



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

September 23, 2010  
Honolulu, Hawaii

Request to Enter into a Cooperative Agreement with U.S. Geological Survey  
For Statewide Hydrologic Data Collection and  
Water Resource Monitoring for Federal Fiscal Year (FFY) 2011

SUMMARY OF REQUEST

Staff is recommending that the Commission on Water Resource Management (Commission) enter into a cooperative agreement with the U.S. Geological Survey (USGS) for the inventory and investigation of Hawaii's water resources.

BACKGROUND

The cooperative agreement between the USGS and the State officially began in 1909 when the USGS entered into an agreement with the Territory of Hawaii, and at its inception, the cooperative agreement was focused mainly on surface water. Initially only 12 streams were being gaged continuously. By 1914 there were 87 continuous-record stations. The program continued to grow, reaching its peak in 1966 when 197 gages were operational under the agreement. Over the years, some gages were discontinued for a variety of reasons, which include shifting fiscal priorities, changing economic realities, completed data acquisition objectives, and dwindling partnership engagement in monitoring and data collection.

In 1972, ground water data collection became an integral part of the agreement and began establishing the baseline data throughout the State with 170 observation wells. For reasons similar to the surface water gages, observation well data recording has steadily declined over the years such that only 19 well sites now remain to provide data continuity in FFY 2011.

Beginning in 1998, the Commission streamlined the cooperative agreement by transferring the crest-stage stream-gaging program to civil defense agencies where these data (e.g. flooding issues) are more relevant to disaster response rather than sustainability issues, and by eliminating duplication of ground water data collection efforts in wells. Ground water data gathering changed and expanded to incorporate the data provided by water system purveyors and well

owners, who were required by law and rule to report their water-use and ground water and chloride levels. Partnership with the Division of Forestry and Wildlife’s (DOFAW) through its Watershed Management Grant Program (WMGP) had boosted the operation of gaging stations on watershed partnership lands. However, in these challenging economic times, the WMGP has withdrawn its support to gaging operations in watershed management areas, disengaging the watershed partnerships from Commission and USGS efforts in monitoring the water resources in watershed areas. Meanwhile, the Waiahole Trust Fund helps defray the cost of monitoring the Waiahole Ditch system and its sources. Exhibit 1 provides a summary of changes to the program, including the operational cost, since FFY 2005.

CURRENT AGREEMENT:

The nature of the agreement and relationship of the parties involved remains basically the same as the previous year’s agreement with one notable difference. The Commission will reinstate monitoring stations to the program as a result of an increase in matching funds from the USGS. For FFY 2011 the USGS will match the Commission’s contribution to the cooperative monitoring program. This will allow the Commission to reinstate six stations that were cut in previous years. The emphasis for selection was based on sites that would expand data collection coverage and increase our ability to monitor water resource changes.

Under the Joint Funding Cooperative Agreement for FFY 2011 (Exhibit 2), the USGS collects basic hydrologic data and provides data summary reports.

The table below summarizes the annual changes in funding requirements for this cooperative agreement.

<b>COST</b>	<b>FFY2009</b>	<b>FFY2010</b>	<b>FFY2011</b>
Total Joint Funding Requirement	\$837,334	\$718,400	\$809,980
Expected (full-year) CWRM cost-share	\$504,000	\$405,500	\$404,990
Percentage CWRM cost-share	60%	56%	50%
DOFAW Watershed Management Grant	\$48,896	\$0	\$0
Waiahole Ditch Monitoring Fund	\$48,896	\$50,500	\$35,495
Ground water well continuous monitoring	\$5,730	\$6,000	\$6,000
Rain gage continuous recording	\$9,168	\$9,600	\$9,790
Continuous recording stream gage	\$19,100	\$20,000	\$20,400

OTHER:

*I. Chapter 343 – Environmental Assessment (EA) Compliance*

**EA Triggers**

In accordance with §HRS 343-5(a), the proposed action triggers the need for an EA based on the use of state funds.

**EA Exemption**

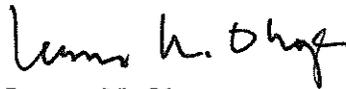
The proposed action qualifies for an exemption from an EA based on §HAR11-200-8(a), basic data collection, research, experimental management and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource.

RECOMMENDATIONS:

Staff recommends that the Commission authorize the Chairperson to enter into a cooperative agreement with the U.S. Geological Survey in FFY 2011 to undertake the specified monitoring activities.

The terms of this agreement will be subject to the approval of the Department's Deputy Attorney General. Contract execution will be done in accordance with Chapter 103D, HRS, and Chapter 3-122, Hawaii Administrative Rules.

Respectfully submitted,



Lenore N. Ohye  
Acting Deputy Director

- Exhibits
1. Summary of Changes to the Cooperative Program: 2005-2011
  2. Joint Funding Agreement for Federal FY 2011
  3. USGS Letter of Proposal for the Continuation of Cooperative Water Program to Federal FY 2011

APPROVED FOR SUBMITTAL:



LAURA H. THIELEN  
Chairperson

**EXHIBIT 1**

**SUMMARY OF CHANGES TO THE COOPERATIVE PROGRAM: 2005 to 2011**

Federal Fiscal Year	No. of Stream Gages	No. of Wells Ground Water	No. of Rain Gages	CWRM Contribution \$	<u>Changes and Comments</u>
2005	25	70	21	\$356,000	<ol style="list-style-type: none"> <li>\$42,000 budgetary reduction, though \$25,000 provided by DAR LNR 401 funds for Waiahole related gages.</li> <li>DOFAW (NARS) funds 13 stream gages and 4 rain gages.</li> </ol>
2006	25	56	21	\$342,740	<ol style="list-style-type: none"> <li>DAR LNR 401 funds for \$25,000 to provide data analysis of stream flow statistics statewide.</li> <li>Waiahole Trust Fund provided \$35,000 for Waiahole stream-gages, and stream statistic in Waiahole.</li> <li>Kauai County to enter into their own cooperative agreement with USGS for wells owned by them.</li> </ol>
2007	32	31	22	\$459,020	<ol style="list-style-type: none"> <li>Prices increased by 31%.</li> <li>Addition of \$132,000 from the Watershed Management Grant Program.</li> <li>Waiahole Trust Fund provided \$42,713 for Waiahole gages.</li> </ol>
2008	32	34	21	\$526,600	<ol style="list-style-type: none"> <li>Prices increased by 7.5 %.</li> <li>Addition of \$118,175 from the Watershed Management Grant Program.</li> <li>Waiahole Trust Fund provided \$41,040 for Waiahole gages.</li> </ol>
2009	27	26	18	\$504,000	<ol style="list-style-type: none"> <li>Prices increased by 10.3%.</li> <li>Watershed Management Grant Program support was reduced to \$48,896.</li> <li>Waiahole Trust Fund to provide \$48,000 for Waiahole gages.</li> <li>General Fund budget cut amounting to \$45,547.</li> </ol>
2010	25	17	14	\$405,500	<ol style="list-style-type: none"> <li>Quarterly implementation of the agreement.</li> <li>General Fund restriction by \$48,254.</li> <li>Watershed Management Grant Program withdraws support.</li> <li>Waiahole Trust Fund to provide \$50,500 for Waiahole sites.</li> <li>USGS monitoring cost increased by about 4.5%.</li> <li>Reduction of site visits to lower the cost of monitoring.</li> </ol>
2011	28	20	14	\$404,900	<ol style="list-style-type: none"> <li>USGS cost share increases to 50%.</li> <li>Additional Federal match used to reinstate monitoring stations.</li> <li>Waiahole Trust Fund to provide \$35,495 for Waiahole sites.</li> </ol>

## EXHIBIT 2

### JOINT FUNDING AGREEMENT

THIS JOINT FUNDING AGREEMENT made and entered this \_\_\_\_ day of October, 2010, by and between the STATE OF HAWAII, through its Department of Land and Natural Resources, Commission on Water Resource Management, hereinafter referred to as the "STATE", and GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, hereinafter referred to as "USGS".

WHEREAS, for and in consideration of mutual promises, the parties agree, subject to the availability of State and Federal funding and in accordance with their respective authorizations, to undertake a cooperative Joint Funding Agreement for the collection of hydrologic data in the State of Hawaii, hereinafter referred to as the "PROGRAM".

WHEREAS, USGS's authority to act under this agreement is 43 USC 36C, 43 USC 50, and 43 USC 50.

WHEREAS, the State, in consideration thereof, agrees to pay the USGS such amount as is hereinafter specified.

NOW THEREFORE, in consideration of the mutual promises forth in this JOINT FUNDING AGREEMENT, the parties mutually agree to the following:

1. USGS agrees to perform the program according to the scope of work provided in Attachment 1.
2. The agreement period for the Joint Funding Agreement is provided in Attachment 2. Time is of the essence in this agreement. Any delay in the progress of the work, which may adversely affect the completion of the work under the agreement within the required time shall be promptly reported in writing by the USGS to the State. The parties may agree to an extension of any deadline set forth in Attachment 2 provided that such agreement is in writing and signed by both parties.
3. The following amounts shall be contributed to cover all the cost of the necessary field and analytical work directly related to the program.
  - a) \$404,990 by the USGS during the period October 1, 2010 to September 30, 2011.
  - b) \$404,990 by the STATE during the period October 1, 2010 to September 30, 2011.

- c) Any addition or reduction of the agreement amount during the agreement period may be determined by a mutual agreement of the parties. Any additional work beyond that required under the agreement shall be done only upon a mutual agreement of the parties evidenced in writing. The State will not be liable for the payment of any additional work that is not mutually agreed upon in writing by the parties.
4. The Chairperson of the Department of Land and Natural Resources, through the Deputy Director to the Commission on Water Resource Management, acting either directly or through their duly authorized representatives or subordinates, hereinafter referred to as "Chairperson", and the Director of the USGS Pacific Islands Water Science Center, United States Department of the Interior, acting either directly or through his duly authorized representatives or subordinates, hereinafter referred to as "Center Director", shall mutually resolve all questions regarding the manner of performance and progress of work in compliance with the agreement provisions, compensation, and any other questions which may arise under this agreement.
5. If the work under this Joint Funding Agreement is not being carried out in a mutually satisfactory manner, either party may terminate this Joint Funding Agreement upon 60-calendar days written notice to the other party. Both parties shall use their best efforts to resolve agreement disputes cooperatively, including, if both parties agree, the use of alternative dispute resolution, prior to any notice of termination. If the State terminates the agreement, the USGS shall immediately comply and suspend all work under the Joint Funding Agreement within 60-calendar days after receiving written notice from the State. Upon termination of the Joint Funding Agreement, the USGS shall, within 60-calendar days after the effective date of such termination, compile and submit in an orderly manner to the State an accounting of the work performed up to the effective date of termination. The USGS shall be paid for the work performed or services rendered as of the effective date of termination in the ratio that the amount of work completed as of the effective date of termination bears to the total amount of work provided herein.
6. The parties shall permit the review and inspection of all field and analytical work done pursuant to this Joint Funding Agreement. The original records resulting from this program will reside in the office of origin for those records. Upon request, and at no

charge to the other party, copies of the original records will be provided to the office of the other party.

7. The maps, records, or test results and reports resulting from this program shall be made available as promptly as possible. The maps, records, or test results and reports normally will be hosted and published by USGS and may be used by USGS in related work. The State reserves the right to host and publish the maps, data, and reports resulting from the program and USGS shall, upon request of the State, furnish to the State all maps, data, and reports in a suitable format to be reproduced, hosted on the web, and published. The maps, data, and reports published by either party shall contain a statement of the cooperative relations between the parties.
8. Payment and compensation schedule is set forth in Attachment 3.
9. This Joint Funding Agreement may be amended only in writing, which must be signed by both parties.

IN WITNESS WHEREOF, the parties hereto have caused this Joint Funding Agreement to be executed as of the day and year first above written.

STATE OF HAWAII

By: \_\_\_\_\_  
Laura H. Thielen  
Chairperson, Department of Land and  
Natural Resources

GEOLOGICAL SURVEY  
U.S. DEPARTMENT OF THE INTERIOR

By: \_\_\_\_\_  
Michael V. Shulters  
Regional Executive, Pacific Southwest Area

APPROVED AS TO FORM:

By: \_\_\_\_\_  
Deputy Attorney General

## SCOPE OF SERVICES

1. This Joint Funding Agreement is a continuation of the joint funding agreement for the collection of hydrological data in the State of Hawaii between the U.S. Geological Survey, United States Department of the Interior and the Commission on Water Resource Management, Department of Land and Natural Resources, State of Hawaii.
2. The scope of services involves the collection and computation of data on water resources collected in multiple locations throughout the State of Hawaii.
3. U.S. Geological Survey shall collect data at an agreed upon list of surface water stations, ground water monitoring stations, and rainfall stations, as set forth in Exhibit 3 which is attached hereto and incorporated by reference.
4. U.S. Geological Survey shall provide data summary reports and review of historical data sets.
5. U.S. Geological Survey shall host the maps, data, and reports resulting from this program in a publicly-accessible website, and shall provide the Commission staff direct and easy access to acquire, download, or transfer the data and report from a USGS server. The parties shall use good faith efforts to resolve any disagreements in the scope and validation of data acquisition and the contents of the report.
6. U.S. Geological Survey shall provide a readable statement of cooperative relations and visually identifiable symbol of the Commission as a cooperator in print, digital, and online publications of the data and reports of the monitoring stations that are included in the current cooperative program, and as well as the stations that were historically supported and funded by the Commission.
7. At least quarterly and upon request by the Commission on Water Resource Management, the U.S. Geological Survey will update the Commission on the progress of its work on this Joint Funding Agreement.
8. The Commission on Water Resource Management shall assist the U.S. Geological Survey in its work under the Joint Funding Agreement to the extent feasible and practicable under existing resources of the Commission.

**TIME OF PERFORMANCE**

1. The data collection program will be conducted within the period of October 1, 2010 to September 30, 2011. The data must be posted in the USGS website, and the digital copy of the data as specified in the Scope of Services Item #5 must be provided to the CWRM on or before September 30, 2011.

### COMPENSATION AND PAYMENT SCHEDULE

1. Payment shall be made quarterly upon satisfactory completion of a quarterly progress report and billing by the USGS. Billing shall be based upon the State's share of the total program cost. The State's share is 50% (\$404,990) of the total program cost.

Schedule Payment of bills is due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date (31 USC 3717).

2. State shall retain 5% of the total amount of the State's share of the total program cost until the data becomes available and accessible and the scope of work has been satisfactorily been completed.

## EXHIBIT 3



# United States Department of the Interior

U.S. GEOLOGICAL SURVEY

Pacific Islands Water Science Center  
677 Ala Moana Blvd., Suite 415  
Honolulu, Hawaii 96813  
Phone: (808) 587-2400/Fax: (808) 587-2401



August 26, 2010

Ms. Lenore Ohye, Acting Deputy Director  
State of Hawaii  
Department of Land and Natural Resources  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, Hawaii 96809

Dear Ms. Ohye:

Subject: Cooperative water-resource monitoring program during the period October 1, 2010 to September 30, 2011

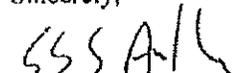
This letter proposes the continuation of the cooperative water-resources monitoring program between the State of Hawaii Department of Land and Natural Resources Commission on Water Resource Management (CWRM) and the U.S. Geological Survey (USGS) during Federal fiscal year 2011 (October 1, 2010 through September 30, 2011). The total cost of the program will be \$809,980 of which \$404,990 will be provided by the CWRM and \$404,990 will be provided by the USGS.

The purpose of the water-resource monitoring program is to collect data needed to evaluate the status and trends of surface-water and groundwater resources in Hawaii. Data are collected by the USGS at selected rainfall, streamflow, and groundwater monitoring stations in accordance with well-documented techniques and quality-assurance procedures. Data are stored in the USGS National Water Information System database and are publicly available on the internet web site (<http://hi.water.usgs.gov>). The number and type of monitoring stations is periodically adjusted to meet current priorities and available funds. The monitoring stations and associated cost for Federal fiscal year 2011 are attached.

The legal authority for the USGS to enter into this program is 43 USC 36C, 43 USC 50, and 43 USC 50b. Work performed with funds from this program will be conducted on a fixed-price basis. This means that invoices will be based on the agreed-upon amount, rather than actual itemized expenses. Your agency will be billed using Form DI-1040. The results of all work under this program will be available for publication by the USGS.

If you are in agreement with this program, please submit an updated Memorandum of Agreement by September 30, 2010, or at your earliest convenience. If you have any questions concerning this program, please feel free to contact Ron Rickman of my staff at 587-2407 or by email ([rrickman@usgs.gov](mailto:rrickman@usgs.gov)).

Sincerely,

  
Stephen S. Anthony  
Center Director

Attachment

Monitoring stations to be operated as part of the cooperative water-resource monitoring program between the State of Hawaii Department of Land and Natural Resources Commission on Water Resource Management and the U.S. Geological Survey during the period October 1, 2010 to September 30, 2011.

[RT, real-time telemetry to make data accessible over the internet through the USGS National Water Information System]

<u>USGS Station No.</u>	<u>Island</u>	<u>USGS Station Name</u>	<u>Station Type</u>	<u>Frequency</u>	<u>Cost</u>
215901159235301	Kauai	5923-01 Kilohana W-A	Groundwater level	Quarterly	3,570
215607159344301	Kauai	5634-01 Hanapepe Ridge	Groundwater level	Continuous	6,120
212738158034301	Oahu	2703-03 Kunia Basal Monitor Well	Groundwater level	Quarterly	3,570
212154158015201	Oahu	2103-02 Honolulu	Groundwater level	Quarterly	3,570
213438158091101	Oahu	3409-16 Mokuleia	Groundwater level	Quarterly	3,570
211832157515501	Oahu	1851-19 Halekaunila Street, Pipe A	Groundwater level + chloride	Quarterly	2,750
211832157515502	Oahu	1851-19 Halekaunila Street, Pipe B	Groundwater level + chloride	Quarterly	2,750
212238157561101	Oahu	2256-10 Aiea US Navy, (187-B)	Groundwater level	7 times per year	4,080
210402156495801	Molokai	0449-01 Ualapue	Groundwater level	Quarterly	3,570
210825157004301	Molokai	0800-01 Kualapuu Deep Monitor	Salinity profile	2 times per year	3,500
205140156304501	Maui	5130-01 Waikapu 1	Groundwater level	Quarterly	3,570
205312156321402	Maui	5332-04 Kepaniwai Observation	Groundwater level	Quarterly	3,570
205617156311101	Maui	5631-01 TH-A1 Waithee	Groundwater level	Quarterly	3,570
205433156184101	Maui	5418-01 EMWDP Monitor	Groundwater level	Quarterly	3,570
205437156310501	Maui	5431-01 TH-B Waitehu	Groundwater level	Quarterly	3,570
205405156305401	Maui	5430-05 Waitehu Deep Monitor	Groundwater level + salinity profile	Quarterly	6,120
190423155371501	Hawaii	0437-01 Waiohinu	Groundwater level	Quarterly	3,570
194327156002301	Hawaii	4360-01 Kalaoa N Kona (W12-11)*	Groundwater level	Continuous	6,120
193251155072101	Hawaii	3207-04 ML View	Groundwater level	Quarterly	3,570
200132155471101	Hawaii	6147-01 Kawaihae W-3	Groundwater level	Quarterly	3,570
220356159281401	Kauai	1051.0 N. Wailua Ditch near Lihue	Rainfall	Continuous	9,790
220713159361201	Kauai	1083.0 Mohihi Crossing near Waimea	Rainfall	Continuous - RT	9,790
220739159373001	Kauai	1082.0 Waiakoali near Waimea	Rainfall	Continuous	9,790
220927159355001	Kauai	1084.0 Kilohana near Hanalei	Rainfall	Continuous	9,790
212359157502601	Oahu	772.3 Moanalua No.1 at alt. 1,000 ft	Rainfall	Continuous - RT	9,790
212855157504501	Oahu	837.0 Waiahole at Kamehameha Hwy.	Rainfall	Continuous - RT	9,790
213215157552800	Oahu	883.12 Poamoho No. 1 near Waiahawa	Rainfall	Continuous - RT	9,790
213237157530701	Oahu	886.4 Kahana at alt. 95 ft.	Rainfall	Continuous	9,790
213608158011101	Oahu	897.9 Pupukea Road at alt. 1,160 ft.	Rainfall	Continuous - RT	9,790
213732158010201	Oahu	897.11 Kamanarui at alt. 720 ft.	Rainfall	Continuous - RT	9,790
203721156151601	Maui	255.0 Kepuni Gulch	Rainfall	Continuous - RT	9,790

<u>USGS Station No.</u>	<u>Island</u>	<u>USGS Station Name</u>	<u>Station Type</u>	<u>Frequency</u>	<u>Cost</u>
194117155174801	Hawaii	83.0 Quarry at Saddle Road	Rainfall	Continuous -- RT	9,790
194945155534402	Hawaii	92.5 Kiholo	Rainfall	Continuous -- RT	9,790
200518155405801	Hawaii	185.7 Kawainui near Kamuela	Rainfall	Continuous -- RT	9,790
16010000	Kauai	Kawaikoi Stream near Waimea	Streamflow	Continuous -- RT	20,400
16049000	Kauai	Hanapepe River below Manuahi Stream near Eleele	Streamflow	Continuous -- RT	20,400
16060000	Kauai	South Fork Waialua River near Lihue	Streamflow	Continuous -- RT	20,400
16068000	Kauai	East Branch of North Fork Waialua River near Lihue	Streamflow	Continuous -- RT	20,400
16071500	Kauai	Left Branch Opaekaa Stream near Kapaa	Streamflow	Continuous -- RT	20,400
16097500	Kauai	Halaulani Stream at alt. 400 ft. near Kilauea	Streamflow	Continuous -- RT	20,400
16103000	Kauai	Hanalei River near Hanalei	Streamflow	Continuous -- RT	20,400
16200000	Oahu	North Fork Kaulonahua Stream above Right Branch	Streamflow	Continuous -- RT	20,400
16212800	Oahu	Kipapa Stream near Waiahua	Streamflow	Continuous -- RT	20,400
16213000	Oahu	Waikole Stream near Waipahu	Streamflow	Continuous -- RT	20,400
16229000	Oahu	Kalihi Stream near Honolulu	Streamflow	Continuous -- RT	20,400
16240500	Oahu	Waiakeakua Stream at Honolulu	Streamflow	Continuous -- RT	20,400
16294100	Oahu	Waiahole Stream above Kamehameha Hwy.	Streamflow	Continuous -- RT	20,400
16294900	Oahu	Waikane Stream at alt 75 ft. at Waikane	Streamflow	Continuous -- RT	20,400
16296500	Oahu	Kahana Str at alt. 30 ft. near Kahana	Streamflow	Continuous -- RT	20,400
16301050	Oahu	Punaluu Stream above Diversion Ditch near Punaluu	Streamflow	Continuous -- RT	20,400
16345000	Oahu	Opaekula Stream near Waiahua	Streamflow	Continuous -- RT	20,400
16508000	Maui	Hanawi Stream near Nahiku	Streamflow	Continuous -- RT	20,400
16518000	Maui	West Waialuaiki Stream near Keanae	Streamflow	Continuous -- RT	20,400
16587000	Maui	Honopou Stream near Huelo	Streamflow	Continuous -- RT	20,400
16604500	Maui	Iao Stream at Kepaniwai Park near Waialuku	Streamflow	Continuous -- RT	20,400
16614000	Maui	Waihee River above Waihee Ditch Intake near Waihee	Streamflow	Continuous -- RT	20,400
16620000	Maui	Honokohau Stream near Honokohau	Streamflow	Continuous -- RT	20,400
16704000	Hawaii	Waialuku River at Piihonua	Streamflow	Continuous	20,400
16717000	Hawaii	Honolii Stream near Papaikou	Streamflow	Continuous -- RT	20,400
16720000	Hawaii	Kawainui Stream near Kamuela	Streamflow	Continuous	20,400
16725000	Hawaii	Alakahi Stream near Kamuela	Streamflow	Continuous -- RT	20,400
16770500	Hawaii	Paaau Gulch at Pahala	Streamflow	Continuous -- RT	20,400
	Oahu	Pearl Harbor Springs -- 21 sites	Streamflow + chloride	Once per year	23,870

Total = \$809,980

\*well 3858-01 Kalaea Keopu Deep Monitor can be substituted if water level is determined to be representative of the aquifer