	$0	$0	$0	$84,983	$0	REMAIN-HBWS
Oahu	DOE-005	Central Intermediate - Renovate Bldg A Ph 1 15 Classroom	$0	$0	$0	$0	$0	$0	$24,508	$0	REMAIN-HBWS
Oahu	DOE-006	Central Intermediate - Renovate Bldg C 16 Classroom	$0	$0	$0	$0	$0	$0	$30,900	$0	REMAIN-HBWS
Oahu	DOE-007	Central Middle School - Renovate Cafeteria	$0	$0	$0	$0	$0	$0	$32,204	$0	REMAIN-HBWS
Oahu	DOE-009	Central O'ahu High School	$0	$0	$0	$0	$0	$0	$0	$1,613,947	REMAIN-HBWS
Oahu	DOE-014	East Kapolei High School (New School)	$0	$0	$0	$0	$0	$0	$0	$1,613,947	REMAIN-HBWS
Oahu	DOE-016	'Ewa Makai Middle School New 25 Classroom Building	$0	$0	$0	$672,487	$0	$0	$0	$0	REMAIN-HBWS
Oahu	DOE-017	Farrington High School Campus Modernization	$0	$0	$0	$0	$0	$0	$0	$672,487	REMAIN-HBWS
Oahu	DOE-023	Helemano Elementary School New Library	$0	$0	$0	$0	$0	$0	$11,465	$0	REMAIN-HBWS
Oahu	DOE-031	Hawaiian Language Immersion Program (HLIP) New School	$0	$0	$0	$0	$0	$0	$0	$806,811	REMAIN-HBWS
Oahu	DOE-032	Holomua Elementary School New Classroom	$0	$0	$0	$0	$0	$0	$0	$672,487	REMAIN-HBWS
Oahu	DOE-041	Honowai Elementary School Phase 1B of Administrative Building	$0	$0	$0	$0	$0	$0	$9,379	$0	REMAIN-HBWS
Oahu	DOE-046	Ho'opili Elementary School New School	$0	$0	$0	$0	$0	$0	$0	$806,811	REMAIN-HBWS
Oahu	DOE-047	Ho'opili High School New School	$0	$0	$0	$0	$0	$0	$0	$1,613,947	REMAIN-HBWS
Oahu	DOE-050	Ka'a'awa Elementary School Cafeteria	$0	$0	$0	$0	$0	$0	$9,900	$0	REMAIN-HBWS
Oahu	DOE-051	Ka'a'awa Elementary School New Library/Adminstration	$0	$0	$0	$0	$0	$0	$17,335	$0	REMAIN-HBWS
Oahu	DOE-052	Ka'elepulu Elementary School, New Administration Building	$0	$0	$0	$0	$0	$0	$8,726	$0	REMAIN-HBWS
Oahu	DOE-053	Kahuku High School - Athletic Field (Non-Potable using Potable)	$0	$0	$0	$0	$0	$0	$0	$0	REMAIN-HBWS
Oahu	DOE-054	Kahuku Intermediate School & High School New Cafeteria	$0	$0	$0	$0	$0	$0	$93,043	$0	REMAIN-HBWS
Oahu	DOE-055	Kahuku Intermediate School & High School New Gymnasium	$0	$0	$0	$0	$0	$0	$58,119	$0	REMAIN-HBWS
Oahu	DOE-056	Kahuku Intermediate School & High School New PE Lockers & Showers	$0	$0	$0	$0	$0	$0	$11,335	$0	REMAIN-HBWS
Oahu	DOE-057	Kailua Elementary School Library Expansion	$0	$0	$0	$0	$0	$0	$11,465	$0	REMAIN-HBWS

			Estimated County Water Department Charges ($)								Strategy Option
Island	**Project ID**	**Project Name**	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**	
Oahu	DOE-058	Kainalu Elementary School New Admin	$0	$0	$0	$0	$0	$0	$8,726	$0	REMAIN-HBWS
Oahu	DOE-059	Kaka'ako Elementary New School	$0	$0	$0	$0	$0	$0	$806,811	$0	REMAIN-HBWS
Oahu	DOE-060	Kalūkaua Middle School - Renovate Bldgs G & H3 Classroom	$0	$0	$0	$0	$0	$0	$11,205	$0	REMAIN-HBWS
Oahu	DOE-062	Kalani High School Multipurpose Athletic Facility	$0	$0	$0	$0	$0	$0	$18,509	$0	REMAIN-HBWS
Oahu	DOE-065	Kamaile Elementary School New 8 Classroom	$0	$0	$0	$0	$0	$0	$193,733	$0	REMAIN-HBWS
Oahu	DOE-070	Kapolei High School New Classroom	$0	$0	$0	$0	$0	$268,954	$0	$0	REMAIN-HBWS
Oahu	DOE-071	Kapolei Middle School New Classroom	$0	$0	$0	$0	$0	$538,164	$0	$0	REMAIN-HBWS
Oahu	DOE-075	Kauluwela Elementary - 6 Classroom Bldg	$0	$0	$0	$0	$0	$0	$150,892	$0	REMAIN-HBWS
Oahu	DOE-076	Kauluwela Elementary - New Cafeteria	$0	$0	$0	$0	$0	$0	$25,422	$0	REMAIN-HBWS
Oahu	DOE-098	Koa Ridge Elementary School	$0	$0	$0	$0	$0	$0	$806,811	$0	REMAIN-HBWS
Oahu	DOE-112	Kunia Elementary School New School	$0	$0	$0	$0	$0	$0	$0	$806,811	REMAIN-HBWS
Oahu	DOE-121	Leihōkū Elementary School New 6 Classrooms	$0	$0	$0	$0	$0	$0	$150,892	$0	REMAIN-HBWS
Oahu	DOE-122	Leilehua High School New Science/Classroom Building	$0	$0	$0	$0	$0	$0	$150,892	$0	REMAIN-HBWS
Oahu	DOE-124	Linapuni Elementary School New Administration Building	$0	$0	$0	$0	$0	$0	$8,726	$0	REMAIN-HBWS
Oahu	DOE-128	Mākaha Elementary School New Library	$0	$0	$0	$0	$0	$0	$11,465	$0	REMAIN-HBWS
Oahu	DOE-129	Makalapa Elementary School - Admin and Renovation	$0	$0	$0	$0	$0	$0	$8,726	$0	REMAIN-HBWS
Oahu	DOE-134	McKinley High School - Renovate Industrial Arts Educ. Bldg 6 Classroom	$0	$0	$0	$0	$0	$0	$27,639	$0	REMAIN-HBWS
Oahu	DOE-135	Mililani Middle School New Classroom	$0	$0	$0	$0	$0	$0	$1,345,300	$0	REMAIN-HBWS
Oahu	DOE-136	Moanalua High School Performing Arts Center	$0	$0	$0	$0	$0	$0	$15,900	$0	REMAIN-HBWS
Oahu	DOE-146	Nānākuli High School New 8 Classroom	$0	$0	$0	$0	$0	$0	$193,733	$0	REMAIN-HBWS
Oahu	DOE-154	Pū'ōhala Elementary School Expansion of Library and Administration	$0	$0	$0	$0	$0	$0	$17,204	$0	REMAIN-HBWS
Oahu	DOE-157	Roosevelt High School - Renovate Bldg A Phase 1: Admin, Library, Cafeteria, 43 Classrooms	$0	$0	$0	$0	$0	$0	$113,818	$0	REMAIN-HBWS
Oahu	DOE-163	Waialua Elementary School New Administration	$0	$0	$0	$0	$0	$0	$8,726	$0	REMAIN-HBWS
Oahu	DOE-164	Wai'anae High School New Administration	$0	$0	$0	$0	$0	$0	$11,596	$0	REMAIN-HBWS
Oahu	DOE-165	Wai'anae High School New Cafeteria	$0	$0	$0	$0	$0	$0	$103,117	$0	REMAIN-HBWS
Oahu	DOE-166	Wai'anae Intermediate School New 4 Classroom	$0	$0	$0	$0	$0	$0	$101,102	$0	REMAIN-HBWS
Oahu	DOE-167	Waiau Elementary School Admin/Library	$0	$0	$0	$0	$0	$0	$17,335	$0	REMAIN-HBWS
Oahu	DOE-168	Waiawa I Elementary School 1st Increment	$0	$0	$0	$0	$0	$0	$0	$806,811	REMAIN-HBWS
Oahu	DOE-169	Waiawa Intermediate School 1st Increment	$0	$0	$0	$0	$0	$0	$0	$403,277	REMAIN-HBWS
Oahu	DOE-170	Waiawa Intermediate School 2nd Increment	$0	$0	$0	$0	$0	$0	$0	$403,277	REMAIN-HBWS
Oahu	DOE-175	Waimalu ES - Renovate Building A (6 Classrooms)	$0	$0	$0	$0	$0	$0	$10,161	$0	REMAIN-HBWS
Oahu	DOE-182	Waipahu High School New Cafeteria	$0	$0	$0	$0	$0	$0	$107,953	$0	REMAIN-HBWS
Oahu	DLN-008	Kawainui Baseyard	$0	$403,277	$0	$0	$0	$0	$0	$0	REMAIN-HBWS
Oahu	DOH-001	Hālawa Vector Control Facility Office Space and Accessibility Improvements	$0	$70,074	$0	$0	$0	$0	$0	$0	REMAIN-HBWS
Oahu	DOT-001	HNL ConRAC 2A	$0	$0	$0	$0	$0	$0	$0	$389,845	REMAIN-HBWS
Oahu	DOT-002	HNL ConRAC 2B	$0	$0	$0	$0	$0	$0	$0	$1,005,463	REMAIN-HBWS
Oahu	DOT-003	Honolulu Mauka Concourse	$0	$0	$0	$0	$0	$0	$0	$679,204	REMAIN-HBWS
Oahu	DOT-010	Potential Industrial Center/ 100 employees	$0	$0	$0	$0	$0	$618,758	$0	$0	REMAIN-HBWS
Oahu	DOT-011	Potential Residential/Hotel 250 units	$0	$0	$0	$0	$0	$213,945	$0	$0	REMAIN-HBWS
Oahu	DOT-015	Kalaeloa Potential Applicant A	$0	$0	$0	$0	$0	$0	$1,076,654	$0	REMAIN-HBWS

			Estimated County Water Department Charges ($)								Strategy Option
Island	**Project ID**	**Project Name**	**2015**	**2016**	**2017**	**2018**	**2019**	**2024**	**2029**	**2034**	
Oahu	DOT-016	Kalaeloa Potential Applicant B	$0	$0	$0	$0	$0	$0	$0	$806,811	REMAIN-HBWS
Oahu	DOT-017	Kalaeloa Potential Applicant C	$0	$0	$0	$0	$0	$0	$1,076,654	$0	REMAIN-HBWS
Oahu	HCD-001	630 Cooke Street Micro Unit Affordable Housing	$0	$0	$0	$0	$0	$178,277	$0	$0	REMAIN-HBWS
Oahu	HCD-002	690 Pohukaina	$0	$0	$0	$0	$0	$1,613,449	$0	$0	REMAIN-HBWS
Oahu	HCD-003	Ola Ka 'Ilima Artspace Lofts	$0	$0	$0	$0	$143,993	$0	$0	$0	REMAIN-HBWS
Oahu	OHA-001	Kaka'ako Makai - Parcel A	$0	$4,407	$4,602	$4,407	$4,407	$4,407	$162,454	$323,972	REMAIN-HBWS
Oahu	OHA-002	Kaka'ako Makai - Parcel B/C	$0	$8,320	$7,015	$7,015	$7,015	$7,015	$162,877	$324,174	REMAIN-HBWS
Oahu	OHA-003	Kaka'ako Makai - Parcel D	$0	$19,792	$19,792	$20,033	$20,181	$20,181	$20,181	$33,614	REMAIN-HBWS
Oahu	OHA-004	Kaka'ako Makai - Parcel E	$0	$14,841	$14,841	$15,082	$15,230	$15,230	$15,230	$619,685	REMAIN-HBWS
Oahu	OHA-005	Kaka'ako Makai - Parcel F/G	$1,798	$1,798	$1,798	$1,798	$1,798	$1,798	$0	$753,081	REMAIN-HBWS
Oahu	OHA-006	Kaka'ako Makai - Parcel I	$2,995	$2,995	$2,995	$2,995	$2,995	$2,995	$0	$1,678,422	REMAIN-HBWS
Oahu	OHA-009	Kūkaniloko (Potable)	$0	$0	$0	$14,841	$0	$586,910	$0	$0	REMAIN-HBWS
Oahu	OHA-010	Pahua Heiau	$0	$0	$15,900	$0	$0	$0	$0	$0	REMAIN-HBWS
Oahu	OHA-012	Waialua Court House	$0	$7,212	$0	$0	$0	$0	$0	$0	REMAIN-HBWS
Oahu	UHC-002	Honolulu Community College - Advanced Technology Training Center	$0	$0	$0	$0	$0	$14,935	$0	$0	REMAIN-HBWS
Oahu	UHC-003	Kapiʻolani Community College - Culinary Institute of the Pacific, Phase I	$0	$39,197	$0	$0	$0	$0	$0	$0	REMAIN-HBWS
Oahu	UHC-004	Kapiʻolani Community College - Culinary Institute of the Pacific, Phase II	$0	$0	$0	$39,197	$0	$0	$0	$0	REMAIN-HBWS
Oahu	UHC-007	Leeward Community College - Native Hawaiian Center for Excellence	$0	$0	$0	$6,431	$0	$0	$0	$0	REMAIN-HBWS
Oahu	UHC-008	Leeward Community College - Waianae Education Center	$0	$0	$39,197	$0	$0	$0	$0	$0	REMAIN-HBWS
Oahu	UHM-001	University of Hawai'i at Mānoa Water Master Plan	$0	$0	$0	$0	$0	$0	$0	$1,931,981	REMAIN-HBWS
Oahu	DHL-075	Kaka'ina	$421,162	$0	$0	$0	$0	$0	$0	$0	REMAIN-HBWS
Oahu	DHL-078	Kalāwahine	$0	$0	$0	$0	$0	$0	$51,426	$0	REMAIN-HBWS
Oahu	DHL-080	Lualualei	$0	$0	$0	$0	$0	$0	$2,921,362	$0	REMAIN-HBWS
Oahu	DHL-081	Lualualei (Non-Potable Using Potable)	$0	$0	$0	$0	$0	$0	$0	$0	REMAIN-HBWS
Oahu	DHL-083	Mā'ili 2	$0	$0	$0	$0	$0	$285,700	$457,120	$0	REMAIN-HBWS
Oahu	DHL-084	Mō'ili'ili (Isenberg)	$149,011	$0	$0	$0	$0	$0	$0	$0	REMAIN-HBWS
Oahu	DHL-085	Nānākuli	$0	$732,127	$0	$0	$0	$0	$7,156,785	$0	REMAIN-HBWS
Oahu	DHL-086	Papakōlea	$0	$699,352	$0	$0	$0	$0	$197,133	$0	REMAIN-HBWS
Oahu	DHL-087	Pearl City (Waihona)	$0	$0	$0	$0	$0	$0	$215,225	$0	REMAIN-HBWS
Oahu	DHL-088	Shafter Flats	$58,119	$0	$0	$0	$0	$0	$0	$0	REMAIN-HBWS
Oahu	DHL-090	Wai'anae	$0	$0	$0	$0	$0	$279,734	$8,392,020	$0	REMAIN-HBWS
Oahu	DHL-091	Wai'anae (Non-Potable Using Potable)	$0	$0	$0	$0	$0	$0	$0	$0	REMAIN-HBWS
Oahu	DHL-092	Waimanalo	$0	$0	$0	$0	$0	$0	$1,017,092	$1,828,864	REMAIN-HBWS
Oahu	DOT-026	HNL Airport Expansion	$0	$312,043	$312,970	$311,626	$312,970	$1,552,772	$1,552,772	$1,552,772	REMAIN-HBWS
Oahu	DOT-027	JCF Airport Expansion	$0	$10,533	$10,533	$10,533	$10,533	$31,877	$30,837	$32,181	REMAIN-HBWS
		Total REMAIN - Honolulu BWS	**$633,085**	**$2,325,968**	**$2,177,913**	**$1,778,934**	**$519,122**	**$13,563,813**	**$30,016,525**	**$22,273,720**	
		Total REMAIN Statewide	**$2,899,085**	**$27,071,183**	**$2,419,258**	**$3,404,024**	**$680,877**	**$43,704,108**	**$88,185,880**	**$75,661,205**	