



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

STAFF SUBMITTAL

for the meeting of the  
COMMISSION ON WATER RESOURCE MANAGEMENT

January 28, 2016  
Honolulu, Hawaii

Project Description for Phase 2 of the  
Hawaii County Water Use and Development Plan Update for the  
Keauhou Aquifer System Area

SUMMARY OF REQUEST:

Staff recommends that the Commission on Water Resource Management (Commission) approve the project description for Phase 2 of the Water Use and Development Plan update for the Keauhou Aquifer System Area.

LOCATION: Keauhou Aquifer System Area, West Hawaii (Exhibit 1).

BACKGROUND:

At its August 17, 2015 regular meeting, the Commission granted, among other things: 1) preliminary approval of the demand analyses conducted by the County of Hawaii Department of Water Supply in Phase 1 of the Hawaii County Water Use and Development Plan update for the Keauhou Aquifer System Area, and 2) a 3-month extension of time for the Hawaii Department of Water Supply to submit its project description for Phase 2 of the Water Use and Development Plan update. Phase 2 will focus on identifying source strategies to meet the demands identified in Phase 1. The reason for the extension request approved in August was to provide the Hawaii Department of Water Supply with time to initiate and complete the procurement process to hire a consultant to develop the project description. The consultant selected would also be responsible for doing the actual plan update.

On November 19, 2015, the Hawaii Department of Water Supply emailed a draft consultant contract to Commission staff (the official hardcopy was received on November 25, 2015; Exhibit 2) to fulfill the Commission's requirement for a project description.

Following a series of communications with Hawaii Department of Water Supply staff and their consultants, on December 7, 2015, a supplemental project description for the Phase 2 scope of work was emailed (Exhibit 3).

Approved by Commission on  
Water Resource Management  
at the meeting held on

1.28.16

**B1**

ISSUES AND ANALYSIS:

Phase 2 will focus on source strategies to meet authorized planned use, which is estimated to be 28.07 million gallons per day.

Planning elements and issues to be addressed in Phase 2 are described below:

- **Source Development Program** - The source development program will include a list of Capital Improvement Program projects to be implemented over the next 5-year period provided by Hawaii Department of Water Supply, and methodologies and strategies for development of and policies for programming future sources will be proposed. Additional high-level sources will be pursued to reduce the use of the basal sources, and the general area and magnitude of these high-level sources will be delineated (the southern region of the Keauhou Aquifer System Area between existing Waiaha Wells and Kamehameha Schools high-level wells; Exhibit 4).
- **Meeting Anticipated Demands/Implementation Plan** - Details of how each component of the anticipated water demand determined in Phase 1 could be met by each different source strategy (groundwater, reclaimed wastewater, water conservation, etc.) will be provided, and a conceptual water source implementation plan will be developed based on projected growth.
- **Non-Potable Source Strategies** - Potential non-potable source strategies to meet agricultural demands will be identified and evaluated. These strategies may include reclaimed wastewater, brackish groundwater, and ambient rainfall. The State of Hawaii, Department of Agriculture will be consulted; however, surface water is not likely to be considered a feasible option because there are no perennial streams or surface water irrigation systems in the Keauhou Aquifer System Area. Water reuse/reclaimed wastewater data and future projections will be coordinated with the County of Hawaii, Department of Environmental Management; and State of Hawaii, Department of Health.
- **Environmental and Cultural Issues** - A consultation program with selected individuals, groups, and/or agencies to determine traditional Native Hawaiian and cultural issues in the Keauhou Aquifer System Area will be developed and executed. The findings and recommendations from the program will be presented in the Phase 2 Water Use and Development Plan report.
- **Interagency Coordination and Information Gathering** - The agencies and associated information to be gathered are as follows:
  - Hawaii Department of Water Supply - Capital Improvement Projects and budget
  - County of Hawaii, Department of Environmental Management; and State of Hawaii, Department of Health - Water reuse data and projections
  - Commission on Water Resource Management - Well and stream diversion database
  - State Department of Agriculture - Agricultural water use and irrigation systems
  - State Department of Land and Natural Resources - State Water Projects Plan project demands and water development strategies
  - Federal Agencies, as required, to be determined

- **Public Consultation** - Up to four public informational meetings in Kailua-Kona will be conducted at various stages of development of the Phase 2 report to receive community input regarding findings and proposed recommendations.
- **Coordination with Commission** - The Phase 2 report will be presented to the Water Commission at several stages of development so that any necessary course corrections can be made.
- **Final Report** - Phase 1 and Phase 2 documents will be compiled into a single Water Use and Development Plan report for the Keauhou Aquifer System Area. This compiled report will be presented to the Hawaii County Board of Water Supply, and then to the County of Hawaii County Council for approval/adoption.
- **Schedule** – The schedule provided shows anticipated dates for completion of key components of the Phase 2 update, with a final report to be completed on December 30, 2016.

Staff finds that the proposed Phase 2 project description meets the statutory requirements for Water Use and Development Plans and includes elements to address identified issues and concerns. Staff looks forward to working with the Hawaii Department of Water Supply in their development of a strategy and plan to meet projected water demands and protect and mitigate unacceptable impacts to environmental and cultural rights to water.

RECOMMENDATION:

Staff recommends that the Commission approve the project description for the Phase 2 Water Use and Development Plan update for the Keauhou Aquifer System Area.

Respectfully submitted,



JEFFREY T. PEARSON, P.E.  
Deputy Director

- |           |   |
|-----------|---|
| Exhibit 1 | Location Map for Keauhou Aquifer System Area, West Hawaii                   |
| Exhibit 2 | November 20, 2015 Draft Scope of Work for the Phase 2 Contract Agreement    |
| Exhibit 3 | December 7, 2015 Supplemental Project Description and Phase 2 Scope of Work |
| Exhibit 4 | Location Map for Waiaha Wells and Kamehameha Schools High-Level Wells       |

APPROVED FOR SUBMITTAL:



SUZANNE D. CASE  
Chairperson

Keauhou Aquifer System Area

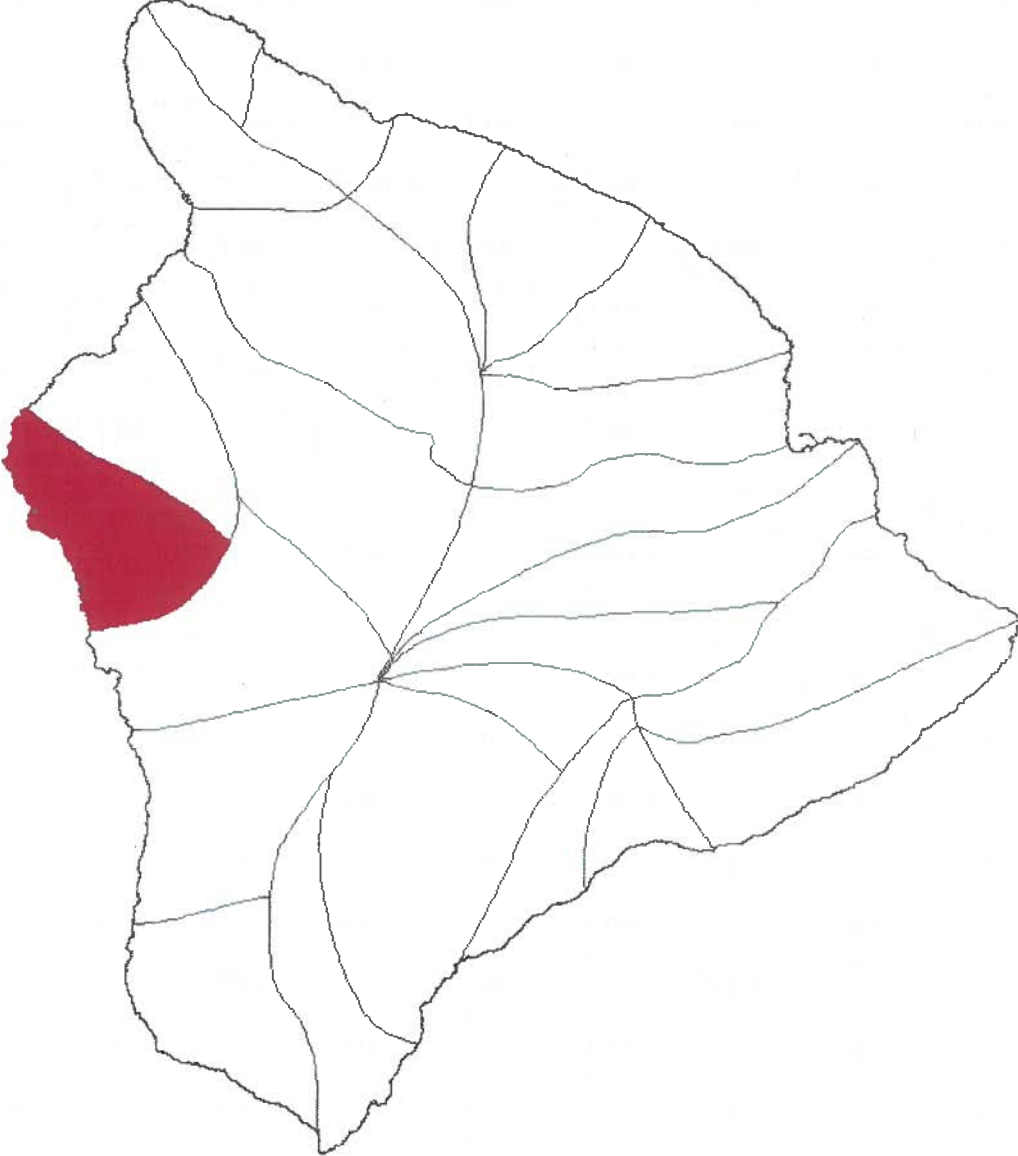


Exhibit 1

## I. SCOPE OF WORK

- A. The Consultant shall perform and/or furnish all the professional services necessary to complete detailed analysis of future anticipated water demands within the Keauhou Aquifer System and also the Waimea Aquifer System (including Phase 1) and to provide water resource development options and criteria to meet future anticipated water demands within the Keauhou Aquifer System (Phase 2).
  
- B. The professional services for Job No. 2014-1013, Water Use and Development Plan (WUDP) Update – Keauhou and Waimea Aquifer Systems (Phase 1) generally included:
  1. Interagency coordination, information gathering and update of the Keauhou Aquifer System. The agencies include the State Commission on Water Resources Management (CWRM), the State Department of Health (DOH), the County of Hawaii Department of Water Supply (DWS), the County of Hawaii Department of Planning (DP) and the County of Hawaii Department of Environmental Management (DEM).
  2. Update land use data, including development of an Authorized Planned Use demand projection scenario as directed by the CWRM.
  3. Agricultural water use assessment.
  4. Evaluation of water use trends and determination of current and future water use unit rates.
  
- C. The professional services for Phase 2 will generally include:
  1. Preparation of a Project Description for Phase 2, including a technical approach for the water resource development program, to be presented to and accepted by the State Commission on Water Resource Management (CWRM).
  2. Interagency coordination, including the State Commission on Water Resources Management (CWRM), the County of Hawaii Department of Water Supply (DWS) and the County of Hawaii Department of Planning (DP).
  3. Incorporate and/or coordinate demands and recommendations of the State Department of Land & Natural Resources, State Water Projects Plan for West Hawaii (SWWP West Hawaii).
  4. Identification of conceptual water source development strategies to meet anticipated demands identified in Phase 1 (Job No. 2014-1013).
  5. Recommendations for source selection policies for future water source development.

6. Recommendations to address potential impacts on Traditional, Native Hawaiian and Cultural practices from any proposed water resource development.
  7. Conduct up to four public informational meetings in Kailua-Kona to receive community input regarding findings and proposed recommendations.
  8. Prepare Summary Report of the Phase 2 WUDP findings and recommendation for the Keauhou Aquifer System.
  9. Prepare a compiled WUDP Update (Phase 1 and Phase 2) for the Keauhou Aquifer System
- D. Final WUDP Update to be approved by the DWS Board and presented to the County Council as required by County of Hawaii Ordinance 11 – 7.
- E. All work of the Consultant shall be subject to the approval of the DWS/Board. It shall be the responsibility of the Consultant to maintain close and request communication with the DWS at all stages of their work.
- F. The completed report and data collected and generated by the Consultant shall become the property of the Board.
- G. The Consultant shall endorse all deliverables, including but not limited to consulting data, and reports furnished to the DWS/Board. Such endorsement shall consist of the name of the Consultant and a signature and stamp of the registered consultant responsible for the work contained thereon.

## II. DATE OF COMPLETION

- A. The compiled Report shall be submitted to the DWS on or before December 31, 2016. Should the completion of these services be delayed due to reasons beyond the control of the Consultant, and should the Consultant send written request to the Manager-Chief Engineer for an extension of time before the lapse of the period set forth above, stating the cause of the delay, the time for completion may be extended by the Manager-Chief Engineer.

## III. SERVICES PROVIDED BY DWS/BOARD

- A. The DWS/Board will furnish the Consultant with any pertinent information available to the Board in order that the Consultant may be cognizant of the requirements of the Board.

- B. The DWS/Board will assist with community contact, identification of key stakeholders – including individuals or groups representing Traditional, Native and Cultural resources, and incorporation of County agency and administration information and policies.
- C. The DWS/Board will assist with the public informational meetings by providing the venues for such public meetings.
- D. The DWS/Board shall secure final approval of the responsible officials of the reviewing agencies on the Final Report. The DWS may request the Consultant to make presentations before responsible officials on behalf of the DWS in order to secure final approval.



DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I  
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720  
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

November 20, 2015

Ms. Lenore Ohye  
State of Hawai'i  
Department of Land and Natural Resources  
Commission on Water Resource Management  
P. O. Box 621  
Honolulu, HI 96809

Dear Ms. Ohye:

**Subject: Draft Scope of Work (Phase 2 Contract Agreement) for your Review and Comment**

The County of Hawai'i, Department of Water Supply, is submitting, as required by the Commission, the enclosed Draft Scope of Work for the Phase 2 Contract Agreement with our consultants. We request that you please review and comment on the scope of work so that we can be sure we are meeting the expectations of the commission prior to finalizing the contract and numbers with the consultant.

Should there be any questions or concerns, please contact Mr. Lawrence Beck of our Water Resources and Planning Branch at (808) 961-8070, extension 260.

Sincerely yours,

Keith K. Okamoto, P.E.  
Manager-Chief Engineer

LB:dfg

Enc.

**Exhibit 2**

*...Water, Our Most Precious Resource... Ka Wai A Kāne...*

The Department of Water Supply is an Equal Opportunity provider and employer.



**SUPPLEMENTAL PROJECT DESCRIPTION****SCOPE OF WORK – Phase 2****Update of Water Use & Development Plan (WUDP) for the Keauhou Aquifer System  
County of Hawaii****OBJECTIVE:**

Update portions of the 2010 County of Hawaii Water Use and Development Plan (HWUDP) to incorporate refinements in County Planning Programs and Policies, and updated information regarding land use, population growth & distribution, and water use and availability. This effort is to be consistent with recommendations of the HWUDP and conditions of adoption of the HWUDP in the Hawaii Water Plan by the State Commission on Water Resource Management (CWRM) in 2011.

**BACKGROUND:**

The 2010 HWUDP served as the initial update effort by the Hawaii County Department of Water Supply and Department of Planning to formally link water resource management and land use planning policy and decision-making. One of the primary objectives of the 2010 HWUDP was to conduct an island-wide assessment of water resource supply and demand conditions and identify any areas of greater concern. The intent was to focus the County's resources on those identified areas in a prioritized manner, evaluating them in more detail and vigor, while continuing to monitor the remaining areas, tracking any significant changes in water resource information and /or land use policies.

The Hualalai Aquifer Sector, specifically the Keauhou Aquifer System (ASYA), and the Waimea ASYA were identified areas based on the initial island-wide assessment (2010).

The update for the Keauhou ASYA will proceed in two phases. Phase 1 refined the land use-based (zoning) and 20-year demand projections and calculated anticipated water demands. Per direction from the CWRM, Phase 2 will assess the potential impact of groundwater pumping on traditional and cultural practices (T&C) in the Keauhou ASYA and will also involve the development of source development strategies and scenarios to meet the anticipated water demands determined in Phase 1.

This scope of work addresses the Phase 2 requirements.

**TASK 1 – Phase 2 Project Description**

The Phase 2 Project Description will outline the technical approach for development of the source development program described below in Task 3, in addition to proposing a consultation program to determine Traditional Native Hawaiian and cultural issues in the Keauhou ASYA described below in Task 6.

**TASK 2 – Interagency Coordination, Information Gathering and Update**

This task will involve coordination with several agencies, including the exchange and analysis of information. The agencies and associated information are as follows:

- County of Hawaii, Department of Water Supply (DWS)
  - Capital Improvement Projects and budget
- County of Hawaii, Department of Environmental Management (DEM); and State of Hawaii, Department of Health (DOH)
  - Water reuse data and projections
- State of Hawaii, Commission on Water Resource Management (CWRM)
  - Well and stream diversion database
- State of Hawaii, Department of Agriculture (DOA)
  - Agricultural water use and irrigation systems
- State of Hawaii, Department of Land and Natural Resources
  - State Water Projects Plan project demands and water development strategies
- Federal Agencies, as required, to be determined

### **TASK 3 – Source Development Program**

The source development program will include a list of Capital Improvement Program (CIP) projects to be implemented over the next 5-year period provided by DWS, and methodologies and strategies for development of and policies for programming future sources will be proposed. Additional high-level sources will be pursued to reduce the use of the basal sources, and the general area and magnitude of these high-level sources will be delineated (the southern region of the Keauhou ASYA between existing Waiaha Wells and KS high level wells).

### **TASK 4 – Non-Potable Source Strategies**

Potential non-potable source strategies to meet agricultural demands will be identified and evaluated. These strategies may include reclaimed wastewater, brackish groundwater, and ambient rainfall. The State of Hawaii, Department of Agriculture will be consulted; however, surface water is not likely to be considered a feasible option because there are no perennial streams or surface water irrigation systems in the Keauhou ASYA. Water reuse/reclaimed wastewater data and future projections will be coordinated with the County of Hawaii, Department of Environmental Management (DEM); and State of Hawaii, Department of Health (DOH).

### **TASK 5 – Meeting Anticipated Demands**

Details of how each component of the anticipated water demand determined in Phase 1 could be met by each different source strategy (groundwater, reclaimed wastewater, water conservation, etc.) will be provided, and a conceptual water source implementation plan will be developed based on projected growth.

### **TASK 6 – Environmental and Cultural Issues**

As indicated in the May 26, 2015 letter to CWRM, DWS reviewed over 200 Environmental Impact Statements (EIS) and Environmental Assessment (EA) reports, 47 of which were reviewed in greater detail, to identify traditional and cultural practices (T&C) in the Keauhou Aquifer System Area as well as the Waimea Aquifer System Area and how pumping groundwater may impact the resources affecting T&C. However, only one report was found to address the potential impact of pumping water and the potential impacts to T&C as well as other habitat concerns. DWS will develop and execute a consultation program with selected

individuals, groups, and/or agencies to determine Traditional Native Hawaiian and cultural issues in the Keauhou ASYA. The findings and recommendations from the program will be presented in the Phase 2 WUDP report.

#### **TASK 7 – Public Consultation**

Up to four public informational meetings in Kailua-Kona will be conducted at various stages of development of the Phase 2 report to receive community input regarding findings and proposed recommendations.

#### **TASK 8 – Compiled Phase 1 and 2 Report and Agency Approvals**

The Phase 2 report will be presented to the CWRM at several stages of development for approval, and subsequent to approval of the final Phase 2 report, the Phase 1 and Phase 2 documents will be compiled into a single WUDP report for the Keauhou ASYA. This compiled report will be presented to the DWS Water Board, and then to the County of Hawaii County Council for approval/adoption.

#### **TENTATIVE SCHEDULE**

The deliverables for the WUDP Update for the Keauhou ASYA, Phase 2, are scheduled as follows.

<b>Deliverable</b>	<b>Anticipated Date</b>
Source Development Program and T&C Consultation Preliminary Findings	May 3, 2016
Draft Report – WUDP Update for Keauhou ASYA Phase 2	August 3, 2016
Final Report – WUDP Update for Keauhou ASYA Phase 2	November 2, 2016
Compiled Phase 1 and Phase 2 Report – WUDP Update for Keauhou ASYA	December 30, 2016

Waiaha Well and Kamehameha Schools Well



Exhibit 4