

BOARD OF WATER SUPPLY of the COUNTY OF KAUA'I

FINANCE COMMITTEE MEETING

Second Floor, Microbiology Lab Bldg
Kaua'i County Department of Water
4398 Pua Loke Street, Lihue, Kaua'i, Hawai'i 96766

TUESDAY, JANUARY 22, 2013

2:00 p.m.

or thereabouts

AGENDA

1. CALL TO ORDER
2. ROLL CALL
3. ACCEPTANCE OF AGENDA
4. ACCEPTANCE OF MINUTES
Review and approval of:
Finance Committee Meeting - February 28, 2012
Finance Committee Meeting - April 10, 2012
Finance Committee Meeting - April 24, 2012
Finance Committee Meeting - May 24, 2012
5. OLD BUSINESS
 - a. Water Service Development Fee – Report to the Finance Committee
6. NEW BUSINESS
 - a. Needs Assessment Study and FRC Update dated January 2013
 - b. Part 4 Fixing Rates for Water Service, Section VII Facilities Reserve Charge
7. ADJOURNMENT

Page 1 of 1

NOTE: Special Accommodations for persons with disabilities are available upon request five (5) days prior to the meeting date. Please call the Department of Water, County of Kauai, at 245-5408 or drop by at 4398 Pua Loke Street, Lihue, Kauai. Our mailing address is PO Box 1706, Lihue, HI 96766.

Finance Committee Meeting

February 29, 2012
9:00 a.m.

Committee Members Present: Larry Dill, *Chair*, Clyde Nakaya, Roy Oyama

Absent/Excused:

Board Members Present: Randall Nishimura

Staff Present: David Craddick, William Eddy, Carol Beardmore, Marites Yano, Dustin Moises, Gregg Fujikawa, Val Reyna, Keith Aoki, Faith Shiramizu

Guest: Andrew Baker, SAIC (formerly R. W. Beck) via telephone

Chair Dill, called the Finance Committee Meeting to order at 9:00 a.m., quorum was achieved.

AGENDA

Mr. Nakaya moved to accept the agenda as circulated; seconded by Chair Dill; motion was carried.

NEW BUSINESS

a. FRC Rate Schedule

BACKGROUND:

Manager Craddick stated a presentation on the Facility Reserve Charge (FRC) study update was given by Mr. Andrew Baker. The focus of the presentation is on the methodology involved in the calculations, a brief discussion of the existing FRC and the desired outcome of the analysis and some of the considerations for the future.

The FRC for the county was last updated in 2004 and previously in 1993. The update is necessary to direct changes in project costs. The charges continue to be equitable and reflect the cost required for certain new developments.

The Water Plan 2020 effort was completed in 2001 that provided the technical basis for the updated 2004 FRC. The technical groundwork and long-term capital planning continues to be the basis for parts of the update to the FRC with more recent project and cost information used.

Mr. Baker's draft report will cover the Needs Assessment Study and the FRC update. The Needs Assessment Study is the portion which the service standards, additional demands resulting from development, deficiencies in existing facilities, and the projection of capital facility needs identified. This is part of what Water Plan 2020 laid the groundwork from. This is a prerequisite to the FRC calculations which is required by state statute.

Finance Committee Meeting February 29, 2012

The FRC is a one-time charge for a new connection and referred to as an impact fee or a system development charge. The FRC represents a proportionate share of the cost of providing water service access. The existing charge is \$4,600 for a single-family meter. Most family, hotel or resort connections charge a fee based on the meter size of the connection.

Four major steps in the FRC update analysis include:

1) The first step is the technical basis for the Needs Assessment Study is Water Plan 2020. The process started with a review of the capital program. SAIC worked with the DOW to incorporate an updated the system capacity and cost of identified projects. Out of the Needs Assessment Study, SAIC identified the list of existing system deficiencies, the needs to support projected growth and costs.

2) The second step is an evaluation of the FRC methodology. There are different FRC terms and different methodologies applied depending on specific details of a water system. The American Water Works Association (AWWA) lays out two common approaches and its industry standard in one manual.

First method-system buy-in or equity method is equity in terms of investment. The goal of all of the approaches and the analysis as a whole, are to be equitable in assessment of the charges. This method considers the situation from existing customers provided equity in the existing system through their rates and fees. New customers should buy into the system by paying a fee having an equity stake equal to existing customers. According to AWWA, this approach is generally most applicable for systems where there is excess existing capacity. They do not have any immediate development needs.

Second method-incremental cost method considers the situation from new development paying for incremental cost of system capacity needed to serve new development with the intent of mitigating impact of new growth on existing customer's rates. Example, new capacity, developing new sources of water is more expensive on a per-gallon basis than existing sources of water. This is a common concern to address. Generally the most cost effective or cheaper sources have been developed. This method is less applicable when other methods where sufficient capacity is already in the water system to provide for new growth or, alternatively, when the rate of growth is rapid it is difficult to pin down a specific incremental cost because it fluctuates rapidly than updates can address it.

An important consideration in evaluating methodology options is consistency with the state impact fee statute. The AWWA recommended approaches generally confirm to the statutory requirements. Specific considerations must be included in either analysis, most significant is the inclusion of a credit ensures new customers do not double pay for the capacity required to serve them.

3) Third step is the calculation of the FRC and schedule update. Four components to the FRC are: calculation, source, storage, transmission/distribution (T&D) and credit.

Source and storage components are similar and are calculated on the review of methodologies using the incremental cost method. It is most appropriate and consistent approach with the realities of the DOW system. They are based on the department's incremental cost to develop new source capacity or new storage capacity.

Finance Committee Meeting February 29, 2012

The draft table shown should match Table C-1 in the Board packet. The DOW staff will finalize the numbers which will show how the calculation steps are done but are not the final numbers. The table lists capital projects identified as new capacity. It lists estimated costs, amount of new capacity they provide and whether all or a portion of what new capacity will be addressing existing system deficiencies. The numbers are in total of all the source projects identified. Table C-2 shows storage projects separately. An adjustment is made to account for increase costs of debts in a portion of these projects. Total cost per growth is used to calculate a unit cost of growth, a related source capacity. The same calculation is made for storage.

The T&D component recognizes there are existing facilities to serve new development, but additional facilities are needed because the elements of both the system buy-in and incremental cost methods are employed to determine the T&D component of the FRC. This calculation is to determine the present value of the total system that will be required to serve demand at the end of the study period in 2030. The first calculation, the total cost of new T&D projects have been identified as necessary to serve projected new demand in Table C-3. The same adjustment for the portion being bonds is included.

Table C-4 works through the calculation steps to determine present value of the portion of the system will still be in service in 2030. Step eight, shows the present value of the whole system. It is the 38 million on Table C-3, new projects. The next number, 192 million, is the estimated value of the portion of the system that would not have been replaced. The sum is the present value of the total system needed to serve projected demand which is at the end of the study period. Dividing that number by the projected demand, results in half the unit cost for T&D capacity, the same way if were calculating unit cost for source and storage.

The FRC credit, a statutory requirement, is designed to account for new customers who will pay rates for projects which eliminate existing deficiencies, storage, repair and replacement projects, and debt service on existing facilities. Through the previous three components that were calculated, a fee will cover all costs of new capacity required to serve the new customers. Because it is not feasible to have the new customers not pay the portion of the rates that goes to existing deficiencies, the approach is instead to apply credit against the fee to account for future rate payments. Per the statute, this credit is the present value of that difference over a 20-year horizon.

4) Calculation is the last step in Table C-6. This step puts all of these components together using unit costs calculated in the previous steps and the level of service standards identified in the Needs Assessment Study to determine the charge per equivalent residential unit or single-family.

Mr. Baker explained the issues of the phase-in period. The question is approached from a policy standpoint that an analytical one is difficult to project the impact. Example, a 50% increase in the fee does not necessarily translate directly to a 50% revenue increase. Timeframe over which updated fees are phased-in will have a direct impact on the amount of revenues collected. A current schedule to phase-in is over a four year period.

Mr. Baker added one potential concern with a protracted phase-in period will make it difficult to project revenue collection for future years. The relationship with the recent rate package is another consideration. One rate option considered at a more conservative level is FRC revenues and one more optimistic which increases the level. This gave the impression of a direct link between the rates and the FRC. While the level of rate increases is dependent on the revenues collected, as shown from the

Finance Committee Meeting
February 29, 2012

calculations, the calculation of the FRC is not dependent on the rate increase itself, but it is influenced only by the actual cost of providing the new capacity is. Based on Mr. Baker's judgment, an appropriate course of action would be to recognize a relationship between the rates, but it is a one-directional relationship, once the phase-in period for any revised FRC fees are completed, re-evaluate the rates. After seeing what the new level of revenue is, this could potentially reduce the need for rate increases in later years. A more condensed phase-in period may be preferred.

The last consideration is the concern of a rush of individuals paying for FRCs on projects that may be in the pipeline so they can get in before there is an increase to the fee. This is a significant issue for the department because by accepting the payment for an FRC, the department is committing to provide a system that can support the new required capacity. If a large number of people pay for FRC's now to get the lower rate but do not actually install a meter for a number of years, the department will still be obligated to build the capacity for them and will be required to maintain the capacity. If no meter gets installed, the customer would not begin paying a service charge. A service charge is designed to pay for the cost of maintaining the baseline system capacity. There would not be any rate revenue to pay for the cost of maintaining that system. If nobody has started using the capacity, there is still a cost.

DISCUSSION:

Chair Dill referred to Table 8-C and Mr. Baker confirmed all the calculations result in establishing the FRC for a 5/8-inch water meter with the rate of \$13,500. Pro rations are used to determine appropriate FRC for larger water meters. Standard formulas are available, industry standard for the amount of consumptions that is expected from different meters, but there is a wealth of data for the DOW's system.

Mr. Baker explained the smaller meter sizes with numerous customers, SAIC used the average metered water use and did a ratio from the average for a 5/8-inch meter to the larger meter size. Meter sizes 5/8-inch through 2 inches was the basis for the calculation. On those meter sizes, it is based on actual average metered consumption, not meter size. Chair Dill requested to see a new column in Table 8-C indicating number of data points used to generate the average. For large meter sizes, there were not enough customers or not enough data point to get an average. For the larger meter sizes they used the AWWA flow factor based on the cross-sectional area and the flow capacity that meter can support.

Mr. Nishimura commented that the 3- to 8-inch meter sizes are based on cross-sectional area and asked if this was based on comparing it against a 5/8-inch meter or against the 2-inch meter? Mr. Baker answered that the 3- and 8-inch sizes were compared based on cross-sectional areas against the 2-inch. The ratios for the 3-, 4-, 6-, and 8-inch sizes are indexed to the 2-inch size.

Chair Dill mentioned the 3/4- and 1-inch meters average were skewed by outliers, and was adjusted the ratio to compensate. Mr. Baker stated this was the last two years of data. Some the numbers in the data was received in the fill-frequency analysis from the Honolulu Board of Water Supply (the data did not make sense). The result was that the 3/4-inch average was coming up dramatically high relative to both the 5/8 inch and the 1-inch. They deleted those outliers in the calculation. The average was adjusted by deleting those outliers, not the straight average.

Mr. Baker stated the gallons per-day column is the actual straight average number. Mr. Dill noticed the 3/4-inch adjustment was down, but the 1-inch was adjusted up. Mr. Baker stated their engineering judgment was to delete certain outliers. They could show the revised number in the gallons per-day

Finance Committee Meeting
February 29, 2012

column. Mr. Baker could include the gallons per day and show whether it was adjusted or not. He would confirm the period of time they were taking this average water use which may have been a three or four-year period. Mr. Dill requested to have the period of time shown on the final report.

Chair Dill mentioned the 8-inch water meter size data appears to be off assuming the DOW has a very small data group. Manager Craddick stated the 8-inch is for two meters for the airport and the harbors. Fire flow goes through their larger meters. Mr. Baker will add a note that clarifies the reason the data is off. For the larger size meters, while their metered consumption may be lower than what they could be consuming, a system needs to be provided that can support the capacity that they have paid for. The larger meter size tends to be a variance between what the meter consumption is and what the capacity they could be consuming. This is the reason they deferred to using the AWWA factors, because it represents the amount of capacity they could demand and the system has to be built for it.

Manager Craddick stated the airport wants to increase their capacity with their current meter size. The DOW has an agreement with the airport to limit their meter capacity. If they want more capacity, they have to pay for it using the unit numbers for source, storage and transmission and multiply it times the additional capacity they need and come up with a special fee. Mr. Baker agreed to account not just for their average, but also for the peak that they would put on the system. For source and storage it factors for the peak which includes the 1.5 for the max daily demand. By calculating the max, you use the same formula. For source and storage, calculate for the peak and not the average.

Mr. Nishimura asked if the 3-inch through 8-inch FRC charges are based on potential flow and if it should not have already been accounted for? Why is the DOW charging additional FRC? Manager Craddick stated it is not accounted for because the airport was given a larger meter size than what they needed because of their fire flow requirement. Mr. Fujikawa will check the files if the airport paid FRC for the bigger meter. Mr. Nishimura stated if the DOW paid for the FRC and it is a one-time charge, why is the DOW looking at charging another FRC? Are they requiring more capacity? Mr. Baker explained there is an existing agreement that limits their capacity. They may have had an agreement to pay a reduced FRC at the time and records should be verified.

Chair Dill and Manager Craddick agreed that the Rules Committee is currently reviewing all the DOW FRC application of fees. The FRC's should be reviewed and how they are applied. Chair Dill stated the Rules Committee should adopt the rules before the DOW adopts these new charges.

Manager Craddick commented that the phase-in is working and there is a problem where the DOW is required to pay the development fee plus put the improvements in or bond them which is awkward. He feels the longer the delay, the more likely the DOW is going to collect the money. The fees need to be paid. It is easy to divide 100% by four 6-months' period and move it down to two years. Six months is ample time to put in a lateral. If several people came in wanting to put laterals in all at once, outside help would be utilized instead of staff.

Chair Dill acknowledged that the tables had different totals in Appendix D, the Grove Farm project. He asked how was the Grove Farm project treated that had an affect on this? Mr. Baker stated the Grove Farm project was not included in the Appendix tables because they were prepared separately from the analysis related to the Grove Farm project. The calculation on Table C-1 was done the same way as for any other project. Costs were looked at, the amount of new capacity that it would provide

Finance Committee Meeting
February 29, 2012

and what percent of capacity was for new growth versus the existing system needs. The note was to clarify there was a consistency difference with other Appendix tables.

Manager Craddick commented that once the fee is set, the DOW would replace capacity taken from existing development agreements that the DOW has with Kukuiula and Grove Farm. By opening a valve, the DOW can take a lot more water and bring it into the system and give water out to people. The DOW is not going to have the new fee in place, have excess water that Grove Farm is not using and not give it out if it can be replaced. The DOW would start planning for building a new treatment plant and give the water out and make sure when Grove Farm needs the water, it is there. The DOW has an agreement which goes to their projects. If they do not build out 100% on the first day, then the capacity is there. The DOW can use it provided it is replaced and it is there when Grove Farm needs it.

This also affects Kukuiula which has many wells that are not being used near capacity. Kukuiula will not build out for many years. The DOW would use the wells up and as they approach a limit, then the DOW would have the money coming into this fee where the DOW could add additional wells. Manager Craddick stated Kukuiula has given the DOW those facilities without an agreement. An agreement will have to be completed with Kukuiula. This is the understanding that they gave the DOW for their build-out. When the DOW accepted the facilities from Kukuiula, those facilities were given with the understanding it will serve their capacity when they need it.

Mr. Baker explained Table C-6, lines 25, 26 and 27. State statues requires an analysis be done which identifies what portion of the rates a new customer will be paying and going to source and storage, repair and replacement projects, existing deficiencies and debt service on existing facilities. The calculation of the present value is the rate payments over a 20-year horizon. The calculation of the present value of the unit costs is a great revenue for R&R, existing deficiencies and existing debt, which is calculated on a per GPD basis in line 24. The remainder of the 20-year period is a six-year average. Take the average of those of what it is over the six-year period, then take the present value of those dollars per GPD metered consumption which is 488, is the 20-year present value at a nominal discount rate of 6%. Manager Craddick has an Excel sheet which calculates the net present value of a series of values. Take the period of 20 years of these values calculates what the net present value is.

Manager Craddick commented on the phase-in if people pay a fee and do not take the meter, they are not helping to pay down this debt service that this credit is given from. They are getting a credit and yet they never put the meter in and never use water. The quicker the DOW phase those out and make them pay the higher fee, the more likely the DOW will make it with a lower number.

Mr. Baker acknowledged that these calculations all work on the assumption that a developer pays the fee, puts the meter in within a nominal time frame but this is not happening according to Manager Craddick. Mr. Baker added there are issues on the finances of the department if there is a very large lag, and some people have paid the FRC 10 years ago and have not installed the meter. The department is obligated to build a system once they accept that FRC payment to support—to provide that capacity even if somebody does not put the meter in. They are not paying the service charge, which is support to cover that system capacity, and the O&M on that system's capacity. This is not a revenue positive situation for the department to get the FRC and then not have to ever provide the capacity.

Chair Dill asked if the Rules Committee establishes rules where people who pay an FRC and sit on the meter? Does the department decide to refund the FRC if no meter is installed in 12 months? Would

Finance Committee Meeting
February 29, 2012

that address the concern and would this affect the way the calculation is done? Mr. Baker said it would not affect the calculation because the calculation does not assume that is going on right now. There is another way that it could be addressed. This would be a policy question than a finance question. Put the clause in the rules stating “once the developer does elect to install the meter, they would be required to pay the difference in whatever they originally paid and the current FRC.” If they sat on the FRC charge for five years, the department could have them pay the difference in between what they previously paid if they have not installed the meter after 12 or 18 months. If they take longer to pay, and if rates increase, charge the difference at the time of the meter installation.

Manager Craddick wanted clarification during an audit on whether after this work is done, if the department needs an auditor. Mr. Baker confirmed his contract is only with the Board.

Mr. Baker stated on Table 6, line 15 there was less projected FRC revenue. The projection period though 2016 was taken from the water rate analysis. There were no new revenue projections.

Mr. Nishimura requested Mr. Baker to explain lines 23 and 24 on how those numbers were derived. Mr. Baker stated the lines should be lines 21 and 22 and the dollars per kilo gallon is taking line 21 rate revenue calculation divided by the system wide water sales. It gives a unit basis for rate revenue for these deficiencies per kilo gallon. The dollars per gallon per day is done by dividin, based on version two, taking the gallons divided by days.

Mr. Nishimura mentioned from a budgetary standpoint, the department should be using those numbers for primarily the DOW’s replacement, source, storage or transmission, and lock up or setting it aside specifically for purpose as opposed to allowing operations to access that money. Mr. Baker stated this is a characterization of what goes on an average basis. In some years there may be a lot of necessary repair and replacement. Mr. Nishimura wanted to know from an operations standpoint, should the deficiencies monies be separated from operations use?

Manager Craddick explained the money the DOW identifies is going to the FRC charge. These deficiencies are rate generated monies. The department gave capacity to people that did not have capacity for and currently everybody pays for it. The FRC fee is reduced below what is needed in order to provide those facilities. If the money is put over to the FRC fund and the facilities are built which the deficits were intended, then the individual is getting the full FRC charge and not charging the new expanded rate that was allowed for people to get on the system without having adequate capacity. Mr. Baker clarified it is expenses for repair and replacement, projects for existing deficiencies and existing outstanding indebtedness. The intent of the calculation is a new customer pays a fee. They should be paying the full cost of their capacity, but they are joining into a system that has existing outstanding debt.

Manager Craddick commented that none of the debt is for source, transmission or storage. The only debt that they are paying for is line replacement. This is one problem the DOW has had when you give the credit, because they are not paying the debt which is going to the FRC. The reserve is partially funded from the FRC also. Whatever is expansion related will come out of the FRC. Mr. Nishimura stated the bulk of the reserve is coming out of the rate structure. Manager Craddick stated $\frac{3}{4}$ or $\frac{2}{3}$ of the BAB is for system replacement, not for expansion. This issue needs to be cleared up.

Finance Committee Meeting
February 29, 2012

Manager Craddick added that the expansion related BAB debt and principal will be added. The projects are listed and the debt and interest payments need to be included. Twenty million dollars of the debt would be adjusted. The department now has the BAB, the SRF that is expansion related and 10% of the rest of the projects are supposed to be shown as being debt financed and out of the FRC fund, not out of the rate payers. The SRF was used for expansion which was reviewed by the auditor and the state. Since they are expansion related for the department, the state does not consider them expansion related as long as they get paid.

The stable tank built in Waimea is definitely for expansion. This is how the DOW was able to cancel the restrictions out in Waimea and the FRC is paying for it. This was the adjustment that was done on the audit two years ago, paying into the water rates from the FRC fund that the rates had paid for from the time the loans were issued. The FRC has already reimbursed the water rate payer for all that back debt service they paid. This is the process they have used and subject to getting the projects correct partly paying for the debt service and the methodology process is accepted as it was done. Chair Dill added there is a lot more to review with all the numbers presented.

Mr. Nakaya moved to receive the data which was presented by Mr. Baker and deferred to a committee meeting for more discussion; seconded by Mr. Oyama; motion was carried.

Adjournment

Mr. Nakaya moved to adjourn the meeting at 10:08 a.m.; seconded by Mr. Oyama; motion carried.

ein

Finance Committee Meeting

April 10, 2012
9:30 a.m.

Committee Members Present: Larry Dill, *Chair*, Clyde Nakaya, Roy Oyama

Absent/Excused:

Board Members Present: Darryl Kaneshiro, *Vice Chair*, Randall Nishimura

Staff Present: David Craddick, Andrea Suzuki Deputy County Attorney, Carol Beardmore, William Eddy, Marites Yano, Gregg Fujikawa, Val Reyna, Sandi Nadatani-Mendez, Joy Buccat

Guests: Trae Menard, Kauai Watershed Alliance, Allan Rietow, Kauai Watershed Alliance, Melissa Fisher, Kauai Watershed Alliance, Michael Loo, Princeville Utilities Co.

AGENDA

Mr. Oyama moved to accept the agenda as circulated; seconded by Mr. Nakaya; motion was carried.

NEW BUSINESS

a. Draft Budget 2013

DISCUSSION:

Manager Craddick stated guests were present from the Kauai Watershed Alliance for the 2013 Draft Budget.

Chair Dill suspended the rules for Mr. Menard's testimony.

Mr. Trae Menard with the Kauai Watershed Alliance presented his testimony

Mr. Menard works for the Nature Conservancy of Hawaii and has been the Coordinator for the Kauai Watershed Alliance since 2005. The Kauai Watershed Alliance has been protecting the core of the watershed where the majority of the rain falls on the island and recharges the aquifers and streams. Pigs and goats destroy the vegetation, trample and dig up the soil, expose it to erosion and prevent water from infiltrating the soil and recharging the aquifers and streams.

Mr. Menard mentioned invasive plants invade the forest, displace native and invasive plants such as strawberry guava. The strawberry guava use 27% to 53% more water than the surrounding native Ohia forest. Climate change is another threat the watershed faces. Science is projecting a decrease of 5% to 10% rainfall on the Leeward sides of the island. A five-mile fence was constructed which connects Wainiha Pali, owned by McBryde Sugar Company and the Blue Hole Pali. These areas are impassable

Finance Committee Meeting
April 10, 2012

by feral animals due to their steepness. The fence encloses about 2,000 acres of the summit of Waialeale, the highest rainfall area on the island. Another fence was constructed from Pali to Pali in Wainiha Valley. The fenced off area protected 4,500 acres of the upper valley of Wainiha. The animals will need to be cleared out of these areas, where none are left. Fences will be maintained to keep the animals out for the future.

Mr. Menard added 90% all the animals have been eliminated in the Alakai plateau portion of 2,000 acres. There have been 62 pigs and 41 goats removed with about 20 animals left. Animal removal operations will start in the valley portion starting in June and will be completed in a year. When this is done, the longer-term vision for Kauai and the state was outlined in the Governor's plan, "The Rain Follows the Forest," which was released in November. The plan by the Department of Land and Natural Resources to fence off and remove the ungulates and control the weeds in 90,000 acres statewide will double the protected area. This plan will be accomplished in 10 years. Kauai has 25,000 acres of the priority watershed areas.

The goals for the Kauai Watershed Alliance is to continue fencing off more of the areas of the Alakai and then moving out into the eastern flanking Palis such as Blue Hole, Eleele Ula, and Grove Farm. There is a tentative agreement to continue working in the Alakai to construct more fences and remove animals from 3,000 to 5,000 acres. The overall plan in 10 years and 25,000 acres on Kauai will cost and between \$22 million and \$25 million. Next year it is expected that \$800,000 will be needed to continue managing the areas which were fenced off and to begin scouting more fence lines in the Alakai. The Kauai Watershed Alliance has accomplished a lot the last five years of operations.

DISCUSSION:

Manager Craddick inquired if the \$150,000 matching funds required help. Mr. Menard stated the county money is significant which can be used to match federal money. If the Watershed Alliance receives state, county or private money, it can double or triple the money by putting it out and then being able to apply for grants and acquire federal money. The county money is used to supplement a lot of the money the Watershed Alliance is pulling in from the feds and the state. This would be funding for weed control and animal control which are on-going battles. If the money is received early during the year, the greater chance it can be matched and tripled with federal and state money.

Chair Dill asked Mr. Loo to expand on the Kauai Watershed Alliance mission and how it helps to further the mission of the Department of Water (DOW). Mr. Loo stated their company has been a part of the Kauai Watershed Alliance since inception. Their company is owned and operates a water company with their resources. Along with the DOW and large landowners is to preserve as much as possible with the help of the Nature Conservancy. The Nature Conservancy is helping to and reach out to other government entities and other private entities to help preserve watershed. Some of the other alliances on the other islands are on private property and in different sectors.

Mr. Loo added if water is not preserved, there will be problems in the future and if the land is not preserved, the water will go away. He added if the DOW is going to raise rates, to put a little aside for preservation of the resource.

Mr. Rietow, Field Representative for the Nature Conservancy is the Coordinator for the Watershed Alliance. His handout summarized a statewide history of the Kauai Watershed Alliance and alliances across the state. He read the mission as follows: "*The mission of the Kauai Watershed Alliance is to*

Finance Committee Meeting
April 10, 2012

protect, preserve and manage our valuable watershed resources for the benefit of our residents, communities and all future generations through the concerted efforts of our members.”

In closing, Mr. Loo added they are in the water and wastewater businesses which is often unappreciated. Preservation for this resource goes beyond most people. This is coming into focus with the legislature because there is pressure on this resource like development, expansion and reduction of agriculture.

Mr. Rietow provided member names of the alliance as follows: The Department of Hawaiian Homelands, Alexander & Baldwin, Lihue Land Company, Grove Farm, State of Hawaii, Kauai Ranch, Princeville Corporation, Hanalei, Namahana Farms, National Tropical Botanical Garden, Kamehameha Schools, Jurassic Ranch and the Kauai Department of Water. The originators of the alliance are Ernie Lau, who was the predecessor of Manager Craddick, Alvin Kyono and others.

Chair Dill previously chaired the Kauai Watershed Alliance when he was in Princeville. He vouched for the efforts of the alliance and the good work they do. The Kauai Watershed Alliance should be proud of the way they managed their funds and leveraged their funds when compared to the other partnerships across the state. They have a wonderful track record to show what they have accomplished with their results and he fully support their efforts.

(5-minute Recess)

Chair Dill called the meeting back to order.

Manager Craddick highlighted the handout on the budget that deals with the Kauai Watershed Alliance on the Summary Page titled, “Report to the Finance Committee, Proposed Fiscal Year 2013 Budget.” He stated after the budget is reviewed, any requested changes and approval are required by June 30, 2012. Revenues of \$34.8 million incorporated a 22-4/10 % rate increase which was approved by the Board since January 1, 2012. This is the biggest change in the income. The previous budget used the current rate increase for half a year. The next increase will be in January 2013. The R. W. Beck study had the rate increase to begin July 2012 and not January.

Miscellaneous Income reflects \$1.98 million for debt requirements of the BAB, SRF, and another bond debt from the FRC account to pay for expansion-related projects keeping with the user-pay principal. For the FRC portion, the transfer out will go into the water revenue fund.

The Water Service Revenue is \$24.3 million based on the January 12th financials and the revenue from approved increases was used to prepare this budget. This requires a 0.8% increase in consumption which may not be realized. This year there has been no increase in consumption and there has only been a drop in income because of the rate increase. The financials were prepared based on the January financials which the Board received at the last Board meeting. Going through the budget, there will be newer updates to see whether the Department is getting any additional income from the rate increase in January. There is no rate increase in consumption and if this happens, the Department will not be meeting this number by year end. Manager Craddick stated if the amount is not a significant amount, the amount will be left alone.

Finance Committee Meeting
April 10, 2012

Mr. Nakaya questioned what does 0.8% equate to in dollar amounts? Mr. Craddick explained 50% of the DOW's consumption is in the lowest block rate and there is 0.8% listed. In the higher blocks, there would be some percentage increase but he is not sure what block it falls in. Fifty-two percent of the consumption is in the lowest block rate. By taking the consumption of 4.2 billion gallons, and take 0.8% of that, then divide it by a thousand x (times) 320 equals a rough number. Ms. Yano will prepare the dollar amount if it does not get the 0.8% increase in consumption. Manager Craddick's estimate equaled about a quarter of a million dollars.

The expenditures and salaries are budgeted to \$40.1 million above last year's budget. Positions which were vacant are now getting filled. This increase includes fully funding employee retirement and medical costs which the DOW have not been doing for over a year and is part of the normal budget cycle. There was no big increase in the previous year. DOW is seeing increases and is being fully funded. Up until two years ago they were fully funded. Last year there was an adjustment. The DOW is more than one full budget cycle and not showing as increases in the budget anymore.

Manager Craddick explained electric costs are expected to rise and operational costs are lower due to inclusion of exercising the Waiahi Treatment Plant purchase option. From the operating budget, \$1 million was cut. The budget states \$5 million. Tess stated it is \$6 million but in the paper, Manager Craddick read it at \$5 million which there is a question about the land. It does not change the budget summary. Mr. Nishimura requested to see how Manager Craddick came up with the numbers. Manager Craddick stated this assumes the transaction to be completed by December and a contract in place to operate the facility until the end of the fiscal year. Next year there is another half million in savings which appears to be \$1.5 million per year but is actually less because it was budgeted the half million in case the DOW needs to use the facility at full capacity of 3 million gallons a day.

Typically half a million is never used from the budgeted monies. The \$1 million in savings would occur in 2019 when the agreement terminates with the facility being turned over to the Board. For clarification, if the DOW brought it out, it would not be turned over to the DOW. The facility would be turned over to the DOW with the land at no cost. The DOW would have paid all the costs during those remaining years.

Mr. Nakaya inquired if Manager Craddick discussed with Grove Farm the purchase, or is the DOW going to accept \$6 million, or will Grove Farm sell it to the DOW for \$6 million. Manager Craddick stated Grove Farm does not have a choice. The agreement is fixed on what the DOW is paying. The DOW is paying two-thirds of the capital cost with a remaining payment of \$4.8 million. This includes a buy-out clause at anytime. A letter would be sent to Grove Farm stating DOW would like to exercise the option to buyout. The DOW has 90 days to discuss the price. If Grove Farm rejects the option to buyout, there is a process for going to court and getting an appraisal which revolves around the purchase price of the land. The Board previously made a motion that the land be given with the plant. The final agreement was signed by the Board Chair without Grove Farm giving the land and the land had to be purchased. It did not go to full term which explains the extra money.

Manager Craddick explained the DOW does not pay for the land. Whatever the land costs is something extra the DOW is paying and is included. He estimates that \$1.5 million in total would be saved on the purchase price. Another consideration is what kind of other jobs the DOW could be doing with the \$6 million without having a rate increase.

Finance Committee Meeting
April 10, 2012

Mr. Kaneshiro questioned if the DOW buys out at the end of 2019, would the savings be \$6.3 million which includes operating costs? If the Board does not want to do this, the budget will jump another \$1 million and the capital program will drop by whatever the purchase price is. This year the DOW assumed the operation would continue for six months and only had to continue for 90 days if the DOW moved to July 1st. If the DOW does not reach an agreement in 90 days, there is a provision to mutually extend the 90 days. Manager Craddick asked the Board for approval to move forward with this project as part of the budget proceedings. Mr. Yano stated assuming the DOW buys the Waiahi Treatment Plant, the water purchase is cut by 50%. The budget is now 1.1 million for 2013. Manager Craddick added the budget will run at 3 million gallons but actually runs at 2 million gallons. The other half million saves on the budget, but it does not save the DOW dollars because it is never spent that way.

The budget was cut by \$1.2 million and adding all the expenses, the DOW could take over the plant which would be contracted. The next year, the DOW could operate the plant with operational costs of \$200,000 or \$300,000. The numbers were taken with what is costing Grove Farm to run the plant. If the DOW bids goes out, there would not be a higher price than what is costing Grove Farm to operate the plant. If more than one company bids for the plant, the price may be lower. If the DOW puts it at the current price, this would be a maximum. The DOW would take the chemical and electrical costs.

Ms. Yano referred to Tab 10, Item No. 55, page 7 (Purchase of Water) which states 3 million gallons per day at \$2 per 1,000 gallons as the purchase price. Mr. Kaneshiro asked if the DOW is still going to sell it for five-something per 1,000 gallons. Manager Craddick stated this portion is already in the budget. The water that is sold is part of the consumption and comes out of the treatment plant. The revenue portion is not going to change by buying the plant. Expenses will need to be cut. Manager Craddick noted the operating costs would have to be increased by \$0.75 million dollars this year if the buyout of the plant does not go through. The revenues for capital projects come from the bonds, revenues, SRF loans and FRC charges and reserves from previous years. The DOW is spending down the remainder of the BAB. There is a small percentage in FRC in the DOW's existing contracts which are being completed. BAB projects are expansion-related projects but the bulk are replacement projects.

There is \$16 million in the utility fund from the beginning balance and revenue that the DOW has over income. The Work-in-Progress money is encumbered on existing contracts which will be spent down next year. There is \$3 million for the Grove Farm replacement tank and \$5 million for the portion and the Yamada tank are not related to expansion. They are all part of the BAB projects. When these projects go to bid, the BAB projects are dollar funded because there is still debate of which ones will come up first. There is a possibility of receiving grant funding. SRF are grant funded. The Nene project is high on the list but is non-grant funded. The treatment plant is the most controversial because if the DOW pays this, there will be less money for other projects. Depending on how much is saved, those projects would have to get deferred. The expansion-related portion of the new building is \$2 million but nothing for the replacement portion of the building. The DOW would be \$4 million short if the new building is done this year. Manager Craddick stated there isn't anything if they do the extra section where the pipeline ended off going across the iron bridge. The state would have to move the DOW's 16-inch line. If this is expanded to 24-inch, it would cost between \$1 million and \$2 million. This design-built project is not in the budget yet.

Ms. Yano explained the 15 sections of the budget on Tab 6, 7, 8, 9, 10, 11 and 12. Tab 2 is the summary of all sections. Under Major Expenditures are salaries, normal expenditures, debt service and

Finance Committee Meeting
April 10, 2012

equipment, miscellaneous capital expenditures and fixed costs. Tab 11 is Contract Expenditures / Capital Expenditures, Tab 12 is Replacement and Rehabilitation Projects, Tab 14 is FRC and Tab 15 is Building America Fund Projects.

Revenues are based on the current water rates. The new water rates are based on the R. W. Beck study. Estimated revenues are \$34.8 million which is a 4/10% increase. Reimbursement is included from the FRC and the debt service requirement is \$1.98 million. Tab 3 is Miscellaneous Income, a combination of interest income, service charges, other receipts received from the state. The major portion is the water sales and service charges.

Manager Craddick asked Ms. Yano if the Emergency Reserve Fund is \$2.4 million. She explained the \$1.2 million listed is the 2012 Emergency Reserve Fund which will be transferred into the Emergency Reserve Fund, a new budget item. Manager Craddick stated 25% of the \$13 million is less than \$3 million and the DOW has \$2.4 million and the next year would be less. It would be around \$1 million or less than a million dollars to fully fund. Ms. Yano noted the new policy under the Emergency Reserve Fund is changed based on the operating facilities revenues. Originally 25% was budgeted for operating expenses. Manager Craddick stated that is about \$13 million and 25% is around \$3 million. If the total is \$2.4 million, then there is only \$0.6 million to put in to fully fund for next year. Ms. Yano stated next year this can be adjusted on the next budget.

Manager Craddick added the operating cost total is based on the previous year's audit. For this year's audit it is the operating cost less depreciation. The operating costs in the audit have been flat for the past three years (around \$13 million). The rest is debt service which is a big number in the capital program. Most of the salaries budgeted end up getting capitalized at year end including some of the operating budget if there are capital projects. Even though the DOW has to fully budget for salaries, it does not end up getting charged to operating costs at the end of the year when the audit is done. Cash budgeting is currently done.

Mr. Nakaya stated the contracted capital expense of \$2.299 million on Tab 11 shows all itemized encumbrances for 2012. Ms. Yano stated this number might change depending if the DOW has something in the 2012 fiscal year.

Mr. Nishimura commented that salaries for two additional positions have been approved in the Table of Organization for the Purchasing Agent and Accountant II for billing. He asked if the Accountant II was a temporary position and if one position can be dollar funded with one of the other positions that was not fulfilled. There are 67 positions that are filled. If the Accountant II position is going to be temporary, he would like to dollar fund water resources since they took one, and it looks like it was put back. Mr. Fujikawa clarified it was the engineering position which is still the position Mr. Nishimura wanted to terminate, but it is still listed. Manager Craddick stated this position is dollar funded because Mr. Keith Aoki wanted to get a CE 4 versus a CE 2.

Ms. Yano referred to the details for Operations, Tab 10, page 3 on overtime. Mr. Reyna indicated about \$200,000 for this year was spent for overtime and \$220,000 from last year. Manager Craddick explained the overtime will be paid back by the contractors due to a lot of tie-ins and inspector time. There is a possibility of not having many tie-ins this next year and the overtime may go down. The revenue in the budget would be under Tab 3, Miscellaneous receipts which indicates \$60,000 for next year and \$60,000 for this year. Ms. Yano indicated the billings are current on the previous year

Finance Committee Meeting
April 10, 2012

because they were holding work orders that were behind. Mr. Nakaya questioned the \$250,000 in overtime which only \$60,000 is being collected (less than 50%). Mr. Reyna explained a lot of overtime in Operations was overnight work for repairs for the Water Plan 2020. Some repairs were for customer call ins or Police Dispatch call ins. Seventy percent of overtime would be for regular repair. Maintenance and is not reimbursable. Mr. Nakaya figured from \$250,000, 70% is over \$175,000 and the remaining is reimbursed. Manager Craddick stated the overtime is due to the SCADA system not operating and there is a lot of the plant operations staff who continually run overtime to pumps. The tanks, wells, expansion-projects and tie-ins were not as many as last year.

Mr. Reyna explained \$173,000 was spent on overtime on previous actual overtime expenditures for operations in FY 2010. In FY 2011, \$222,000 was spent. The \$250,000 is in line with what was spent the past two to three years. This year it is higher because they did an Amfac shaft. Ms. Yano added a combination of repairs is an expense. Some of it is capitalized into the jobs that are worked on and the rest are billed to consumers who request these jobs. Mr. Kaneshiro stated the DOW can budget less for overtime. Other departments may need some funding.

Ms. Yano referred to Tab 4, page 4 (Normal Expenditures Summary) which went from \$904,000 down to \$430,000 (See Tab 8, page 3). Tab 8, Item No. 27 page 1 (Water Resources and Planning) shows quantity. Ms. Yano referred to Tab 8 and noted out of the \$904,000, \$500,000 is in the water resource plan.

Mr. Nishimura thought the Watershed Alliance was \$75,000 that was encumbered and \$75,000 for this year. Ms. Yano explained DOW has been paying the Watershed Alliance \$50,000 yearly in increments of \$75,000. The last \$75,000 has not been paid and what was budgeted in 2012 will be rolled over into 2013. This budget would be used and put under Tab 11 (Encumbrances). Manager Craddick further explained the DOW requires the matching funds. Halfway through the year they can get the match for at least half and the last half of the year, until their budget year closes. They do not have the other portion to match. The DOW usually does this until the end of August to get the match completed and a payment is made.

Manager Craddick spoke on the rainfall study which was \$80,000 for the first year, \$70,000 for next year and \$10,000 should be minused from the \$80,000. Mr. Nishimura wanted to know why the rest of the money was only \$500,000 and the DOW has the reserve which should be cut. Mr. Nakaya is looking at 11.3% against 11.4% and against the 13.7% which is almost 16%. He would like to reduce the normal expenditures budget. Mr. Nishimura stated if the DOW has not required the \$1.5 million over the last year was it reasonable. This is almost 15% of the normal expenditures budget. There still is the operating reserve that the DOW can fall back on in a true emergency. Mr. Nishimura expected the gap to be smaller. He feels if the rates are increased, budgeting is off by 15% which translates into hard dollars for the rate holders.

Ms. Yano referred to Tab 5, Item 2, page 2 (County Service Charge) which indicates a big increase on the DOW's contract. DOW bills the county but is also expensed in the books. The \$1.4 million was taken from the R. W. Beck study, the new water rates, which are based on old hydrants. Mr. Kaneshiro asked why the number jumped up. He feels with all the new lines being put in, the DOW is adding new hydrants and not minusing off the ones that are being taken out of service. Ms. Yano asked if this is actually another \$0.5 million increase in the normal expenditures which is not really a capital expenditure. It is recorded as revenues coming in and expenditures going out. Mr. Nishimura would

Finance Committee Meeting
April 10, 2012

like to see the budget and the estimate numbers come closer in line with each other. If the DOW keeps overstating, it will keep pumping up the water rates.

Mr. Nishimura needed clarification on the 2012 encumbrance if the \$2.3 million is only capital or normal expenditures. Ms. Yano referred to Tab 11, (Normal Expenditures). Item 24 is Maintenance Agreement and Item 27 is Contractual Services (See page 1 and page 2). The 100 series are capital accounts at \$400,000. Manager Craddick asked if the water use and development plan is going to be capitalized. It is shown as expense because the Department is not sure what intrinsic value it might have to the DOW. This is more of a legal requirement.

Mr. Nishimura referred back to the water rates. Some items are being expensed out and then capitalized later. The water rates are shown as normal expenditures which inflates the water rates unnecessarily. He wanted to know why the rate holders are getting charged at the full brunt of these capital items.

Manager Craddick commented it is tough to take out a loan on the water use and development plan. If there is a recurring expense, typically it does not make sense to borrow money for it. The Water Department's recurring expense are pipelines. Ms. Yano stated the water use and development plan are not going to be capitalized but the expenditure will be amortized later. This would depend on how many years estimated it is going to be used. The expenditures are spread out in longer years instead of just this year. It is shown in the 2013 budgets and 2012 budgets because the funding is needed this calendar year which will be paid. The phone system could be leased but in the long run, the Department would end up paying some percent and costing more.

Manager Craddick indicated there will be changes in the capital projects. There are 19 projects that affect the bond. Mr. Nishimura mentioned an outstanding balance of \$19,000 million and asked if some have been encumbered in Tab 15. Manager Craddick stated the new building may begin the next fiscal year. The money will be spent if it is all encumbered. There are two tank jobs which should be reflected in this fiscal year budget. The three years of the bond could probably be around \$10 million to \$12 million which are not spent yet but should all be encumbered.

Manager Craddick indicated \$2 million is included in the budget. The projected \$4 million is not in the budget because the DOW can get SRF money for it. The DOW can get the photovoltaic system with grant money which is being worked on. The number of customers was projected to 2050 compared to this year which is a 30% increase. It was justified by charging 20% or 30% of the building to the FRC fund and the balance would be paid by existing customers. With existing customers, the DOW can go to the SRF fund. The SRF staff could give grant monies for the photoval tank system on the building. This would add to the debt service. The R. W. Beck rate study planned projects are SRF funded at \$3.5 million next year. There is nothing being projected as SRF funded because we do not have any agreements with them yet. Manager Craddick stated Mr. Dustin Moises will be completing drawings and will present it to the Board on how this will be funded in December 2012.

Chair Dill referred to Tab 2, page 3 and stated the number of positions shows an estimated 67 positions. He questioned if the 67 should be 91. He also stated there are 36 vacancies and 12 should be negative (12) which carries throughout the other pages on the budget.

Finance Committee Meeting April 10, 2012

Mr. Nakaya referred to the expenditure for the salaries for 15 engineering positions at \$933,000 if it is going to drop to \$50,000 compared to the previous budget. For 2012-2013 there are 15 position at \$883,000 which is a decrease of 50 %. The total salaries of \$916,000 are in Tab 2, page 3. Some of these positions were funded for nine months stated Ms. Yano. Manager Craddick stated the budget will be ready for approval by the full Board in June.

Manager Craddick will have changes in the capital program. Mr. Nishimura requested to have a subaccount in the budget that delineates that portion so it is not spent for something else.

Mr. Nishimura noted the reserve is separate from normal payments. An emergency reserve is like the operating reserve only for emergencies. He prefers to set aside the monies for the debt service as a separate line item as opposed to calling it a separate reserve. Manager Craddick stated the emergency reserve is a separate line item, the debt service payments (Tab, page 1). There is no reserve associated with that. The DOW has a half a year reserve to set it in a reserve account. On the debt service, out of \$6.5 million, \$1.98 million comes from the FRC account to make up the total amount. The \$1.9 million is for FRC debt service. Debt service is a separate reserve item that is reserved for half the amount. Each year is budgeted the full amount. There is half a reserve at all times and each month 1/12th is put in. During the year, there is a full \$6 million number. On the same month, payment of half of it is out of the debt service. The purpose of this month is an operational reserve, not a debt service reserve. Previously discussed, the DOW was doing 25% of the entire budgeted amount which would have given a bigger amount or a little less. A Board member wanted to separate the debt service which would set aside some extra money. Manager Craddick stated if the debt service is not paid, it will give a warning at a minimum of six months notice. This would not be an emergency situation. If the project moves ahead, some projects should be set aside in order to fund them.

Ms. Yano mentioned the BAB subsidy is \$1 million for the year but 30% was set aside for FRC (Tab 14). FRC is paying part of the BAB debt service. Manager Craddick added the total debt service, 35% of the interest of the subsidy and divided it again. Mr. Nishimura referred to Tab 3, page 1 (Debt Service Payback). Manager Craddick stated the debt service payback is going to the general fund from the FRC to cover debt service on the SRF projects, the 2005 bond and the 305 BAB portion.

Mr. Nishimura commented that if the BAB subsidy is added and the debt service payback which is \$2.6 million more than the 25%. Manager Craddick stated 50% stays in the budget the whole time which is done with previous bonds, not just the BAB bond. Manager Craddick explained funding is spread out over two or three years. Instead of using the funds to pay debt service, the subsidy can be taken and put into the reserve fund and within two or three years it would be close to funding the BAB portion. With the SRF portion, the 2005 and 2001 bonds, the DOW would figure out where the money is coming from. When new borrowing is done, the initial payment goes in at the start.

Adjournment

The Finance Committee meeting adjourned at 12:11 p.m.

ein

Finance Committee Meeting

April 24, 2012
1:00 p.m.

Committee Members Present: Larry Dill, *Chair*, Clyde Nakaya, Roy Oyama

Absent/Excused:

Board Members Present: Darryl Kaneshiro, *Vice Chair*, Randall Nishimura

Staff Present: David Craddick, Carol Beardmore, Dustin Moises, Gregg Fujikawa, Val Reyna, Jeff Mendez, Keith Aoki, Fay Tateishi

Mr. Nakaya, *Temporary Chair* called the Finance Committee Meeting to order at 1:11 p.m. on behalf of Chair Dill; quorum was achieved.

AGENDA

Mr. Oyama moved to accept the agenda as circulated; seconded by Mr. Nakaya; with no objections, motion was carried.

OLD BUSINESS

a. Draft Budget of 2013 (Item No. 4)

DISCUSSION:

Mr. Nakaya questioned the proposed 2013 budget which Manager Craddick discussed regarding revenues estimates. There is a 0.8 % increase required for the potential consumption with a cost of \$110,000. Mr. Nishimura referred to Tab 2, Page 1, (Expenditures) and requested all encumbrances on the capital be listed by line items. Some encumbrances are shown by accounting line item which made it hard to follow the true encumbrance from the previous year. Ms. Tateishi referred to Section 11, Page 2 which included the total encumbrances of \$2.3 million.

Ms. Tateishi referred to the Four Winds contract which has an encumbrance (See Section 1, Item 24 (Budget Summary). Mr. Nakaya pointed out on Tab 8, Page 3 Item 27 (Contractor Services) the total income is not shown in Tab 11. Manager Craddick stated there was a Change Order during the job which was not encumbered and additional funds are available if needed. The grade came up about the water conservation whether the department was doing a conservation study. He questioned if there was enough contingency in the contract at \$514,000. Mr. Fujikawa stated the DOW budgeted without any contingency. The committee discussed if the budgeted amount was encumbered or if it was a new budget item in Item 27 (Contractual Services). Mr. Fujikawa stated this was a contingency that was approved in last year's budget referring (See Tab 8, Page 3). Manager Craddick could not answer the question of where the \$100,000 shows in the detail because he did not see it at the \$514,000 amount. The Summary is shown as a New Request and there was discussion to add a conservation plan to the water use and development plan which Mr. Fujikawa was not aware of. Manager Craddick mentioned

Finance Committee Meeting
April 24, 2012

a previous guest acknowledged the state was doing this because it was not considered in the budget. Manager Craddick's request was added to the budget in case it was needed. Encumbrances not contracted are moved to the back of the budget which are new budgeted items. The column should be renamed to "Encumbrances/New Expenditures" (instead of Contractual Services). The numbers are correct under Tab 8, Page 3 (Water Resource and Planning/Encumbrances Tab).

Mr. Nishimura referred to Tab 6, Page 9 (Office Furniture and Equipment) and inquired on the encumbrance \$205,000 for the ESRI Kofax large format printer, scanners and iPads for Board members. Mr. Mendez stated no contract was listed for the equipment.

(Larry Dill, Chair entered meeting at 1:31 p.m.)

Manager Craddick commented that the equipment is on the 2012 budget but is not encumbered. He suggested using the word, "Appropriations" from last year. By the end of the year, it could show up as an encumbered contract. Mr. Nakaya referred to Tab 11 (Encumbrances/Actual Contracts) and suggested a different title be used in the future. Mr. Kaneshiro added the computer leases should be encumbered but is under New Requests. The items listed in Tab 6, Page 9 (Office Furniture and Equipment) which are not encumbered by June should be New Request for this year. Manager Craddick indicated the budget summary should be completed before the Board passes a Resolution.

(Gavel passed from Mr. Nakaya to Chair Dill) Mr. Nakaya relinquished his temporary chairmanship to Chair Dill.

Chair Dill commented if an item was bought in the fiscal year 2012 budget, the fiscal year 2013 New Request would go away and it would be a budget request. Mr. Mendez was instructed to wait for an IT plan. The iPads were received and can be taken off the list. Mr. Mendez clarified that a new computer lease will be implemented the next fiscal year. There will be some roll over and some leases will end, then a new lease will be started. Mr. Mendez and Mr. Kaneshiro agreed this would cover what has not rolled over under the New Request. Previously, the budget listed second year and third year in the lease which are not bundled all together from last year under New Requests.

Mr. Nakaya inquired if the division heads met with Ms. Yano with their budget line items. Mr. Mendez sent Ms. Yano emails with his line item request and justification which were not go in the budget. Mr. Reyna met with Ms. Yano and Deputy Manager Eddy. Mr. Moises stated some items were submitted as justification but never made it into the budget. Mr. Kaneshiro said there should be a justification listed in the front Tab of the budget to make it less confusing. Mr. Nishimura stated this should be resolved internally.

Mr. Nishimura indicated the encumbrance is a global issue within the budget. He also inquired about the Water Sales budget. Mr. Nakaya asked what are the chances of \$24 million falling short? The write-up stated the consumption might not meet the 0.8%. Manager Craddick stated each year the DOW lowered consumption the year before which is not going up and there was a rate increase in January. There is no noticeable effect on the income with the rate increase and a lot of rain could be a factor.

Manager Craddick explained fire flow consumption dropped to almost nothing. It used to be a million gallons plus a year on the small meter on private fire systems. Mr. Nishimura asked if the fire system

Finance Committee Meeting
April 24, 2012

meter did other things. The billing shows it as proportional to the size of the pipe and engineering details. The DOW is charging the area ratio. The direct check is a large line with no meter on it. By the large meter there is a small meter with a ratio of 160 times. The meter is read at 1,000 gallons and billed for 164,000 gallons which caused the consumption to drop to zero unless there were leaks. The line should only be used for fire. The first billings were billed through the 5/8-inch meter. If 1,000 gallons went through and the other 164,000 gallons went through, it should be billed like it is going through a line with an 8-inch meter. The rules were changed to account for that and they are not operating with those new rules. This was a substantial error because it showed all the consumption which went on the top block rate. If there is an 8-inch meter, the 400,000 or 500,000 gallons is in the first block rate. This should have been billed at 320,000 gallons. The auditor stated the DOW's income last year was misstated which was corrected with the billing system. The prior bills will need to be corrected. Manager Craddick stated the cause of the consumption drop could be due to old conservation with people putting in new low-flow fixtures. This will affect an entire year's budget, with heavy rainfall causing income to drop.

Mr. Nishimura referred to Tab 2, Page 1 (Other Revenues) and stated previously the budget was around \$5 or \$6 million but this year it is up to \$10.5 million. He asked if the \$5.7 million is from SRF and what kind of contingencies would be made on expenditures. SRF has been applied for and is a reimbursement. Manager Craddick stated the SRF has been approved which is the high-level water.

Mr. Nakaya noted the state allotment for the budget was approved for \$4 million (See on Tab 1, Page 2, Item 5 SRF). The other receipts are SRF grant funds and the \$1.7 million was approved. Manager Craddick added one more allotment will be received on Thursday for \$200,000. Mr. Nakaya and Mr. Nishimura asked if the \$5.7 million was approved. They also asked if there was a contingency if the DOW does not receive the \$1.7 million or the \$4 million and if the DOW has to apply for it or can revenues be counted on now. Manager Craddick replied there is a contingency for the contract. If the specific items are not done, the DOW does not get the money but there be no expenses at the end of the year. Mr. Nishimura's follow up question was on the capital replacement, capital rehab, the CIP or FRC accounts. Manager Craddick stated the DOW has the money but if the work is not done to where they can get billed, the DOW will not receive the reimbursement.

Mr. Nishimura asked if the \$5.7 million is part of the \$19.046 and the \$942,000 on Page 1 (Operating Expenses/See Capital Replacement) which accounts for 20% of Manager Craddick's budget. Normal expenditures in this year's budget are \$13.1 million and \$2 million more than last year or a 600% increase. Manager Craddick will research the Miscellaneous Capital in the budget summary.

Mr. Nishimura referred to Line Item 3, Page 2 (Interest Income) which the DOW collected and shows \$200,000 in interest income. Manager Craddick stated the BAB bonds the DOW is making a very paltry amount of interest. Mr. Nishimura stated the DOW budgeted \$355,000 this year and is expecting to get \$60,000 for the year end projection. Manager Craddick stated not all the interest has been allocated. Mr. Nishimura feels \$235,000 on \$34 million is not a lot but is more than \$60,000.

Chair Dill referred to Tab 2, Page 1 (Water Sales and Service Charge) and stated the DOW is estimating \$20 million this year in revenue and \$24.3 million next year. This is a 21% increase with consumption flat with a 0.8% increase. The lion's share of the increase must be due to the rate increase. Manager Craddick confirmed the first rate increase does not show much revenue increase. The second increase will kick in for the full year. The \$20 million estimates are accurate this year.

Finance Committee Meeting
April 24, 2012

Manager Craddick added the Board packets include a chart showing the budgeted number the DOW is collecting with a comparison with the previous year month-by-month.

Chair Dill asked if the \$20 million estimate in FY 2012 includes the first increase. Manager Craddick was not positive if it included the increase. At the beginning of the year, the DOW did not know when the budget was going to get passed by December 25th and nothing may have been done. The DOW is not collecting what the projection was by R. W. Beck.

Chair Dill's concern was the estimate Manager Craddick provided for FY 2012. Chair Dill assumed the estimate included the rate that went into effect. Manager Craddick stated this was a projection based on what is coming in and on the January financials. The projection can be divided by the number of months and multiplying it to get to the end of the year. Only one month had a rate increase. Chair Dill's concern was there has not been a bump which Manager Craddick has not seen.

Mr. Nishimura questioned what the budget for 2011-2012 was based on. As of February, with 66 % of the budget elapsed, the DOW was 2% (approx. \$13.4 million) behind on water sales with no curve for eight months. Chair Dill stated to divide \$13.4 million by eight, times 12 equals 20.1%. Chair Dill looked at the basis for the \$24.28 million (See On Tab 3, Page 2). His concern is the DOW is budgeting predicted revenue of 21% greater than the past year. Tab 3, page 2 gives a projected consumption based on the 0.8%. The block rates will be effective July 1, 2012 as the rate increase portion with consumption was flat.

Chair Dill inquired if the DOW is too progressive in their earlier projections because he thought it was 11% per year. Manager Craddick stated this may have been affected by an extremely wet year. The DOW has only been off no more than 1% on the projected revenue. On Tab 3, Page 2 shows how the rate is calculated and taking the rebate from the first half of 2012 with a full year of collection on this rate. The rate consultant projected a 1% flow increase. If the drop is in the higher blocks, the drop will be more than \$100,000 which could double. The concern for the DOW is having a wet year and consumption falling 1% to 4% (2008-2009). There was an 8% drop in consumption in a single year.

Chair Dill questioned the power adjustment comparison from FY 2012 to FY 2013. Manager Craddick referred to the budget and stated the projected consumption of \$4.3 million but above the projected consumption is \$4.1 million. This was added to get the \$4.7 million for a cultural center which is not exempt from the power cost adjustment. Manager Craddick will research the entire cost adjustment rate in fiscal year 2012 which was less than 31 cents. Mr. Nishimura questioned if the DOW is increasing the rates by 22%. Consumption would not drop by 0.2. Mr. Nakaya clarified it would be 0.04% or a magnitude of a \$4 million increase. Chair Dill referred to Tab 2, Page 2 (County Service Charge) which went up half a million dollars or 50%.

Manager Craddick referred to the Fire Hydrant in Tab 3, Page 3 that the service charge that jumped from \$900,000 and needs to be reviewed. All new hydrants are being added from the construction and are not deducting all the deadlines which may be overstated. Ms. Tateishi stated the rates increased compared to last year. The 6-inch hydrant was \$408,000 last year and the 2013 hydrant is \$648,000, a two-thirds increase. Mr. Moises stated that number is probably not correct. He has not received a closeout from Fiscal to add the CIP projects. The fire hydrant number needs to be revised. Manager Craddick added he did not know R. W. Beck brought this item up because of their analysis and what was costing the DOW to do the hydrant replacement. The \$648,000, \$222,000 and \$105,000 rate

Finance Committee Meeting
April 24, 2012

charges and actual increases are from the Rate Study that passed for a rule. R. W. Beck uses cost accounting to back up the numbers. Manager Craddick stated this is relevant after reviewing the HR issue and is no longer what they are getting for \$900,000. The department is \$1.4 million in service from Personnel and the Finance Department. Chair Dill asked if the service charge is on the equipment for the meter or for a different service charge for the hydrant. Manager Craddick stated the cost includes the depreciation of the hydrant and yearly maintenance. Chair Dill reviewed the Rules in Section 4, Part 4 for whole year by multiplying this number times 12 (60 x 12, plus 54 x 12) which equals a monthly charge.

(10-minute Recess)

Chair Dill called the meeting back to order.

Mr. Nakaya referred to Tab 4, Page 4 (Expenditures) which dropped to \$13.1 from a budget of \$13.6 and an actual of \$11 million. He questioned how would water resource drop to \$484,000. Manager Craddick stated the contractual items are in this year's budget because it will not be needed next year.

Chair Dill referred to Tab 8, Page 1 (Contractual Services) and stated the budget is \$904,000 and is projected for the next year at \$420,000. Manager Craddick stated these items were encumbered and moved over to the Contractual Section (See Tab 12). Section 11, Page 2 is the Rainfall Study, USGS and the Water Use and Development Plan. Nature Conservancy should be listed as Watershed Alliance. In FY 2013, \$420,000 is proposed under Contractual Services (See Tab 8, Page 3).

Manager Craddick commented that the big drop out is the water use and development plan. Rainfall which is not normal will go away next year. The USGS joint funding program and support of the hydraulic model are typically there and the Watershed Alliance will stay. If the Bag Bill goes through the legislature this year and money is received from the state, the DOW may back off. The DOW paid out of 75 locations for the Watershed Alliance this year and another \$75,000 will be paid for the current year.

Mr. Nishimura referred to Tab 8, Page 3 (Encumbered Money/New Request). The U.S. Rainfall Study was moved to capital expenditure, two-year agreement, \$80,000 and \$70,000 with a \$70,000 request. Ms. Tateishi stated the two-year agreement is with the university. The first year the DOW was to pay up to \$75,000, and the second year to pay \$80,000. By the end of this fiscal year, a bill will be submitted up to \$75,000. The university has to pay \$80,000 for 2013. Manager Craddick stated the budget is short \$5,000. Mr. Fujikawa stated \$80,000 was encumbered.

Mr. Nishimura referred to Tab 11, Page 2 on another request for \$80,000 on the 2012-2013 budget. Manager Craddick believes this was not paid. He stated there is a confusing part of the budget when they expect the money to go out this year but does not. If the money does not go out this year, the request will jump up to the full \$150,000 next year and can both be combined to get \$150,000. He will meet with Ms. Yano for clarification.

Manager Craddick commented that the Encumbrance and New Requests are shown in two different places. The \$290,000 is a budget allocation for this year but with no contract and is not encumbered. The language will need to be changed. The Encumbrance Column on Tab 11, Page 2 was not paid out. These items need to be taken off the budget but it is part of the cash basis as opposed to an accrual

Finance Committee Meeting
April 24, 2012

basis. Manager Craddick stated it could be netted out and put in a column titled "Minus Encumbrances." He suggested an appropriation, then a contract would be done and the money is encumbered. It can be shown on the budget as: Beginning Cash Balance minus Encumbrances. There could be a summary of the existing encumbrances. Chair Dill and Mr. Oyama agreed to this suggestion. Mr. Nishimura and Mr. Nakaya agreed this is the only way this can be done as a cash budget.

Mr. Kaneshiro stated the first contract is over 10 years old and still shows \$12,246,000 (See Tab 11, Page 1). Ms. Tateishi stated this contract is being closed out. Manager Craddick explained the contract was suppose to make the payroll system work with the account which was not paid from 2000. He does not know how the department can close out the contract because the work has not been completed and encumbered.

Mr. Nishimura acknowledged that the budgeted items could be contracted before the end of the year and adjusted on the final Resolution. The items will move from appropriated "Not Encumbered" to "Encumbered." Mr. Nishimura suggested the program budget explain how the change will happen. The Board can read the reasons that match up with the budget number to elevate questions. The division heads agreed to have their overview summary ready by May 14, 2012 at the Rules Committee meeting.

Mr. Nishimura pointed out the surface water treatment plant purchase that the department is recommending, has capital and operating implications which should be voted on prior to meeting on the full budget. Chair Dill stated this should be dealt with in committee and come back to the Board with a recommendation. Manager Craddick stated they are separate from the budget which is not a true picture. Compared to what the costs are to the budgeted items, the department's costs are not the budgeted items. The department budgets a cost and is based on the audit numbers on the capital item and they do not end up allowing the department to show this as a cost item. He referred to the Grove Farm Water Purchase (GFWP) that showed budgeted numbers that were not actually spent. On Section 10, Page 7, the GFWP \$730,000 is budgeted and listed. In the past, the department budgets using 2 million gallons which is the minimum the department has to take. The department started budgeting for 3 million gallons and now the budget becomes much higher.

Manager Craddick referred to Tab 10, Page 1, line 55 (Total Water Purchase) for 2011 which was on the budget actual with a repeat number of \$1,513,046. This number was compared to what the auditor picked up as \$623,721.

Manager Craddick commented if \$600,000 is minused, it equals and includes purchases from Princeville and Kalihiwai (See Tab 10, Page 1, line 55). All other numbers never exceeded \$85,000. Column 4 is the budget total for Water Purchases and the budget actual (paid-out number) accounting indicated for actual Water Purchases. The month-to-month budget total for 2010 is \$1,558,688. Manager Craddick is trying to find the disconnect between the budget actual and the audit. The auditor called an unspecified item a capital item from the Grove Farm tally. There was no disconnect in 2001 - 2004 when the Grove Farm plant was not there. Grove Farm was paid an operating expense.

Manager Craddick mentioned the pie charts show a \$300,000 difference if the depreciation is added which is not a part of the department's budget (\$300,000 + \$500,000 + \$800,000). The DOW is paying Grove Farm each year and is not mentioned in the agreement. The agreement does not give

Finance Committee Meeting
April 24, 2012

Grove Farm the depreciation but is received which is part of their bill. Interest is also being collected on their loan. They need to be collecting back the capital. Depreciation is not considered when working on the budget. The department is paying Grove Farm back the principal on their plant. The DOW is paying back on principal is the difference between what the auditor is showing and what the DOW's actual are, minus whether Grove Farm got their 10% interest. The \$46 million balance would be going to the capital to buy out the plant when it is only \$4 million. The land would have to be negotiated. Manager Craddick believes the department is at half a million dollars over the next seven years. Mr. Nishimura and Chair Dill suggested asking the auditor for clarification on the adjustment.

Mr. Reyna is monitoring the 2.01 million gallons a day for six months when the buyout is completed. Manager Craddick stated there is a half million dollars drop in the next year's budget if the plant is bought out from \$60,000 to \$80,000. The DOW budgeted \$65,000 for chemicals which could double because Grove Farm uses disinfectant and coagulants. Manager Craddick suggested if they are not going to use it at \$2 million, do not budget at \$3 million. The number would drop down by a third whether the department buys the plant or not.

Mr. Kaneshiro requested to recuse himself from the discussions. Chair Dill and Manager Craddick called for a separate discussion for clarification.

Chair Dill announced the next meeting will focus on the Grove Farm water treatment plant, division head write-ups and changes on the Engineering sections. Ms. Tateishi agreed to research the budget from 2001 and will present it on Tuesday, May 1, 2012 at 9:00 a.m.

Mr. Nakaya moved to Recess the Finance Committee Meeting; seconded by Mr. Oyama; motion carried unanimously.

The Finance Committee Meeting recessed at 3:18 p.m.

ein

Finance Committee Meeting

May 24, 2012
9:00 a.m.

Committee Members Present: Larry Dill, *Chair*, Clyde Nakaya, Roy Oyama

Absent/Excused:

Board Members Present: Darryl Kaneshiro, *Vice Chair*, Randall Nishimura, Raymond McCormick

Staff Present: David Craddick, Andrea Suzuki, William Eddy, Mary-jane Garasi, Marites Yano, Dustin Moises, Gregg Fujikawa, Val Reyna, Sandi Nadatani-Mendez, Ryan Smith

Guests: Shawn Shimabukuro, Grove Farm, Royce Kawabata, Grove Farm, Jan Tenbruggencate, Consultant, David Hinazumi, Grove Farm

Mr. Nakaya, *Temporary Chair* called the Finance Committee Meeting to order at 9:28 a.m. on behalf of Chair Dill; quorum was achieved.

AGENDA

Mr. Oyama moved for the agenda change of *Item b. Draft Budget of 2013* to be ahead of *Item a. FRC Rates*; seconded by Mr. Nakaya, with no objections; motion was carried.

OLD BUSINESS

b. Draft Budget of 2013

DISCUSSION:

Ms. Yano presented changes to the budget from the last Finance Committee meeting. Ms. Yano added a summary of the changes from Version 5 and Version 6.1 was distributed to the Board. The Tabs have been affected by the change on Tab 2, the Summary regarding the Emergency Reserve Fund. The previous version estimated \$1.2 million to be expended. Since it is close to year end, Ms. Yano changed it to zero, as estimated and was moved to the proposed 2013 budget to \$2.4 million (addition of 1.2 million for 2013 and \$1.2 million for 2013). Tab 6, Engineering Program Assistant was added under Salaries at \$34,000. Tab 7, Engineering was filled with one Inspector position (vacant dollar amount was moved to a regular position). The Civil Engineer III, was vacant and budgeted initially at \$34,482 but changed into a dollar funded position. Tab 5, would be the cost due to changes in the salaries. Tab 10, Vehicle, \$35,000 was added in the previous budgeted from \$60,000 which changed into \$95,000. Tab 11, had two items budgeted at \$2,158.00 which was moved to Tab 12 under contracted CIP Replacement Projects.

Manager Craddick explained that the Civil Engineer III, a dollar funded position, will be eliminated. There is one CE II position and one CE III position. Mr. Fujikawa reported that interviews were done yesterday for the Water Resource and Planning CE III, *not* for the CE III in Engineering. The additional position in Tab 7 was Board approved temporarily last year which was to help the

Finance Committee Meeting
May 24, 2012

Engineering Division carry their load pending the termination of one of the CE III's. Water Resources received a permanent position which was formally moved over.

Manager Craddick referred to Tab 6, Engineering Program Assistant at \$24,000 which is a temporary position for 180 days. If the Board Secretary is filled, then the temporary position is not needed. One candidate applied but did not quality.

Mr. Kaneshiro asked if there is a dollar funded System Support Technician position. Manager Craddick explained when the IT Strategic Plan is done, he is reluctant to have a permanent position. The consultant contract is due by the end of this fiscal year. The final planning is estimated to be done in four to five months. IT would review the plan and do the assessment. The consultant will be asked to add a cost analysis on the review. After the study is done, the plans and recommendations would be received. A briefing on the Strategic Plan status will be done at a Regular Board meeting.

Mr. Kaneshiro inquired about the Engineering Program Assistant which Manager Craddick indicated the jobs are out for bid. Manager Craddick is making sure the contractors get requests and design drawings back. Mr. Moises reported that four bids are in already which is in the regular budget. Someone could start next week if some money is received from now until the end of the next month.

Ms. Yano explained that the bolded items on the replacement page are new and was not in Version 6 but was changed from Version 5. Manager Craddick explained there is a \$5,000 increase because of the \$34,000 the DOW cancelled and \$35,000 was added to the vehicle. The \$5,000 is extra for the MPET maintenance.

Ms. Yano explained that the Summary page comparison is from Version 5 to Version 6.1. Salaries from 5.574 went down to 5.566. The normal expenditures from \$13,375 to \$12,000 decreased and increased from \$13,375,000 to \$428,000. Equipment increased from \$853.9 to \$888.9. Other miscellaneous capital expenditures from 5.4 to 3.3 were moved to Tab 12, Capital Replacement Program. There was an increase under the Capital Replacement Program from 17.097 to 19.228. Mr. Nakaya determined from Version 5 compared to Version 6.1 that the total expense decreased from \$33 million to \$32 million.

Mr. Nishimura noticed that \$24,000 for the Engineering Program Assistant is temporary to fill in for the lack of the Deputy Secretary. He inquired if the money can be used for the Engineering Program Assistant since it is temporary. The position could be dollar funded or to leave the balance in that position. Mr. Moises indicated the position is for 89 days. Both positions can be used for a number of days until the transition is over.

Manager Craddick stated when the Deputy Secretary is hired and if the contract runs out, the contract cannot be renewed. This fiscal year it was not funded. This will be in the Board packet at the next regular meeting for one month. The amount will drop because \$12,000 is for three months.

Mr. Eddy added there could be an overlap of work between the Engineering Program Assistant and the Deputy Secretary. The contract work is a portion of the Deputy Secretary's work which is 25%. Mr. Nishimura suggested reducing the Deputy Secretary's position by 25%. He would like to avoid having temporary positions that become permanent positions. Manager Craddick added the Engineering

Finance Committee Meeting
May 24, 2012

Program Assistant position is a contract position which does not require dictation skills. He suggested taking 50% from the Deputy Secretary's position by reducing the salary to \$12,000.

Mr. Eddy noted it takes four months for an applicant list to be generated and the Department of Personnel Services (DPS) request that positions be funded. Mr. Nishimura suggested to reduce the Deputy Secretary's position to 33% because it takes four months to get hired. Manager Craddick agreed to cut the position by 25%. More information will be provided on the Deputy Secretary's position at the next meeting.

Mr. Nishimura referred to Tab 6, page 4 and requested to eliminate funding for the Court Reporter (which can be done by current staff) and instructed the Department of Water (DOW) to fund it or transfer the funds from salaries. Mr. Craddick recommended to change the Board Secretary's salary to \$44,000 dropping by down by \$10,000. Mr. Nishimura suggested taking the funds out of salaries or out of supplies.

(Raymond McCormick entered meeting at 9:56 a.m.)

(Chair Larry Dill entered meeting at 9:56 a.m.)

Manager Craddick indicated the upgraded vehicle is for the fire hydrant crew. The current size of the truck is a minimum of 3/4-ton, upgraded to a 1-ton truck (See Tab 10, page 12). Mr. Eddy provided a new request for two 4x2's; a flat bed truck and a utility body truck. The other 4x2 extra cab is a replacement for Warren Rita's truck.

(15-minute recess)

Mr. Nakaya called the Finance Committee meeting back in session at 10:24 a.m.

Chair Dill moved to received the revised budget pages from Ms. Yano; seconded by Mr. Oyama; by a unanimous vote; motioned was carried with 3 ayes.

(10-minute recess)

Ms. Yano explained Tab 6, Administration Salaries, page 3 the amount for Secretary is from \$36,000 to \$26,000. The Commission Support Clerk/Board Secretary salary is from \$54,012 to \$40,012. Tabs 4, 5, and 12 are summaries that were affected by this change. The change from the Computer System Tech position went from \$50,012 to \$40,012. The Secretary position went from \$36,000 to \$26,000. Manager Craddick stated the total change is \$24,000 (\$10,000 minused off for the Court Reporter and \$14,000 minused off the temporary position).

Manager Craddick mentioned that the vehicle for Operations (page 15), there is a 4x2 access truck 3/4-ton pickup with a lift gate which is a replacement. Manager Craddick would like to drop it and take \$10,000 of that money and put it on the next page so Operations can get the heavy truck with a utility body, not the medium truck (Section 10 on pages 15 of 16).

Finance Committee Meeting
May 24, 2012

Mr. Oyama moved to accept Manager Craddick's recommendation and to delete the one replacement vehicle which is actually a new item and to upgrade the other vehicle from a medium to a heavy-duty truck. The \$95,000 vehicle would be dropped but raising the \$85,000 vehicle up to \$95,000; seconded by Chair Dill; by a unanimous vote; motion was carried with 3 ayes.

Mr. Oyama moved that the 2013 budget be moved to the full Board and to defer action by the Board until the Regular meeting; seconded by Chair Dill; by a unanimous vote; motion was carried with 3 ayes.

(Mr. Nakaya relinquished his temporary chairmanship to Chair Dill.)

a. **FRC Rates**

DISCUSSION:

Manager Craddick referred to the summary of the fees, meter sizes, and the updated FRC amount. The fee was determined by using the DOW standards from the last report. Page 141 showed the allocation for source, storage, distribution that totaled \$19,850 minused a credit. The amount was credited because new customers will pay the debt service for more projects which were debt financed. By state law, new customers should not be charged. The amount dropped from \$19,000 to \$18,000 with the source at 19%, storage at 35% and the distribution line at 46% of the charge. It is allocated out by a standard up to a 2-inch meter which was switched over to the AWWA flow factor for a 2-inch meter. This is due to the two 8-inch meters at the airport and harbors that use a fire flow. The meters are abnormally sized to take fire flow. The 2-inch meter is increased by the same flow factor which is used for the private fire lines. Manager Craddick acknowledged that everything from a 2-inch meter and up does not accommodate fire flow. Some of the 6-inch meters and 4-inch meters are used for fire flow. There are not enough of these meters to get statistical numbers on the usage.

Manager Craddick commented that the net effect on the FRC is lower from the 5/8-inch meter up to the 2-inch meter. Some of the numbers are per gallon or per the max per day and is 750 gallons times the dollar-per-gallon rate. The Board will have to review the rules on the per gallon issue. Some meters are going to be based on the per-dollar amount. If customers pay the FRC, they could get a second meter which they are not putting in. They have no intention of ever putting it in because the lateral may cost \$2,000 to install. Some customers have no intention of subdividing their lot either. Currently, this is a generic rate. Manager Craddick stated this issue will be taken up with the Rules committee.

Mr. Nishimura prefers to see the final report before the Board does anything on the FRC. After reviewing the Executive Summary, he thought the FRC was at \$10,600 but it was \$18,000 which is a huge change. Manager Craddick indicated getting another report so that the DOW would renegotiate the contract again.

Chair Dill accepted to wait for an updated report before the next Finance Committee meeting.

Mr. Nakaya moved to adjourn the meeting; seconded by Mr. Oyama; by a unanimous vote, motion was carried.

ein

DEPARTMENT OF WATER

County of Kaua'i

"Water has no Substitute – Conserve It!"

January 22, 2013

Re: Water Service Development Fee – Report to the Finance Committee

The Jan 2013 report from SAIC is the final report from our consultant.

The report looks at the cost for projects to implement Water Plan 2020 which in turn is based on the community plans as they are currently known. These project costs include planning, land, design, construction and financing costs associated with source, storage, and water transmission pipelines. The study does not cover staff costs in review of individual requests or review of their construction drawings.

The rules being considered do talk about a Water Service Request review charge. This is similar to a building permit fee. We are asking for a token amount to be charged at this time until a though review of cost can be provided not exceed \$2 per fixture unit, as described in the Uniform Plumbing code current version, and shall be applied uniformly among all customers.

The following is a summary of costs from the SAIC Needs Assessment Study and Facilities Reserve Charge Update dated January 2013.

This schedule is as follows:

	\$ per Fixture Unit	\$ per gallon	\$ per 5/8" meter	PERCENTAGE
SOURCE	\$116.00	\$4.60	\$3480	19%
STORAGE	\$231.00	\$9.20	\$6930	35%
TRANSMISSION	\$302.00	\$12.10	\$9060	46%
Credit	\$(66.00)	\$(2.60)	\$(1980)	
TOTAL	\$583	\$23.30	\$17490	100%

The numbers shown in the table below have the credit applied to the source storage and transmission portions of the fee at the same percentage as the costs from the report.

	\$ per Fixture Unit	\$ per gallon	\$ per 5/8" meter	PERCENTAGE
SOURCE	\$104.70	\$4.15	\$3126.10	19%
STORAGE	\$201.50	\$8.25	\$6225.25	35%
TRANSMISSION	\$271.30	\$10.90	\$8138.65	46%
After Credit deducted from SST	\$(0.00)	\$(0.00)	\$(0)	
TOTAL	\$583	\$23.30	\$17490	100%

DOW standards require 750 gallons per day for single family residences. Because of rounding 750 times the \$23.30 number equals \$17475 instead of \$17,490. The 30 fixture unit's for a 5/8" meter times the \$583 fee equals \$17490.

The meter schedule is from the report is as follows:

Meter size	cost
5/8-inch	\$17,490
3/4-inch	\$26,235
1-inch	\$43,725
1 1/2-inch	\$87,450
2-inch	\$139,920
3-inch	\$262,350
4-inch	\$437,250
6-inch	\$874,500
8-inch	\$1,399,200

I am going to ask that the cost per meter size be given only up to the 2" size if the rules committee settles on meter size as the criteria for assessment. If this is done we only need to show the AWWA Standard C-700-95 for Cold Water Meters-Displacement type, Bronze Main Case Recommended Maximum Rate for Continuous operations gpm flow rate which is as follows:

SIZE	GPM	Ratio to 5/8"		
5/8 "	10	1	x	17490 =17490
3 / 4"	15	1.5	x	17490 =26,235
1"	25	2.5	x	17490 =43,725
1 1/2"	50	5	x	17490 =8, 7450
2"	80	8	x	17490 =139,920

Then say the meter cost is the ratio times the 5/8" meter cost of \$17,490.

The reason for this is that consumption is so varied over the larger meter sizes as to make it difficult to generically asses an accurate fee when looking at just meter size. Currently we arbitrarily use the 5/8" meter times the number of units. If you have a hundred unit affordable house complex the current fee would be \$1.75 million for the meter. This complex assuming one bathroom kitchen and washing machine area or about 18 fixture units' times one hundred times (\$583 /fix unit) would result in a charge of \$104,900 for the meter which may be a three inch

meter. From the meetings I have held in the community this is an issue with people looking at providing affordable housing. Irrigation use and how a pool is filled would also figure into the cost of providing water. From these examples you can see the dramatic change in the fee when better criteria are used to assess the cost. I will agree this may be a little more work to do the job based on certain criteria. Another example is a hotel using a million gallons per day on a peak day that has only enough fixture units for a 6 inch meter. The per gallon cost is \$23,300,000 million for one million gallons per day peak demand. That is much closer to our costs for the service and to give the meter for \$874,500 would be a gross miscarriage of cost. So in using these schedules staff discretion must be allowed.

The remaining issues of indexing the fee are just a matter of when the Board wants to reevaluate the fee. The first fee was put in place in 1970 and was \$300 for a 5/8" meter. The next change was in the 1980's when it went to \$600 per 5/8" meter. The next change was in the 90's when the fee for a 5/8" meter went to \$2,000. The last change was in the early 2000's when the fee for a 5/8" meter was raised to \$4,600. The large jumps of 2x to 3.3 the current fee are what is called rate shock. Indexing or increasing the fee according to construction costs would reduce that shock.

By indexing the fee to a construction cost index that is readily available make the possibility of rate shock for this expansion fee lower in the future. Our recommendation is to use the Engineering News Record Construction Cost Index. This data has been compiled since 1913 and is a universally accepted standard for construction costs. There are other index's that could be used. It is my understanding the Hawaii PUC also allows this sort of feature for regulated fees. The last issue is fire lines.

Currently development fees for fire lines are not charged. Fire flow is not considered a consumptive use but storage and transmission capacity is used. We are proposing a token charge so the next time the fee is looked at a proper charge can be assessed. We are proposing the storage and transmission portion of the flow needed for the fire times 0.001 for commercial and for residential the storage and transmission portion of the fee times 0.01. This amounts to about \$7.00 for residential fire use to go to a 3/4" meter. A commercial case using 200 gpm for two hour is 240,000 gallons times 23.3 times 0.81 times 0.001 is \$4,530.00. We believe within a few years the county may require sprinkler systems in new construction.

The Department has been working with the Rules Committee on a Part V Water System Development Fee Section III, WSDF Fee schedule has been referred to the Finance Committee on the November 29, 2012 Rules Committee meeting.

Part V Section III is stated as follows:

Section III: WSDF Fee Schedule

- A. The WSDF imposed shall be as set forth in the WSDF Schedule, in Part IV of the Department Rules. The WSDF Schedule was created in accordance with a report prepared by an independent consultant as adopted by the Board for the purposes of WSDF assessment. The report calculated the costs associated with water

development needs as laid out in the Department of Water facilities needs assessment study entitled "Water Plan 2020" as amended.

Thank you for your attention to this matter.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "De Craddick", written in a cursive style.

David. R. Craddick, P.E., C.E.M.
Manager and Chief Engineer

Attachment: Copy of Flow Table from AWWA C700-95 Standard For
Cold Water Displacement Bronze Meters

DC:mjg
Mgrp/January 2013/Manager's Report to the Finance Committee (1-22-13):mjg

American Water Works Association

ANSI/AWWA C700-95

(Revision of ANSI/AWWA C700-90)



AWWA STANDARD
FOR
COLD-WATER METERS—
DISPLACEMENT TYPE,
BRONZE MAIN CASE



Effective date: June 1, 1996.

First edition approved by AWWA Board of Directors June 9, 1921.

This edition approved June 17, 1995.

Approved by American National Standards Institute Jan. 12, 1996.

AMERICAN WATER WORKS ASSOCIATION

6666 West Quincy Avenue, Denver, Colorado 80235

BRONZE

Table 1: Characteristics of displacement-type meters

Meter Size		Safe Maximum Operating Capacity		Maximum Pressure Loss at Safe Maximum Operating Capacity		Recommended Maximum Rate for Continuous Operations		Minimum Test Flow [†]		Normal Test Flow Limits [†]		Maximum Number of Disc Nutations or Piston Oscillations Per		
<i>in.</i>	<i>(mm)</i>	<i>gpm</i>	<i>(m³/h)</i>	<i>psi</i>	<i>(kPa)</i>	<i>gpm</i>	<i>(m³/h)</i>	<i>gpm</i>	<i>(m³/h)</i>	<i>gpm</i>	<i>(m³/h)</i>	<i>10 gal</i>	<i>ft³</i>	<i>(0.01m³)</i>
1/2	(13)	15	(3.4)	15	(103)	7.5	(1.7)	1/4	(0.06)	1-15	(0.2-3.4)	875	657	(231)
1/2 x 3/4	(13 x 19)	15	(3.4)	15	(103)	7.5	(1.7)	1/4	(0.06)	1-15	(0.2-3.4)	875	657	(231)
5/8	(16)	20	(4.5)	15	(103)	10	(2.3)	1/4	(0.06)	1-20	(0.2-4.5)	580	435	(154)
5/8 x 3/4	(16 x 19)	20	(4.5)	15	(103)	10	(2.3)	1/4	(0.06)	1-20	(0.2-4.5)	580	435	(154)
3/4	(19)	30	(6.8)	15	(103)	15	(3.4)	1/2	(0.11)	2-30	(0.5-6.8)	333	250	(88)
1	(25)	50	(11.4)	15	(103)	25	(5.7)	3/4	(0.17)	3-50	(0.7-11.4)	153	115	(40)
1 1/2	(38)	100	(22.7)	15	(103)	50	(11.3)	1 1/2	(0.34)	5-100	(1.1-22.7)	67	50	(18)
2	(51)	160	(36.3)	15	(103)	80	(18.2)	2	(0.45)	8-160	(1.8-36.3)	40	30	(11)

^{*} See Sec. A.5.1.
[†] See Sec. 4.2.8.

Draft Report

Needs Assessment Study and Facility Reserve Charge Update



County of Kaua'i
Department of Water

January 2013

SAIC[®]

This report has been prepared for the use of the client for the specific purposes identified in the report. The conclusions, observations and recommendations contained herein attributed to SAIC constitute the opinions of SAIC. To the extent that statements, information and opinions provided by the client or others have been used in the preparation of this report, SAIC has relied upon the same to be accurate, and for which no assurances are intended and no representations or warranties are made. SAIC makes no certification and gives no assurances except as explicitly set forth in this report.

© 2013 SAIC
All rights reserved.

Needs Assessment Study and Facilities Reserve Charge Update

County of Kaua'i
Department of Water

Table of Contents

Letter of Transmittal [to come]

EXECUTIVE SUMMARY	ES-1
INTRODUCTION	1-1
Background.....	1-1
Scope of Services	1-1
Purpose of the Report	1-1
Report Organization	1-2
REGULATORY BACKGROUND	2-1
NEEDS ASSESSMENT STUDY	3-1
Introduction	3-1
Additional Demands Resulting from New Development.....	3-1
Level-of-Service Standards	3-2
Source Capacity	3-3
Storage Capacity	3-3
Transmission Facilities	3-3
Projected Capital Facility Needs	3-3
Eliminating Existing System Deficiencies	3-5
Introduction.....	3-5
Source and Storage	3-5
Transmission.....	3-7
FACILITIES RESERVE CHARGE UPDATE	4-1
Introduction	4-1
Key Assumptions.....	4-1
Methodology.....	4-2
Source Component	4-3
Unit Cost of Source Capacity	4-4
Source Capacity Requirement.....	4-5
FRC Source Component Calculation.....	4-5
Storage Component	4-5
Unit Cost of Storage Capacity	4-5
Storage Capacity Requirement	4-6

TABLE OF CONTENTS

FRC Storage Component Calculation	4-6
Transmission Component.....	4-7
Unit Cost of Transmission Capacity	4-7
Transmission Capacity Requirement	4-8
FRC Transmission Component Calculation	4-8
FRC Credit Component.....	4-8
Updated FRC Calculations.....	4-10
FRC Benefit Zones	4-12
FRC Offset for Developer-Funded Facilities	4-12
FRC Implementation	4-13

ASSESSMENT OF GROVE FARM WATER TREATMENT

FACILITY.....	5-1
Introduction	5-1
Existing Facility Overview.....	5-1
Estimated Operating Costs	5-2
Upgrade Costs – Membrane Replacement	5-3
Expansion Costs – Double Number of Treatment Trains	5-4
Solar Power for WTF	5-6
Cost Sharing – Construction	5-7
Cost Sharing - Operation.....	5-7
DOW Costs with Grove Farm Ownership.....	5-7
Buyout Provision	5-9
DOW Costs with DOW Ownership.....	5-10

List of Tables

Table ES-1: Updated FRCs per Fixture Unit and Single Family ResidenceES-2
 Table ES-2: Updated FRC Calculations ES-3
 Table 3-1: Population and Water Use Projections 3-2
 Table 3-2: Projected Capital Facility Needs Through 2030 3-4
 Table 3-3: Projected Capital Facility Needs by System Function Through
 2030 3-5
 Table 3-4: Identification of DOW Water Systems with Source Deficiencies 3-6
 Table 3-5: Identification of DOW Water Systems with Storage Deficiencies 3-7
 Table 3-6: DOW Pipeline Inventory by Installation Date 3-8
 Table 4-1: Previous DOW FRC Schedule (Effective from 2004 to 2012) 4-1
 Table 4-2: Projects Used to Calculate Unit Cost of Source Capacity 4-4
 Table 4-3: Projects Used to Calculate Unit Cost of Storage Capacity 4-6
 Table 4-4: Unit Cost of Transmission Capacity 4-8
 Table 4-5: Updated FRC calculations per Fixture Unit and Single-Family
 Residence 4-10
 Table 4-6: Comparison of Previous and Updated FRCs 4-11
 Table 4-7: FRC Comparison with Other Hawai'i Water Utilities 4-12
 Table 4-8: Maximum FRC Offsets for Off-Site Developer-Funded Facilities 4-13
 Table 5-1: Preliminary Planning Level Upgrade Costs 5-4
 Table 5-2: Preliminary Planning Level Expansion Costs 5-5
 Table 5-3: WTF O&M Costs @ 3.0 MGD (exclusive of distribution and
 administrative costs) 5-11

List of Appendices

- A [Update Date] Amendments to the DOW's Rules and Regulations
- B Impact Fee Statues: Hawai'i Revised Statutes Sections 46-141 to 46-148
- C Supporting Tables
- D Capital Facilities Plan
- E Supplemental Grove Farm Analysis Tables

EXECUTIVE SUMMARY

Introduction

The County of Kaua‘i Department of Water (DOW) is a semi-autonomous public agency of the County of Kaua‘i, providing retail water service to approximately 20,500 customers throughout the island of Kaua‘i. DOW’s mission is to provide safe, affordable, and sufficient drinking water through wise management of resources and with excellent customer service for the people of Kaua‘i.

In 2001, DOW adopted Water Plan 2020, which provides a long-term vision for DOW through 2020. Water Plan 2020 defined the long-term water system needs for each of the 13 DOW water systems, identified level-of-service standards for its customers, and identified required capital facilities needs. DOW staff have continued to use Water Plan 2020 as a resource for identifying future capital needs.

DOW currently charges new customers a one-time Facilities Reserve Charge (FRC) to new water system connections. The FRC is intended to recover a proportional share of the cost of facilities (source, storage and transmission) necessary to provide water system capacity to new developments in Kaua‘i. Prior to DOW’s adoption of the updated schedule of FRCs described in this report, the DOW FRCs were last updated in 2004. As part of the re-evaluation of capital facility needs to serve projected new development, DOW retained SAIC to update its schedule of FRCs.

Purpose of the Report

The purposes of this report are:

- To summarize the key assumptions, methodology and results of the study.
- To provide a Needs Assessment Study as required by Hawai‘i state law governing the development of FRCs (Hawai‘i Impact Fee Statutes).
- To summarize the schedule of updated FRCs adopted by DOW’s Board on [Update Date].

Calculation of FRCs

The calculation of FRCs (also referred to as System Development Charges) is discussed in the American Water Works Association (AWWA) Manual M1. Two basic methods for calculating FRCs are the *equity approach* and the *incremental cost approach*. The equity approach is a calculation of the average system equity contributed by existing customers, and is most appropriate when there is sufficient excess capacity in system facilities to accommodate new development. The incremental cost approach is a calculation of the incremental cost of additional system capacity needed to serve new development and is most appropriate when new facilities are needed to accommodate new development.

For DOW in this study, the incremental cost approach is used to calculate the source and storage components of the FRCs. The incremental cost approach is appropriate because there are existing source and storage capacity deficiencies in the majority of DOW water systems. Therefore, new source and storage capacity is required to serve new development.

For transmission system facilities, it is recognized that certain existing transmission facilities are available to serve new development but that additional facilities are also needed. Therefore, elements of both the equity approach and the incremental cost approach are used to calculate the transmission component of the FRCs.

To address specific requirements of the Hawai'i Impact Fee Statutes, a credit component is added to the FRC calculation to recognize that certain capital costs associated with the correction of system deficiencies will be collected through rates.

The four following components make up the FRC:

$$\begin{aligned} & \text{Source Component} \\ & \text{plus Storage Component} \\ & \text{plus Transmission Component} \\ & \underline{\text{less Credit Component}} \\ & \text{equals FRC} \end{aligned}$$

Updated FRC Calculations

Table ES-1 summarizes the calculation of the updated FRCs for non-agricultural meters. This calculation is made on a per Fixture Unit (F.U.) basis. For a typical single family residential meter (5/8") there are 30 fixture units.

**Table ES-1:
Updated FRCs per Fixture Unit and Single Family Residence**

Component	Per Fixture Unit	Calculation for 5/8"
		Meter (30 F.U.)
Source	\$116	\$3,480
Storage	231	6,930
Transmission	<u>302</u>	<u>9,060</u>
Subtotal	649	\$19,470
Credit	(66)	(1,980)
Total	<u>\$583</u>	<u>\$17,490</u>

For agricultural meters, which are not sized on a Fixture Unit basis, the FRC calculation is based on the ratio of meter capacity relative to a 5/8-inch meter capacity, as stated in the American Water Works Association (AWWA) Manual M6, Water Meters – Selection, Installation, Testing, and Maintenance. For example, a 3/4-inch meter has a maximum flow of 30 gallons per minute (gpm), while a 5/8-inch meter has a maximum flow of 20 gpm. On this basis, the FRC for a 3/4-inch agricultural meter is 1.5 times that of the charge for a 5/8-inch meter. Table ES-2 shows the updated FRC calculations.

**Table ES-2:
Updated FRC Calculations**

Customer Class	Updated FRCs
Single-Family Residential	\$583 per Fixture Unit
Multi-Family Residential	\$583 per Fixture Unit
Resort/Hotel	\$583 per Fixture Unit
Agricultural Meters	Based on water meter size as shown below
Water Meter Size	
5/8-inch	\$17,490
3/4-inch	26,235
1-inch	43,725
1 1/2-inch	87,450
2-inch	139,920
3-inch	262,350
4-inch	437,250
6-inch	874,500
8-inch	1,399,200

Based on the previous study, the average metered consumption per multi-family residential unit was approximately equal to the average metered consumption of a single-family residence. The existing DOW policy uses the same FRC per multi-family residential unit as single-family residences. Consistent with existing DOW practice, the policy of using the larger of per unit FRC calculation or the FRC calculation based on water meter size is retained.

Similarly, in the previous study, the data indicated that the average metered consumption per resort/hotel unit is approximately equal to the average metered consumption of a single-family residence. The existing DOW policy of using the same FRC calculation per resort/hotel unit as single-family residences is retained.

For multi-family residential (MFR) and resort/hotel customers, FRCs are calculated twice: once based on the unit count and a second time based on the water meter size. The FRC charged to the MFR or resort customer is the larger of the two. This policy for MFR and resort/hotel customers is also retained.

If a developer builds off-site facilities, such as a transmission line or a storage tank, an FRC offset will be available. Currently the offsets are up to a maximum of 33 percent of the applicable FRC amount for a source facility, 33 percent for a storage facility, and 50 percent for a transmission facility. The updated calculations indicate that these percentages should be changed to reflect a ratio of 18 percent for source; 36 percent for storage and 46 percent for transmission.

The total FRC offset shall not exceed 100 percent of the FRC amount.

Assessment of Grove Farm Water Treatment Facility

As part of the FRC Update, DOW requested SAIC to undertake an assessment of the Grove Farm Water Treatment Facility (WTF). The results of this assessment were to be used by DOW to determine whether it was appropriate for the WTF to be included in the FRC analysis.

The scope of this assessment included:

- Estimating the costs of upgrading the existing membranes.
- Estimating the costs of expanding the plant by mirroring the existing plant configuration.
- Estimating the costs of installing solar power facilities.
- Reviewing the cost sharing agreement between Grove Farm and DOW.
- Estimating the costs for DOW to continue to purchase water from the WTF.
- Estimating the costs of DOW operating the WTF at some time in the future.

INTRODUCTION

Background

The County of Kaua‘i Department of Water (DOW) is a semi-autonomous public agency of the County of Kaua‘i, providing retail water service to approximately 20,500 customers throughout the island of Kaua‘i. DOW’s mission is to provide safe, affordable, and sufficient drinking water through wise management of resources and with excellent customer service for the people of Kaua‘i.

In 2001, DOW adopted Water Plan 2020, which provides a long-term vision for DOW through 2020. Water Plan 2020 defined the long-term water system needs for each of the 13 DOW water systems, identified level-of-service standards for its customers, and identified required capital facilities needs. DOW staff have continued to use Water Plan 2020 as a resource for identifying future capital needs.

DOW currently charges new customers a one-time Facilities Reserve Charge (FRC) to new water system connections. The FRC is intended to recover a proportional share of the cost of facilities (source, storage and transmission) necessary to provide water system capacity to new developments in Kaua‘i. Prior to DOW’s adoption of the updated schedule of FRCs described in this report, the DOW FRCs were last updated in 2004. As part of the re-evaluation of capital facility needs to serve projected new development, DOW retained SAIC to update its schedule of FRCs.

Scope of Services

SAIC’s scope of services for this Needs Assessment Study and FRC Update included:

- Prepare a data request identifying data needs and review requirements consistent with the Hawai‘i Revised Statutes involving the calculation of FRCs.
- Incorporate updated CIP information in an update of the Needs Assessment Study sufficient to support an update of the FRC.
- Prepare updated FRC analysis and proposed FRC schedule of charges using the methodology used in the 2004 study. Prepare a report summarizing the key assumptions, methodology, and results of the study.
- Present a summary of the study results to the DOW Board via conference call.

Purpose of the Report

The purposes of this report are:

- To summarize the key assumptions, methodology and results of the study.

- To provide a Needs Assessment Study as required by Hawai'i state law governing the development of FRCs (Hawai'i Impact Fee Statutes).
- To summarize the schedule of updated FRCs adopted by DOW's Board on [Update Date].

Report Organization

This report sets forth the results of the Facilities Reserve Charge Study prepared by SAIC in conjunction with DOW staff. The report is organized into five sections. Section 1 is an introduction. Section 2 describes the Hawai'i Impact Fee Statutes. Section 3 is the Needs Assessment Study and Section 4 contains the Facilities Reserve Charge Update. Section 5 is an assessment of the Grove Farm Water Treatment Facility. Appendix A contains the text of the DOW's rules and regulations that were amended on [Update Date]. Appendices B and C provide additional documentation to the described analyses conducted as part of the study. Appendix D contains summaries of the DOW's Capital Facilities Program. Appendix E contains supplemental tables for the Grove Farm Water Treatment Facility assessment.

REGULATORY BACKGROUND

Regulatory guidance for the preparation of a Needs Assessment Study and revision of Facilities Reserve Charges is provided in Hawai'i Revised Statutes Sections 46-141 through 46-148 (Impact Fee Statutes). The full text of the Impact Fee Statutes, last updated in 2007, is included in Appendix B. The change in 2007 was related to residential development in school impact districts, and has no bearing on this FRC update. References to the Needs Assessment Study in the Impact Fee Statutes include the following:

1. Hawai'i Revised Statutes (HRS) Section 46-141, Definitions
“Needs assessment study” means a study required under an impact fee ordinance that determines the need for a public facility, the cost of development, and the level of service standards, and that projects future public facility capital improvement needs; provided that the study shall take into consideration and incorporate any relevant county general plan, development plan, or community plan.
2. HRS Section 46-143(a), Impact Fee Calculation
A county council or board considering the enactment or adoption of impact fees shall first approve a needs assessment study that shall identify the kinds of public facilities for which the fees shall be imposed. The study shall be prepared by an engineer, architect, or other qualified professional and shall identify service standard levels, project public facility capital improvement needs, and differentiate between existing and future needs.
3. HRS Section 46-143(b), Impact Fee Calculation
The data sources and methodology upon which needs assessments and impact fees are based shall be set forth in the needs assessment study.
4. HRS Section 46-143(d)(1), Impact Fee Calculation
...a needs assessment study that identifies:
 - (A) Deficiencies in existing public facilities;
 - (B) The means, other than impact fees, by which existing deficiencies will be eliminated within a reasonable period of time; and
 - (C) Additional demands anticipated to be placed on specified public facilities by a development;
5. HRS Section 46-144(2), Collection and expenditure of impact fees
Collection and expenditure shall be localized to provide a reasonable benefit to the development. A county or board shall establish geographically limited benefit zones for this purpose; provided that zones shall not be required if a reasonable benefit can be otherwise derived. Benefit zones shall be appropriate to the particular public facility and the county or board. A county or board shall explain in writing and disclose at a public hearing reasons for establishing or not establishing benefit zones;

The following additional guidance regarding the Impact Fee calculation methodology is also provided in the Impact Fee Statutes.

1. HRS Section 46-143, Impact Fee Calculation

(a) A county council or board considering the enactment or adoption of impact fees shall first approve a needs assessment study that shall identify the kinds of public facilities for which the fees shall be imposed. The study shall be prepared by an engineer, architect, or other qualified professional and shall identify service standard levels, project public facility capital improvement needs, and differentiate between existing and future needs.

(b) The data sources and methodology upon which needs assessments and impact fees are based shall be set forth in the needs assessment study.

(c) The pro rata amount of each impact fee shall be based upon the development and actual capital cost of public facility expansion, or a reasonable estimate thereof, to be incurred by the county or board.

(d) An impact fee shall be substantially related to the needs arising from the development and shall not exceed a proportionate share of the costs incurred or to be incurred by the county or the board in accommodating the development. The following seven factors shall be considered in determining a proportionate share of public facility capital improvement costs:

(1) The level of public facility capital improvements required to appropriately serve a development, based on a needs assessment study that identifies:

(A) Deficiencies in existing public facilities;

(B) The means, other than impact fees, by which existing deficiencies will be eliminated within a reasonable period of time; and

(C) Additional demands anticipated to be placed on specified public facilities by a development;

(2) The availability of other funding for public facility capital improvements, including but not limited to user charges, taxes, bonds, intergovernmental transfers, and special taxation or assessments;

(3) The cost of existing public facility capital improvements;

(4) The methods by which existing public facility capital improvements were financed;

(5) The extent to which a developer required to pay impact fees has contributed in the previous five years to the cost of existing public facility capital improvements and received no reasonable benefit there from, and any credits that may be due to a development because of such contributions;

(6) The extent to which a developer required to pay impact fees over the next twenty years may reasonably be anticipated to contribute to the cost of existing public facility capital improvements through user fees, debt service payments, or other payments, and any credits that may accrue to a development because of future payments; and

(7) The extent to which a developer is required to pay impact fees as a condition precedent to the development of non-site related public facility capital improvements, and any offsets payable to a developer because of this provision.

(e) The impact fee ordinance shall contain a provision setting forth the process by which a developer may contest the amount of the impact fee assessed.

NEEDS ASSESSMENT STUDY

Introduction

As required by the Hawai'i Impact Fee Statutes, this section of the report is a Needs Assessment Study for the Department of Water's water system. The majority of information contained in this Needs Assessment Study is obtained from Water Plan 2020, adopted by DOW in March 2001, and supplemented with more current data provided by DOW staff. Water Plan 2020 developed a long-range plan to guide DOW for future operations. It also identified the needed improvements and facilities required to continue to provide safe, affordable, and reliable water service on the island of Kaua'i in a sustainable and financially secure manner.

Water Plan 2020 contains detailed analyses of the source, storage, and transmission systems of the DOW's water systems. Since the implementation of Water Plan 2020, DOW staff have updated their Capital Improvement Plan to reflect additional needs and changes in project costs.

Additional Demands Resulting from New Development

HRS Section 46-143(d)(1) requires that a Needs Assessment Study identify the additional demands anticipated to be placed on specified public facilities by a new development. Table 3-1 is a summary of population and water use projections obtained from Water Plan 2020, and updated with information derived from data in Water Plan 2020. In Water Plan 2020, these projections are shown for each of the 13 DOW water systems. Table 3-1 combines projected data from all 13 DOW water systems into a single system wide value, and indicates the anticipated additional water demands resulting from new development.

The system demand projected to the year 2030 is 19,445,900 gpd. This is based on the Water Plan 2020 projections. The population projections in Water Plan 2020 were based on the population and land use projections developed as part of the 2000 Kaua'i General Plan which is the most recent update of the General Plan.

**Table 3-1:
Population and Water Use Projections**

Parameter	Value	Notes / Water Plan 2020 Reference
Service Area Population		
2000	54,800	Page 4-2
2020	68,880	Page 4-2
2030	75,280	Interpolated between 2020 and 2050 as this information was not available in Water Plan 2020.
Historical Water Use, gpd		
1995 – 1996	13,982,000	Page 4-7
1996 – 1997	13,403,000	Page 4-7
1997 – 1998	14,226,000	Page 4-7
1998 – 1999	14,407,000	Page 4-7
2000 – 2001	12,127,400	Consumption Data per DOW Staff.
2001 – 2002	12,344,700	Consumption Data per DOW Staff.
2002 – 2003	12,531,400	Consumption Data per DOW Staff.
2003 – 2004	11,666,900	Consumption Data per DOW Staff.
2004 – 2005	13,036,900	Consumption Data per DOW Staff.
2005 – 2006	13,383,300	Consumption Data per DOW Staff.
2006 – 2007	12,969,900	Consumption Data per DOW Staff.
2007 – 2008	13,705,200	Consumption Data per DOW Staff.
2008 – 2009	11,892,800	Consumption Data per DOW Staff.
Projected Water Use, gpd		
2020	17,794,000	Page 4-7
2030	19,445,900	Interpolated between 2020 and 2050.

Level-of-Service Standards

Level-of-service standards are described in detail in Water Plan 2020 (pages 5-3 through 5-6), and are used in this Needs Assessment Study to separate existing system deficiencies from the projected water demands resulting from growth. Current DOW level-of-service standards applicable to a Needs Assessment Study and the FRCs are described in the following paragraphs. These level-of-service standards are those established by Water Plan 2020 and they apply to both existing customers and future customers.

Average Day Water Demand

The DOW standard for single family residential meters is an average day demand of 500 gallons per day.

Maximum Day Water Demand

The DOW standard for estimating maximum day demand is 1.5 times the average day demand.

Peak Hour Water Demand

The DOW standard for estimating peak hour demand is 3.0 times the average day demand.

Source Capacity

Source capacity must be sufficient to supply the maximum day demand and is defined in terms of pumping capacity. The pumping capacity standard is the ability to supply the maximum day demand over a 24-hour pumping period with the largest pumping unit out of service.

Storage Capacity

Two DOW criteria exist for storage capacity, and the required amount of storage capacity is the larger of the two.

- Provide maximum day demand, with the reservoir full at the start of the 24-hour period, not including any sources of supply.
- Provide maximum day demand plus fire flow for the duration of the fire, with the reservoir three-quarters full at the start of the fire. Incoming supply from sources can be credited to this volume with the largest source out of service.

Transmission Facilities

Water Plan 2020 identifies a series of level of service standards for transmission facilities, including specifying minimum water main sizes, transmission system capacity, minimum and maximum pressures, redundancy characteristics, and maximum velocities. These criteria were applied in Water Plan 2020's hydraulic analysis of the transmission system.

Projected Capital Facility Needs

Water Plan 2020 developed the following capital improvement categories:

- A Capital Improvement Program (CIP) that addresses existing deficiencies and how to meet future needs for water.
- A Capital Rehabilitation Program (CRP) to repair or replace deteriorating and aging infrastructure. CRP projects are in-kind replacements, with no change in the capacity.
- A Capital Replacement Program (CRPL) to repair or replace deteriorating and aging infrastructure. CRPL projects are replacement projects sized to provide additional capacity.

Since DOW began implementing Water Plan 2020 in 2002, cost estimates for a number of the projects have been updated. These updated cost estimates were provided by DOW for instances where actual construction costs were known or where source and storage facility capacities differ from those originally indicated in Water Plan 2020. Appendix D contains the new capital facility information provided by DOW.

Table 3-2 summarizes the capital facility needs by category (CIP, CRP, or CRPL), and identifies the cost for each category. Table 3-3 summarizes the CIP, CRP, and CRPL

projects by system function. Projects listed as “other” in Table 3-3 include roadway improvements to provide better access to DOW facilities.

**Table 3-2:
Projected Capital Facility Needs Through 2030**

Category	Total Cost (\$M) ⁽¹⁾
CIP	\$240.2
CRP	68.7
CRPL	355.7
Undefined	14.5
Total (2)	\$679.1

(1) Source: DOW Staff. Cost data are in 2011 dollars.

(2) Total differs from Appendix D because of the Grove Farm project, which was added after the data in Appendix D was compiled.

**Table 3-3:
Projected Capital Facility Needs by System Function Through 2030**

System Function	Total Cost (\$M) ⁽¹⁾
Source	\$88.1
Storage	122.0
Transmission	442.9
Other	26.1
Total (2)	\$679.1

(1) Source: DOW Staff. Cost data are in 2011 dollars.

(2) Total differs from Appendix D because of the Grove Farm project.

Based on the magnitude of capital facilities that are scheduled to be provided, it was determined that, assuming a system-wide growth rate of 1.1 percent per DOW staff, the proposed capital facility program will serve demand through at least 2030. Refer to Appendix C for a summary of this analysis.

Eliminating Existing System Deficiencies

Introduction

HRS Section 46-143(1)(A) requires that the Needs Assessment Study identify deficiencies in existing public facilities. DOW staff provided an updated analysis of existing deficiencies in source and storage facilities in each of the 13 water systems. The projected capital facility needs as defined by the CIP, CRP, and CRPL are intended to eliminate existing system deficiencies as well as supply the needed water system infrastructure for the projected growth over the 20-year period ending in 2030. Section 4 of this report shows the funding sources required to eliminate existing system deficiencies and develops an FRC credit to recognize that new added customers will be paying to eliminate existing deficiencies through water rates.

Source and Storage

Tables 3-4 and 3-5 identify the DOW water systems with existing and future deficiencies in source and storage capacity. DOW last evaluated system status for deficiencies in source and storage capacity in 2006. The average daily demand based on consumption in 2006 was used to assess existing requirements for source and storage. Design demands as described earlier in this report were used to assess future deficiencies.

**Table 3-4:
Identification of DOW Water Systems with Source Deficiencies**

DOW Water System	Existing Source Deficiency ⁽¹⁾	2030 Source Deficiency Without New Source Capacity
Kekaha-Waimea	Yes (143 gpm)	Yes
Hanapepe-Eleele	No	No
Kalaheo	No	Yes
Lawai-Omao	No	No
Koloa-Poipu	No	Yes
Puhi-Lihue-Hanamaulu	No	Yes
Wailua-Kapaa	No	No
Anahola	Yes (111 gpm)	Yes
Moloaa	N/A (2)	N/A (2)
Kilauea-Waipake-Kalihiwai	Yes (93 gpm)	Yes
Anini	N/A (2)	N/A (2)
Hanalei	No	No
Wainiha-Haena	Yes (67 gpm)	Yes

- (1) Existing refers to a deficiency existing when DOW last updated its status of supply evaluation in 2006. DOW is continuing to implement its CIP and CRPL programs to address these deficiencies.
- (2) The entire water supply is purchased; there are no DOW-owned source facilities that serve this water system.

**Table 3-5:
Identification of DOW Water Systems with Storage Deficiencies**

DOW Water System	Existing Storage Deficiency ⁽¹⁾	2030 Storage Deficiency Without New Storage Capacity
Kekaha-Waimea	Yes	Yes
Hanapepe-Eleele	No	No
Kalaheo	Yes	Yes
Lawai-Omao	Yes	Yes
Koloa-Poipu	Yes	Yes
Puhi-Lihue-Hanamaulu	No	Yes
Wailua-Kapaa	Yes	Yes
Anahola	No	No
Molooa	Yes	Yes
Kilauea-Waipake-Kalihiwai	Yes	Yes
Anini	N/A (2)	N/A (2)
Hanalei	Yes	Yes
Wainiha-Haena	Yes	Yes

(1) Existing refers to a deficiency existing when DOW last updated its status of storage evaluation in 2006. DOW is continuing to implement its CIP and CRPL programs to address these deficiencies.

(2) All storage for this water system is provided from other water purveyors. There are no DOW-owned storage facilities in this water system.

Based on the deficiencies identified in by DOW and the capacity of new facilities in the CIP, the percentage of the CIP projects that are being used to eliminate existing deficiencies was estimated. An estimated 21 percent of the CIP for source projects is required to eliminate existing deficiencies and 23 percent of the CIP for storage projects was estimated to eliminate existing deficiencies. Tables C-2 and C-3 in Appendix C provide further detail of these calculations.

Transmission

Water Plan 2020's hydraulic analysis of the transmission system identified a series of improvements that collectively replace aging infrastructure, provide capacity for future growth, and eliminate existing deficiencies. An updated hydraulic analysis was not performed for this FRC Update; many of the assumptions from Water Plan 2020 were continued to be used in this analysis as they had been in the 2004 FRC Update.

Parts of both the CRP and CRPL expenditures are to replace old and deteriorating pipelines constructed before 1960 and to replace undersized pipelines that were installed prior to the adoption of current fire protection standards. Based on Water Plan 2020, a total of 120 miles of the DOW's then existing approximately 399-mile transmission system (30 percent) was expected to be replaced by 2030.

Table 3-6 summarizes the age and length of pipeline in the DOW system. The pipelines expected to be replaced include all pipeline installed between 1921 and 1980

(approximately 237 miles). Since the completion of Water Plan 2020 in 2001, DOW has replaced approximately 10 miles of pipe through 2009.

**Table 3-6:
DOW Pipeline Inventory by Installation Date**

Year Installed	Approximate Miles of Pipeline	Percent
1921-1940	43	10.7%
1941-1960	37	9.1%
1961-1980	157	39.2%
1981-2000	128	32.1%
2001-2009	36	8.9%
Total	399	100%

(1) Source: For 1920 to 2000: WP2020, p. 1-8. For 2001-2009: DOW Staff.

For the purposes of this Needs Assessment Study and Facilities Reserve Charge Update, aging pipe was not in itself considered a system deficiency. Therefore, the projects in the CRP were not considered to be projects that eliminate system deficiencies.

The projects in the CRPL are transmission system replacements that also increase capacity. For the purposes of this study, the capacity increasing portion of the CRPL projects was considered to eliminate transmission system deficiencies. This is a conservative assumption made in lieu of an individual analysis of each CRPL project. Based on the 2004 review of the CRPL projects, an estimated 20 percent of the CRPL cost was considered to be capacity increasing. Therefore, 20 percent of the CRPL cost was estimated to be necessary to eliminate existing deficiencies.

For the purposes of this study, all of the transmission CIP project costs were considered necessary to eliminate existing system deficiencies.

Appendix C (Table C-4) contains additional detail regarding facilities needed to eliminate existing system deficiencies. The cost to eliminate existing system deficiencies is considered in the updated FRC calculation shown in the next section of this report.

FACILITIES RESERVE CHARGE UPDATE

Introduction

The DOW Facilities Reserve Charge (FRC) is a one-time charge to new applicants for water service and it represents a proportionate share of the cost of facilities necessary to provide water system capacity to new development. Table 4-1 shows the FRC schedule in effect prior to this update. The previous FRC was \$4,600 for each single-family residence. For multi-family residential developments and resorts/hotels, the FRC was the larger of: (1) \$4,600 per unit or (2) the FRC based on water meter size. For all other customers, the FRC was based on the water meter size. The FRC schedule shown in Table 4-1 had been in effect from 2004 through 2012.

**Table 4-1:
Previous DOW FRC Schedule
(Effective from 2004 to 2012)**

Customer Class	FRC Effective from 2004 to 2012
Single-Family Residential	\$4,600 per dwelling unit
Multi-Family Residential	Larger of (1) \$4,600 per unit or (2) FRC based on water meter size
Resort/Hotel	Larger of (1) \$4,600 per unit or (2) FRC based on water meter size
All Other Customers	Based on water meter size as shown below
Water Meter Size	
5/8-inch	\$4,600
3/4-inch	\$14,300
1-inch	\$26,400
1 1/2-inch	\$53,200
2-inch	\$90,700
3-inch	\$170,000
4-inch	\$283,400
6-inch	\$566,900
8-inch	\$907,000

Key Assumptions

The following is a summary of the key assumptions that were used in the FRC Update analysis:

- The projected annual system growth rate is 1.1 percent.
- Although year-to-year variations in rainfall and temperature are expected to occur and to impact actual water sales, normal or average weather conditions will generally prevail during the period forecasted.

- 10 percent of the CIP will be financed by bonds (assuming 4.5 percent interest rate, 25-year term, and 0.67 percent issuance expense). This assumption is made in order that the cost of debt financing a portion of the CIP will be appropriately reflected in the analysis.

Methodology

The calculation of FRCs (also referred to as System Development Charges) is discussed in the American Water Works Association (AWWA) Manual M1. Two basic methods for calculating FRCs are the *equity approach* and the *incremental cost approach*. The equity approach is a calculation of the average system equity contributed by existing customers, and is most appropriate when there is sufficient excess capacity in system facilities to accommodate new development. The incremental cost approach is a calculation of the incremental cost of additional system capacity needed to serve new development.

For DOW in this study, the incremental cost approach was used to calculate the source and storage components of the FRCs. The incremental cost approach is appropriate because there are existing source and storage capacity deficiencies in the majority of DOW water systems. Therefore, new source and storage capacity is required to serve new development.

For transmission system facilities, it is recognized that certain existing facilities are available to serve new development but that additional transmission facilities are also needed. Therefore, elements of both the equity approach and the incremental cost approach were used to calculate the transmission component of the FRCs. Throughout this report, transmission refers to water mains and booster pump stations, excluding service connections.

To address the specific requirements of the Hawai'i Impact Fee Statutes, a credit component was added to the FRC calculation to recognize that new ratepayers will also pay for the cost of existing deficiencies, source and storage repair and replacement projects, and existing outstanding debt through their water rates.

The following subsections show the numerical development of the FRCs. The FRC was calculated on a per Fixture Unit (F.U.) basis, with the following four components:

Source Component
plus Storage Component
plus Transmission Component
less Credit Component
equals FRC

For agricultural meters, which are not sized on a Fixture Unit basis, the FRC calculation is based on the ratio of meter capacity relative to a 5/8-inch meter capacity, as stated in the American Water Works Association (AWWA) Manual M6, Water Meters – Selection, Installation, Testing, and Maintenance.

Data sources for the FRC update include the following:

- Water Plan 2020 Report, County of Kaua‘i Department of Water, March 2001. Information obtained: CIP, CRP, and CRPL information; source, storage, and transmission analyses; level of service standards; historical metered water consumption; projected metered water consumption, 2020; length of transmission facilities by date of installation.
- Updated CIP, CRP and CRPL project costs, County of Kaua‘i, Department of Water, 2010.
- Status of Supply, Status of Storage, Deficiency Analysis, County of Kaua‘i, Department of Water, 2006.
- Summary of Fixed Asset Additions and Retirements, County of Kaua‘i Department of Water, for Fiscal Years 2008 and 2009.
- Asset Balance, Account Depreciation, County of Kaua‘i, Department of Water, for Fiscal Years 2008 and 2009.
- Sources of Funds, County of Kaua‘i, Department of Water, for Fiscal Years 2008 and 2009.
- Summary of Mains, Additions and Abandonments, County of Kaua‘i, Department of Water, for Fiscal Years 2001-2009.
- Metered water consumption data provided by DOW to SAIC. FY 2007-2009 metered water consumption data grouped by customer class and meter size.
- Engineering News Record (various issues and the magazine’s website). Historical construction cost index values.

Source Component

The source component of the FRC was calculated using the following three-step process:

- Step 1. Determine the unit cost for growth-related source capacity, in terms of dollars per gallons per day (\$/gpd) of source capacity.
- Step 2. Determine the source capacity requirement per fixture unit, based on 30 fixture units per equivalent residential unit (ERU).
- Step 3. Determine the FRC source component per fixture unit by multiplying the unit cost by the source capacity requirement.

Unit Cost of Source Capacity

A unit cost of providing source capacity was obtained from the source capacity development projects that constitute the CIP. Based on the source deficiency analysis provided by DOW staff, Table 4-2 identifies the gallons per day (gpd) from each new source project that would be required to eliminate an existing system deficiency and the amount that is available to provide capacity for future customers. These 15 projects (seven of which were used in the 2004 FRC update) provide an estimated 11,979,360 gpd of growth-related source capacity (after eliminating existing source deficiencies) at a cost, in 2011 dollars, of \$53,301,197. Per DOW staff, it is expected that approximately 10% of the CIP will be bond-financed. An adjustment was made to reflect the net present value of the debt-financed portion of the CIP, resulting in a total estimated cost of growth-related source capacity of \$55,397,828. The unit cost of source capacity is \$4.62 per gpd of source capacity.

**Table 4-2:
Projects Used to Calculate Unit Cost of Source Capacity**

Proj. No.	Project	System	Cost (1)	Estimated GPD (1,2)	GPD for new capacity (3,4)	Percent for Growth	Cost for Growth
A-02	Anahola Well	Anahola	\$2,620,000	576,000	416,160	72%	\$1,892,950
HW-12	Wainiha-Haena Well	Wainiha-Haena	2,438,000	144,000	14,400	10%	243,800
K-14	Kalaheo Well #3 (5) (Yamada)	Kalaheo	3,120,000	432,000	432,000	100%	3,120,000
KP-20	Koloa Well G (5)	Koloa-Poipu	3,120,000	1,008,000	1,008,000	100%	3,120,000
LO-07	Omao Well (Piwai Well #1)	Lawai-Omao	2,968,000	1,008,000	1,008,000	100%	2,968,000
PLH-42	Construct Kokolau Tunnel WTP	Puhi-Lihue-Hanamaulu	5,000,000	576,000	485,280	84%	4,212,500
WK-21	Wailua Homesteads Well 3	Wailua-Kapaa	2,477,000	576,000	576,000	100%	2,477,000
WK-39	Kapaa Homesteads Well 4	Wailua-Kapaa	2,788,000	720,000	720,000	100%	2,788,000
PLH-36	Kapaia SWTP Expansion	Puhi-Lihue-Hanamaulu	11,790,000	4,800,000	2,279,520	76%	8,959,947
H-08	Hanalei Well #2	Hanalei	3,138,000	432,000	432,000	100%	3,138,000
K-17	Puuwai WTP	Kalaheo	5,000,000	504,000	504,000	100%	5,000,000
KW-28	Kekaha (AMFAC) Shaft	Kekaha-Waimea	4,230,000	576,000	576,000	100%	4,230,000
M-03	Molooa (State) Well	Molooa	4,000,000	2,016,000	2,016,000	100%	4,000,000
WK-02	Akulikuli Tunnel	Wailua-Kapaa	4,031,000	504,000	504,000	100%	4,031,000
WKK-02	Kilauea Well No. 3	Kilauea-Waipake-Kalihiwai	3,120,000	1,008,000	1,008,000	100%	3,120,000
Total (6)			\$59,840,000		11,979,360		\$53,301,197

Adjustment for Bond Financing (7)

Cash Financed Portion of Cost for Growth	\$47,971,077
Net Present Value of Debt Financed Portion of Cost for Growth	\$7,426,751
Total Cost for Growth	\$55,397,828

Unit Cost of Growth-Related Source Capacity, \$/gpd =	\$4.62
Unit Cost of Growth-Related Source Capacity, \$/Fixture Unit (8) =	\$115.61
Percentage of source capacity CIP funding used for existing deficiencies =	10.9%

(1) Estimated cost is in 2011 dollars. Source: WP2020 CIP.xls, provided by DOW to SAIC. Updated where more current information available from DOW staff.

(2) Estimated by DOW based on projected pump capacity with assumption that well will be capable of operating 24hrs.

(3) Source: STATUS 2006 06-09-09 beck31710.xls, provided by DOW to SAIC.

(4) Systems were treated on an individual basis when available, to match the provided source data.

(5) Cost and GPD values that are shaded back were estimated by SAIC, based on a comparison with similar projects.

(6) Total differs from Appendix D because of the Grove Farm project.

(7) 10% of CIP to be bond financed per DOW.

(8) Based on 30 Fixture Unit maximum per equivalent residential unit (ERU), per DOW, and 750 gpd Maximum Day demand per ERU.

Source Capacity Requirement

Per DOW, the standard for single family residential meters is an average day demand of 500 gallons per day. Because the source of supply level of service is based on the maximum day demand, the capacity requirement per equivalent residential unit is the projected maximum day demand of 750 gpd (equal to the projected average day demand of 500 gpd times the 1.5 ratio of maximum day demand to average day demand).

FRC Source Component Calculation

The FRC source component is \$115.61 per fixture unit, the product of the unit cost of source capacity (\$4.62/gpd) and the capacity requirement (750 gpd maximum day demand per ERU), divided by 30 fixture units per ERU. This equates to approximately \$3,468 for the source component per ERU.

Storage Component

The storage component of the FRC was calculated using the following three-step process:

- Step 1. Determine the unit cost for growth-related storage capacity, in terms of dollars per gallon of storage capacity.
- Step 2. Determine the storage capacity requirement per fixture unit, based on 30 fixture units per ERU.
- Step 3. Determine the FRC storage component for per fixture unit by multiplying the unit cost by the storage capacity requirement.

Unit Cost of Storage Capacity

A unit cost of providing storage capacity was obtained from the storage capacity development projects that constitute the CIP. As shown in Table 4-3, there are 22 storage development projects that provide additional storage capacity. Based on the storage analysis provided to SAIC by DOW, Table 4-3 identifies the gallons per day from each new storage project that would be required to eliminate an existing system deficiency and the amount that is available to provide additional capacity for future customers. These projects provide 9,154,405 gallons of storage capacity over that required to eliminate existing deficiencies. The estimated cost to provide this new capacity, in 2011 dollars, is \$79,954,430. Per DOW staff, it is expected that approximately 10% of the CIP will be bond-financed. An adjustment was made to reflect the net present value of the debt-financed portion of the CIP, resulting in a total estimated cost of growth-related source capacity of \$83,097,401. The unit cost of storage capacity is \$9.08 per gallon of storage capacity.

**Table 4-3:
Projects Used to Calculate Unit Cost of Storage Capacity**

Proj. No.	Project	System	Cost (1,2)	Gallons (2)	Gallons for Growth (3,4)	Percent for Growth	Cost for Growth
A-10	Anahola 0.25MG Tank, 288'	Anahola	\$2,751,000	250,000	250,000	100%	2,751,000
HW-11	144 Tank	Haena-Wainiha	2,571,000	200,000	68,002	34%	874,166
HW-13	224 Tank	Haena-Wainiha	1,611,000	100,000	53,465	53%	861,321
KP-03	Koloa 366' Tank, 0.5MG	Koloa-Poipu	4,703,000	500,000	500,000	100%	4,703,000
KP-04	Koloa 366' Tank, 0.25MG	Koloa-Poipu	2,751,000	250,000	250,000	100%	2,751,000
KP-05	Poipu 245 Tank	Koloa-Poipu	8,305,000	1,000,000	332,883	33%	2,764,593
KW-26	Waimea 196 Tank	Kekaha-Waimea	4,203,000	500,000	357,523	72%	3,005,338
LO-03	Lawai (Andrade) Tank 825	Lawai-Omao	1,010,000	50,000	50,000	100%	1,010,000
LO-15	Omao New Tank, 677'	Lawai-Omao	2,751,000	250,000	250,000	100%	2,751,000
M-02	Molooa Tank	Molooa	1,526,000	100,000	65,262	65%	995,898
PLH-36	Kapaia SWTP Clearwell	Puhi-Lihue-Hanamaulu	9,080,000	1,000,000	1,000,000	100%	9,080,000
PLH-38	Lihue New 1.0MG Tank	Puhi-Lihue-Hanamaulu	8,305,000	1,000,000	1,000,000	100%	8,305,000
WK-10	Wailua Homesteads 538 Tank	Wailua-Kapaa	8,305,000	1,000,000	863,635	86%	7,172,489
WK-23	605 Tank	Wailua-Kapaa	2,219,000	250,000	113,635	45%	1,008,624
WK-37	Upper Waipouli 0.25MG Tank	Wailua-Kapaa	2,251,000	250,000	250,000	100%	2,251,000
WK-40	Upper Makaleha 0.25MG Tank	Wailua-Kapaa	2,251,000	250,000	250,000	100%	2,251,000
WKK-19	Kilauea 0.25MG Tank	Kilauea-Waipake-Kalihiwai	2,251,000	250,000	250,000	100%	2,251,000
H-07	Hanalei Tank #2	Hanalei	2,751,000	250,000	250,000	100%	2,751,000
HE-01	Eleele 0.5 MG Tank & Pipeline	Hanapepe-Eleele	3,930,000	500,000	500,000	100%	3,930,000
K-01	Yamada & Clearwell Tanks	Kilauea-Waipake-Kalihiwai	7,550,000	1,000,000	570,000	57%	4,303,500
PLH-01	Replace Grove Farm Tanks	Puhi-Lihue-Hanamaulu	2,721,000	500,000	300,000	60%	1,632,600
WKK-15	Kilauea 1.0 MG Tank	Kilauea-Waipake-Kalihiwai	8,214,000	1,000,000	900,000	90%	7,392,600
Total			\$92,010,000	10,450,000	8,424,405		\$74,796,130

Adjustment for Bond Financing (5)

Cash Financed Portion of Cost for Growth	\$67,316,517
Net Present Value of Debt Financed Portion of Cost for Growth	<u>\$10,421,758</u>
Total Cost for Growth	\$77,738,275

Unit Cost of Growth-Related Storage Capacity, \$/gpd = \$9.23
 Unit Cost of Growth-Related Source Capacity, \$/Fixture Unit (6) = \$230.69
 Percentage of storage capacity CIP funding used for existing deficiencies = 18.7%

- (1) Estimated cost is in 2011 dollars.
- (2) Source: WP2020 CIP.xls, provided by DOW to SAIC. Updated where more current information available from DOW staff.
- (3) Source: STATUS 2006 06-09-09 beck31710.xls, provided by DOW to SAIC.
- (4) Systems were treated on an individual basis when available, to match the provided source data.
- (5) 10% of CIP to be bond financed per DOW.
- (6) Based on 30 Fixture Unit maximum per equivalent residential unit (ERU), per DOW, and 750 gpd Maximum Day demand per ERU.

Storage Capacity Requirement

The storage level of service is based on the maximum day demand, per guidance from DOW. The storage capacity requirement for a 5/8-inch water meter is 750 gallons of storage, corresponding to a maximum day demand of 750 gpd.

FRC Storage Component Calculation

The FRC storage component is \$230.69 per fixture unit, the product of the unit cost of growth-related storage capacity (\$9.08/gallon) and the capacity requirement (750 gallons per ERU), divided by 30 fixture units per ERU. This equates to approximately \$6,921 for the storage component per ERU.

Transmission Component

The Water Plan 2020 hydraulic analysis evaluated the transmission systems of all 13 DOW water systems, using projected 2020 water demands. Together with existing facilities, these facilities in the CIP, CRP, and CRPL constitute the transmission facilities required to serve DOW's customers in 2020. In addition, DOW has updated its projection of transmission facilities needed to service customers beyond 2020. Eighteen new transmission projects were added since DOW completed Water Plan 2020.

The transmission component of the FRC is based on the cost of those facilities required to serve the projected 2030 customer base, and was calculated according to the following three steps:

- Step 1. Determine the unit cost of transmission facilities, in terms of dollars per gallon per day.
- Step 2. Determine the transmission capacity requirement per fixture unit, based on 30 fixture units per ERU.
- Step 3. Determine the FRC transmission component for per fixture unit by multiplying the unit cost by the transmission capacity requirement.

Unit Cost of Transmission Capacity

The transmission facilities necessary to serve customers in 2030 will consist of: (1) new facilities installed as part of the CIP program, and (2) existing facilities that are not being replaced as part of the CRP and CRPL programs. The facilities that are being replaced as part of the CRP and CRPL programs are not included in the FRC calculation, because new development will contribute to the funding of these facilities through rates and/or debt service payments.

As with the FRC source and storage components, the unit cost calculation was a division of a cost estimate by a capacity. Table 4-4 shows this unit cost calculation, and additional details are included in Appendix C (Table C-4).

**Table 4-4:
Unit Cost of Transmission Capacity**

Parameter	Value	Notes
Transmission Component Cost Basis		
CIP Costs	\$42,987,000	Sum of CIP pipeline and booster station projects
Estimated Inflation-Adjusted Cost of Existing Transmission Facilities Not Being Replaced	192,151,000	See Appendix C (Table C-4) for detailed calculations
Total	<u>\$235,138,000</u>	
Projected Year 2030 Average Day Consumption, gpd	19,445,900	Source: Water Plan 2020, Interpolated between 2020 and 2050 projection.
Unit Cost of Transmission Capacity, \$/gpd Average Day Consumption	\$12.09	= \$235,138,000 / 19,445,900

In this analysis it was assumed that, on a unit cost basis, the inflation-adjusted cost of transmission facilities required to serve a new development is the same as that required to provide transmission service to existing customers. Accordingly, the numerator in the unit cost calculation was: (1) the cost of the projects in the CIP, plus (2) the inflation-adjusted cost of existing transmission facilities that are not scheduled to be replaced.

The denominator in the transmission unit cost calculation was the projected 2030 average demand, in gallons per day, interpolated from Water Plan 2020 data. This demand includes the water demand of existing customers and the water demand of new customers, and it was used because the unit cost calculation was based on the transmission facilities required to provide water service to all customers in 2030.

Transmission Capacity Requirement

In units of maximum day demand in gallons per day, the transmission capacity requirement per ERU is 750 gallons per day.

FRC Transmission Component Calculation

The FRC transmission component is \$302.30 per fixture unit, the product of the unit cost of transmission capacity (\$12.09/gpd) and the capacity requirement (750 gallons per day per ERU) , divided by 30 fixture units per ERU. This equates to approximately \$9,069 for the transmission component per ERU.

FRC Credit Component

HRS 46-143(d)(1)(B) states that the impact fee methodology must consider “the means, other than impact fees, by which existing deficiencies will be eliminated

within a reasonable period of time.” DOW funds capital improvements through a variety of sources, including water rate revenues, use of FRC revenues, debt proceeds, use of capital reserves, and other smaller sources of income such as interest income on capital reserves. Debt proceeds are repaid by water rate revenues.

As described in the Needs Assessment Study and in Water Plan 2020 and confirmed by DOW staff’s 2006 analysis, there are significant deficiencies in the existing DOW system. These deficiencies will be eliminated through specific capital improvements that are part of the CIP and the CRPL.

An FRC credit was developed to recognize that new customers paying FRCs will also pay, through water rates, for:

- Eliminating existing system deficiencies,
- Source and storage repair and replacement projects, and
- Debt service payments on existing facilities.

The source and storage components of FRCs were based on the cost of new facilities. However, new customers will pay for a portion of DOW’s source and storage repair and replacement program in its CRP and CRPL through water rates. Accordingly, an FRC credit was developed. An FRC credit was not developed for transmission repair and replacement projects because the FRCs do not include transmission facilities that are being replaced.

An FRC credit was also developed for the amount of water rate revenue that a new customer would pay over a 20-year period for debt service payments on existing facilities. An FRC credit recognizing rate-funded debt service payments on existing facilities was developed to avoid “double-counting” (i.e., paying for a facility through rates and through FRCs). As a result of this calculation, it was projected that on a dollars-per-gpd basis, the present value over the 20-year period that should be credited to avoid “double-counting” is \$3.96 per gpd average day demand. Because the Average Day design standard is 500 gpd per ERU, the credit is (\$66.00) per fixture unit. Additional details of the analysis are available in Appendix C (Table C-6).

Updated FRC Calculations

Table 4-5 summarizes the updated FRC calculations per fixture unit and for a single-family residence (assuming 30 fixture units).

**Table 4-5:
Updated FRC calculations per Fixture Unit
and Single-Family Residence**

Component	Per Fixture Unit	Calculation for 5/8" Meter (30 F.U.)
Source	\$116	\$3,480
Storage	231	6,930
Transmission	<u>302</u>	<u>9,060</u>
Subtotal	649	\$19,470
Credit	<u>(66)</u>	<u>(1,980)</u>
Total	\$583	\$17,490

Table 4-6 shows the updated FRC calculations and the previous FRC schedule (effective from 2004 to 2012). For agricultural meters, which are not sized on a Fixture Unit basis, the FRC calculation is based on the ratio of meter capacity relative to a 5/8-inch meter capacity, as stated in the American Water Works Association (AWWA) Manual M6, Water Meters – Selection, Installation, Testing, and Maintenance. For example, a 3/4-inch meter has a maximum flow of 30 gallons per minute (gpm), while a 5/8-inch meter has a maximum flow of 20 gpm. On this basis, the FRC for a 3/4-inch agricultural meter is 1.5 times that of the charge for a 5/8-inch meter. Table ES-2 shows the updated FRC calculations.

**Table 4-6:
Comparison of Previous and Updated FRCs**

Customer Class	Previous FRCs	Updated FRC Calculations	Percent Change
Single Family Residential	\$4,600	\$583 per F.U., minimum of 30	Varies
Multi-Family Residential	Larger of (1) \$4,600/unit or (2) FRC based on water meter size	\$583 per F.U.	Varies
Resort/Hotel	Larger of (1) \$4,600/unit or (2) FRC based on water meter size	\$583 per F.U.	Varies
Agricultural Customers: Based on Meter Size			
5/8-inch	\$4,600	\$17,490	380%
3/4-inch	14,300	26,235	183%
1-inch	26,400	43,725	166%
1 1/2-inch	53,200	87,450	164%
2-inch	90,700	139,920	154%
3-inch	170,000	262,350	154%
4-inch	283,400	437,250	154%
6-inch	566,900	874,500	154%
8-inch	907,000	1,399,200	154%

A number of factors have been identified as contributing to the increase in the FRC. General inflation, as well as construction-specific cost increases are in part responsible, as well as the inclusion of planning, land and design costs in this FRC update. Additionally, changes to the requirements for main abandonment were also a source of increased costs. The incorporation of the expense of bond financing a portion of the required system expansion also contributed to the increase relative to the previous study.

The previous FRC was based on a meter size calculation for all customer classes. In this study the FRC is calculated on a per fixture unit basis. There are a number of reasons for this change, including the closer correlation between system demand and fixture units and the fact that fixture unit information is available at time of permit application.

Table 4-7 compares the previous and updated DOW FRCs with similar charges for other Hawai'i water utilities. None of the other utilities have changed system development charges since the last FRC update. Table C-9 in Appendix C provides a more detailed comparison.

**Table 4-7:
FRC Comparison with Other Hawai'i Water Utilities**

Customer Class	Previous DOW FRCs	Updated DOW FRC Calculation	Honolulu BWS	Hawai'i DWS	Maui DWS
Single Family Residential, 5/8" meter	\$4,600	\$583 per F.U., minimum of 30	\$185.33 per F.U.	\$940 / 4,350 (2)	\$6,030
Multi-Family Residential, 1 1/2-inch meter	Larger of (a) \$4,600/unit or (b) \$53,200	\$583 per F.U.	Low Rise: \$271.27/F.U. High Rise: \$204.14/F.U.	\$21,750	\$34,974
Commercial, 2-inch meter	\$90,700	\$583 per F.U.	< 50 F.U.: \$620.85 > 50 F.U.: \$220.29	\$34,800	\$61,506
Agricultural, 5/8-inch meter	\$4,600	\$17,490	\$4,819	\$940 (2)	\$6,030

(1) Calculation is based on a per fixture unit charge, using 20 fixture units as an example for a single-family residence and 200 fixture units for multi-family and commercial customers.

(2) Initial 5/8" connection is \$940. Subsequent connections are \$4,350.

FRC Benefit Zones

HRS Section 46-144(2) specifies that collection and expenditures shall be localized to provide a reasonable benefit to the development, and that establishment of geographically limited benefit zones is not required if a reasonable benefit can otherwise be derived. In the case of the DOW's FRCs, the benefit provided to the development is the provision of water service. The FRCs are applicable to applicants for DOW water service.

FRC Offset for Developer-Funded Facilities

DOW offers FRC offsets for developers who construct DOW-approved off-site facilities. HRS 46-143(d)(7) states that impact fee calculations must consider any offsets payable to a developer related to the construction of off-site improvements. For construction of a qualifying source facility, an FRC offset of up to 18 percent of the FRC payment was estimated. For qualifying storage and transmission facilities, the calculated FRC offset amount is up to 36 percent and 46 percent of the FRC payment, respectively. Table 4-8 summarizes the maximum FRC offsets recommended for consideration by DOW.

**Table 4-8:
Maximum FRC Offsets
for Off-Site Developer-Funded Facilities**

Customer Class	Source	Storage	Transmission
All Customer Classes (1)	18% of FRC Paid	36% of FRC Paid	46% of FRC Paid

(1) The total amount of all offsets shall not exceed 100% of the FRC.

FRC Implementation

As with any changes to rates, there are a number of issues that should be considered in the implementation of the updated FRC charges.

- Impacts to customers must be weighed before rates are implemented. Significant increases in FRC rates can have a material impact on business expansion and community development plans. The current analysis results in between 154 percent and 380 percent increase to current FRCs. It is recommended that the DOW Board carefully consider the impacts of such an increase on its service area.
- Consider phasing in the full increase of the FRC so affected parties can appropriately adjust to the impacts of the new fee. Conversely, while a longer phase-in period allows these affected parties time to adjust, during that period the level of fee collected will be lower than this analysis indicates is required to fund the required level of system expansion. The DOW Board should carefully consider the impact of phasing in the fee over a short or long period.
- The Credit portion of the calculation, which is calculated based on the expected amount that new customers will pay through their water rates for eliminating existing system deficiencies, source and storage repair and replacement projects, and debt service payments on existing facilities. The amount needed to fund the required level of system expansion, then, is \$66 greater per fixture unit (the amount of the Credit) than the total amount paid per fixture unit. The DOW Board and staff should consider whether or not to implement a transfer from the general fund to the FRC fund equal to the amount of the Credit for each FRC paid, to ensure that the FRC fund is able to support the required level of system expansion.

ASSESSMENT OF GROVE FARM WATER TREATMENT FACILITY

Introduction

As part of the FRC Update, DOW requested SAIC to undertake an assessment of the Grove Farm Water Treatment Facility (WTF). The results of this assessment were to be used by DOW to determine whether it was appropriate for the costs of the WTF expansion to be included in the FRC analysis.

The scope of this assessment included:

- Estimating the costs of upgrading the existing membranes which would increase capacity by 60 percent.
- Estimating the costs of replicating the existing plant on the same site to double capacity.
- Estimating the costs of installing solar power facilities to supply the existing and expanded WTF.
- Reviewing the cost sharing agreement between Grove Farm and DOW.
- Estimating the operating costs for
 - DOW to continue to purchase water from the WTF.
 - Estimating the costs to DOW to buy-out and operate the WTF on their own.

Existing Facility Overview

The Grove Farm WTF treats surface water from the Kapaia Reservoir through flocculation, membrane filtration, and chlorination, before pumping finished water to DOW. The WTF includes raw water pumps that draw from the reservoir and pump to the treatment building; four 1.0 MGD treatment trains consisting of flocculation, Zenon-manufactured membrane filtration, and associated equipment (mixers, pumps, etc.); a 264,000-gallon chlorine contact tank; and finished water pumps that send fully treated water to DOW's system. The WTF's firm capacity (i.e., with one treatment train out of service) is 3.0 MGD.

The two options that are evaluated below for increased capacity include an "upgrade," consisting of membrane replacement and minimal additional equipment additions to maximize the output of the existing WTF infrastructure, and an "expansion," which doubles the number of treatment trains and adds significant additional treatment infrastructure.

Estimated Operating Costs

As part of this analysis, DOW was interested in an estimate of WTF operating costs under current operations and under DOW operations. SAIC met with Grove Farm staff on site to obtain high level operating cost data and gain an understanding of plant operations.

Estimated facility operating costs for 2009 are shown in Table 5-1. Grove Farm costs were compiled from data provided by Grove Farm staff as well as from estimates provided by DOW and SAIC. The Grove Farm operating costs shown below are intended to reflect the contract terms in terms of what costs are to be recovered through the delivered water fee. It is unclear whether depreciation is considered part of this delivered water fee as this is not specified in the contract; however there is typically an allowance for depreciation or renewals and replacements in operating expenses and therefore this expense is shown separately.

DOW costs shown were developed by SAIC in consultation with DOW staff. The key differences reflect certain overhead expenses such as insurance and taxes that would not need to be paid by DOW or would be greatly reduced. The assumption for depreciation under DOW operations was based on a plant life of 25 years instead of the 16 year contract term. Estimated staffing is 2.5 FTE which includes plant operators as well as administrative and support functions. Grove Farm's staffing costs are included in the Management Fees account.

The main difference in operating costs of approximately \$726,200 can be attributed to the return on investment component of Grove Farm's costs.

As mentioned earlier, this review of operating costs was not a detailed review and therefore if a higher degree of accuracy in costs is needed, additional data and discussions regarding key assumptions should be obtained from Grove Farm.

WTF Operating Costs (2009)

	Grove Farm ⁽¹⁾	DOW ⁽²⁾
Management Fees	\$ 299,800	n/a
Staffing	n/a	262,800
Electricity	253,700	253,700
Chemicals	148,700	148,700
Repairs & Maintenance (3)	n/a	n/a
Insurance	98,400	n/a
General Excise Tax	60,800	n/a
ROI - 10% (4)	530,000	n/a
DOH Testing	34,700	34,700
Other	10,000	10,000
Subtotal Costs	\$ 1,436,100	\$ 709,900
Annual Difference		\$ (726,200)
Add Depreciation		
Depreciation (5)	709,500	454,100
Total Costs	\$ 2,145,600	1,164,000
Annual Difference		(981,600)
Actuals Paid (2009)	\$ 1,497,406	

Average Demand 2.25 MGD

- (1) Report by Grove Farm staff in May 2010 with adjustments made for repairs & maintenance, ROI and depreciation assumptions.
- (2) Estimated by DOW and SAIC. Assumes 2.5 FTE for plant operations and administrative support.
- (3) Assumes that Repairs & Maintenance will be covered by depreciation.
- (4) Estimated by DOW assuming 10% of remaining equity of plant value.
- (5) Grove Farm per DOW; DOW depreciation estimated by SAIC based on 25 years instead of 16 years of plant life.

Upgrade Costs – Membrane Replacement

The existing membrane tanks and supporting equipment are sized to accommodate upgrade of the Zenon systems up from 1.0 MGD each to 1.6 MGD each, resulting in a WTF firm capacity of 4.8 MGD or 3 trains at 1.6 MGD each, (6.4 MGD production with 4 trains operating at 1.6 MGD each). This upgrade would require replacement of all existing membrane cassettes at a Zenon-quoted (equipment only) cost of \$2.1 million.

Upgrade of the raw water pumps and addition of another finished water pump would be required to accommodate the increased plant capacity. In addition, modifications to the operation of the chlorine contact tank would be required to maintain an adequate CT value (assuming finished water disinfection residual is to remain unchanged). The existing tank currently doubles as finished water storage and consequently, in order to

maintain adequate chlorine contact time, the flowrate of water supplied to DOW from the tank is reduced when the tank’s level is low. At an increased WTF capacity, the current level settings would be insufficient to maintain both functions. If DOW needs the same or increased finished water storage volume, it may be best to dedicate the existing tank to one function, and build an additional tank (of similar or slightly larger size than the existing one, depending on the DOW’s needs) for the other. Chlorine CT calculation details are provided in Appendix E.

Including the additional equipment, a new finished water storage tank, and appropriate contingency for this planning stage, a budget of approximately \$8.13 million should be anticipated for the upgrade. A breakdown of this cost is provided in Table 5-1 below.

Table 5-1: Preliminary Planning Level Upgrade Costs

Item	Cost
Zenon Membrane Replacement ¹	\$2,600,000
Raw Water Pump Upgrades	\$420,000
Finished Water Pump Addition	\$80,000
360 kGal Finished Water Storage Tank ²	\$1,100,000
Subtotal Construction Costs	\$4,200,000
Design, CM, and Administration (25%)	\$1,050,000
Excise Tax (4%)	\$210,000
Subtotal Project Costs ³	\$5,460,000
Contingency (50%)	\$2,730,000
TOTAL	\$8,190,000

- (1) Based on quotes from GE-Zenon for a similar facility; includes installation costs.
- (2) Based on quotes from DYK for this installation.
- (3) Does not include land acquisition costs, if necessary.

Expansion Costs – Double Number of Treatment Trains

If the footprint of the existing facility was doubled, adding four more treatment trains each with 1.6 MGD of capacity, the resulting firm capacity of the WTF would be 11.2 MGD (seven operating 1.6 MGD trains, with one for standby), with a 12.8 MGD production with all eight trains in operation.

An expansion of the WTF could be physically accomplished onsite with the existing facility. A new filter building would house the four additional treatment trains (being essentially the same size as the existing filter room), and significant pump additions to both the raw water pump station and the finished water booster system would be required. An additional chlorine contact tank would be required, as would new finished water storage and an expanded solids disposal pond. (Chlorine contact calculations are provided in Appendix E.) Additional pipeline capacity between the

WTF and DOW's water system would also be required, but analysis of transmission infrastructure and its cost is beyond the scope of this report.

A cost summary for the WTF expansion is included in Table 5-2 below. This expansion would also include all components required for the upgrade as discussed above. This cost estimate does not include an estimate for land costs.

**Table 5-2: Preliminary Planning Level
Expansion Costs**

Item	Cost
Zenon Membrane Replacement ¹	\$2,600,000
New Membrane Treatment Trains ¹	\$8,700,000
New Filter Building	\$230,000
Raw Water Pump Upgrades	\$910,000
Finished Water Pump Addition	\$270,000
Generator ²	\$310,000
Minor Equipment	\$130,000
Chlorine Contact Tank ³	\$810,000
Finished Water Storage Tank ³	\$1,800,000
Site Work	\$500,000
Subtotal Construction Costs	\$16,260,000
Design, CM, and Administration (25%)	\$4,070,000
Excise Tax (4%)	\$820,000
Subtotal Project Costs ⁴	\$21,150,000
Contingency (50%)	\$10,575,000
TOTAL	\$31,725,000

- (6) Based on quotes from GE-Zenon for a similar facility.
- (7) Based on quote from Pacific Power (Kent, WA) for this installation.
- (8) Based on quotes from DYK for this installation.
- (9) Does not include land acquisition costs, if necessary. Transmission costs from the WTF to DOW's distribution system are also excluded.

Such an expansion may need to be preceded by a hydrologic analysis of the Kapaia Reservoir. The May 6, 2003 Preliminary Engineering Report (PER) prepared for the original WTF construction identified average flows upstream of the reservoir at 27 to 36 MGD and because of the sufficiency of such flows to meet the needs of a 3.0 MGD WTF, did not report any further investigation. However, the records included in the PER indicate a three-year drought in the late 1980's where average flows were likely in the range of 15 MGD or less. The potential for an 11.2 MGD withdrawal may be hampered by regulatory requirements for continued downstream flow, if not actual safe yield of the Kapaia Reservoir when modeled against a more complete hydrologic record.

Solar Power for WTF

Photovoltaic (PV) solar power generation placed on site could be designed to meet any desired portion of the existing and expanded WTF's power demands. However, technology constraints, installation costs, and coordination with the local power supplier (Kaua'i Island Utility Cooperative – KIUC) all impact such a decision.

An on-site PV system to meet all of the WTF's power demands (twenty-four hours per day, without a KIUC connection) would need to be sized to produce four or more times the WTF's average kW demand, since solar conditions for Kaua'i only support PV power generation approximately six hours per day. Outside of these six hours, or when weather conditions necessitate, batteries (which can be expected to double the cost of the PV system) would be used to supply power to the WTF.

Alternatively to avoid the cost of a battery system, DOW could remain connected to KIUC and offset their total daily demand during PV power generation hours. Any power generated but not used at the WTF must be sent elsewhere, and the excess power generated during these six hours (equal to three or more times the amount demanded by the WTF during those same hours) would be backfed to KIUC. The WTF would draw power from KIUC during the remaining eighteen hours per day.

Such a scenario might not require the PV system to be installed at or even near the WTF. According to Beach Side Solar of Kapolei, Hawai'i, KIUC allows PV facility owners to tie into the KIUC system to offset power demanded by that customer elsewhere. However rather than entering into a true net-metering agreement (which would be a kWh-for-kWh credit), KIUC enters into Power Purchase Agreements (PPAs) whereby they pay the facility owner for the generated power at KIUC's lowest wholesale kWh rate. Under such an agreement, DOW could offset their entire electrical cost by constructing a facility to produce more (in the six PV power generation hours) than their average (twenty-four hour) kWh demand. The PV facility would need to produce an amount of power greater than the WTF's demand by a factor proportional to the difference in the WTF's rate tariff and KIUC's lowest wholesale rate tariff.

In order to maximize DOW's return on a PV system, the design considered for further evaluation herein was to have the WTF be "off the grid" whenever feasible, i.e., approximately six hours per day, weather permitting, but not to meet the twenty-four hour power (kWh) demands of the WTF. The system is therefore sized to handle the peak expected power loads (kW) of the facility. Excess power (when the WTF is not demanding peak kW power loads) would be accepted and paid for by KIUC. (Determination of the exact value of payments to DOW for this power requires further discussion with KIUC to confirm the above assumptions, particularly the acceptability and pricing of such a quasi-net-metering scheme. Therefore to be conservative, no revenues from the excess power generated were assumed for this analysis.)

Given the above design assumptions and at an estimated cost of approximately \$3.0 million (based on a \$7,500 per kW estimate provided by Beach Side Solar, not including land costs), installation of a PV solar array would have a payback period of approximately 12 years at current KIUC rates. If the solar array is sized for the

11.2 MGD WTF capacity (approximately 400 kW), DOW could expect to nearly offset their entire daily power demand (kWh, but not necessarily cost due to KIUC's reduced wholesale rate) each day until WTF output grows beyond 3.0 MGD. In such a case, DOW would backfeed an excess of 250 kW or more to KIUC during peak solar hours, and draw up to 150 kW from KIUC during non-solar generation periods. Calculations for a solar option are provided in Appendix E.

Cost Sharing – Construction

Initial construction costs for the existing 3.0 MGD WTF were borne entirely by Grove Farm. DOW pays a monthly fee (in the form of a cost per thousand gallons) which pays for operation, paydown of project development debt, and Grove Farm's initial cash investment in the facility, if any, as well as Grove Farm profit. In turn, Grove Farm also gets credits toward connections and connection fees for development projects served by DOW's system.

If Grove Farm decides to expand the facility during the time that they own it, they are responsible for all related costs and they gain credits for the expanded capacity.

If an upgrade is required (due, for instance, to stricter treatment regulations) while Grove Farm retains ownership, the cost is shared on a one-third / two-thirds basis between Grove Farm and DOW.

DOW cannot expand the facility unless they are routinely accepting the entire 3.0 MGD plant capacity. If DOW decides to expand while Grove Farm owns it, DOW is responsible for all related costs and the expanded capacity belongs to DOW. They must also compensate Grove Farm for increased operation costs for any such expansion.

DOW has a buy-out option, referred to as "Dedication" by the Agreement (discussed in further detail below). After DOW exercises the Dedication option, they own the facility and any expansion is on their own, except that Grove Farm has the option to "participate" in the expansion as may be mutually agreed at the time.

Cost Sharing - Operation

DOW pays for the costs of operation attributable to their acceptance of WTF-supplied water based on conditions outlined in the Agreement. Specific formulae are applied to determining DOW's costs as long as Grove Farm owns the facility. To estimate DOW's costs in the event that they exercise the Dedication option, Grove Farm's historical costs of operation can be used.

DOW Costs with Grove Farm Ownership

Contractually, all actual costs of plant operation and upkeep are to be borne by Grove Farm, and the DOW Fee paid per 1000 gallons demanded is their only monetary compensation. When adjusted, the DOW Fee (interchangeably referred to in the Agreement as the "treatment and delivery sales fee," the "BWS Fee," and the

“Delivered Water Fee”) is to be calculated via a two-to-one blending of two components as follows:

1. The “BWS Treatment Fee,” which is represented by the sum of: 1) DOW’s O&M costs (less electricity) for *other* source systems in the Lihue-Hanamau area, 2) Facility development costs, and 3) Ten percent return on two-thirds of the Facility’s capital costs.
2. The “Grove Farm Fee,” which is to be calculated as no less than that required to pay for all Facility costs of operations, insurance, and financing.

The resulting blended rate may be lowered if it is higher than the DOW’s “...actual cost to provide water to its current customers.” (The Agreement language appears to imply that this “actual cost” is based on DOW’s total cost of providing water, which would include source, treatment, transmission, distribution, and administrative costs. There is no component of the DOW Fee charged by Grove Farm that includes the latter two cost items. Therefore, the DOW Fee could still result in an increase in DOW’s total costs (including distribution and administrative costs) of providing Grove Farm water to its current customers.) The Agreement indicates that the operations costs incorporated into the Grove Farm Fee include the costs of electricity and taxes (which would include Hawai’i general excise taxes - GET), although these have historically been paid by DOW as a pass-through charge in addition to the DOW Fee.

The current Fee is set at \$1.48 per 1000 gallons, but no information is available as to the calculated basis for this value, which has been adjusted from the original \$1.327 per 1000 gallons referenced in the Agreement. Incorporating the historical costs of passed-through electricity and GET expenses, DOW has paid an effective rate varying from \$1.78 to \$1.93 per 1000 gallons since 2006.

Applying the calculation process outlined above in order to determine a new DOW Fee could result in a significant increase in cost. However, the cost cap provided by the comparison of the calculated DOW Fee to DOW’s cost to provide water to its other customers would prevent the Fee from exceeding DOW’s own costs. Continuation of the recent rate of increase in Grove Farm’s O&M expenses (in excess of 15 percent per year) would nearly guarantee the exercise of this cap, assuming the Agreement terms are applied.

However Grove Farm has not increased the DOW Fee since at least 2006, and based on expense information available for 2006, the Fee does not appear to have been set in accordance with the Agreement terms. Without any detailed information supporting the \$1.48 Fee, it is difficult to determine how Grove Farm has interpreted the Agreement, and it may be that their interpretation would result in a cost somewhat less than DOW’s costs for similar service. In any event, the cap provided by the Agreement ensures DOW that the Fee will not exceed DOW’s costs for similar service.

Figure 1 below identifies anticipated costs for DOW to continue purchasing water from Grove Farm, applying the Agreement terms in calculating the Fee starting in 2011 and revising it annually. The fee model assumes an annual 1 percent increase in

water demands, and a 3 percent annual increase in both Grove Farm and DOW O&M costs. The model yields (for 2010) a calculated DOW Fee of \$5.00 per 1000 gallons (covering costs from source through distribution, which is already in excess of DOW’s own costs (approximately \$3.50 per 1000 gallons, representing DOW’s total costs of supply), so the cap would already apply. So, in applying the contractual terms, DOW’s future costs to obtain Grove Farm water would be the same as their total cost to supply water to their other customers. For reference only, costs resulting from not applying the Fee cap are also shown in the Figure.

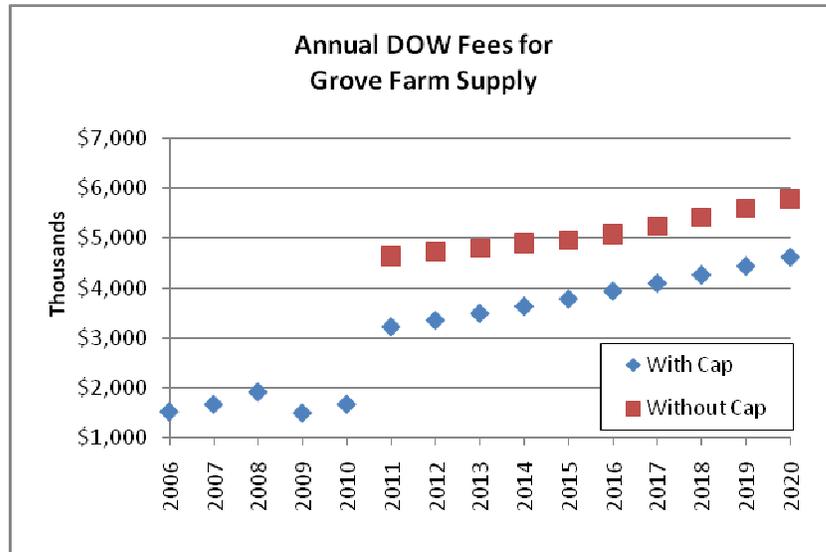


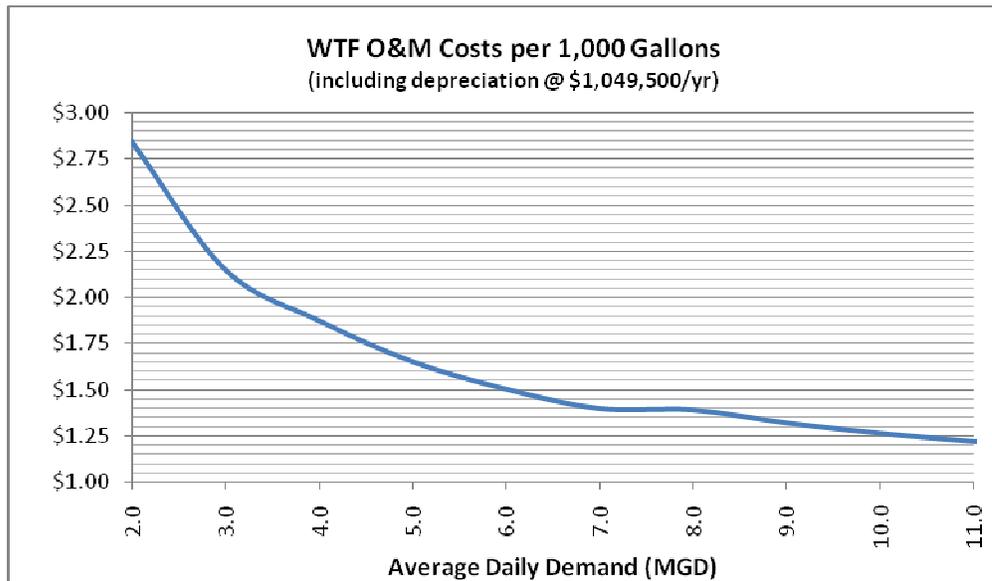
Figure 1: Annual DOW Fees for Grove Farm Supply

Buyout Provision

Per the Agreement §10, DOW has the option to buy out the Facility at a Facility Improvement Price that is dependant only on two variables: 1) the unamortized (i.e., less depreciation) cost of the development and construction of the Facility as of the date of the buyout, and 2) the outstanding balance (i.e., payoff amount) associated with the Development Loan. Essentially, the Facility Improvements Price established by §10.b of the Agreement equals the greater of the depreciated value of Facility, or the outstanding portion of the Development Loan attributable to DOW’s two-thirds stake in the facility. Since the loan payoff is not expected to control, the buyout provision in the Agreement simply results in a buyout price equal to the depreciated Facility value (currently stated in “Grove Farm Proforma.xlsx” as \$7,523,623). Additionally, DOW must pay fair market value for lands underlying the Facility and owned by Grove Farm, including that related to easements that would be necessary for mains included in the Agreement’s definition of the Facility.

DOW Costs with DOW Ownership

Estimates of DOW's cost to operate the expanded facility in the future are based on an extrapolated cost breakdown for the existing 3.0 MGD WTF provided by Grove Farm for 2009. Using this information to estimate chemical costs, repairs and replacements, and testing costs per million gallons treated, operational cost estimates for the full range of the expanded facility capacity were developed and are represented by Figure 2 below. Depreciation of the expanded facility (\$31.725M) over 30 years is included, which has a much lower impact on cost per thousand gallons as Average Daily Demand is increased. In comparing to DOW costs with Grove Farm ownership, it should be noted that the unit costs in Figure 2 are also exclusive of DOW's distribution and administrative costs.



Without Solar, \$0.297 per kWh, \$10.45 per peak kW demanded.

Figure 2: WTF O&M Costs per 1,000 Gallons

Table 3 below identifies the components of WTF O&M costs at a likely near-term 3.0 MGD WTF output. Costs are shown with and without a PV system. Costs for power purchased from KIUC are assumed to equal the current rates (estimated based on the last four months of 2009 at \$0.297 per kWh, and a demand charge of \$10.45 per peak kW demanded). At 3.0 MGD, the PV system would produce more kWh than demanded by the WTF, so power costs are assumed to be completely offset. Further discussion with KIUC is needed to confirm this assumption.

Table 5-3: WTF O&M Costs @ 3.0 MGD
(exclusive of distribution and administrative costs)

O&M Components	Without Solar	With Solar
Staffing	\$473,040	\$473,040
Power	\$385,126	\$0
Chemicals	\$198,653	\$198,653
Repairs &	\$162,850	\$162,850
Testing	\$46,357	\$46,357
WTF Depreciation ¹	\$1,057,500	\$1,057,500
Solar Depreciation ¹	n/a	\$200,000
Other ²	\$40,786	\$40,786
Total	\$2,364,313	\$2,179,187
per 1000 gallons	\$2.159	\$1.990

(1) Straight-line over 30 years.

(2) Estimated at 10 percent of chemical, repair, and testing costs.

Appendix A
[Update Date] Amendments
to the DOW's Rules and Regulations

Note: 2004 Amendments included here as a placeholder for the updated FRC Amendment.

**AMENDMENTS TO THE RULES AND REGULATIONS OF THE
BOARD OF WATER SUPPLY, COUNTY OF KAUAI, STATE OF HAWAII,
PRESCRIBED ON May 19, 2004**

**BE IT RESOLVED BY THE BOARD OF WATER SUPPLY OF THE COUNTY OF
KAUAI, STATE OF HAWAII:**

SECTION 1. This amendment to the Rules and Regulations (hereafter "Rules") of the County of Kauai Department of Water (hereafter "Department") is made pursuant to Sec. 17.03C and D of the Kauai County Charter 1984, as amended, and Chapter 91, Haw. Rev. Stat., as amended.

SECTION 2. Summary of Rule Amendment.

a. Modification of Facilities Reserve Charges. The Department's Rules currently require that a one-time charge be assessed against all new customers who desire water system service from the Department. This charge, called a facilities reserve charge or "FRC", is intended to recover the Department's cost of providing water system service to new developments.

Section 3 of this amendment to the Rules modifies the Department's facilities reserve charges. These charges are found in section VII of Part 4 "FIXING RATES FOR THE FURNISHING OF WATER SERVICE IN THE COUNTY OF KAUAI" of the Department's Rules.

b. Deletion of FRC credits for source and storage facilities and proportionate share refund agreement for main extensions, and adoption of FRC "Offsets". To address the impact of their developments on the Department's water system, commercial, residential and other land developers may be required to construct potable water sources, water storage facilities, and/or water transmission mains to serve their new developments.

Under the Department's present Rules, developers of such water sources or water storage facilities are entitled to reduce their applicable facilities reserve charge ("FRC") liabilities by up to one-third each because of their contributed water infrastructure improvements.

Developers of water transmission mains are not entitled to reduce their applicable FRC liabilities, but are entitled to enter into proportionate share refund agreements. These agreements require those customers obtaining water service from the main extension to contribute their proportionate share of the cost of the extension to the developer. In this way, the developer is partially refunded for the cost of the extension.

Sections 4 and 5 of this Rule amendment delete the described one-third FRC credit for source and storage facilities and the proportionate share refund agreement for main extensions. Section 3 of this Rule amendment, in addition to modifying the Department's FRC charges, then replaces these deletions with a system of FRC reductions, or "offsets".

In summary, under this system developers of such contributed water source, storage, and transmission facilities would "offset" their applicable FRC liabilities by up to 33% where water source improvements are constructed, up to 33% where water storage improvements are constructed, and up to 50% where water transmission mains are constructed; provided that the total amount of all offsets shall not exceed 100% of a developer's FRC liability, and provided further that the offset for any source or storage improvement or transmission main shall not exceed the actual cost of the source or storage improvement or transmission main.

This Rule amendment also makes other technical changes to the Department's Rules.

**AMENDMENTS TO THE RULES AND REGULATIONS OF THE
BOARD OF WATER SUPPLY, COUNTY OF KAUAI, STATE OF HAWAII,
PRESCRIBED ON May 19, 2004**

SECTION 3. Section VII "FACILITIES RESERVE CHARGE" only of Part 4 "FIXING RATES FOR THE FURNISHING OF WATER SERVICE IN THE COUNTY OF KAUAI" of the Rules is hereby amended as follows:

**"PART 4
FIXING RATES FOR THE FURNISHING OF WATER SERVICE IN THE COUNTY
OF KAUAI**

SECTION VII - FACILITIES RESERVE CHARGE

1. The water system facilities reserve charge shall be assessed against all new developments and subdivisions requiring supply of water from the County of Kauai, Department of Water, and existing developments requiring additional supply of water from the Department's system. The facilities reserve charge must be paid before water services are made available to the new or existing development.
2. The water system facilities reserve charge shall be paid by all applicants for water service, including but not limited to the following:
 - [1.]a. All irrigation services and/or meters.
 - [2.]b. Additional buildings to be connected to existing services where additional demands or supplies are indicated. The charges shall be based on the meter sizes required if the buildings were metered separately.
 - [3.]c. Additional units connected to existing services and meters under the categories of single family and multi-family residential units. The charges will be based on the established schedule of charges for the respective categories.
3. The water system facilities reserve charges shall apply to all applicants for water service as follows:
 - [A.]a. For each parcel created by subdivision, including the first lot created; and for every new single-family residential dwelling unit not yet metered and a facilities reserve charge has not yet been paid, the charge shall be [~~\$2,600.00~~] \$4,600.00.
 - [B.]b. For each unit in a multi-family residential development and/or resort development, the charge shall be [~~\$2,600.00~~] \$4,600.00.
 - [C.]c. For all other uses, the facilities reserve charge shall be determined by the size of the meter as follows:

<u>Meter Size</u>	<u>Amount</u>
5/8"	\$ [2,600.00] <u>4,600.00</u>
3/4"	\$ [13,200.00] <u>14,300.00</u>
1"	\$ [38,000.00] <u>26,400.00</u>
1 1/2"	\$ [77,800.00] <u>53,200.00</u>
2"	\$ [124,620.00] <u>90,700.00</u>
3"	\$ [249,230.00] <u>170,000.00</u>
4"	\$ [381,320.00] <u>283,400.00</u>
6"	\$ [778,850.00] <u>566,800.00</u>
8"	\$ [1,246,160.00] <u>907,000.00</u>

Meter sizes shall be determined by the Department and not by the Developer or Applicant. The facilities reserve charge for multi-family and/or resort development will

AMENDMENTS TO THE RULES AND REGULATIONS OF THE
BOARD OF WATER SUPPLY, COUNTY OF KAUAI, STATE OF HAWAII,
PRESCRIBED ON May 19, 2004

be determined by the approved meter size or the number of units, whichever number is larger.

Facilities reserve charges are periodically adjusted by the Department. These adjustments may increase or decrease existing facilities reserve charge amounts. Where adjustments to facilities reserve charges result in decreases of such charges, no refund will be made of the difference between the higher, pre-existing charges and the lower, adjusted charges.

4. FRC Offsets.

a. Definitions and construction of words: As used in this paragraph 4, the following definitions shall apply:

"Applicant" means any person, individual, corporation, partnership, business, organization, association, or other entity whatsoever that applies for water service from the Department.

"Consumer" has the meaning ascribed to it under Section I of Part 2 of the Department's Rules and Regulations.

"FRC" means the facilities reserve charges described in section VII of Part 4 and Section III of Part 3 of the Department's rules.

"Offset" means reduced or reduction.

"Subdivider" has the meaning ascribed to it under section I of Part 3 of the Department's Rules and Regulations.

"Subdivision" has the meaning ascribed to it under section I of Part 3 of the Department's Rules and Regulations.

"Water transmission main" or "main" means a main extension under paragraph 2.a.(4) of section II of Part 2 of the Department's Rules and Regulations.

As used in this paragraph 4, the following rules of construction shall apply:

Number. Words in the singular or plural number signify both the singular and plural number.

"Or", "and". Each of the terms "or" and "and", has the meaning of the other or of both.

b. When an applicant, consumer, or subdivider is required to construct and dedicate water source or water storage facilities, or water transmission mains, to the Department, the following rules shall apply.

Subject to the provisions of this paragraph 4, the applicable FRC liability of such applicants, consumers, or subdividers shall be offset by up to 33% each where water source or water storage improvements are constructed, and up to 50% where water transmission mains are constructed; provided that the total amount of all offsets that an applicant, consumer, or subdivider receives shall not exceed 100% of the applicant's, consumer's, or subdivider's FRC liability, and provided that if a transmission main, source or storage improvement, or transmission main shall not exceed the actual cost of the source or storage improvement, or transmission main.

AMENDMENTS TO THE RULES AND REGULATIONS OF THE
BOARD OF WATER SUPPLY, COUNTY OF KAUAI, STATE OF HAWAII,
PRESCRIBED ON May 19, 2004.

The Department, and not the applicant, consumer, or subdivider, shall calculate and determine the total amount of an applicant's, consumers, or subdivider's FRC offset in any given case. The Department may require the applicant, consumer, or subdivider to submit documentation verifying the actual cost of a source or storage improvement or transmission main.

c. The offsets described in this Paragraph 4 "ERC Offsets" shall not apply to water transmission mains constructed by a subdivider, applicant, or consumer which are within or adjacent to a subdivision or lands either 1) owned by the applicant or consumer, or 2) developed by the applicant or consumer for uses such as, but not limited to, residential, agricultural, commercial, resort, industrial, governmental (religious, or educational) uses. Where water transmission mains are constructed within, adjacent to, or outside of such subdivisions or lands, the offsets shall apply only to mains constructed outside of and off-site from such subdivisions or lands."

SECTION 4. Sections II "GENERAL CONDITIONS" and VI "NEW SERVICE CONNECTIONS" of Part 2 "RULES AND REGULATIONS FOR WATER SERVICE CONNECTIONS" of the Rules are hereby amended as follows:

"PART 2

RULES AND REGULATIONS FOR WATER SERVICE CONNECTIONS

SECTION II - GENERAL CONDITIONS

1. Any prospective consumer may obtain water service provided all of the following conditions are met:
 - a. In the event that service limits are established by the Department that the premises are within these limits.
 - b. The Department has a sufficient water system developed for domestic use and, if required by the Department, a sufficient water system for fire protection. In order to determine the sufficiency of the water system, the Department may require the prospective consumer to estimate the amount of water to be used.
 - c. The consumer agrees to design, construct, or install any component of the water system required by the department in compliance with all applicable statutes and regulations of the State of Hawaii, and with the 2002 Water System Standards adopted by the department. The department may, for good cause shown, permit departure from the 2002 Water System Standards.
 - d. The consumer agrees to abide by these rules and regulations.
 - e. All applicable charges have been paid.
2. Extension of Mains. Where an extension of mains is necessary or where large quantities of water are required or a substantial investment is necessary to provide service, the consumer will be informed by the Department as to the conditions and charges to be made for the particular area and situation in question before water service may be approved.
 - [a. Extension of Mains
 - (1) When an extension of mains for service is necessary, the consumer shall install and pay for any extensions of water system required from the public water system to any particular area. All such water systems shall

**AMENDMENTS TO THE RULES AND REGULATIONS OF THE
BOARD OF WATER SUPPLY, COUNTY OF KAUAI, STATE OF HAWAII,
PRESCRIBED ON May 19, 2004**

be designed and located in accordance with the standards of the Department. The consumer may be required to improve the public water system if the public water system is inadequate to serve the area.

(2) Whenever the Department finds it necessary that the water main extensions proposed to deliver water to any particular area should be of a greater capacity than is required to provide adequate service and fire protection for such area, in order to supply water and fire protection to other adjacent areas along the main extensions, the Department shall require the consumer to install mains of such greater capacity.

(3) When the consumer is required to install a larger sized main for the reasons set forth in the preceding paragraph, the Department will reimburse the consumer, as soon as practicable after the acceptance by the Department of the completed work, the additional cost of the installation over and above the cost of mains that would have been required, provided that reimbursement will not be made to the consumer where such larger main or mains will serve only areas under the same ownership as the area under consideration.

Before the consumer enters into a contract where a reimbursement for additional costs of main will be made, the Department shall review and either approve or reject said contract.

After the installation has been completed and accepted by the Department, the consumer shall furnish the Department with an affidavit itemizing the costs incurred by him in the installation of mains or larger main. The said costs and additional costs shall be determined by the Department.

(4) A pipeline will be considered a main extension if and only if:

- (a) the pipe size is at least 6" in urban or rural residential areas, 8" in business, multi-family, resort or industrial areas and 2" in agricultural areas;
- (b) it is installed along existing government road provided that the Department may consider a pipeline or main extension installed within an easement in favor of the Department and it is found non-feasible for the pipeline to be installed along existing government roads; and
- (c) it has the capacity and the potential of serving additional customers;
- (d) it is not adjacent to or within land owned by or developed by the customer.

b. Refund for Extension of Mains

- (1) After the work has been completed and accepted, the consumer shall furnish the Department with an affidavit itemizing the costs incurred by him in the installation of said main extension.
- (2) The Department will make the final determination as to the cost of the main extension installed by the consumer and refunds shall be based upon said estimates of the Department, less any reimbursement made under Paragraph A-3 of this Section.

AMENDMENTS TO THE RULES AND REGULATIONS OF THE
BOARD OF WATER SUPPLY, COUNTY OF KAUAI, STATE OF HAWAII,
PRESCRIBED ON May 19, 2004.

- (3) For a period of 5 years after acceptance of the main extension, the Department of Water will collect from others connecting to the main their share of the cost of the main proportionate to the Department's estimate of their water use as compared to others who have already contributed to the cost of the main extension. The Department will then distribute such sums to those (including the Department, when applicable) who have already contributed to the cost of the main in proportion to their contribution to date.
- (4) All refunds will be made to the original consumer entering into the agreement with the Department, unless a written agreement is furnished by the consumer directing otherwise.]
- a. When an extension of mains for service is necessary, the consumer shall install and pay for any extensions of water system required from the public water system to any particular area. All such water systems shall be designed and located in accordance with the standards of the Department. The consumer may be required to improve the public water system if the public water system is inadequate to serve the area.
- b. Whenever the Department finds it necessary that the water main extensions proposed to deliver water to any particular area should be of a greater capacity than is required to provide adequate service and fire protection for such area, in order to supply water and fire protection to other adjacent areas along the main extension, the Department shall require the consumer to install mains of such greater capacity.
- c. When the consumer is required to install a larger sized main for the reasons set forth in the preceding paragraph, the Department will reimburse the consumer, as soon as practicable after the acceptance by the Department of the completed work, the additional cost of the installation over and above the cost of mains that would have been required, provided that reimbursement will not be made to the consumer where such larger main or mains will serve only areas under the same ownership as the area under consideration.
- Before the consumer enters into a contract where a reimbursement for additional costs of main will be made, the Department shall review and either approve or disapprove the contract. If the contract is disapproved, the consumer shall revise the contract until its form and content is acceptable to the Department.
- After the installation has been completed and accepted by the Department, the consumer shall furnish the Department with an affidavit itemizing the costs incurred by him in the installation of mains or larger main. The said costs and additional costs shall be determined by the Department.
- d. A pipeline will be considered a main extension if and only if:
- (1) the pipe size is at least 6" in urban or rural residential areas, 8" in business, multi-family, resort or industrial areas, and 6" in agricultural areas;
 - (2) it is installed along existing government road provided that the Department may consider a pipeline or main extension installed within an easement in favor of the Department and it is found non-feasible for the pipeline to be installed along existing government roads;

AMENDMENTS TO THE RULES AND REGULATIONS OF THE
BOARD OF WATER SUPPLY, COUNTY OF KAUAI, STATE OF HAWAII;
PRESCRIBED ON May 19, 2004

- (3) it has the capacity and the potential of serving additional customers;
and
- (4) it is not adjacent to or within land owned by or developed by the
consumer.
3. All water supplied by the Department will be measured by means of suitable meters registering in gallons. When it is impractical to meter the service, a flat rate may be charged. The amounts to be paid for water and water service shall be in accordance with the rates established by the Board. The Department will determine the location and size of all meters and service connections to its system. All service connections shall become the property of the Department for operation and maintenance after installation and new connections or disconnections may be made thereto by the Department at any time.

SECTION VI - NEW SERVICE CONNECTIONS

1. Installation. When the application for service connection has been approved, such connection will be installed by the Department at the expense of the applicant and thereafter will be maintained by the Department at its expense. There shall be one meter for each service connection, unless the Department, because of operating necessity, installs two or more meters in parallel. All meters will be sealed by the Department before installation and no seal shall be altered or broken except by one of its authorized employees.
2. Charges.
- a. The Department may establish fixed charges for the installation of various sizes of new service connections and meters. These fixed charges shall approximate the average of such installations, using present and anticipated costs for the next twelve months. Payment of the applicable fixed charge shall be made by the applicant before installation. If the actual cost of installation exceeds or is less than the fixed charge, no adjustment will be made.
- b. For the installation of new service connections or meters for which fixed charges have not been established, the applicant shall deposit an amount equal to the Department's estimate before installation. If the actual cost is in excess of the deposit, the applicant will be billed and shall pay for the difference. If the actual cost is less than the deposit, the applicant will be refunded the difference. A purchase order from County, State and Federal agencies will be accepted in lieu of a cash deposit.
- c. In addition to the charges for the installation of the service connection and meters, the applicant shall pay the applicable facilities reserve charge. In the case of increasing the size of an existing meter, the difference between the large and smaller facilities reserve charges shall be paid. No refund will be made in the case of reducing the size of an existing meter. [The facilities reserve charge will be reduced up to one third each by the cost of water source or water storage facilities installed by the consumer.]
- d. In the event a temporary service connection is installed for construction or other purposes, the facilities reserve charge need not be paid provided that such service will be limited to a 6-month period unless extended by the Department.
- e. The facilities reserve charge will not be charged against the consumer if the facilities reserve charge was previously paid by the developer or subdivider and

**AMENDMENTS TO THE RULES AND REGULATIONS OF THE
BOARD OF WATER SUPPLY, COUNTY OF KAUAI, STATE OF HAWAII,
PRESCRIBED ON May 19, 2004.**

- the consumer requests the meter size for which the facilities reserve charge was previously paid.
- If: The facilities reserve charge for a consumer shall be credited with the amount of refund contributions the consumer previously paid to the Department for source and storage facilities that were installed by a previous developer. Said credit shall not exceed the total facilities reserve charge.
3. Consumer's Supply Pipe. The consumer shall install and connect at his expense his supply pipe to the shut-off valve or outlet installed by the Department. The consumer's supply pipe shall at all times remain the sole property of the consumer, who shall be responsible for its maintenance and repair. If the consumer's supply pipe is installed before the service connection is set, the Department will make the connection to it; provided, however, it is requested by the consumer prior to the installation of the service connection.
 4. Connection to Main. Only employees of the Department will be allowed to connect or disconnect the service connection to or from the Department's main.
 5. Compensation. Employees of the Department are strictly forbidden to demand or accept personal compensation for services rendered.
 6. Pipe through Basement Wall. Where the applicant requires his supply pipe extended through a basement wall, he shall provide entrance-way through such wall. The Department will not be responsible for any damage caused by leakage through or inside such entrance-way.
 7. Location of Service Connection or Main. No service connection or water main will be installed by the Department in any private road, lane, street, alley, court or place until such private streets are open to the public and brought to proper grade and the Department is given proper easements for the main or service connection. Otherwise, an applicant desiring water service to property fronting on such private roads, lanes, etc., must extend his supply pipe to the nearest public street on which a main exists.
 8. Location of Meters.
 - a. All meters shall be installed in the public roadway at the property line, preferably in the concrete sidewalk, unless the Department, because of operating necessity, installs the meters elsewhere.
 - b. When the meters are placed within private property for reasons of operating necessity, the land owner shall give to the Department a permit and right-of-entry for the purposes of meter reading and maintenance prior to the installation of said meter.
 - c. In the event the Department finds it necessary or finds it in the best interest of the Department to relocate a water meter serving a customer, the Department will, at no cost to the customer, revise or extend the customer's piping to conform to the new meter location.
 9. Change in Location or Size of Service Connection.
 - a. When the proper size of service connection for any premises has been determined and the installation has been made, the Department has fulfilled its obligations insofar as the size of the service and the location thereof are concerned. If thereafter the consumer desires a change in size of the service connection or a change in the location thereof, he shall bear all costs of such change; provided, however, that in the case of a consolidation of existing meters to one of larger size or, conversely, in the case of changing from a larger meter to two or more

AMENDMENTS TO THE RULES AND REGULATIONS OF THE
BOARD OF WATER SUPPLY, COUNTY OF KAUAI, STATE OF HAWAII,
PRESCRIBED ON May 19, 2004

smaller meters, the consumer shall be given credit for the facilities reserve charge of the existing meter(s) but not to exceed the cost of the facilities reserve charge for the new installation, provided that no credit will be allowed unless payment of the additional facilities reserve charge is made within 365 days following consolidation or change in meter size.

- b. In the event the Department determines that an increase in size of service connection is required because flow rates exceed meter designs, the consumer will be required to pay for the cost of the proper sized service connection plus the applicable difference in facilities reserve charge between the larger and smaller meters. If an application for the larger size service connection is not made within 30 days after notification in writing from the Department, the consumer's service may be discontinued.

10. Shut-Off Valve.

A readily accessible shut-off valve controlling all outlets will be installed by the Department at the expense of the consumer at a location to be determined by the Department. The valve before the meter is installed for the use of employees of the Department. The Department will install a shut-off valve and charge only for the cost of the valve (i.e., no charge for cost of labor, transportation, equipment or overhead) on those service connections installed prior to the adoption of these rules which do not have a shut-off valve.

11. Alteration to Public Water System.

- a. All work and materials in connection with the change in location or elevation of any part of the existing public water system made necessary by the new service connection shall be at the expense of the applicant.
- b. Pipelines within the shoulder area which were installed prior to adoption of these rules will be lowered free of charge for the property owner in the event the Department determines such lowering is necessary for the construction of a driveway into the property.

12. Contours or Elevations. When required by the Department, contours or elevations shall be furnished by the applicant based upon U. S. Coast and Geodetic Survey Datum or the County of Kauai Datum.

13. Size of Meter and Service Connection. The Department will determine the location and size of all meters and service connections to its systems.

14. Boundary Location. An applicant for water service shall indicate his boundary before installation of any meter and any relocation of said meter due to discrepancy in boundary location shall be at the expense of the applicant.

15. Abandonment. Service connections which have not been in use for 365 days or more shall be considered abandoned. The Department may require the complete installation of a new service connection or any part thereof depending on the condition of the existing installation and whether or not it meets the Department's standard, current at the time of application."

SECTION 5. Sections III "FACILITIES RESERVE CHARGE" through VII "SIZES OF MAINS, HYDRANT SPACING, FIRE PROTECTION" of Part 3 "ESTABLISHING STANDARDS FOR SUBDIVISION WATER SYSTEMS" of the Rules are hereby amended as follows:

AMENDMENTS TO THE RULES AND REGULATIONS OF THE
BOARD OF WATER SUPPLY, COUNTY OF KAUAI, STATE OF HAWAII,
PRESCRIBED ON May 19, 2004

"PART 3
ESTABLISHING STANDARDS FOR SUBDIVISION WATER SYSTEMS

SECTION III - FACILITIES RESERVE CHARGE

1. The subdivider shall pay to the Department the facilities reserve charge established in Part 4 of the Rules and Regulations of the Department, for each (additional) parcel created by the subdivision, including the first lot, except (as provided below) when facilities reserve charges have already been paid by the developer or subdivider.
2. No facilities reserve charge will be made for lots created by the subdivision which will not be served by the Department's water system. In the event that the Department determines that the subdivision will not be serviced by the Department's water system, but later water service is requested, full payment of the then applicable facilities reserve charge must be paid. A statement to this effect shall be clearly lettered on the subdivision map.
3. No facilities reserve charge will be made for any parcel which is already serviced by an existing meter or which was serviced by a meter within 365 days prior to formal submittal of the subdivision request to the Planning Department.
- [4. When the consumer or subdivider is required to install a water source and/or water storage facility, the total facilities reserve charge for the subdivision will be reduced up to 1/3 each by the cost of such installation which qualify for refund under these Rules.]
- [5.14. The subdivider shall pay the facilities reserve charge to the Department prior to subdivision approval by the Department except that subdivision approval may be given prior to construction of required improvements and the payment of the facilities reserve charge by the posting of a bond, as described in Section XIII of this Part.
- [6.15. In the event the facilities reserve charge has been paid for a subdivision and subsequently the subdivision is consolidated, the facilities reserve charge will be returned provided the consolidation is completed within 365 days following the prior subdivision approval.
- [7. The facilities reserve charge shall be credited with the amount of refund contributions the consumer previously paid to the Department for source and storage facilities that were installed by a previous developer. Said credit shall not exceed the total facilities reserve charge.]

SECTION IV - EXTENSIONS TO SUBDIVISION

1. **General Requirement.** The subdivider shall install and pay for the subdivision water system required from the public water system to the subdivision. All such subdivision water systems shall be designed and located in accordance with the standards of the Department. The subdivider may be required to improve the public water system if the public water system is inadequate to serve the subdivision. [In this event, the subdivider shall be reimbursed for the cost of such improvement in accordance with Section V of this Part of these Rules and Regulations.]
2. **Increase in Size of Water Main Extensions for Service to Other Areas.** Whenever the Department finds it necessary that the water mains proposed to deliver water to a subdivision should be of a greater capacity than is required to provide adequate service and fire protection for such subdivision, in order to supply water and fire protection to

AMENDMENTS TO THE RULES AND REGULATIONS OF THE
BOARD OF WATER SUPPLY, COUNTY OF KAUAI, STATE OF HAWAII,
PRESCRIBED ON MAY 19, 2004

property not in the subdivision, the Department shall require the subdivider to install mains of such greater capacity.

3. Reimbursement to Subdivider for Additional Costs of Mains to Subdivisions. When the subdivider is required to install a larger sized main for the reasons set forth in the preceding paragraph, the Department will reimburse the subdivider, as soon as practicable after acceptance by the Department of the completed work, the additional cost of the installation over and above the cost of the mains that would have been required; provided, that reimbursement will not be made to the subdivider where such larger main or mains will serve only areas under the same ownership as the subdivision under consideration.

[Before the subdivider enters into a contract where a reimbursement to subdivider for additional costs of main to subdivision shall be made, the Department shall review and either approve or reject said contract.] Before the subdivider enters into a contract where a reimbursement to the subdivider for additional costs of mains to the subdivision will be made, the Department shall review and either approve or disapprove the contract. If the contract is disapproved, the subdivider shall revise the contract until its form and content is acceptable to the Department.

After the installation has been completed and accepted by the Department, the subdivider shall furnish the Department with an affidavit itemizing the costs incurred by him in the installation of the said larger mains. The said additional costs shall be determined by the Department.

SECTION V - REFUND FOR EXTENSION TO SUBDIVISION

The Department will make refunds to the subdivider for his investment in main extensions from the public water system to the subdivision on the following basis:

1. After the work has been completed and accepted, the subdivider shall furnish the Department with an affidavit itemizing the costs incurred by him in the installation of said main extension.
2. The Department will make the final determination as to the cost of the main extension installed by the subdivider and refunds shall be based upon said determination by the Department, less any reimbursement made under Section IV of this Part.
3. For a period of 5 years after acceptance of the main extension, the Department of Water will collect from others connecting to the main their share of the cost of the main proportionate to the Department's estimate of their water use as compared to others who have already contributed to the cost of the main extension. The Department will then distribute such sums to those (including the Department, when applicable) who have already contributed to the cost of the main in proportion to their contribution to date.
4. All refunds will be made to the original subdivider entering into the agreement with the Department, unless a written agreement is furnished by the subdivider directing otherwise.
5. Refunds will not be made to subdividers for mains installed within a subdivision. (See Section VI of this Part for reimbursement to subdivider for increased size of mains installed within subdivisions.)
6. Refunds will not be made to a subdivider for mains installed to a subdivision where such mains were not approved by the Department prior to their installation.]

**AMENDMENTS TO THE RULES AND REGULATIONS OF THE
BOARD OF WATER SUPPLY, COUNTY OF KAUAI, STATE OF HAWAII,
PRESCRIBED ON May 19, 2004**

SECTION [VII] V - INSTALLATIONS WITHIN SUBDIVISION

1. **General Requirement.** The subdivider shall install in accordance with these rules and regulations and the standards of the Department and pay for the subdivision water system required within a subdivision.
2. **Increase in Size of Water Mains with Subdivisions for Benefit of Other Areas.**
Whenever, in order to provide for existing or future services beyond the boundaries of a subdivision, the Department finds that the mains to be installed within the subdivision should be of greater capacity than would be required to provide adequate service within such subdivision, the Department will require the subdivider to make installations of such greater capacity.
3. **Reimbursement to Subdivider for Additional Costs of Water Mains within Subdivisions.**
When the subdivider is required to install a larger-sized main for the reasons set forth in the preceding paragraph, the Department will reimburse the subdivider, as soon as practicable after acceptance by the Department of the completed work, the additional cost of the installation over and above the cost of the mains that would have been required; provided, however, that in no case will reimbursement be made of any portion of the cost of a main of less than 6-inch in diameter; provided, further, that reimbursement will not be made to the subdivider where such larger main or mains will serve only areas under the same ownership as the subdivision under consideration.

After the installation has been completed and accepted by the Department, the subdivider shall furnish the Department with an affidavit itemizing the costs incurred by him in the installation of the said larger mains. The said additional costs shall be determined by the Department.

SECTION [VIII] VI - SIZES OF MAINS, HYDRANT SPACING

FIRE PROTECTION

1. **Sizes of Mains.** Any subdivision, except where fire protection facilities are not required by the Department, hereafter to be laid out within the County shall provide 6-inch water mains or larger in residential districts and 8-inch water mains or larger in business, industrial and hotel and apartment districts. Sizing of mains within agricultural subdivisions and subdivisions where fire protection facilities are not required shall be determined by the Department.
2. **Hydrant Spacing.** Fire hydrants shall be spaced not more than 350 feet in business, industrial, hotel and apartment districts, 500 feet in urban residential districts and 600 feet in rural residential district (Urban and rural refer to boundaries established by the State Land Use Commission). Fire hydrants may not be required in agricultural subdivision as determined by the Department. The Department will determine the location of all hydrants. All fire hydrants required for adequate fire protection of a subdivision will normally be located within the subdivision.

If, in the interest of better fire protection, it is determined that one or more of the required hydrants will serve the subdivision to better advantage if located outside the subdivision, they may be so located and the cost shall still be borne by the subdivider, subject to the limitation that the cost to the subdivider shall not exceed the cost to him which would have resulted had all the hydrants been located inside the limits of the subdivision.
3. **Fire Protection.** In fixing the standards for fire protection insofar as water supply is concerned, the Department will be guided by the standards of the National Board of Fire Underwriters in "Grading Cities and Towns of the United States with Reference to Their Fire Defenses and Physical Conditions" and by any specific recommendations made by the said National Board with respect to the County."

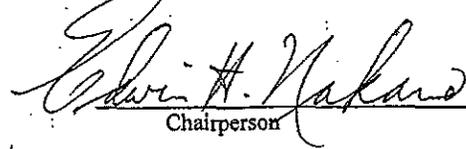
AMENDMENTS TO THE RULES AND REGULATIONS OF THE
BOARD OF WATER SUPPLY, COUNTY OF KAUAI, STATE OF HAWAII,
PRESCRIBED ON May 19, 2004

SECTION 6. Administrative rule material to be repealed is bracketed. New rule material is underscored and boldfaced. In printing this rule amendment, the brackets, bracketed material, underscoring, and boldface need not be included.

SECTION 7. If any provision of this rule amendment, or the application thereof to any person or circumstances is held invalid, the invalidity does not affect other provisions or applications of the rule amendment, which can be given effect without the invalid provision, or application, and to this end the provisions of this rule amendment are severable.

SECTION 8. This rule amendment shall become effective July 1, 2004.

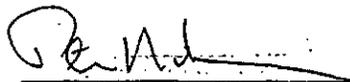
BOARD OF WATER SUPPLY
COUNTY OF KAUAI


Chairperson

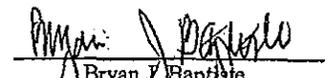
APPROVED AS TO FORM
AND LEGALITY:


County Attorney

Received this 14th day of
June, 2004.


Peter Nakamura
County Clerk, County of Kauai

Approved this 15th day of
June, 2004.

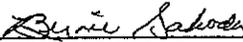

Bryan J. Baptiste
Mayor, County of Kauai

AMENDMENTS TO THE RULES AND REGULATIONS OF THE
BOARD OF WATER SUPPLY, COUNTY OF KAUAI, STATE OF HAWAII,
PRESCRIBED ON May 19, 2004

CERTIFICATION

I hereby certify that the Board of Water Supply, County of Kauai, adopted the foregoing amendments to the Rules and Regulations of the County of Kauai Department of Water on May 19, 2004, under authority of Secs 17.03C and D of the Kauai County Charter 1984, as amended, and that the provisions of Sec. 91-3, Haw. Rev. Stat., as amended, have been satisfied, including the holding of a public hearing on May 19, 2004, and the giving of proper notice for the public hearing, which notice was advertised in The Garden Island on April 18, 2004.

Dated at Lihue, Kauai, this 19th day of May, 2004.



Bernie Sakoda, Secretary
BOARD OF WATER SUPPLY

CERTIFICATION OF COUNTY CLERK

I hereby certify that on June 17, 2004, I accepted for filing from the Kauai Board of Water Supply the Amendment to the Rules and Regulations adopted on May 19, 2004.



Peter Nakamura, County Clerk, County of Kauai

Appendix B
Impact Fee Statutes:
HRS, Sections 46-141 to 46-148

[PART VIII.] IMPACT FEES

§46-141 Definitions. As used in this part, unless the context requires otherwise:

"Board" means the board of water supply or water board of any county.

"Capital improvements" means the acquisition of real property, improvements to expand capacity and serviceability of existing public facilities, and the development of new public facilities.

"Comprehensive plan" means a coordinated land use plan for the development of public facilities within the jurisdiction of a county based on existing and anticipated needs, showing existing and proposed developments, stating principles to which future development should conform, such as the county's general plans, development plans, or community plans, and the manner in which development should be controlled. In the case of the city and county of Honolulu, public facility maps shall be equivalent to the comprehensive plan required in this part.

"County" or "counties" means the city and county of Honolulu, the county of Hawaii, the county of Kauai, and the county of Maui.

"Credits" means the present value of past or future payments or contributions, including, but not limited to, the dedication of land or construction of a public facility made by a developer toward the cost of existing or future public facility capital improvements, except for contributions or payments made under a development agreement pursuant to section 46-123.

"Developer" means a person, corporation, organization, partnership, association, or other legal entity constructing, erecting, enlarging, altering, or engaging in any development activity.

"Development" means any artificial change to real property that requires a grading or building permit as appropriate, including, but not limited to, construction, expansion, enlargement, alteration, or erection of buildings or structures.

"Discount rate" means the interest rate, expressed in terms of an annual percentage, that is used to adjust past or future financial or monetary payments to present value.

"Impact fees" means the charges imposed upon a developer by a county or board to fund all or a portion of the public facility capital improvement costs required by the development from which it is collected, or to recoup the cost of existing public facility capital improvements made in anticipation of the needs of a development.

"Needs assessment study" means a study required under an impact fee ordinance that determines the need for a public facility, the cost of development, and the level of service standards, and that projects future public facility capital improvement needs; provided that the study shall take into consideration and incorporate any relevant county general plan, development plan, or community plan.

"Non-site related improvements" means land dedications or the provision of public facility capital improvements that are not for the exclusive use or benefit of a development and are not site-related improvements.

"Offset" means a reduction in impact fees designed to fairly reflect the value of non-site related public facility capital improvements provided by a developer pursuant to county land use provisions.

"Present value" means the value of past or future payments adjusted to a base period by a discount rate.

"Proportionate share" means the portion of total public facility capital improvement costs that is reasonably attributable to a development, less:

- (1) Any credits for past or future payments, adjusted to present value, for public facility capital improvement costs made or reasonably anticipated to be contributed by a developer in the form of user fees, debt service payments, taxes, or other payments; or
- (2) Offsets for non-site related public facility capital improvements provided by a developer pursuant to county land use provisions.

"Public facility capital improvement costs" means costs of land acquisition, construction, planning and engineering, administration, and legal and financial consulting fees associated with construction, expansion, or improvement of a public facility. Public facility capital improvement costs do not include expenditures for required affordable housing, routine and periodic maintenance, personnel, training, or other operating costs.

"Reasonable benefit" means a benefit received by a development from a public facility capital improvement that is greater than the benefit afforded the general public in the jurisdiction imposing the impact fees. Incidental benefit to other developments shall not negate a "reasonable" benefit to a development.

"Recoupment" means the proportionate share of the public facility capital improvement costs of excess capacity in existing capital facilities where excess capacity has been provided in anticipation of the needs of a development.

"Site-related improvements" means land dedications or the provision of public facility capital improvements for the exclusive use or benefit of a development or for the provision of safe and adequate public facilities related to a particular development. [L 1992, c 282, pt of §2; am L 2001, c 235, §1]

Revision Note

"Part" substituted for "chapter".

Appendix B

§46-142 Authority to impose impact fees; enactment of ordinances required.

- (a) Impact fees may be assessed, imposed, levied, and collected by:
- (1) Any county for any development, or portion thereof, not involving water supply or service; or
 - (2) Any board for any development, or portion thereof, involving water supply or service; provided that the county enacts appropriate impact fee ordinances or the board adopts rules to effectuate the imposition and collection of the fees within their respective jurisdictions.
- (b) Except for any ordinance governing impact fees enacted before July 1, 1993, impact fees may be imposed only for those types of public facility capital improvements specifically identified in a county comprehensive plan or a facility needs assessment study. The plan or study shall specify the service standards for each type of facility subject to an impact fee; provided that the standards shall apply equally to existing and new public facilities. [L 1992, c 282, pt of §2; am L 1996, c 175, §1; am L 2001, c 235, §2]

Cross References

Impact fees for highway improvements, see §§264-121 to 127.

[§46-142.5 School impact districts; new building permit requirements.]

No new residential development in a designated school impact district under chapter 302A shall be issued a residential building permit or condominium property regime building permit until the department of education provides written confirmation that the permit applicant has fulfilled its school impact fee requirements. This section shall only apply to new dwelling units. [L 2007, c 245, §3]

Cross References

Impact fees for public highways, see §§264-121 to 127.

§46-143 Impact fee calculation.

- (a) A county council or board considering the enactment or adoption of impact fees shall first approve a needs assessment study that shall identify the kinds of public facilities for which the fees shall be imposed. The study shall be prepared by an engineer, architect, or other qualified professional and shall identify service standard levels, project public facility capital improvement needs, and differentiate between existing and future needs.

- (b) The data sources and methodology upon which needs assessments and impact fees are based shall be set forth in the needs assessment study.
- (c) [2004 amendment retroactive to October 1, 2002. L 2004, c 155, §6.] The pro rata amount of each impact fee shall be based upon the development and actual capital cost of public facility expansion, or a reasonable estimate thereof, to be incurred.
- (d) [2004 amendment retroactive to October 1, 2002. L 2004, c 155, §6.] An impact fee shall be substantially related to the needs arising from the development and shall not exceed a proportionate share of the costs incurred or to be incurred in accommodating the development. The following seven factors shall be considered in determining a proportionate share of public facility capital improvement costs:
 - (1) The level of public facility capital improvements required to appropriately serve a development, based on a needs assessment study that identifies:
 - (A) Deficiencies in existing public facilities;
 - (B) The means, other than impact fees, by which existing deficiencies will be eliminated within a reasonable period of time; and
 - (C) Additional demands anticipated to be placed on specified public facilities by a development;
 - (2) The availability of other funding for public facility capital improvements, including but not limited to user charges, taxes, bonds, intergovernmental transfers, and special taxation or assessments;
 - (3) The cost of existing public facility capital improvements;
 - (4) The methods by which existing public facility capital improvements were financed;
 - (5) The extent to which a developer required to pay impact fees has contributed in the previous five years to the cost of existing public facility capital improvements and received no reasonable benefit therefrom, and any credits that may be due to a development because of such contributions;
 - (6) The extent to which a developer required to pay impact fees over the next twenty years may reasonably be anticipated to contribute to the cost of existing public facility capital improvements

Appendix B

through user fees, debt service payments, or other payments, and any credits that may accrue to a development because of future payments; and

- (7) The extent to which a developer is required to pay impact fees as a condition precedent to the development of non-site related public facility capital improvements, and any offsets payable to a developer because of this provision.
- (e) The impact fee ordinance shall contain a provision setting forth the process by which a developer may contest the amount of the impact fee assessed. [L 1992, c 282, pt of §2; am L 2001, c 235, §3; am L 2004, c 155, §3]

§46-144 Collection and expenditure of impact fees. Collection and expenditure of impact fees assessed, imposed, levied, and collected for development shall be reasonably related to the benefits accruing to the development. To determine whether the fees are reasonably related, the impact fee ordinance or board rule shall provide that:

- (1) Upon collection, the fees shall be deposited in a special trust fund or interest-bearing account. The portion that constitutes recoupment may be transferred to any appropriate fund;
- (2) Collection and expenditure shall be localized to provide a reasonable benefit to the development. A county or board shall establish geographically limited benefit zones for this purpose; provided that zones shall not be required if a reasonable benefit can be otherwise derived. Benefit zones shall be appropriate to the particular public facility and the county or board. A county or board shall explain in writing and disclose at a public hearing reasons for establishing or not establishing benefit zones;
- (3) Except for recoupment, impact fees shall not be collected from a developer until approval of a needs assessment study that sets out planned expenditures bearing a substantial relationship to the needs or anticipated needs created by the development;
- (4) Impact fees shall be expended for public facilities of the type for which they are collected and of reasonable benefit to the development; and
- (5) Within six years of the date of collection, the impact fees shall be expended or encumbered for the construction of public facility capital improvements that are consistent with the needs assessment study and of reasonable benefit to the development. [L 1992, c 282, pt of §2; am L 2001, c 235, §4]

§46-145 Refund of impact fees.

- (a) If impact fees are not expended or encumbered within the period established in section 46-144, the county or the board shall refund to the developer or the developer's successor in title the amount of fees paid and any accrued interest. Application for a refund shall be submitted to the county or the board within one year of the date on which the right to claim arises. Any unclaimed refund shall be retained in the special trust fund or interest bearing account and be expended as provided in section 46-144.
- (b) If a county or board seeks to terminate impact fee requirements, all unexpended or unencumbered funds shall be refunded as provided in subsection (a) and the county or board shall give public notice of termination and availability of refunds at least two times. All funds available for refund shall be retained for a period of one year at the end of which any remaining funds may be transferred to:
- (1) The county's general fund and expended for any public purpose not involving water supply or service as determined by the county council; or
 - (2) The board's general fund and expended for any public purpose involving water supply or service as determined by the board.
- (c) Recoupment shall be exempt from subsections (a) and (b). [L 1992, c 282, pt of §2; am L 1998, c 2, §14; am L 2001, c 235, §5]

[§46-146] Time of assessment and collection of impact fees. Assessment of impact fees shall be a condition precedent to the issuance of a grading or building permit and shall be collected in full before or upon issuance of the permit. [L 1992, c 282, pt of §2]

[§46-147] Effect on existing ordinances. This part shall not invalidate any impact fee ordinance existing on June 19, 1992. [L 1992, c 282, pt of §2]

Revision Note

"Part" substituted for "chapter".
"June 19, 1992" substituted for "the effective date of this Act".

[§46-148] Transitions. Any county requiring impact fees or imposing development exactions, in order to fund public facilities, shall incorporate fee requirements into their broader system of development and land use regulations in such a manner that developments, either collectively or individually, are not required to pay or otherwise

Appendix B

contribute more than a proportionate share of public facility capital improvements. Development contributions or payments made under a development agreement, pursuant to section 46-123, are exempted from this requirement. [L 1992, c 282, pt of §2]

Appendix C Supporting Tables

Table C-1.....	Unit Cost of New Source Capacity
Table C-2.....	Unit Cost of New Storage Capacity
Table C-3.....	Transmission CIP Projects
Table C-4.....	Unit Cost of Transmission Capacity
Table C-5.....	Calculation of Percentage of CIP for Existing Deficiencies
Table C-6.....	FRC Credit for Eliminating System Deficiencies,Funding Repair and Replacement Projects, and Paying Existing Debt
Table C-7.....	Summary of Water Use Data
Table C-8.....	Calculation of the Facilities Reserve Charge
Table C-9..	Comparison of Facilities Reserve Charge with other Hawaii Water Utilities

-- DRAFT --
Table C-1

County of Kaua'i Department of Water
Needs Assessment Study Update and Facilities Reserve Charge Update

Unit Cost of New Source Capacity

Proj. No.	Project	System	Cost (1)	Estimated GPD (1,2)	GPD for new capacity (3,4)	Percent for Growth	Cost for Growth
A-02	Anahola Well	Anahola	\$2,620,000	576,000	416,160	72%	\$1,892,950
HW-12	Wainiha-Haena Well	Wainiha-Haena	2,438,000	144,000	14,400	10%	243,800
K-14	Kalaheo Well #3 (5) (Yamada)	Kalaheo	3,120,000	432,000	432,000	100%	3,120,000
KP-20	Koloa Well G (5)	Koloa-Poipu	3,120,000	1,008,000	1,008,000	100%	3,120,000
LO-07	Omao Well (Piwai Well #1)	Lawai-Omao	2,968,000	1,008,000	1,008,000	100%	2,968,000
PLH-42	Construct Kokolau Tunnel WTP	Puhi-Lihue-Hanamaulu	5,000,000	576,000	485,280	84%	4,212,500
WK-21	Wailua Homesteads Well 3	Wailua-Kapaa	2,477,000	576,000	576,000	100%	2,477,000
WK-39	Kapaa Homesteads Well 4	Wailua-Kapaa	2,788,000	720,000	720,000	100%	2,788,000
PLH-36	Kapaia SWTP Expansion	Puhi-Lihue-Hanamaulu	11,790,000	4,800,000	2,279,520	76%	8,959,947
H-08	Hanalei Well #2	Hanalei	3,138,000	432,000	432,000	100%	3,138,000
K-17	Puuwai WTP	Kalaheo	5,000,000	504,000	504,000	100%	5,000,000
KW-28	Kekaha (AMFAC) Shaft	Kekaha-Waimea	4,230,000	576,000	576,000	100%	4,230,000
M-03	Moloaa (State) Well	Moloaa	4,000,000	2,016,000	2,016,000	100%	4,000,000
WK-02	Akulikuli Tunnel	Wailua-Kapaa	4,031,000	504,000	504,000	100%	4,031,000
WKK-02	Kilauea Well No. 3	Kilauea-Waipake-Kalihiwai	3,120,000	1,008,000	1,008,000	100%	3,120,000
Total (6)			\$59,840,000		11,979,360		\$53,301,197

Adjustment for Bond Financing (7)

Cash Financed Portion of Cost for Growth	\$47,971,077
Net Present Value of Debt Financed Portion of Cost for Growth	\$7,426,751
Total Cost for Growth	\$55,397,828

Unit Cost of Growth-Related Source Capacity, \$/gpd = \$4.62
 Unit Cost of Growth-Related Source Capacity, \$/Fixture Unit (8) = \$115.61
 Percentage of source capacity CIP funding used for existing deficiencies = 10.9%

(1) Estimated cost is in 2011 dollars. Source: WP2020 CIP.xls, provided by DOW to SAIC. Updated where more current information available from DOW staff.

(2) Estimated by DOW based on projected pump capacity with assumption that well will be capable of operating 24hrs.

(3) Source: STATUS 2006 06-09-09 beck31710.xls, provided by DOW to SAIC.

(4) Systems were treated on an individual basis when available, to match the provided source data.

(5) Cost and GPD values that are shaded back were estimated by SAIC, based on a comparison with similar projects.

(6) Total differs from Appendix D because of the Grove Farm project.

(7) 10% of CIP to be bond financed per DOW.

(8) Based on 30 Fixture Unit maximum per equivalent residential unit (ERU), per DOW, and 750 gpd Maximum Day demand per ERU.

-- DRAFT --
Table C-2

County of Kaua'i Department of Water
Needs Assessment Study Update and Facilities Reserve Charge Update

Unit Cost of New Storage Capacity

Proj. No.	Project	System	Cost (1,2)	Gallons (2)	Gallons for Growth (3,4)	Percent for Growth	Cost for Growth
A-10	Anahola 0.25MG Tank, 288'	Anahola	\$2,751,000	250,000	250,000	100%	2,751,000
HW-11	144 Tank	Haena-Wainiha	2,571,000	200,000	68,002	34%	874,166
HW-13	224 Tank	Haena-Wainiha	1,611,000	100,000	53,465	53%	861,321
KP-03	Koloa 366' Tank, 0.5MG	Koloa-Poipu	4,703,000	500,000	500,000	100%	4,703,000
KP-04	Koloa 366' Tank, 0.25MG	Koloa-Poipu	2,751,000	250,000	250,000	100%	2,751,000
KP-05	Poipu 245 Tank	Koloa-Poipu	8,305,000	1,000,000	332,883	33%	2,764,593
KW-26	Waimea 196 Tank	Kekaha-Waimea	4,203,000	500,000	357,523	72%	3,005,338
LO-03	Lawai (Andrade) Tank 825	Lawai-Omao	1,010,000	50,000	50,000	100%	1,010,000
LO-15	Omao New Tank, 677'	Lawai-Omao	2,751,000	250,000	250,000	100%	2,751,000
M-02	Moloaa Tank	Moloaa	1,526,000	100,000	65,262	65%	995,898
PLH-36	Kapaia SWTP Clearwell	Puhi-Lihue-Hanamaulu	9,080,000	1,000,000	1,000,000	100%	9,080,000
PLH-38	Lihue New 1.0MG Tank	Puhi-Lihue-Hanamaulu	8,305,000	1,000,000	1,000,000	100%	8,305,000
WK-10	Wailua Homesteads 538 Tank	Wailua-Kapaa	8,305,000	1,000,000	863,635	86%	7,172,489
WK-23	605 Tank	Wailua-Kapaa	2,219,000	250,000	113,635	45%	1,008,624
WK-37	Upper Waipouli 0.25MG Tank	Wailua-Kapaa	2,251,000	250,000	250,000	100%	2,251,000
WK-40	Upper Makaleha 0.25MG Tank	Wailua-Kapaa	2,251,000	250,000	250,000	100%	2,251,000
WKK-19	Kilauea 0.25MG Tank	Kilauea-Waipake-Kalihiwai	2,251,000	250,000	250,000	100%	2,251,000
H-07	Hanalei Tank #2	Hanalei	2,751,000	250,000	250,000	100%	2,751,000
HE-01	Eleele 0.5 MG Tank & Pipeline	Hanapepe-Eleele	3,930,000	500,000	500,000	100%	3,930,000
K-01	Yamada & Clearwell Tanks	Kilauea-Waipake-Kalihiwai	7,550,000	1,000,000	570,000	57%	4,303,500
PLH-01	Replace Grove Farm Tanks	Puhi-Lihue-Hanamaulu	2,721,000	500,000	300,000	60%	1,632,600
WKK-15	Kilauea 1.0 MG Tank	Kilauea-Waipake-Kalihiwai	8,214,000	1,000,000	900,000	90%	7,392,600
		Total	\$92,010,000	10,450,000	8,424,405		\$74,796,130

-- DRAFT --
Table C-2

County of Kaua'i Department of Water
Needs Assessment Study Update and Facilities Reserve Charge Update

Unit Cost of New Storage Capacity

<u>Adjustment for Bond Financing (5)</u>	
Cash Financed Portion of Cost for Growth	\$67,316,517
Net Present Value of Debt Financed Portion of Cost for Growth	\$10,421,758
Total Cost for Growth	<u>\$77,738,275</u>

Unit Cost of Growth-Related Storage Capacity, \$/gpd =	\$9.23
Unit Cost of Growth-Related Source Capacity, \$/Fixture Unit (6) =	\$230.69
Percentage of storage capacity CIP funding used for existing deficiencies =	18.7%

(1) Estimated cost is in 2011 dollars.

(2) Source: WP2020 CIP.xls, provided by DOW to SAIC. Updated where more current information available from DOW staff.

(3) Source: STATUS 2006 06-09-09 beck31710.xls, provided by DOW to SAIC.

(4) Systems were treated on an individual basis when available, to match the provided source data.

(5) 10% of CIP to be bond financed per DOW.

(6) Based on 30 Fixture Unit maximum per equivalent residential unit (ERU), per DOW, and 750 gpd Maximum Day demand per ERU.

-- DRAFT --
Table C-3

County of Kauai Department of Water
Needs Assessment Study Update and Facilities Reserve Charge Update

Transmission CIP Projects

Proj. No.	Project	System	Cost (1,2)	Feet (2)	Pipe Size (in)	Unit Cost
KP-11	Poipu Tank (Transmission)	Koala-Poipu	\$5,972,000	7,300	18	818
PLH-34	Kapule Hwy.	Puhi-Lihue-Hanamaulu	6,733,000	8,750	16	769
PLH-35B	Kapaia Cane Haul Road	Puhi-Lihue-Hanamaulu	9,125,000	11,000	18	830
M-01	Koolau Road	Moloaa	876,000	1,500	6	584
HE-12	New PRV Station	Hanapepe-Eleele	131,000	-	-	-
Ani-01b	Anini and Kalihiwai Main	Anini	3,124,000	5,300	6	589
LO-16	East Koloa Road	Lawai-Omao	4,871,000	-	8	-
WKK-17	Kuhio Hwy.	Kilauea-Waipake-Kalihiwai	3,399,000	4,790	6	710
A-07	Manai/Kukuihale Road	Anahola	1,429,000	2,200	8	650
PLH-44a	Kaumualii 24" Lihue-Puhi	Puhi-Lihue-Hanamaulu	4,700,000	8,900	24	528
PLH-44b	Kaumualii 24" Lihue-Puhi	Puhi-Lihue-Hanamaulu	1,000,000	1,500	24	667
Total			\$41,360,000	51,240		

Adjustment for Bond Financing (3)

Cash Financed Portion of Cost for Growth	\$37,224,000
Net Present Value of Debt Financed Portion of Cost for Growth	\$5,762,918
Total Cost for Growth	\$42,986,918

(1) Estimated cost is in 2011 dollars.-

(2) Source: WP2020 CIP.xls, provided by DOW to SAIC. Updated where more current information available from DOW staff.

(3) 10% of CIP to be bond financed per DOW.

**County of Kaua'i Department of Water
Needs Assessment Study Update and Facilities Reserve Charge Update**

Unit Cost of Transmission Capacity

Step 1. Report the cost of transmission improvements.

Source: WP2020 CIP_RWB Update.xls

Total cost of pipeline and booster pump improvements = \$442,917,000 (2011 dollars)

Step 2. Obtain miles of pipe installed according to date of installation

Source: Water Plan 2020 Executive Summary, pages 7 and 8

Source: Summary, Mains, Adds, Abands, FY01-09.xlsx, provided by DOW.

Year Installed	Miles	Percent
1921 - 1940	43	10.7%
1941 - 1960	37	9.1%
1961 - 1980	157	39.2%
1981 - 2000	128	32.1%
2001 - 2009	36	8.9%
	399	100%

Note: 10.4 miles of pipe were abandoned between 2001 and 2009. It is unknown which installed year the abandoned pipe was removed from, so the reduction was distributed evenly between 1920-1980 in pipe miles.

Step 3. Obtain historical 20-City Engineering News Record (ENR) Construction Cost Index (CCI) values

Year	ENR CCI	Notes
1921 - 1940	205	Average value of the annual average CCI for each year in the 20-year period
1941 - 1960	522	Average value of the annual average CCI for each year in the 20-year period
1961 - 1980	1,694	Average value of the annual average CCI for each year in the 20-year period
1981 - 2000	4,894	Average value of the annual average CCI for each year in the 20-year period
2001-2009	7,553	Average value of the annual average CCI for each year in the 9-year period
	8,802	2010 CCI value

Step 4. Obtain transmission gross plant, June 30, 2009

Source: DOW Summary of Fixed Assets Additions and Retirements as of June 30, 2009

Transmission gross plant, June 30, 2009 = \$92,961,017
(includes DOW mains and hydrants asset categories)

Step 5. Estimate trended gross plant for transmission facilities

GP = gross plant

TGP = trended gross plant

$$GP = 10.7\%TGP(205/8,802) + 9.1\%TGP(522/8,802) + 39.2\%TGP(1,694/8,802) + 32.1\%TGP(4,894/8,802) + 8.9\%TGP(7,415/8,802), \text{ or}$$

$$TGP = GP / (10.7\%(205/8,802) + 10.7\%(522/8,802) + 39.2\%(1,694/8,802) + 32.1\%(4,894/8,802) + 8.9\%(7,415/8,802))$$

Estimated trended gross plant (transmission, June 30, 2009) = \$274,773,633

-- DRAFT --
Table C-4

**County of Kaua'i Department of Water
Needs Assessment Study Update and Facilities Reserve Charge Update**

Unit Cost of Transmission Capacity

Step 6. Estimate trended gross plant and original cost of transmission facilities by range of year installed

Year Installed	Miles	Percent of Miles	Estimated Trended GP	Estimated Original Cost
1921 - 1940	43	10.7%	\$29,268,817	\$681,675
1941 - 1960	37	9.1%	\$25,139,987	1,490,063
1961 - 1980	157	39.2%	\$107,716,586	20,728,794
1981 - 2000	128	32.1%	\$88,081,706	48,978,812
2001-2009	36	8.9%	\$24,566,538	21,081,673
	399	100%	274,773,633	92,961,017

Step 7. Estimated trended gross plant of transmission facilities not scheduled for replacement

Criterion: all water pipe installed before 1960 and 41 miles of pipe installed between 1961 and 1980 is scheduled for replacement

Source: Water Plan 2020, Executive Summary, page 7

Year Installed	Miles of Pipe	Miles of Pipe For Remaining Transmission Facilities		
		Not Being Replaced	Estimated Trended GP	Estimated Original Cost
1921 - 1940	43	0	\$0	\$0
1941 - 1960	37	0	0	0
1961 - 1980	157	116	79,502,914	15,299,403
1981 - 2000	128	128	88,081,706	48,978,812
2001-2009	36	36	24,566,538	21,081,673
	399	279	192,151,158	85,359,889

Note: for pipe installed between 1961 and 1980, the estimated trended gross plant and original cost is calculated by multiplying the total respective values (see Step 6) by 116/157.

-- DRAFT --
Table C-4

**County of Kaua'i Department of Water
Needs Assessment Study Update and Facilities Reserve Charge Update**

Unit Cost of Transmission Capacity

Step 8. Calculate FRC transmission component cost basis

CIP transmission projects (See Table C-3)	\$42,987,000	
Estimated trended gross plant value, transmission facilities not being replaced (See Ste	<u>192,151,000</u>	rounded to nearest \$1,000
FRC transmission component cost basis	\$235,138,000	

Step 9. Report the units of service for the transmission system

Source: Water Plan 2020 Table 4.6

Projected 2020 Water Use (gallons per day)	17,794,000
Projected 2050 Water Use (gallons per day)	<u>23,224,000</u>
Interpolate to determine 2030 projected water use: average day consumption, gpd	19,445,900

Step 10. Calculate unit cost transmission capacity, \$/gpd average day consumption

FRC transmission component cost basis	\$235,138,000
Units of service (projected 2030 consumption, gpd)	19,445,900
Unit cost of transmission capacity, \$/gpd consumption	\$12.09
Unit cost of transmission capacity, \$/Fixture Unit	\$302.30

-- DRAFT --
Table C-5

**County of Kaua'i Department of Water
Needs Assessment Study Update and Facilities Reserve Charge Update**

Calculation of Percentage of CIP for Existing Deficiencies

	<u>Cost, \$M</u>	<u>% to Address Deficiencies (1,2)</u>	<u>\$M to Address Deficiencies</u>
Source	\$59.8	10.9%	\$6.5
Storage	92.0	18.7%	17.2
Transmission	41.4	100%	41.4
Other (3)	18.0	-	-
Total	\$211.2	31%	\$65.1

Calculation of Percentage of Combined CIP, CRP, and CRPL to Eliminate Existing Deficiencies and for Source/Storage Repair & Replacement

	<u>Total Cost, \$M</u>	<u>% to Address R/R and Deficiencies</u>	<u>\$M to Address R/R and Deficiencies</u>
CIP	\$211.2	31%	\$65.1
CRP	68.7	42%	28.9
CRPL	355.7	0% (4)	0.0
Undefined	14.5	0%	0.0
Total (5)	\$650.1	14%	\$94.0

(1) See Table C-1 for source calculation and Table C-2 for storage calculation

(2) For the purposes of this report all transmission CIP is to eliminate deficiencies, per DOW staff. This conservative assumption is made in the absence of a project by project technical evaluation comparing the relative benefits of the transmission CIP to existing customers versus growth.

(3) Includes costs such as baseyard improvements and facility abandonments which do not address existing deficiencies.

(4) All the projects classified as CRPL are Transmission projects.

(5) Total differs from totals in Appendix D because of the Grove Farm project.

-- DRAFT --
Table C-6

County of Kaua'i Department of Water
Needs Assessment Study Update and Facilities Reserve Charge Update

Credit for Debt Service Charges

Assumptions	
1 Annual growth rate, percent	1.10%
2 Annual inflation rate	2%
3 Annual water rate increases, beyond 2011	11.2%
4 % of CIP for Existing Deficiencies (1)	31%
5 % of CRP for R/R (1)	42%
6 % of CRPL for R/R and Existing Deficiencies (1)	0%
7 % of CIP, CRP, CRPL for R/R	8%
8 % of Combined CIP, CRP, and CRPL for Source/Storage R/R and Existing Deficiencies (1)	15%
9 Nominal Discount Rate	6%

	2011	2012	2013	2014	2015	2016
10 Water Sales, kgal/year	4,510,400	4,560,014	4,610,175	4,660,886	4,712,156	4,763,990

11 - 16 source: 2011 Water Rate Study

-- DRAFT --
Table C-6

County of Kaua'i Department of Water
Needs Assessment Study Update and Facilities Reserve Charge Update

Credit for Debt Service Charges

	2011	Projected					Projected
		2012	2013	2014	2015	2016	6-Year Average 2011 - 2016
11 Cash Financed Capital (2)	\$1,374,273	\$9,218,905	\$4,000,000	\$4,000,000	\$2,500,000	\$3,500,000	\$4,098,863
12							
13 Current Year Revenue Funded Capital	\$1,374,273	\$9,218,905	\$4,000,000	\$4,000,000	\$2,500,000	\$3,500,000	\$4,098,863
14 Less Other Income	(1,492,349)	(1,392,133)	(1,402,943)	(1,413,881)	(1,424,951)	(1,436,153)	(\$1,427,068)
15 Rate Funded Capital	(\$118,076)	\$7,826,772	\$2,597,057	\$2,586,119	\$1,075,049	\$2,063,847	\$2,671,795
16 New Debt Service (2)	0	320,000	320,000	393,600	577,600	835,100	\$407,717
17 Total Rate Funded Capital Plus New Debt Service Payment	(\$118,076)	\$8,146,772	\$2,917,057	\$2,979,719	\$1,652,649	\$2,898,947	\$3,079,511
FRC Credit for R/R, Existing Deficiencies and Existing Debt							
18 Total Rate Funded Capital/Debt Service for Source/Storage R/R and Existing Deficiencies (3)	(\$17,711)	\$1,222,016	\$437,559	\$446,958	\$247,897	\$434,842	\$461,927
19 Existing Balance in FRC Fund	\$3,522,800						
20 Existing Debt Service for Source/Storage R/R and Existing Deficiencies (4)							
21 1980 FmHA Loan	18,550	18,825	18,550	18,750	18,900	0	\$0
22 2001A Gen Obligation Bonds	670,575	672,819	676,359	676,188	113,094	313,688	\$520,454
23 2001A Gen Obligation Bonds - Refunded Portion	149,988	149,988	149,988	149,988	477,869	473,419	\$258,540
24 2010A Gen Obligation Bonds - BAB (70%)	1,743,603	2,044,617	2,044,617	3,344,286	3,342,714	3,344,352	\$2,644,031
25 SRF Loan - Hanapepe 27" Steel	54,929	53,810	52,680	51,538	50,385	49,220	\$52,094
26 SRF Loan - Kapili-mao Well (25%)	17,660	17,284	16,904	16,521	16,133	15,742	\$16,707
27 SRF Loan - Rehabilitate Lihue Steel Tanks 1 & 3	100,788	98,693	96,589	94,475	92,352	90,218	\$95,519
28 SRF Loan - Omellas 0.2 MG Tank Refurbish	65,138	63,803	62,462	61,112	59,753	58,388	\$61,776
29 Subtotal	6,326,320	3,119,839	3,118,149	4,412,858	4,171,200	4,345,026	3,649,121
30 Rate Revenue for Source/Storage R/R, Existing Deficiencies and Existing Debt	\$6,326,320	\$4,341,855	\$3,555,708	\$4,859,816	\$4,419,098	\$4,779,868	\$4,111,048
31 Systemwide Water Sales, kgal/year (2)	4,510,400	4,560,014	4,610,175	4,660,886	4,712,156	4,763,990	4,636,270
Unit Cost: Rate Revenue for R/R, Existing Deficiencies and Existing Debt, \$/kgal							
32 \$/kgal (5)	\$1.40	\$0.95	\$0.77	\$1.04	\$0.94	\$1.00	\$0.89
33 \$/gpd average day metered consumption (6)	\$0.51	\$0.35	\$0.28	\$0.38	\$0.34	\$0.37	\$0.32
34 Present Value, 6.0% Nominal Discount Rate, per gpd average day demand (7)	\$3.96						
35 Average Day Design Standard per ERU, gpd	500						
36 FRC Credit per ERU	\$1,980						
37 FRC Credit per Fixture Unit	\$66.00						

(1) See Table C-5

(2) Source: 2011 Water Rate Study. Excludes outstanding BAB bonds and loans allocable to FRC facilities.

(3) Calculated by multiplying Line 17 by % of Combined CIP, CRP, and CRPL for R/R and Existing Deficiencies (14%).

(4) Debt Service Payments to 2016 FRC Adjustment (10/18/2011). Excludes debt service allocated to the FRC and repair/replacement of transmission systems.

(5) Calculated by dividing Line 29 by Line 30.

(6) A unit conversion of Line 31. Calculated by multiplying Line 31 by 365 and dividing the result by 1,000.

(7) Net present value of the items in Line 32 over a 20-year horizon.



-- DRAFT --
Table C-7

**County of Kaua'i Department of Water
Needs Assessment Study Update and Facilities Reserve Charge Update**

**Summary of Water Use Data
FY 2007, 2008, 2009 Usage by Meter Size**

Meter Size	Number of Meters	Average gal/day	Ratio, 5/8" = 1.0
5/8-inch	20,549	314	1.0
3/4-inch	93	1,096	3.5
1-inch	216	1,440	4.6
1 1/2-inch	219	4,115	13.1
2-inch	211	5,381	17.2
3-inch	63	15,832	50.5
4-inch	38	16,868	53.8
6-inch	51	22,955	73.2
8-inch	47	4,086	13.0

* 3/4-inch average gal/day may differ from values reported in other sources, as outliers (as determined based on modified Z test) were removed from 3/4-inch average.

FY 2007, 2008, 2009 Usage by Water System

Water System	2007	2008	2009
Waimea-Kekaha	1,166,300	1,105,341	1,091,720
Hapapepe-Eleele	812,259	765,282	769,155
Kalaheo	564,148	573,792	598,478
Lawai-Omao	358,534	358,702	340,880
Koloa	2,619,370 *	402,093	2,318,918 *
Poipu		2,420,899	
Puhi-Lihue-Hanamaulu	3,132,331	3,699,205	2,862,620
Wailua-Kapaa	2,950,816	2,948,346	2,621,009
Anahola	280,761	301,786	278,665
Moloaa	1,730	2,097	1,790
Kilauea-Waipake-Kalihiwai	708,796	747,413	650,610
Anini	41,560	39,893	35,311
Hanalei	163,489	174,829	170,349
Wainiha-Haena	169,830	165,510	153,252
	12,969,923	13,705,188	11,892,758

* combined Koloa and Poipu data.



-- DRAFT --
Table C-8

**County of Kaua'i Department of Water
Needs Assessment Study Update and Facilities Reserve Charge Update**

Calculation of the Facilities Reserve Charge

Calculation for Non-Agriculture Meters

Component	Calculation for 5/8"		Percentage of Subtotal
	Per Fixture Unit	Meter (30 F.U.)	
Source	\$116	\$3,480	18%
Storage	231	6,930	36%
Transmission	302	9,060	46%
Subtotal	649	\$19,470	100%
Credit	(66)	(1,980)	
Total	\$583	\$17,490	

Calculation for Agriculture Meters

Water Meter Size	AWWA Maximum GPM (M6 Manual) (1)	Equivalents Relative to 5/8-inch Meter	Updated FRC Charge
5/8-inch	20	1.0	\$17,490
3/4-inch	30	1.5	\$26,235
1-inch	50	2.5	\$43,725
1 1/2-inch	100	5.0	\$87,450
2-inch	160	8.0	\$139,920
3-inch	300	15.0	\$262,350
4-inch	500	25.0	\$437,250
6-inch	1000	50.0	\$874,500
8-inch	1600	80.0	\$1,399,200

(1) Maximum Flow in gallons per minute, per AWWA Manual M6: Water Meters - Selection, Installation, Testing, and Maintenance.

-- DRAFT --
TABLE C-9

**County of Kaua'i Department of Water
Needs Assessment Study and Facilities Reserve Charge Update**

Comparison of Facilities Reserve Charge with Other Hawaii Water Utilities

Customer Class	Kaua'i DOW		Honolulu BWS		Hawaii DWS	Maui DWS
	Previous FRC	Updated FRC	Per Fixture Unit Except Ag	Example Calc		
Single-Family Residential	\$4,600	\$583 per F.U., minimum of 30	\$185.33	\$5,560 (30 FU)	(1)	(1)
Multi-Family Residential	Larger of (1) \$4,600/unit or (2) FRC based on water meter size	\$583 per F.U.	Low Rise: \$271.27 High Rise: \$204.14	Low Rise: \$54,254 High Rise: \$40,828 (200 FU)	(1)	(1)
Non-Residential	See specific customer type	\$583 per F.U.	< 50 FU: \$620.85 > 50 FU: \$220.29	\$44,058 (200 FU)	(1)	(1)
Hotel/Resort	Larger of (1) \$4,600/unit or (2) FRC based on water meter size	\$583 per F.U.	See non-residential		(1)	(1)
Commercial	(1)	\$583 per F.U.	See non-residential		(1)	(1)
Industrial	(1)	\$583 per F.U.	See non-residential		(1)	(1)
Agricultural	(1)	(1)	(1)		(1)	(1)
Water Meter Size	Applies to all non-SFR customers	Applies to agricultural customers	Applies to ag customers only		Applies to all customers	Applies to all customers
5/8-inch	\$4,600	\$17,490	\$4,819		First: \$940 Additional: \$4,350	\$6,030
3/4-inch	14,300	\$26,235	6,671		Not specified	8,442
1-inch	26,400	\$43,725	10,933		10,875	15,678
1 1/2-inch	53,200	\$87,450	29,651		21,750	34,974
2-inch	90,700	\$139,920	64,865		34,800	61,506
3-inch	170,000	\$262,350	Not specified		65,250	138,690
4-inch	283,400	\$437,250	Not specified		108,750	247,230
6-inch	566,900	\$874,500	Not specified		217,500	555,966
8-inch	907,000	\$1,399,200	Not specified		391,500	987,714

(1) Based on water meter size.



Appendix D Capital Facilities Plan

Table D-1Capital Facilities Projects – Summarized by Water System
Table D-2 Capital Facilities Projects – Grouped by Project Classification
Table D-3 Capital Facilities Projects – Grouped by System Function

**Table D-1
Capital Facilities Projects - Summarized by Water System**

Water System	Number of Projects	Source	Storage	Transmission & Distribution	Other	Total
Anahola	8	\$2,620	\$2,751	\$10,859	\$0	\$16,230
Anini	3	\$66	\$0	\$8,522	\$0	\$8,587
Hanalei	10	\$3,327	\$1,791	\$12,201	\$639	\$17,959
Hanapepe-Eleele	13	\$1,146	\$2,483	\$22,953	\$4,061	\$30,644
Wainiha-Haena	13	\$2,765	\$5,535	\$14,144	\$0	\$22,444
Kalaheo	12	\$3,939	\$5,175	\$33,607	\$7,714	\$50,434
Koloa-Poipu	16	\$3,448	\$15,923	\$28,354	\$0	\$47,724
Kekaha-Waimea	24	\$1,779	\$9,850	\$47,097	\$0	\$58,726
Lawai-Omao	16	\$4,933	\$6,532	\$35,153	\$0	\$46,618
Molooa	4	\$131	\$1,526	\$5,592	\$0	\$7,248
Puhi-Lihue-Hanamaulu	32	\$29,058	\$23,471	\$85,888	\$12,825	\$151,242
Wailua-Kapaa	40	\$15,967	\$35,856	\$98,258	\$164	\$150,244
Kilauea-Waipake-Kalihiwai	17	\$3,284	\$11,120	\$40,289	\$655	\$55,348
System Total	208	\$72,460	\$122,013	\$442,917	\$26,058	\$663,449

Table D-2
Capital Facilities Projects - Grouped by Project Classification

Project No.	Project Title	System Function	Scope	Costs are in thousands of dollars				Project Type
				Planning & Land Cost	Design Cost	Construction Cost	Total Project Cost	
1	CIP							
2	A-07 Manai/Kukuihale Road 8" Main (2,200')	Distribution	2,200 Feet	\$ 55	\$ 109	\$ 1,265	\$ 1,429	CIP
3	Ani-01b Anini and Kalihiwai Road 6" Main (5300')	Distribution	5,300 Feet	\$ 119	\$ 262	\$ 2,743	\$ 3,124	CIP
4	HE-12 New PRV Station at Alii Road/Ahi Road Intersection	Distribution		\$ 5	\$ 11	\$ 115	\$ 131	CIP
5	KP-23 Kapili Road New 12" Main	Distribution		\$ 33	\$ 59	\$ 759	\$ 851	CIP
6	KW-28 Renovate Kekaha Shaft(S842-02) & 12" D.I.	Distribution		\$ 150	\$ 630	\$ 3,450	\$ 4,230	CIP
7	LO-16 East Koloa Road New 8" Mainline	Distribution		\$ 188	\$ 371	\$ 4,313	\$ 4,871	CIP
8	M-01 Device (1,500')	Distribution	1,500 Feet	\$ 34	\$ 66	\$ 776	\$ 876	CIP
9	PLH-34 Kapule Hwy. (Kuhio Hwy - Ahukini Rd) 16" Main (8,750')	Distribution	8,750 Feet	\$ 263	\$ 433	\$ 6,038	\$ 6,733	CIP
10	PLH-35b Kapaia Cane Haul Road 18" Main	Distribution		\$ 358	\$ 545	\$ 8,223	\$ 9,125	CIP
11	WKK-17 Kuhio Hwy. (Pukalani Pl. - Kolo Road) New Main (4,790')	Distribution	4,790 Feet	\$ 132	\$ 237	\$ 3,030	\$ 3,399	CIP
12	KP-11 Poipu Tank (Mahaulepu)- Poipu By-pass Rd 18" Main (7,200')	Distribution	7,300 Feet	\$ 234	\$ 356	\$ 5,382	\$ 5,972	CIP
13	HE-01 Reorganize Water System	Other		\$ 150	\$ 330	\$ 3,450	\$ 3,930	CIP
14	K-01 Kalaheo 1111' & 1222' Water System Improvements (8" Main, Well, 0.5 MG Tank)	Other		\$ 1,250	\$ 550	\$ 5,750	\$ 7,550	CIP
15	PLH-39b Lihue Baseyard Complex Expansion	Other		\$ 250	\$ 550	\$ 5,750	\$ 6,550	CIP
16	Ani-02 Renegotiate Water Purchase Agreement	Source		\$ 3	\$ 6	\$ 58	\$ 66	
17	A-02 Drill & Dev. Anahola Well 400gpm	Source	576,000 GPD	\$ 100	\$ 220	\$ 2,300	\$ 2,620	CIP
18	H-08 Drill & Dev Hanalei Well, 300 gpm	Source	432,000 GPD	\$ 125	\$ 138	\$ 2,875	\$ 3,138	CIP
19	HW-12 Drill & Dev. Wainiha/Haena Well 100 gpm	Source	144,000 GPD	\$ 575	\$ 138	\$ 1,725	\$ 2,438	CIP
20	K-14 Kalaheo Well No. 3	Source		\$ 600	\$ 220	\$ 2,300	\$ 3,120	CIP
21	KP-20 Drill and Develop Koloa Well G	Source		\$ 600	\$ 220	\$ 2,300	\$ 3,120	CIP
22	LO-07 Drill & Develop Omao Well	Source	720,000 GPD	\$ 600	\$ 68	\$ 2,300	\$ 2,968	CIP
23	M-03 Renegotiate Water Purchase Agreement	Source		\$ 5	\$ 11	\$ 115	\$ 131	
24	PLH-03 Drill & Develop Horizontal wells	Source		\$ 1,000	\$ 1,100	\$ 11,500	\$ 13,600	CIP
25	PLH-42 Construct Kokolau Tunnel WTP, 400gpm	Source	576,000 GPD	\$ 540	\$ 1,188	\$ 12,420	\$ 14,148	CIP
26	WK-21 Drill & Develop Wailua Homesteads Well #3	Source	576,000 GPD	\$ 100	\$ 77	\$ 2,300	\$ 2,477	CIP
27	WK-22 Drill & Develop Kapaa Homesteads Well No. 3, 500 gpm, DLNR Project	Source	720,000 GPD	\$ -	\$ -	\$ -	\$ 2,800	CIP
28	WK-39 Drill and Develop Kapaa Homesteads Well No. 4, 500GPM	Source	720,000 GPD	\$ 100	\$ 388	\$ 2,300	\$ 2,788	CIP
29	WKK-02 Drill & Develop New Kilauea Well (No. 3 or No. 4), 700 gpm	Source	1,008,000 GPD	\$ 600	\$ 220	\$ 2,300	\$ 3,120	CIP

**Table D-2
Capital Facilities Projects - Grouped by Project Classification**

Project No.	Project Title	System Function	Scope	Costs are in thousands of dollars				Project Type
				Planning & Land Cost	Design Cost	Construction Cost	Total Project Cost	
30	A-10 Construct Anahola 0.25MG Tank, 288'	Storage	250,000 Gallons	\$ 588	\$ 151	\$ 2,013	\$ 2,751	CIP
31	H-07 New 0.150 MG Tank, Abandon Hanalei Tank	Storage	150,000 Gallons	\$ 50	\$ 151	\$ 1,150	\$ 1,351	CIP
32	HW-11 Construct 0.2 MG Storage Tank, 144'	Storage	200,000 Gallons	\$ 580	\$ 151	\$ 1,840	\$ 2,571	CIP
33	HW-13 Construct 0.1 MG Storage Tank, 217'	Storage	100,000 Gallons	\$ 540	\$ 151	\$ 920	\$ 1,611	CIP
34	K-05a Kalaheo New Tank, 0.5MG, 886'	Storage	500,000 Gallons	\$ 663	\$ 775	\$ 3,738	\$ 5,175	CIP
35	KP-03 Construct Koloa 366 Tank, 0.5 MG	Storage	500,000 Gallons	\$ 663	\$ 303	\$ 3,738	\$ 4,703	CIP
36	KP-04 Construct Koloa 366 Tank, 0.25 MG	Storage	250,000 Gallons	\$ 588	\$ 151	\$ 2,013	\$ 2,751	CIP
37	KP-05 Construct Poipu 245 Tank, 1.0 MG	Storage	1,000,000 Gallons	\$ 800	\$ 605	\$ 6,900	\$ 8,305	CIP
38	KW-25 Construct Kapilimao 196 Tank, 0.5MG	Storage	500,000 Gallons	\$ 175	\$ 334	\$ 3,501	\$ 4,010	CIP
39	KW-26 Construct Waimea 196 Tank, 0.5MG	Storage	500,000 Gallons	\$ 163	\$ 303	\$ 3,738	\$ 4,203	CIP
40	LO-03 Construct Lawai (Andrade) Tank 825, 0.05 MG	Storage	50,000 Gallons	\$ 520	\$ 30	\$ 460	\$ 1,010	CIP
41	LO-04 Construct Omao 677 Tank , 0.5 MG	Storage	500,000 Gallons	\$ 105	\$ 251	\$ 2,415	\$ 2,771	CIP
42	LO-15 Construct Omao New Tank, 0.25MG, 677'	Storage	250,000 Gallons	\$ 588	\$ 151	\$ 2,013	\$ 2,751	CIP
43	M-02 Construct Moloaa Tank, 100,000 Gallon Storage Tank	Storage	100,000 Gallons	\$ 540	\$ 66	\$ 920	\$ 1,526	CIP
44	PLH-36 Kapaia SWTP Expansion, 1.0MGD	Storage	1,000,000 Gallons	\$ 450	\$ 990	\$ 10,350	\$ 11,790	CIP
45	PLH-38 Construct Lihue New 1.0 MG Tank, 393'	Storage	1,000,000 Gallons	\$ 800	\$ 605	\$ 6,900	\$ 8,305	CIP
46	WK-08 Construct Kapaa Homesteads 313 Tank, 1.0 MG	Storage	1,000,000 Gallons	\$ 300	\$ 336	\$ 6,900	\$ 7,536	CIP
47	WK-09 Construct Kapaa Homesteads 530 Tank, 0.5 MG	Storage	500,000 Gallons	\$ 129	\$ 336	\$ 2,958	\$ 3,423	CIP
48	WK-10 Construct Wailua Homesteads 538 Tank, 1.0 MG	Storage	1,000,000 Gallons	\$ 800	\$ 605	\$ 6,900	\$ 8,305	CIP
49	WK-23 Construct U.H. Exp. Station 605' Tank , 0.25 MG & 12" DI (2900') pipeline	Storage	250,000 Gallons	\$ 88	\$ 119	\$ 2,013	\$ 2,219	CIP
50	WK-37 Construct Upper Waipouli 0.25MG Tank, 686'	Storage	250,000 Gallons	\$ 88	\$ 151	\$ 2,013	\$ 2,251	CIP
51	WK-40 Construct Upper Makaleha 0.25MG Tank, 575'	Storage	250,000 Gallons	\$ 88	\$ 151	\$ 2,013	\$ 2,251	CIP
52	WK-42 Construct Stable 0.5MG Tank, 214'	Storage	500,000 Gallons	\$ 277	\$ 605	\$ 6,368	\$ 7,250	CIP
53	WKK-15 Construct Kilauea 466 Tank, 1.0 MG	Storage	1,000,000 Gallons	\$ 1,300	\$ 14	\$ 6,900	\$ 8,214	CIP
54	WKK-19 Construct Kilauea 0.25MG Tank, 466'	Storage	250,000 Gallons	\$ 88	\$ 151	\$ 2,013	\$ 2,251	CIP
55	Subtotal CIP			\$ 19,077	\$ 16,029	\$ 185,252	\$ 224,588	
56	CRP							
57	HW-02 Rehabilitate Wainiha Redwood Tank booster pumps	Boost		\$ 25	\$ 97	\$ 575	\$ 697	CRP
58	K-12 Nursery 1111' Tank Booster Pump Station (2-200 gpm)	Boost		\$ 513	\$ 28	\$ 288	\$ 828	CRP
59	WKK-16 Waipake, Namahana, Kalihiwai Booster Pump Stations - Install PRV	Boost		\$ 6	\$ 14	\$ 144	\$ 164	CRP
60	H-04 Hanalei River 8" Main Replacement (1,670')	Distribution	1,670 Feet	\$ 42	\$ 83	\$ 960	\$ 1,085	CRP

Table D-2
Capital Facilities Projects - Grouped by Project Classification

					Costs are in thousands of dollars				
Project No.	Project Title	System Function	Scope	Planning &	Design	Construction	Total Project	Project Type	
				Land Cost	Cost	Cost	Cost		
61	K-15	Kalaheo 12" Main Replacement		Distribution	\$ 545	\$ 980	\$ 12,524	\$ 14,048	CRP
62	KP-14	Koloa 6" & 12" Main Replacement (13,756')		Distribution	\$ 344	\$ 681	\$ 7,910	\$ 8,935	CRP
63	KP-19	Koloa Well C 18" Main Replacement		Distribution	\$ 231	\$ 351	\$ 5,307	\$ 5,889	CRP
64	WK-14	& relocate PRV		Distribution	\$ -	\$ 395	\$ -	\$ 395	CRP
65	H-01	Maka Ridge Tank to Kuhio Hwy Road improvement		Other	\$ 25	\$ 39	\$ 575	\$ 639	CRP
66	HE-13	Demolish Eleele Tank, 97',-60,000 Gallon		Other	\$ 5	\$ 11	\$ 115	\$ 131	CRP
67	K-16	Abandon Kalaheo Well No. 24		Other	\$ 6	\$ 14	\$ 144	\$ 164	CRP
68	PLH-39a	Lihue Baseyard Complex Improvements - Phase I		Other	\$ 250	\$ 275	\$ 5,750	\$ 6,275	CRP
69	WK-43	Demolish Kondo Tank, 520'		Other	\$ 6	\$ 14	\$ 144	\$ 164	CRP
70	WKK-05	Kahiliholo Rd) (5,130')		Other	\$ 25	\$ 55	\$ 575	\$ 655	CRP
71	H-02	MCC, Chlorination Facilities - Maka Ridge Well [Separate pumps & MCC, Rehab Chlorination Facilities]		Source	\$ 6	\$ 39	\$ 144	\$ 189	CRP
72	HE-03a	Hanapepe Town Well MCC, Chlorination Facilities		Source	\$ 6	\$ 14	\$ 144	\$ 164	CRP
73	HE-03b	Hanapepe Well A MCC, Chlorination Facilities		Source	\$ 6	\$ 14	\$ 144	\$ 164	CRP
74	HE-03c	Hanapepe Well B MCC, Chlorination Facilities		Source	\$ 6	\$ 14	\$ 144	\$ 164	CRP
75	HE-03d	Hanapepe Well #4 MCC, Rehab Chlorination Facilities,generator storage		Source	\$ 25	\$ 55	\$ 575	\$ 655	CRP
76	HW-04	MCC, Chlorination Facilities, Haena Well 66 & Wainiha Well 67 & 2		Source	\$ 6	\$ 14	\$ 144	\$ 164	CRP
77	HW-14	Construct Water Treatment - Wainiha Well 66 & 2		Source	\$ 6	\$ 14	\$ 144	\$ 164	CRP
78	K-02	Rehabilitate Jelly Factory B.P. Sta. (3-250 gpm)		Source	\$ 25	\$ 55	\$ 575	\$ 655	CRP
79	K-04	Kalaheo Wells, Rehabilitate Chlorine Facilities (CHECK)		Source	\$ 6	\$ 14	\$ 144	\$ 164	CRP
80	KP-09	MCC, Chlorination Facilities, Koloa Well "16-A" & "E", & "16-B" Site and Bldg Improvements		Source	\$ 6	\$ 14	\$ 144	\$ 164	CRP
81	KP-10	MCC, Chlorination Facilities, Koloa Well "C" & "D"		Source	\$ 6	\$ 14	\$ 144	\$ 164	CRP
82	KW-04	Pre-lube Improvement Paua Valley Well		Source	\$ 6	\$ 14	\$ 144	\$ 164	CRP
83	KW-05	Hydro-cell Improvement, Kekaha (Waipao) Well "B"	1,008,000 GPD	Source	\$ -	\$ 257	\$ -	\$ 257	CRP
84	KW-09b	MCC, Chlorination Facilities, Paua Valley Well		Source	\$ 6	\$ 14	\$ 144	\$ 164	CRP
85	KW-09c	MCC, Chlorination Facilities, Kekaha (Waipao) Well "B"		Source	\$ -	\$ -	\$ -	\$ -	CRP
86	KW-20	Waimea Well "A" Rehabilitation	288,000 GPD	Source	\$ 13	\$ 179	\$ 288	\$ 479	CRP
87	KW-22a	MCC, Chlorination Facilities, Waimea Well "A"		Source	\$ 6	\$ 14	\$ 144	\$ 164	CRP
88	KW-22b	MCC, Chlorination Facilities, Waimea Well "2"		Source	\$ 6	\$ 14	\$ 144	\$ 164	CRP
89	KW-24	Permanent Generator and Housing Kapilimao Valley Well	302,400 GPD	Source	\$ 15	\$ 33	\$ 340	\$ 387	CRP
90	LO-05a	MCC, Chlorination Facilities, Lawai Wells No. 1 (22) & No. 2		Source	\$ 25	\$ 55	\$ 575	\$ 655	CRP
91	LO-05b	Permanent Generator and Housing, Lawai Tank, 677		Source	\$ 50	\$ 110	\$ 1,150	\$ 1,310	CRP

**Table D-2
Capital Facilities Projects - Grouped by Project Classification**

Project No.	Project Title	System Function	Scope	Costs are in thousands of dollars				Project Type	
				Planning & Land Cost	Design Cost	Construction Cost	Total Project Cost		
92	PLH-06	MCC, Chlorination Facilities, Puhi Well 1 (KCC)	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
93	PLH-07	MCC, Chlorination Facilities, Puhi Wells 2 & 3	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
94	PLH-10	MCC, Chlorination Facilities, Lihue Grammer School Well	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
95	PLH-12	Kilohana Wells A, B, F & I Permanent Generator	Source		\$ 25	\$ 55	\$ 575	\$ 655	CRP
96	PLH-12a	Kilohana Wells A, B, F & I Rehab MCC, Chlorination Facilities, Kilohana Wells	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
97	WK-01	Rehabilitate Moelepe Tunnel & improve access road	Source		\$ 50	\$ 110	\$ 1,150	\$ 1,310	CRP
98	WK-02	Rehabilitate Akulikuli Tunnel & prevent surface water infiltration	Source	432,000 GPD	\$ 150	\$ 431	\$ 3,450	\$ 4,031	CRP
99	WK-15	Generator Storage - Kapaa Homesteads Well No. 1	Source		\$ 73	\$ 160	\$ 1,673	\$ 1,906	CRP
100	WK-15a	Kapaa Homesteads Well No. 1 - MCC, Chlorination Facility	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
101	WK-16	MCC, Chlorination Facility Nonou Well 9-1A & 9-1B	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
102	WK-17	MCC, Chlorination Facility and Site Improvements Nonou Well 9-1C	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
103	WK-18	MCC, Chlorination Facility Wailua Homestead Wells "A" & "B"	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
104	WKK-03	MCC, Chlorination Facilities - Kilauea Well #1 & #2	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
105	H-03	Rehabilitate Maka Ridge Tank, 225',0.25 MG [Concrete Tanks]	Storage	250,000 Gallons	\$ 13	\$ 39	\$ 288	\$ 339	CRP
106	H-09	Paint 0.05 MG Hanalei Tank	Storage	50,000 Gallons	\$ 3	\$ 40	\$ 58	\$ 100	CRP
107	HE-04	Rehabilitate Hanapepe Heights 0.5 MG Tank, 212'	Storage	500,000 Gallons	\$ 13	\$ 28	\$ 288	\$ 328	CRP
108	HE-08	Refurbish Eleele Steel Tanks	Storage		\$ 75	\$ 356	\$ 1,725	\$ 2,156	CRP
109	HW-01	Improve access to Wainiha 217' Tank	Storage		\$ 25	\$ 55	\$ 575	\$ 655	CRP
110	HW-03	Rehabilitate Haena Steel Tank 144'	Storage	100,000 Gallons	\$ 25	\$ 97	\$ 575	\$ 697	CRP
111	KP-12	Rehabilitate Paanau Tank, 0.25 MG	Storage	250,000 Gallons	\$ 6	\$ 14	\$ 144	\$ 164	CRP
112	KW-07	Rehabilitate Paua Valley Tank #1, 0.5 MG Concrete	Storage	500,000 Gallons	\$ 50	\$ 110	\$ 1,150	\$ 1,310	CRP
113	KW-18	Rehabilitate Waimea Tank 1, 0.25 MG	Storage	250,000 Gallons	\$ 13	\$ 28	\$ 288	\$ 328	CRP
114	PLH-01a	Replace Grove Farm Tanks #1 & #2	Storage		\$ 588	\$ 121	\$ 2,013	\$ 2,721	CRP
115	PLH-05	Rehabilitate Kalepa Tank, 0.5 MG	Storage	500,000 Gallons	\$ 25	\$ 55	\$ 575	\$ 655	CRP
116	WK-04	Rehabilitate Nonou Tank, 2.0 MG	Storage	2,000,000 Gallons	\$ 13	\$ 28	\$ 288	\$ 328	CRP
117	WK-06	Rehabilitate Makaleha Tank, 1.0 MG	Storage	1,000,000 Gallons	\$ 13	\$ 28	\$ 288	\$ 328	CRP
118	WK-20	Rehabilitate Puupilo Steel Tank, 0.125 MG	Storage	125,000 Gallons	\$ 75	\$ 165	\$ 1,725	\$ 1,965	CRP

Table D-2
Capital Facilities Projects - Grouped by Project Classification

Project No.	Project Title	System Function	Scope	Costs are in thousands of dollars				Project Type
				Planning & Land Cost	Design Cost	Construction Cost	Total Project Cost	
119	WKK-01 Rehabilitate Kilauea Tanks #1 & #2, 0.25 MG	Storage	250,000 Gallons	\$ 25	\$ 55	\$ 575	\$ 655	CRP
120	Subtotal CRP			\$ 3,568	\$ 6,082	\$ 59,074	\$ 68,725	
121	CRPL							
122	A-01 Anahola Road 8" Main Replacement(6,980')	Distribution	6,980 Feet	\$ 175	\$ 346	\$ 4,014	\$ 4,534	CRPL
123	A-05 North Anahola Area 6" Main Replacement (3,160')	Distribution	3,160 Feet	\$ 71	\$ 156	\$ 1,635	\$ 1,863	CRPL
124	A-06 Puuhale/Kikoo Loop 6" Main Replacement (2,260')	Distribution	2,260 Feet	\$ 51	\$ 112	\$ 1,170	\$ 1,332	CRPL
125	A-08 Kealia Road 12" Main Replacement (1,940')	Distribution	1,940 Feet	\$ 53	\$ 96	\$ 1,227	\$ 1,376	CRPL
126	Ani-01a Anini and Kalihiwai Road 6" Main (9,156')	Distribution	9,156 Feet	\$ 206	\$ 453	\$ 4,738	\$ 5,397	CRPL
127	H-05 Weke, Anae, Mahimahi and He'e Roads 6" and 8" Main Replacement (2,760')	Distribution	2,760 Feet	\$ 69	\$ 137	\$ 1,587	\$ 1,793	CRPL
128	H-10 Maka Ridge Tank to Hanalei Town 12" Main Replacement (7,190')	Distribution	7,190 Feet	\$ 198	\$ 39	\$ 4,548	\$ 4,785	CRPL
129	HE-02 Hanapepe Valley Main Replacement (1,500') and Main Abandonment (9,830')	Distribution	11,330 Feet	\$ 283	\$ 561	\$ 6,515	\$ 7,359	CRPL
130	HE-09 Lower Hanapepe Hgts 6" Main Replacement (7,190')	Distribution	7,190 Feet	\$ 162	\$ 356	\$ 3,721	\$ 4,239	CRPL
131	HE-10 Hanapepe Town and Eleele Main Replacement	Distribution	13,730 Feet	\$ 314	\$ 622	\$ 7,228	\$ 8,164	CRPL
132	HE-11 Lele Road to Salt Pond 6" Main Replacement (5,379')	Distribution	5,379 Feet	\$ 121	\$ 156	\$ 2,784	\$ 3,061	CRPL
133	HW-06 Ala'Eke Road 6" Main Replacement (2,570')	Distribution	2,570 Feet	\$ 58	\$ 127	\$ 1,330	\$ 1,515	CRPL
134	HW-08a Wainiha 217' Tank to Wainiha Well 67 6" Main Replacement (4,880')	Distribution	4,880 Feet	\$ 110	\$ 242	\$ 2,525	\$ 2,877	CRPL
135	HW-08b Wainiha Powerhouse Road 6" Main Replacement (5,930')	Distribution	5,930 Feet	\$ 133	\$ 294	\$ 3,069	\$ 3,496	CRPL
136	HW-09 Alamihī, Alealea, Alamo'o Main Replacement (4,900')	Distribution	4,900 Feet	\$ 110	\$ 243	\$ 2,536	\$ 2,889	CRPL
137	HW-10 Kuhio Hwy 6" Main Replacement (4,530')	Distribution	4,530 Feet	\$ 102	\$ 224	\$ 2,344	\$ 2,670	CRPL
138	K-06 Puuwai, Opu Roads 12" Main Replacement (3,320')	Distribution	3,320 Feet	\$ 91	\$ 164	\$ 2,100	\$ 2,356	CRPL
139	K-08b Puu, Ai, Ihu Roads 6" Main Replacement (12,321')	Distribution	12,321 Feet	\$ 277	\$ 610	\$ 6,376	\$ 7,263	CRPL
140	K-09 Kalaheo Town 6", 8" & 12" Main Replacement (8,530')	Distribution	8,530 Feet	\$ 213	\$ 422	\$ 4,905	\$ 5,540	CRPL
141	K-13 Puuwai, Poohiwi, Wawae Road 8" Main Replacement (5,500')	Distribution	5,500 Feet	\$ 138	\$ 272	\$ 3,163	\$ 3,572	CRPL
142	KP-13 Waikomo Road (Poipu Rd - Weliweli Rd) 8" Main Replacement (1,828')	Distribution	1,828 Feet	\$ 46	\$ 90	\$ 1,051	\$ 1,187	CRPL
143	KP-15 Hooma & Pane Rd 6", Hoonani Rd 12" Main Replacement (5,098')	Distribution	5,098 Feet	\$ 127	\$ 252	\$ 2,931	\$ 3,311	CRPL
144	KP-17 Paanau Tank - Poipu Road 16" Main Replacement (1,150')	Distribution	1,150 Feet	\$ 35	\$ 57	\$ 794	\$ 885	CRPL

**Table D-2
Capital Facilities Projects - Grouped by Project Classification**

Project No.	Project Title	System Function	Scope	Costs are in thousands of dollars				Project Type
				Planning & Land Cost	Design Cost	Construction Cost	Total Project Cost	
145	KP-21 Makaanui Road 6" Main Replacement	Distribution		\$ 18	\$ 40	\$ 414	\$ 472	CRPL
146	KP-22 Wailaau Road 12" Main Replacement	Distribution		\$ 33	\$ 59	\$ 759	\$ 851	CRPL
147	KW-01 Kekaha Road, Puueo Rd - Kaumualii Hwy 12" Main Replacement (4,490')	Distribution	4,490 Feet	\$ 123	\$ 222	\$ 2,840	\$ 3,186	CRPL
148	KW-02a East Kekaha 6" & 8" Main Replacement (9,580')	Distribution	9,580 Feet	\$ 240	\$ 474	\$ 5,509	\$ 6,222	CRPL
149	KW-02b West Kekaha 6" & 8" Main Replacement (9,430')	Distribution	9,430 Feet	\$ 236	\$ 467	\$ 5,422	\$ 6,125	CRPL
150	KW-13a Elepaio Road (Aliae - Aukuu) 12" Main Replacement, Kala Road 8" Main (4,900')	Distribution	4,900 Feet	\$ 135	\$ 243	\$ 3,099	\$ 3,477	CRPL
151	KW-13b Kokee & Alae Rd 12" Main Replacement (4,150')	Distribution	4,150 Feet	\$ 114	\$ 205	\$ 2,625	\$ 2,944	CRPL
152	KW-14 Waimea Canyon Drive 12" Main Replacement (1,860')	Distribution	1,860 Feet	\$ 100	\$ 57	\$ 2,301	\$ 2,458	CRPL
153	KW-15 Kaumualii Hwy 12", Huakai to Moana Road Main Replacement (1,950')	Distribution	1,950 Feet	\$ -	\$ 57	\$ -	\$ 57	CRPL
154	KW-16 Waimea 6" Main Replacement (6,250')	Distribution	6,250 Feet	\$ 144	\$ 361	\$ 3,317	\$ 3,822	CRPL
155	KW-17 Waimea Heights 6", 8", 12" Main Replacement (5,505')	Distribution	5,505 Feet	\$ 138	\$ 272	\$ 3,165	\$ 3,575	CRPL
156	KW-23 Menehune Road 8" Main Replacement (9,340')	Distribution	9,340 Feet	\$ 234	\$ 462	\$ 5,371	\$ 6,066	CRPL
157	KW-27 Kaumualii Hwy - Kekaha Rd to Huakai 12" D.I. Main Replacement	Distribution		\$ 197	\$ 212	\$ 4,526	\$ 4,935	CRPL
158	LO-08 Koloa Rd (Alalohe Pl. - Piko Rd) 8" Main Replacement (1,700')	Distribution	1,700 Feet	\$ 43	\$ 84	\$ 978	\$ 1,104	CRPL
159	LO-09 Piko, Hailima, Koloa 12" Main Replacement (2,800')	Distribution	2,800 Feet	\$ 77	\$ 139	\$ 1,771	\$ 1,987	CRPL
160	LO-10 Lawai 6" & 8" Main Replacement (6,400')	Distribution	6,400 Feet	\$ 160	\$ 317	\$ 3,680	\$ 4,157	CRPL
161	LO-11 Omao 6" Main Replacements (6,200')	Distribution	6,200 Feet	\$ 140	\$ 307	\$ 3,209	\$ 3,655	CRPL
162	LO-12 Iwipoo 8" & Lauoho 6" Main Replacement (8,400')	Distribution	8,400 Feet	\$ 189	\$ 416	\$ 4,347	\$ 4,952	CRPL
163	LO-13 Lawai/Kalaheo Water System Interconnection 8" Main Replacement (8,628')	Distribution	8,628 Feet	\$ 216	\$ 427	\$ 4,961	\$ 5,604	CRPL
164	LO-14 Kaumualii Hwy 16" Main Replacement	Distribution		\$ 189	\$ 312	\$ 4,347	\$ 4,848	CRPL
165	LO-17 Akemama Road / Iii Road 8" Main Replacement	Distribution		\$ 60	\$ 119	\$ 1,380	\$ 1,559	CRPL
166	LO-18 Kua Road 6" Main Replacement	Distribution		\$ 92	\$ 203	\$ 2,122	\$ 2,417	CRPL
167	M-04 Koolau Road / Moloaa Road 6" Main Replacement	Distribution		\$ 180	\$ 396	\$ 4,140	\$ 4,716	CRPL
168	PLH-02 Kokolau Tunnel to Mano St. 16" Main Replacement (14,630')	Distribution	14,630 Feet	\$ 439	\$ 400	\$ 10,095	\$ 10,934	CRPL
169	PLH-04 Puhi Subd. / Leleiona St. 2-1/2" & 12" Main replacement (930')	Distribution	930 Feet	\$ 26	\$ 46	\$ 588	\$ 660	CRPL

Table D-2
Capital Facilities Projects - Grouped by Project Classification

Project No.	Project Title	System Function	Scope	Costs are in thousands of dollars				Project Type
				Planning & Land Cost	Design Cost	Construction Cost	Total Project Cost	
170 PLH-08	Nawiliwili Rd (Nokekula, Apapane, Eleki) 2 1/2" Main Replacement & Transfer Services , Nawiliwili Rd. (5,650')	Distribution	5,650 Feet	\$ 155	\$ 280	\$ 3,574	\$ 4,009	CRPL
171 PLH-09	Lihue Town 6" & 8" Main Replacement (4,970')	Distribution	4,970 Feet	\$ 99	\$ 173	\$ 2,270	\$ 2,541	CRPL
172 PLH-20	Puhi Rd.- Huleia Valley Rd. 6" Main Replacement (5,550') & 3 PRVs	Distribution	5,550 Feet	\$ 125	\$ 275	\$ 2,872	\$ 3,272	CRPL
173 PLH-21	Haleko Rd. (Rice St. - Kukui Grove St.) 16" Main Replacement (3,300')	Distribution	3,300 Feet	\$ 99	\$ 163	\$ 2,277	\$ 2,539	CRPL
174 PLH-22	Nawiliwili Rd. (Lihue Grammer School Well - Kukui Grove St) 12" Main Replacement (680') & 1 PRV	Distribution	680 Feet	\$ 19	\$ 34	\$ 430	\$ 482	CRPL
175 PLH-23	Pua Loke 6" Main Replacement (8,640')	Distribution	8,640 Feet	\$ 194	\$ 428	\$ 4,471	\$ 5,093	CRPL
176 PLH-24	Rice Street (Haleko & Kapule Hwy) 16" Main Replacement (5,160')	Distribution	5,160 Feet	\$ 155	\$ 255	\$ 3,560	\$ 3,971	CRPL
177 PLH-25	Eiwa, Umi, Akahi, Elua & Hardy St. 8" Main Replacement (5,970')	Distribution	5,970 Feet	\$ 149	\$ 173	\$ 3,433	\$ 3,755	CRPL
178 PLH-26	Isenberg/Camp A 6 & 8" Main Replacement (12,240')	Distribution	12,240 Feet	\$ 306	\$ 606	\$ 7,038	\$ 7,950	CRPL
179 PLH-27	Kuhio Hwy (Hardy - Oxford) 16" Main Replacement (1,680')	Distribution	1,680 Feet	\$ 50	\$ 83	\$ 1,159	\$ 1,293	CRPL
180 PLH-28	Hanamaulu 6" Main Replacement (13,520')	Distribution	13,520 Feet	\$ 304	\$ 669	\$ 6,997	\$ 7,970	CRPL
181 PLH-29	Kuhio Hwy/Hanamaulu Rd. 12" Main Replacement (3,530')	Distribution	3,530 Feet	\$ 97	\$ 175	\$ 2,233	\$ 2,505	CRPL
182 PLH-30	Nawiliwili-Niumalu & Kupolo 6, 8 & 12" Main Replacement (12,380')	Distribution	12,380 Feet	\$ 310	\$ 281	\$ 7,119	\$ 7,709	CRPL
183 PLH-32	Rice Street (Kauai Inn Tank - Paina Rd) 12" Main Replacement & PRV (4,850')	Distribution	4,850 Feet	\$ 133	\$ 240	\$ 3,068	\$ 3,441	CRPL
184 PLH-35a	Kuhio Hwy 18" Main Replacement	Distribution		\$ 75	\$ 114	\$ 1,719	\$ 1,908	CRPL
185 WK-11	Upper Wailua Houselots 6" Main Replacement (3,451') & booster pump	Distribution	3,451 Feet	\$ 95	\$ 171	\$ 2,183	\$ 2,448	CRPL
186 WK-12	Waipouli 6",8" Main Replacement (7,286')	Distribution	7,286 Feet	\$ 182	\$ 162	\$ 4,189	\$ 4,534	CRPL
187 WK-13	Kapaa Town 8" Main Replacement (3,487')	Distribution	3,487 Feet	\$ 87	\$ 173	\$ 2,005	\$ 2,265	CRPL
188 WK-19	Puuopae/ Opaekaa/ Kalama/ Kipapa Rds. 8" Main Replacement (15,417')	Distribution	15,417 Feet	\$ 385	\$ 763	\$ 8,865	\$ 10,013	CRPL
189 WK-25	Kuhio Hwy. (N. Papalooa - Kawaihau Road) 16" and 12" Main Replacement (10,800')	Distribution	10,800 Feet	\$ 324	\$ 535	\$ 7,452	\$ 8,311	CRPL
190 WK-26	Moelepe Tu. - Wailua Hmstds,538 Tank 12" Main Replacement (12,726')	Distribution	12,726 Feet	\$ 350	\$ 630	\$ 8,049	\$ 9,029	CRPL

**Table D-2
Capital Facilities Projects - Grouped by Project Classification**

Project No.	Project Title	System Function	Scope	Costs are in thousands of dollars				Project Type
				Planning & Land Cost	Design Cost	Construction Cost	Total Project Cost	
191	WK-26a Kanepoonui Road 12' Main replacement (6,000')	Distribution	6,000 Feet	\$ 165	\$ 297	\$ 3,795	\$ 4,257	CRPL
192	WK-27 Kawaihau Rd (Ornellas Tk - Piliamoo Rd.) 12" Main Replacement (14,357')	Distribution	14,357 Feet	\$ 395	\$ 711	\$ 9,081	\$ 10,186	CRPL
193	WK-28 Wailua Houselots 8" Main Replacement (11,004')	Distribution	11,004 Feet	\$ 275	\$ 264	\$ 6,327	\$ 6,867	CRPL
194	WK-29 Hauaala/ Keapana Roads 6" Main Replacement (10,611')	Distribution	10,611 Feet	\$ 239	\$ 525	\$ 5,491	\$ 6,255	CRPL
195	WK-31 Kamalu, Crossley Rds., Polani, Kiinani Pl. 8",6"Main Replacement (4,000')	Distribution	4,000 Feet	\$ 120	\$ 198	\$ 2,760	\$ 3,078	CRPL
196	WK-32 Kapaa Homesteads 6"Main Replacement (24,773')	Distribution	24,773 Feet	\$ -	\$ 436	\$ -	\$ 436	CRPL
197	WK-33 Kahuna Road 12' Main Replacement (9500')	Distribution	9,500 Feet	\$ 261	\$ 470	\$ 6,009	\$ 6,740	CRPL
198	WK-34 Kuamoo Road 8" Main Replacement (6,500')	Distribution	6,500 Feet	\$ 163	\$ 322	\$ 3,738	\$ 4,222	CRPL
199	WK-36 Wailua, Kuamoo,Ohana,Anolani Rds., Lehika Ln. 6"Main Replacement (2,000')	Distribution	2,000 Feet	\$ 45	\$ 46	\$ 1,035	\$ 1,126	CRPL
200	WK-38 Rehabilitate Puu Pilo Booster Station	Boost		\$ 25	\$ 55	\$ 575	\$ 655	CRPL
201	WK-41 Kawaihau Road 16" Main Replacement	Distribution		\$ 282	\$ 465	\$ 6,486	\$ 7,233	CRPL
202	WKK-04 Kaohe Road / Kalihiwai Road 6"Main Replacement (4,510') & PRV	Distribution	4,510 Feet	\$ 101	\$ 223	\$ 2,334	\$ 2,659	CRPL
203	WKK-06 Kuhio Hwy. (Pukalani Pl. - Kahilihoho Rd) Main Replacement (9,370')	Distribution	9,370 Feet	\$ 258	\$ 464	\$ 5,927	\$ 6,648	CRPL
204	WKK-07 Kilauea Tanks 1 & 2 - Pukalani Place, 16"Main Replacement (8,050')	Distribution	8,050 Feet	\$ 221	\$ 398	\$ 5,092	\$ 5,711	CRPL
205	WKK-08 Kilauea Road (Pukalani Pl - FH X-76) Main Replacement (4,370')	Distribution	4,370 Feet	\$ 120	\$ 216	\$ 2,764	\$ 3,101	CRPL
206	WKK-09 Kolo Road (Pukalani Place - Hookui Rd) Main Replacement (1,680')	Distribution	1,680 Feet	\$ 46	\$ 83	\$ 1,063	\$ 1,192	CRPL
207	WKK-11 Kapuna Rd (Waipake 562Tank - Kula School) Main Replacement (1,740)	Distribution	1,740 Feet	\$ 48	\$ 86	\$ 1,101	\$ 1,235	CRPL
208	WKK-12 Kilauea Road (Iwalani lane - Kaupea Road) 6" Main replacement (5,720')	Distribution	5,720 Feet	\$ 129	\$ 283	\$ 2,960	\$ 3,372	CRPL
209	Subtotal CRPL			\$ 13,250	\$ 24,254	\$ 304,751	\$ 342,255	
210	CRPL (Developer)							
211	A-09 Kuhio Hwy 8" Main (500')	Distribution	500 Feet	\$ 13	\$ 25	\$ 288	\$ 325	CRPL
212	WK-30 Waipouli Rd. / Hauiki Rd. 6" Main Replacement (18,419')	Distribution	18,419 Feet	\$ 414	\$ 261	\$ 9,532	\$ 10,207	CRPL
213	WKK-13 Koolau Road (Kuhio Hwy. - FH X-122) 6' Main replacement (4,880')	Distribution	4,880 Feet	\$ 110	\$ 242	\$ 2,525	\$ 2,877	CRPL
214	Subtotal CRPL			\$ 537	\$ 527	\$ 12,345	\$ 13,409	

Table D-2
Capital Facilities Projects - Grouped by Project Classification

Project No.	Project Title	System Function	Scope	Costs are in thousands of dollars				Project Type
				Planning & Land Cost	Design Cost	Construction Cost	Total Project Cost	
215								
216	Undefined							
217	H-11 Kuhio Hwy 6" Main Replacement (7,700')	Distribution	7,700 Feet	\$ 173	\$ 381	\$ 3,985	\$ 4,539	
218	WKK-20 Kuhio Hwy 12" Main Replacement (Kolo Road to Koolau Road) (14,000')	Distribution	14,000 Feet	\$ 385	\$ 693	\$ 8,855	\$ 9,933	
219		Subtotal Undefined		\$ 558	\$ 1,074	\$ 1,085,907	\$ 14,472	
220		System Total		\$ 36,991	\$ 47,967	\$ 1,647,329	\$ 663,449	

**Table D-3
Capital Facilities Projects - Grouped by System Function**

Project No.	Project Title	System Function	Scope	Costs are in thousands of dollars				Project Type
				Planning & Land Cost	Design Cost	Construction Cost	Total Project Cost	
1	Source Projects							
2	A-02 Drill & Dev. Anahola Well 400gpm	Source	576,000 GPD	\$ 100	\$ 220	\$ 2,300	\$ 2,620	CIP
3	H-08 Drill & Dev Hanalei Well, 300 gpm	Source	432,000 GPD	\$ 125	\$ 138	\$ 2,875	\$ 3,138	CIP
4	HW-12 Drill & Dev. Wainiha/Haena Well 100 gpm	Source	144,000 GPD	\$ 575	\$ 138	\$ 1,725	\$ 2,438	CIP
5	K-14 Kalaheo Well No. 3	Source		\$ 600	\$ 220	\$ 2,300	\$ 3,120	CIP
6	KP-20 Drill and Develop Koloa Well G	Source		\$ 600	\$ 220	\$ 2,300	\$ 3,120	CIP
7	LO-07 Drill & Develop Omao Well	Source	720,000 GPD	\$ 600	\$ 68	\$ 2,300	\$ 2,968	CIP
8	PLH-03 Drill & Develop Horizontal wells	Source		\$ 1,000	\$ 1,100	\$ 11,500	\$ 13,600	CIP
9	PLH-42 Construct Kokolau Tunnel WTP, 400gpm	Source	576,000 GPD	\$ 540	\$ 1,188	\$ 12,420	\$ 14,148	CIP
10	WK-21 Drill & Develop Wailua Homesteads Well #3	Source	576,000 GPD	\$ 100	\$ 77	\$ 2,300	\$ 2,477	CIP
11	WK-22 Drill & Develop Kapaa Homesteads Well No. 3, 500 gpm, DLNR Project	Source	720,000 GPD	\$ -	\$ -	\$ -	\$ 2,800	CIP
12	WK-39 Drill and Develop Kapaa Homesteads Well No. 4, 500GPM	Source	720,000 GPD	\$ 100	\$ 388	\$ 2,300	\$ 2,788	CIP
13	WKK-02 Drill & Develop New Kilauea Well (No. 3 or No. 4), 700 gpm	Source	1,008,000 GPD	\$ 600	\$ 220	\$ 2,300	\$ 3,120	CIP
14	H-02 MCC, Chlorination Facilities - Maka Ridge Well [Separate pumps & MCC, Rehab Chlorination Facilities]	Source		\$ 6	\$ 39	\$ 144	\$ 189	CRP
15	HE-03a Hanapepe Town Well MCC, Chlorination Facilities	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
16	HE-03b Hanapepe Well A MCC, Chlorination Facilities	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
17	HE-03c Hanapepe Well B MCC, Chlorination Facilities	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
18	HE-03d Hanapepe Well #4 MCC, Rehab Chlorination Facilities,generator storage	Source		\$ 25	\$ 55	\$ 575	\$ 655	CRP
19	HW-04 MCC, Chlorination Facilities, Haena Well 66 & Wainiha Well 67 & 2	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
20	HW-14 Construct Water Treatment - Wainiha Well 66 & 2	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
21	K-02 Rehabilitate Jelly Factory B.P. Sta. (3-250 gpm)	Source		\$ 25	\$ 55	\$ 575	\$ 655	CRP
22	K-04 Kalaheo Wells, Rehabilitate Chlorine Facilities (CHECK)	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
23	KP-09 MCC, Chlorination Facilities, Koloa Well "16-A" & "E", & "16-B" Site and Bldg Improvements	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
24	KP-10 MCC, Chlorination Facilities, Koloa Well "C" & "D"	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
25	KW-04 Pre-lube Improvement Paua Valley Well	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
26	KW-05 Hydro-cell Improvement, Kekaha (Waipao) Well "B"	Source	1,008,000 GPD	\$ -	\$ 257	\$ -	\$ 257	CRP
27	KW-09b MCC, Chlorination Facilities, Paua Valley Well	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
28	KW-09c MCC, Chlorination Facilities, Kekaha (Waipao) Well "B"	Source		\$ -	\$ -	\$ -	\$ -	CRP

**Table D-3
Capital Facilities Projects - Grouped by System Function**

Project No.	Project Title	System Function	Scope	Costs are in thousands of dollars				Project Type	
				Planning & Land Cost	Design Cost	Construction Cost	Total Project Cost		
29	KW-20	Waimea Well "A" Rehabilitation	Source	288,000 GPD	\$ 13	\$ 179	\$ 288	\$ 479	CRP
30	KW-22a	MCC, Chlorination Facilities, Waimea Well "A"	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
31	KW-22b	MCC, Chlorination Facilities, Waimea Well "2"	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
32	KW-24	Permanent Generator and Housing Kapilimao Valley Well	Source	302,400 GPD	\$ 15	\$ 33	\$ 340	\$ 387	CRP
33	LO-05a	MCC, Chlorination Facilities, Lawai Wells No. 1 (22) & No. 2	Source		\$ 25	\$ 55	\$ 575	\$ 655	CRP
34	LO-05b	Permanent Generator and Housing, Lawai Tank, 677	Source		\$ 50	\$ 110	\$ 1,150	\$ 1,310	CRP
35	PLH-06	MCC, Chlorination Facilities, Puhii Well 1 (KCC)	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
36	PLH-07	MCC, Chlorination Facilities, Puhii Wells 2 & 3	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
37	PLH-10	MCC, Chlorination Facilities, Lihue Grammer School Well	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
38	PLH-12	Kilohana Wells A, B, F & I Permanent Generator	Source		\$ 25	\$ 55	\$ 575	\$ 655	CRP
39	PLH-12a	Kilohana Wells A, B, F & I Rehab MCC, Chlorination Facilities, Kilohana Wells	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
40	WK-01	Rehabilitate Moelepe Tunnel & improve access road	Source		\$ 50	\$ 110	\$ 1,150	\$ 1,310	CRP
41	WK-02	Rehabilitate Akulikuli Tunnel & prevent surface water infiltration	Source	432,000 GPD	\$ 150	\$ 431	\$ 3,450	\$ 4,031	CRP
42	WK-15	Generator Storage - Kapaa Homesteads Well No. 1	Source		\$ 73	\$ 160	\$ 1,673	\$ 1,906	CRP
43	WK-15a	Kapaa Homesteads Well No. 1 - MCC, Chlorination Facility	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
44	WK-16	MCC, Chlorination Facility Nonou Well 9-1A & 9-1B	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
45	WK-17	MCC, Chlorination Facility and Site Improvements Nonou Well 9-1C	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
46	WK-18	MCC, Chlorination Facility Wailua Homestead Wells "A" & "B"	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
47	WKK-03	MCC, Chlorination Facilities - Kilauea Well #1 & #2	Source		\$ 6	\$ 14	\$ 144	\$ 164	CRP
48	Ani-02	Renegotiate Water Purchase Agreement	Source		\$ 3	\$ 6	\$ 58	\$ 66	
49	M-03	Renegotiate Water Purchase Agreement	Source		\$ 5	\$ 11	\$ 115	\$ 131	
50		Subtotal Source			\$ 5,535	\$ 5,820	\$ 58,306	\$ 72,460	
51									
52		Storage Projects							
53	A-10	Construct Anahola 0.25MG Tank, 288'	Storage	250,000 Gallons	\$ 588	\$ 151	\$ 2,013	\$ 2,751	CIP
54	H-07	New 0.150 MG Tank, Abandon Hanalei Tank	Storage	150,000 Gallons	\$ 50	\$ 151	\$ 1,150	\$ 1,351	CIP
55	HW-11	Construct 0.2 MG Storage Tank, 144'	Storage	200,000 Gallons	\$ 580	\$ 151	\$ 1,840	\$ 2,571	CIP

**Table D-3
Capital Facilities Projects - Grouped by System Function**

Project No.	Project Title	System Function	Scope	Costs are in thousands of dollars				Project Type
				Planning & Land Cost	Design Cost	Construction Cost	Total Project Cost	
56	HW-13 Construct 0.1 MG Storage Tank, 217'	Storage	100,000 Gallons	\$ 540	\$ 151	\$ 920	\$ 1,611	CIP
57	K-05a Kalaheo New Tank, 0.5MG, 886'	Storage	500,000 Gallons	\$ 663	\$ 775	\$ 3,738	\$ 5,175	CIP
58	KP-03 Construct Koloa 366 Tank, 0.5 MG	Storage	500,000 Gallons	\$ 663	\$ 303	\$ 3,738	\$ 4,703	CIP
59	KP-04 Construct Koloa 366 Tank, 0.25 MG	Storage	250,000 Gallons	\$ 588	\$ 151	\$ 2,013	\$ 2,751	CIP
60	KP-05 Construct Poipu 245 Tank, 1.0 MG	Storage	1,000,000 Gallons	\$ 800	\$ 605	\$ 6,900	\$ 8,305	CIP
61	KW-25 Construct Kapilimao 196 Tank, 0.5MG	Storage	500,000 Gallons	\$ 175	\$ 334	\$ 3,501	\$ 4,010	CIP
62	KW-26 Construct Waimea 196 Tank, 0.5MG	Storage	500,000 Gallons	\$ 163	\$ 303	\$ 3,738	\$ 4,203	CIP
63	LO-03 Construct Lawai (Andrade) Tank 825, 0.05 MG	Storage	50,000 Gallons	\$ 520	\$ 30	\$ 460	\$ 1,010	CIP
64	LO-04 Construct Omao 677 Tank , 0.5 MG	Storage	500,000 Gallons	\$ 105	\$ 251	\$ 2,415	\$ 2,771	CIP
65	LO-15 Construct Omao New Tank, 0.25MG, 677'	Storage	250,000 Gallons	\$ 588	\$ 151	\$ 2,013	\$ 2,751	CIP
66	M-02 Construct Moloaa Tank, 100,000 Gallon Storage Tank	Storage	100,000 Gallons	\$ 540	\$ 66	\$ 920	\$ 1,526	CIP
67	PLH-36 Kapaia SWTP Expansion, 1.0MGD	Storage	1,000,000 Gallons	\$ 450	\$ 990	\$ 10,350	\$ 11,790	CIP
68	PLH-38 Construct Lihue New 1.0 MG Tank, 393'	Storage	1,000,000 Gallons	\$ 800	\$ 605	\$ 6,900	\$ 8,305	CIP
69	WK-08 Construct Kapaa Homesteads 313 Tank, 1.0 MG	Storage	1,000,000 Gallons	\$ 300	\$ 336	\$ 6,900	\$ 7,536	CIP
70	WK-09 Construct Kapaa Homesteads 530 Tank, 0.5 MG	Storage	500,000 Gallons	\$ 129	\$ 336	\$ 2,958	\$ 3,423	CIP
71	WK-10 Construct Wailua Homesteads 538 Tank, 1.0 MG	Storage	1,000,000 Gallons	\$ 800	\$ 605	\$ 6,900	\$ 8,305	CIP
72	WK-23 Construct U.H. Exp. Station 605' Tank , 0.25 MG & 12" DI (2900') pipeline	Storage	250,000 Gallons	\$ 88	\$ 119	\$ 2,013	\$ 2,219	CIP
73	WK-37 Construct Upper Waipouli 0.25MG Tank, 686'	Storage	250,000 Gallons	\$ 88	\$ 151	\$ 2,013	\$ 2,251	CIP
74	WK-40 Construct Upper Makaleha 0.25MG Tank, 575'	Storage	250,000 Gallons	\$ 88	\$ 151	\$ 2,013	\$ 2,251	CIP
75	WK-42 Construct Stable 0.5MG Tank, 214'	Storage	500,000 Gallons	\$ 277	\$ 605	\$ 6,368	\$ 7,250	CIP
76	WKK-15 Construct Kilauea 466 Tank, 1.0 MG	Storage	1,000,000 Gallons	\$ 1,300	\$ 14	\$ 6,900	\$ 8,214	CIP
77	WKK-19 Construct Kilauea 0.25MG Tank, 466'	Storage	250,000 Gallons	\$ 88	\$ 151	\$ 2,013	\$ 2,251	CIP
78	H-03 Rehabilitate Maka Ridge Tank, 225',0.25 MG [Concrete Tanks]	Storage	250,000 Gallons	\$ 13	\$ 39	\$ 288	\$ 339	CRP
79	H-09 Paint 0.05 MG Hanalei Tank	Storage	50,000 Gallons	\$ 3	\$ 40	\$ 58	\$ 100	CRP
80	HE-04 Rehabilitate Hanapepe Heights 0.5 MG Tank, 212'	Storage	500,000 Gallons	\$ 13	\$ 28	\$ 288	\$ 328	CRP
81	HE-08 Refurbish Eleele Steel Tanks	Storage		\$ 75	\$ 356	\$ 1,725	\$ 2,156	CRP
82	HW-01 Improve access to Wainiha 217' Tank	Storage		\$ 25	\$ 55	\$ 575	\$ 655	CRP
83	HW-03 Rehabilitate Haena Steel Tank 144'	Storage	100,000 Gallons	\$ 25	\$ 97	\$ 575	\$ 697	CRP
84	KP-12 Rehabilitate Paanau Tank, 0.25 MG	Storage	250,000 Gallons	\$ 6	\$ 14	\$ 144	\$ 164	CRP
85	KW-07 Rehabilitate Paua Valley Tank #1, 0.5 MG Concrete	Storage	500,000 Gallons	\$ 50	\$ 110	\$ 1,150	\$ 1,310	CRP
86	KW-18 Rehabilitate Waimea Tank 1, 0.25 MG	Storage	250,000 Gallons	\$ 13	\$ 28	\$ 288	\$ 328	CRP
87	PLH-01a Replace Grove Farm Tanks #1 & #2	Storage		\$ 588	\$ 121	\$ 2,013	\$ 2,721	CRP
88	PLH-05 Rehabilitate Kalepa Tank, 0.5 MG	Storage	500,000 Gallons	\$ 25	\$ 55	\$ 575	\$ 655	CRP
89	WK-04 Rehabilitate Nonou Tank, 2.0 MG	Storage	2,000,000 Gallons	\$ 13	\$ 28	\$ 288	\$ 328	CRP

**Table D-3
Capital Facilities Projects - Grouped by System Function**

Project No.	Project Title	System Function	Scope	Costs are in thousands of dollars				Project Type	
				Planning & Land Cost	Design Cost	Construction Cost	Total Project Cost		
90	WK-06	Rehabilitate Makaleha Tank, 1.0 MG	Storage	1,000,000 Gallons	\$ 13	\$ 28	\$ 288	\$ 328	CRP
91	WK-20	Rehabilitate Puupilo Steel Tank, 0.125 MG	Storage	125,000 Gallons	\$ 75	\$ 165	\$ 1,725	\$ 1,965	CRP
92	WKK-01	Rehabilitate Kilauea Tanks #1 & #2, 0.25 MG	Storage	250,000 Gallons	\$ 25	\$ 55	\$ 575	\$ 655	CRP
93		Subtotal Storage			\$ 11,924	\$ 8,855	\$ 101,234	\$ 122,013	
94									
95		Transmission and Distribution Projects							
96	A-07	Manai/Kukuihale Road 8" Main (2,200')	Distribution	2,200 Feet	\$ 55	\$ 109	\$ 1,265	\$ 1,429	CIP
97	Ani-01b	Anini and Kalihiwai Road 6" Main (5300')	Distribution	5,300 Feet	\$ 119	\$ 262	\$ 2,743	\$ 3,124	CIP
98	HE-12	New PRV Station at Alii Road/Ahi Road Intersection	Distribution		\$ 5	\$ 11	\$ 115	\$ 131	CIP
99	KP-11	Poipu Tank (Mahaulepu)- Poipu By-pass Rd 18" Main (7,200')	Distribution	7,300 Feet	\$ 234	\$ 356	\$ 5,382	\$ 5,972	CIP
100	KP-23	Kapili Road New 12" Main	Distribution		\$ 33	\$ 59	\$ 759	\$ 851	CIP
101	KW-28	Renovate Kekaha Shaft(5842-02) & 12" D.I.	Distribution		\$ 150	\$ 630	\$ 3,450	\$ 4,230	CIP
102	LO-16	East Koloa Road New 8" Mainline	Distribution		\$ 188	\$ 371	\$ 4,313	\$ 4,871	CIP
103	M-01	Koolau Road, Moloaa 6" Main & Water Meter & Backflow Device (1,500')	Distribution	1,500 Feet	\$ 34	\$ 66	\$ 776	\$ 876	CIP
104	PLH-34	Kapule Hwy. (Kuhio Hwy - Ahukini Rd) 16" Main (8,750')	Distribution	8,750 Feet	\$ 263	\$ 433	\$ 6,038	\$ 6,733	CIP
105	PLH-35b	Kapaia Cane Haul Road 18" Main	Distribution		\$ 358	\$ 545	\$ 8,223	\$ 9,125	CIP
106	WKK-17	Kuhio Hwy. (Pukalani Pl. - Kolo Road) New Main (4,790')	Distribution	4,790 Feet	\$ 132	\$ 237	\$ 3,030	\$ 3,399	CIP
107	H-04	Hanalei River 8" Main Replacement (1,670')	Distribution	1,670 Feet	\$ 42	\$ 83	\$ 960	\$ 1,085	CRP
108	K-15	Kalaheo 12" Main Replacement	Distribution		\$ 545	\$ 980	\$ 12,524	\$ 14,048	CRP
109	KP-14	Koloa 6" & 12" Main Replacement (13,756')	Distribution	13,756 Feet	\$ 344	\$ 681	\$ 7,910	\$ 8,935	CRP
110	KP-19	Koloa Well C 18" Main Replacement	Distribution		\$ 231	\$ 351	\$ 5,307	\$ 5,889	CRP
111	WK-14	Vivian Hghts./Kanaele Rd 8", 6" Main Replacement (13,678') & relocate PRV	Distribution	13,678 Feet	\$ -	\$ 395	\$ -	\$ 395	CRP
112	A-01	Anahola Road 8" Main Replacement(6,980')	Distribution	6,980 Feet	\$ 175	\$ 346	\$ 4,014	\$ 4,534	CRPL
113	A-05	North Anahola Area 6" Main Replacement (3,160')	Distribution	3,160 Feet	\$ 71	\$ 156	\$ 1,635	\$ 1,863	CRPL
114	A-06	Puuhale/Kikoo Loop 6" Main Replacement (2,260')	Distribution	2,260 Feet	\$ 51	\$ 112	\$ 1,170	\$ 1,332	CRPL
115	A-08	Kealia Road 12" Main Replacement (1,940')	Distribution	1,940 Feet	\$ 53	\$ 96	\$ 1,227	\$ 1,376	CRPL
116	A-09	Kuhio Hwy 8" Main (500')	Distribution	500 Feet	\$ 13	\$ 25	\$ 288	\$ 325	CRPL
117	Ani-01a	Anini and Kalihiwai Road 6" Main (9,156')	Distribution	9,156 Feet	\$ 206	\$ 453	\$ 4,738	\$ 5,397	CRPL
118	H-05	Weke, Anae, Mahimahi and He'e Roads 6" and 8" Main Replacement (2,760')	Distribution	2,760 Feet	\$ 69	\$ 137	\$ 1,587	\$ 1,793	CRPL

**Table D-3
Capital Facilities Projects - Grouped by System Function**

Project No.	Project Title	System Function	Scope	Costs are in thousands of dollars				Project Type
				Planning & Land Cost	Design Cost	Construction Cost	Total Project Cost	
119	H-10 Maka Ridge Tank to Hanalei Town 12" Main Replacement (7,190')	Distribution	7,190 Feet	\$ 198	\$ 39	\$ 4,548	\$ 4,785	CRPL
120	HE-02 Hanapepe Valley Main Replacement (1,500') and Main Abandonment (9,830')	Distribution	11,330 Feet	\$ 283	\$ 561	\$ 6,515	\$ 7,359	CRPL
121	HE-09 Lower Hanapepe Hgts 6" Main Replacement (7,190')	Distribution	7,190 Feet	\$ 162	\$ 356	\$ 3,721	\$ 4,239	CRPL
122	HE-10 Hanapepe Town and Eleele Main Replacement	Distribution	13,730 Feet	\$ 314	\$ 622	\$ 7,228	\$ 8,164	CRPL
123	HE-11 Lele Road to Salt Pond 6" Main Replacement (5,379')	Distribution	5,379 Feet	\$ 121	\$ 156	\$ 2,784	\$ 3,061	CRPL
124	HW-06 Ala'Eke Road 6" Main Replacement (2,570')	Distribution	2,570 Feet	\$ 58	\$ 127	\$ 1,330	\$ 1,515	CRPL
125	HW-08a Wainiha 217' Tank to Wainiha Well 67 6" Main Replacement (4,880')	Distribution	4,880 Feet	\$ 110	\$ 242	\$ 2,525	\$ 2,877	CRPL
126	HW-08b Wainiha Powerhouse Road 6" Main Replacement (5,930')	Distribution	5,930 Feet	\$ 133	\$ 294	\$ 3,069	\$ 3,496	CRPL
127	HW-09 Alamihi, Alealea, Alamo'o Main Replacement (4,900')	Distribution	4,900 Feet	\$ 110	\$ 243	\$ 2,536	\$ 2,889	CRPL
128	HW-10 Kuhio Hwy 6" Main Replacement (4,530')	Distribution	4,530 Feet	\$ 102	\$ 224	\$ 2,344	\$ 2,670	CRPL
129	K-06 Puuwai, Opu Roads 12" Main Replacement (3,320')	Distribution	3,320 Feet	\$ 91	\$ 164	\$ 2,100	\$ 2,356	CRPL
130	K-08b Puu, Ai, Ihu Roads 6" Main Replacement (12,321')	Distribution	12,321 Feet	\$ 277	\$ 610	\$ 6,376	\$ 7,263	CRPL
131	K-09 Kalaheo Town 6", 8" & 12" Main Replacement (8,530')	Distribution	8,530 Feet	\$ 213	\$ 422	\$ 4,905	\$ 5,540	CRPL
132	K-13 Puuwai, Poohiwi, Wawae Road 8" Main Replacement (5,500')	Distribution	5,500 Feet	\$ 138	\$ 272	\$ 3,163	\$ 3,572	CRPL
133	KP-13 Waikomo Road (Poipu Rd - Weliweli Rd) 8" Main Replacement (1,828')	Distribution	1,828 Feet	\$ 46	\$ 90	\$ 1,051	\$ 1,187	CRPL
134	KP-15 Hooma & Pane Rd 6", Hoonani Rd 12" Main Replacement (5,098')	Distribution	5,098 Feet	\$ 127	\$ 252	\$ 2,931	\$ 3,311	CRPL
135	KP-17 Paanau Tank - Poipu Road 16" Main Replacement (1,150')	Distribution	1,150 Feet	\$ 35	\$ 57	\$ 794	\$ 885	CRPL
136	KP-21 Makanui Road 6" Main Replacement	Distribution		\$ 18	\$ 40	\$ 414	\$ 472	CRPL
137	KP-22 Wailaau Road 12" Main Replacement	Distribution		\$ 33	\$ 59	\$ 759	\$ 851	CRPL
138	KW-01 Kekaha Road, Puueo Rd - Kaumualii Hwy 12" Main Replacement (4,490')	Distribution	4,490 Feet	\$ 123	\$ 222	\$ 2,840	\$ 3,186	CRPL
139	KW-02a East Kekaha 6" & 8" Main Replacement (9,580')	Distribution	9,580 Feet	\$ 240	\$ 474	\$ 5,509	\$ 6,222	CRPL
140	KW-02b West Kekaha 6" & 8" Main Replacement (9,430')	Distribution	9,430 Feet	\$ 236	\$ 467	\$ 5,422	\$ 6,125	CRPL
141	KW-13a Elepaio Road (Aliae - Aukuu) 12" Main Replacement, Kala Road 8" Main (4,900')	Distribution	4,900 Feet	\$ 135	\$ 243	\$ 3,099	\$ 3,477	CRPL
142	KW-13b Kokee & Alae Rd 12" Main Replacement (4,150')	Distribution	4,150 Feet	\$ 114	\$ 205	\$ 2,625	\$ 2,944	CRPL
143	KW-14 Waimea Canyon Drive 12" Main Replacement (1,860')	Distribution	1,860 Feet	\$ 100	\$ 57	\$ 2,301	\$ 2,458	CRPL

**Table D-3
Capital Facilities Projects - Grouped by System Function**

Project No.	Project Title	System Function	Scope	Costs are in thousands of dollars				Project Type
				Planning & Land Cost	Design Cost	Construction Cost	Total Project Cost	
144	KW-15 Kaumualii Hwy 12", Huakai to Moana Road Main Replacement (1,950')	Distribution	1,950 Feet	\$ -	\$ 57	\$ -	\$ 57	CRPL
145	KW-16 Waimea 6" Main Replacement (6,250')	Distribution	6,250 Feet	\$ 144	\$ 361	\$ 3,317	\$ 3,822	CRPL
146	KW-17 Waimea Heights 6", 8", 12" Main Replacement (5,505')	Distribution	5,505 Feet	\$ 138	\$ 272	\$ 3,165	\$ 3,575	CRPL
147	KW-23 Menehune Road 8" Main Replacement (9,340')	Distribution	9,340 Feet	\$ 234	\$ 462	\$ 5,371	\$ 6,066	CRPL
148	KW-27 Kaumualii Hwy - Kekaha Rd to Huakai 12" D.I. Main Replacement	Distribution		\$ 197	\$ 212	\$ 4,526	\$ 4,935	CRPL
149	LO-08 Koloa Rd (Alaloke Pl. - Piko Rd) 8" Main Replacement (1,700')	Distribution	1,700 Feet	\$ 43	\$ 84	\$ 978	\$ 1,104	CRPL
150	LO-09 Piko, Hailima, Koloa 12" Main Replacement (2,800')	Distribution	2,800 Feet	\$ 77	\$ 139	\$ 1,771	\$ 1,987	CRPL
151	LO-10 Lawai 6" & 8" Main Replacement (6,400')	Distribution	6,400 Feet	\$ 160	\$ 317	\$ 3,680	\$ 4,157	CRPL
152	LO-11 Omao 6" Main Replacements (6,200')	Distribution	6,200 Feet	\$ 140	\$ 307	\$ 3,209	\$ 3,655	CRPL
153	LO-12 Iwipoo 8" & Lauoho 6" Main Replacement (8,400')	Distribution	8,400 Feet	\$ 189	\$ 416	\$ 4,347	\$ 4,952	CRPL
154	LO-13 Lawai/Kalaheo Water System Interconnection 8" Main Replacement (8,628')	Distribution	8,628 Feet	\$ 216	\$ 427	\$ 4,961	\$ 5,604	CRPL
155	LO-14 Kaumualii Hwy 16" Main Replacement	Distribution		\$ 189	\$ 312	\$ 4,347	\$ 4,848	CRPL
156	LO-17 Akemama Road / Iii Road 8' Main Replacement	Distribution		\$ 60	\$ 119	\$ 1,380	\$ 1,559	CRPL
157	LO-18 Kua Road 6" Main Replacement	Distribution		\$ 92	\$ 203	\$ 2,122	\$ 2,417	CRPL
158	M-04 Koolau Road / Moloaa Road 6" Main Replacement	Distribution		\$ 180	\$ 396	\$ 4,140	\$ 4,716	CRPL
159	PLH-02 Kokolau Tunnel to Mano St. 16" Main Replacement (14,630')	Distribution	14,630 Feet	\$ 439	\$ 400	\$ 10,095	\$ 10,934	CRPL
160	PLH-04 Puhi Subd. / Leleiona St. 2-1/2" & 12" Main replacement (930')	Distribution	930 Feet	\$ 26	\$ 46	\$ 588	\$ 660	CRPL
161	PLH-08 Nawiliwili Rd (Nokekula, Apapane, Eleki) 2 1/2" Main Replacement & Transfer Services , Nawiliwili Rd. (5,650')	Distribution	5,650 Feet	\$ 155	\$ 280	\$ 3,574	\$ 4,009	CRPL
162	PLH-09 Lihue Town 6" & 8" Main Replacement (4,970')	Distribution	4,970 Feet	\$ 99	\$ 173	\$ 2,270	\$ 2,541	CRPL
163	PLH-20 Puhi Rd.- Huleia Valley Rd. 6" Main Replacement (5,550') & 3 PRVs	Distribution	5,550 Feet	\$ 125	\$ 275	\$ 2,872	\$ 3,272	CRPL
164	PLH-21 Haleko Rd. (Rice St. - Kukui Grove St.) 16" Main Replacement (3,300')	Distribution	3,300 Feet	\$ 99	\$ 163	\$ 2,277	\$ 2,539	CRPL
165	PLH-22 Nawiliwili Rd. (Lihue Grammer School Well - Kukui Grove St) 12" Main Replacement (680') & 1 PRV	Distribution	680 Feet	\$ 19	\$ 34	\$ 430	\$ 482	CRPL
166	PLH-23 Pua Loke 6" Main Replacement (8,640')	Distribution	8,640 Feet	\$ 194	\$ 428	\$ 4,471	\$ 5,093	CRPL
167	PLH-24 Rice Street (Haleko & Kapule Hwy) 16" Main Replacement (5,160')	Distribution	5,160 Feet	\$ 155	\$ 255	\$ 3,560	\$ 3,971	CRPL

**Table D-3
Capital Facilities Projects - Grouped by System Function**

Project No.	Project Title	System Function	Scope	Costs are in thousands of dollars					Project Type
				Planning & Land Cost	Design Cost	Construction Cost	Total Project Cost		
168	PLH-25 Eiwa, Umi, Akahi, Elua & Hardy St. 8" Main Replacement (5,970')	Distribution	5,970 Feet	\$ 149	\$ 173	\$ 3,433	\$ 3,755	CRPL	
169	PLH-26 Isenberg/Camp A 6 & 8" Main Replacement (12,240')	Distribution	12,240 Feet	\$ 306	\$ 606	\$ 7,038	\$ 7,950	CRPL	
170	PLH-27 Kuhio Hwy (Hardy - Oxford) 16" Main Replacement (1,680')	Distribution	1,680 Feet	\$ 50	\$ 83	\$ 1,159	\$ 1,293	CRPL	
171	PLH-28 Hanamaulu 6" Main Replacement (13,520')	Distribution	13,520 Feet	\$ 304	\$ 669	\$ 6,997	\$ 7,970	CRPL	
172	PLH-29 Kuhio Hwy/Hanamaulu Rd. 12" Main Replacement (3,530')	Distribution	3,530 Feet	\$ 97	\$ 175	\$ 2,233	\$ 2,505	CRPL	
173	PLH-30 Nawiliwili-Niumalu & Kupolo 6, 8 & 12" Main Replacement (12,380')	Distribution	12,380 Feet	\$ 310	\$ 281	\$ 7,119	\$ 7,709	CRPL	
174	PLH-32 Rice Street (Kauai Inn Tank - Paina Rd) 12" Main Replacement & PRV (4,850')	Distribution	4,850 Feet	\$ 133	\$ 240	\$ 3,068	\$ 3,441	CRPL	
175	PLH-35a Kuhio Hwy 18" Main Replacement	Distribution		\$ 75	\$ 114	\$ 1,719	\$ 1,908	CRPL	
176	WK-11 Upper Wailua Houselots 6" Main Replacement (3,451') & booster pump	Distribution	3,451 Feet	\$ 95	\$ 171	\$ 2,183	\$ 2,448	CRPL	
177	WK-12 Waipouli 6",8"Main Replacement (7,286')	Distribution	7,286 Feet	\$ 182	\$ 162	\$ 4,189	\$ 4,534	CRPL	
178	WK-13 Kapaa Town 8"Main Replacement (3,487')	Distribution	3,487 Feet	\$ 87	\$ 173	\$ 2,005	\$ 2,265	CRPL	
179	WK-19 Puuopae/ Opaekaa/ Kalama/ Kipapa Rds. 8" Main Replacement (15,417')	Distribution	15,417 Feet	\$ 385	\$ 763	\$ 8,865	\$ 10,013	CRPL	
180	WK-25 Kuhio Hwy. (N. Papalooa - Kawaihau Road) 16" and 12" Main Replacement (10,800')	Distribution	10,800 Feet	\$ 324	\$ 535	\$ 7,452	\$ 8,311	CRPL	
181	WK-26 Moelepe Tu. - Wailua Hmstds,538 Tank 12" Main Replacement (12,726')	Distribution	12,726 Feet	\$ 350	\$ 630	\$ 8,049	\$ 9,029	CRPL	
182	WK-26a Kanepoonui Road 12' Main replacement (6,000')	Distribution	6,000 Feet	\$ 165	\$ 297	\$ 3,795	\$ 4,257	CRPL	
183	WK-27 Kawaihau Rd (Ornellas Tk - Piliamoo Rd.) 12" Main Replacement (14,357')	Distribution	14,357 Feet	\$ 395	\$ 711	\$ 9,081	\$ 10,186	CRPL	
184	WK-28 Wailua Houselots 8" Main Replacement (11,004')	Distribution	11,004 Feet	\$ 275	\$ 264	\$ 6,327	\$ 6,867	CRPL	
185	WK-29 Hauaala/ Keapana Roads 6" Main Replacement (10,611')	Distribution	10,611 Feet	\$ 239	\$ 525	\$ 5,491	\$ 6,255	CRPL	
186	WK-30 Waipouli Rd. / Hauiki Rd. 6" Main Replacement (18,419')	Distribution	18,419 Feet	\$ 414	\$ 261	\$ 9,532	\$ 10,207	CRPL	
187	WK-31 Kamalu, Crossley Rds., Polani, Kiinani Pl. 8",6"Main Replacement (4,000')	Distribution	4,000 Feet	\$ 120	\$ 198	\$ 2,760	\$ 3,078	CRPL	
188	WK-32 Kapaa Homesteads 6"Main Replacement (24,773')	Distribution	24,773 Feet	\$ -	\$ 436	\$ -	\$ 436	CRPL	
189	WK-33 Kahuna Road 12' Main Replacement (9500')	Distribution	9,500 Feet	\$ 261	\$ 470	\$ 6,009	\$ 6,740	CRPL	
190	WK-34 Kuamoo Road 8" Main Replacement (6,500')	Distribution	6,500 Feet	\$ 163	\$ 322	\$ 3,738	\$ 4,222	CRPL	

**Table D-3
Capital Facilities Projects - Grouped by System Function**

Project No.	Project Title	System Function	Scope	Costs are in thousands of dollars				Project Type
				Planning & Land Cost	Design Cost	Construction Cost	Total Project Cost	
191 WK-36	Wailua, Kuamoo, Ohana, Anolani Rds., Lehika Ln. 6" Main Replacement (2,000')	Distribution	2,000 Feet	\$ 45	\$ 46	\$ 1,035	\$ 1,126	CRPL
192 WK-41	Kawaihau Road 16" Main Replacement	Distribution		\$ 282	\$ 465	\$ 6,486	\$ 7,233	CRPL
193 WKK-04	Kaohe Road / Kalihiwai Road 6" Main Replacement (4,510') & PRV	Distribution	4,510 Feet	\$ 101	\$ 223	\$ 2,334	\$ 2,659	CRPL
194 WKK-06	Kuhio Hwy. (Pukalani Pl. - Kahiliholo Rd) Main Replacement (9,370')	Distribution	9,370 Feet	\$ 258	\$ 464	\$ 5,927	\$ 6,648	CRPL
195 WKK-07	Kilauea Tanks 1 & 2 - Pukalani Place, 16" Main Replacement (8,050')	Distribution	8,050 Feet	\$ 221	\$ 398	\$ 5,092	\$ 5,711	CRPL
196 WKK-08	Kilauea Road (Pukalani Pl - FH X-76) Main Replacement (4,370')	Distribution	4,370 Feet	\$ 120	\$ 216	\$ 2,764	\$ 3,101	CRPL
197 WKK-09	Kolo Road (Pukalani Place - Hookui Rd) Main Replacement (1,680')	Distribution	1,680 Feet	\$ 46	\$ 83	\$ 1,063	\$ 1,192	CRPL
198 WKK-11	Kapuna Rd (Waipake 562 Tank - Kula School) Main Replacement (1,740')	Distribution	1,740 Feet	\$ 48	\$ 86	\$ 1,101	\$ 1,235	CRPL
199 WKK-12	Kilauea Road (Iwalani lane - Kaupea Road) 6" Main replacement (5,720')	Distribution	5,720 Feet	\$ 129	\$ 283	\$ 2,960	\$ 3,372	CRPL
200 WKK-13	Koolau Road (Kuhio Hwy. - FH X-122) 6" Main replacement (4,880')	Distribution	4,880 Feet	\$ 110	\$ 242	\$ 2,525	\$ 2,877	CRPL
201 H-11	Kuhio Hwy 6" Main Replacement (7,700')	Distribution	7,700 Feet	\$ 173	\$ 381	\$ 3,985	\$ 4,539	
202 WKK-20	Kuhio Hwy 12" Main Replacement (Kolo Road to Koolau Road) (14,000')	Distribution	14,000 Feet	\$ 385	\$ 693	\$ 8,855	\$ 9,933	
203 HW-02	Rehabilitate Wainiha Redwood Tank booster pumps	Boost		\$ 25	\$ 97	\$ 575	\$ 697	CRP
204 K-12	Nursery 1111' Tank Booster Pump Station (2-200 gpm)	Boost		\$ 513	\$ 28	\$ 288	\$ 828	CRP
205 WKK-16	Waipake, Namahana, Kalihiwai Booster Pump Stations - Install PRV	Boost		\$ 6	\$ 14	\$ 144	\$ 164	CRP
206 WK-38	Rehabilitate Puu Pilo Booster Station	Boost		\$ 25	\$ 55	\$ 575	\$ 655	CRPL
207	Subtotal Transmission and Distribution			\$ 17,619	\$ 31,563	\$ 393,735	\$ 442,917	
208								
209	Other Projects							
210 HE-01	Reorganize Water System	Other		\$ 150	\$ 330	\$ 3,450	\$ 3,930	CIP
211 K-01	Kalaheo 1111' & 1222' Water System Improvements (8" Main, Well, 0.5 MG Tank)	Other		\$ 1,250	\$ 550	\$ 5,750	\$ 7,550	CIP
212 PLH-39b	Lihue Baseyard Complex Expansion	Other		\$ 250	\$ 550	\$ 5,750	\$ 6,550	CIP
213 H-01	Maka Ridge Tank to Kuhio Hwy Road improvement	Other		\$ 25	\$ 39	\$ 575	\$ 639	CRP
214 HE-13	Demolish Eleele Tank, 97', 60,000 Gallon	Other		\$ 5	\$ 11	\$ 115	\$ 131	CRP
215 K-16	Abandon Kalaheo Well No. 24	Other		\$ 6	\$ 14	\$ 144	\$ 164	CRP
216 PLH-39a	Lihue Baseyard Complex Improvements - Phase I	Other		\$ 250	\$ 275	\$ 5,750	\$ 6,275	CRP

**Table D-3
Capital Facilities Projects - Grouped by System Function**

Project No.	Project Title	System Function	Scope	Costs are in thousands of dollars				Project Type
				Planning & Land Cost	Design Cost	Construction Cost	Total Project Cost	
217	WK-43 Demolish Kondo Tank, 520'	Other		\$ 6	\$ 14	\$ 144	\$ 164	CRP
218	WKK-05 Rehabilitate Mainline Service Road (Kilauea Tanks - Kahiliholo Rd) (5,130')	Other		\$ 25	\$ 55	\$ 575	\$ 655	CRP
219		Subtotal Other		\$ 1,968	\$ 1,838	\$ 22,253	\$ 26,058	
220		System Total		\$ 37,046	\$ 48,076	\$ 575,527	\$ 663,449	

Appendix E Supplemental Grove Farm Tables

Table E-1.....	Existing Chlorine Contact
Table E-2.....	Additional Chlorine Contact
Table E-3.....	Clearwell Tank
Table E-4.....	Power Loads - Maximum
Table E-5.....	Power Loads - Typical
Table E-6.....	Solar Parameters
Table E-7.....	KIUC Savings

TABLE E-1

County of Kaua'i Department of Water
Needs Assessment Study and Facilities Reserve Charge Update

Grove Farm Water Treatment Facility Assessment
Chlorine Contact Tank Calculations

Existing Chlorine Contact	L	W	D	ID	OD	Flowrate Volume	3.0 MGD		6.4 MGD	
							T (path)	T (vol)	T(path)	T(vol)
Flow Path Dimensions										
Center Well	29	10	18.0	0	20	5654.87	1117 s	1218 s	523 s	571 s
Middle Well	82	8	18.0	20	36	12666.9	2539 s	2728 s	1190 s	1279 s
Outer Well	126	7	18.0	36	50	17021.1	3412 s	3666 s	1599 s	1719 s
Total Time							118 m	127 m	55 m	59 m
If Center Well is Ignored							99 m	107 m	46 m	50 m
CT										
CT_{required} @ pH=7.0, 1-log inactivation							CT_{actual} (ignoring center well), 1-log inactivation,			
							18°C			
							50	53	23	25
							99	107	46	50
							139	149	65	70
							159	171	74	80
							179	192	84	90

TABLE E-2

County of Kaua'i Department of Water
Needs Assessment Study and Facilities Reserve Charge Update

Grove Farm Water Treatment Facility Assessment
Additional Chlorine Contact

Volumetric Capacity Required		
Expanded Max Capacity	12.8	mgd
Residual to be maintained	0.5	mg/l
CT _{required}	20	
Minimum minutes in CCT	40	min
Current CCT Volume	264,365	gal
Min CCT Volume Req'd	353,778	gal
Safety factor	110%	
Min Design CCT Vol	389,156	gal
Additional Tank Volume	124,791	gal

TABLE E-3

County of Kaua'i Department of Water
Needs Assessment Study and Facilities Reserve Charge Update

Grove Farm Water Treatment Facility Assessment
Clearwell Tank

Current % of WTP Capacity Provided		
Plant Design Capacity	3.0	mgd
CCT Low Shutoff depth	4.67	feet
Operating Depth of CCT	13.3	feet
Operating Volume in CCT	195,777	gal
% of WTP Capacity	6.5%	

Expanded Plant Needs		
Plant Firm Capacity	11.2	mgd
New Clearwell Volume	730,901	gal

TABLE E-4

County of Kaua'i Department of Water
Needs Assessment Study and Facilities Reserve Charge Update

Grove Farm Water Treatment Facility Assessment

Power Load - Maximum						
Existing Facility	1200	A	480	V =	576	kW
Enumerated Demands						
Panel 4A	225	A	480	V =	108	kW
Panels 2			75	kVA =	75	kW
motor loads	76	hp		=	57	kW
Zenon MCC	600	A	480	V =	288	kW
Expanded Facility					1281	kW
Existing Panel 4A					108	kW
Existing Panels 2					75	kW
Existing Zenon MCC					288	kW
New / Upgr. Motor Loads	555	hp			414	kW
New Filter MCC					288	kW
New Lighting Loads					108	kW

TABLE E-5

County of Kaua'i Department of Water
Needs Assessment Study and Facilities Reserve Charge Update

Grove Farm Water Treatment Facility Assessment

Power Load - Typical					
Historical Power Demands	kWh	Demand	Total Bill	Dem Chg	Σ \$/kWh
December-09	73528	135.8	\$24,163	\$1,419	0.329
November-09	77972	125.8	\$24,469	\$1,315	0.314
October-09	75777	129.8	\$23,834	\$1,356	0.315
September-09	84018	139.2	\$25,561	\$1,455	0.304
August-09	75346	131.8	\$21,495	\$1,377	0.285
July-09	81810	139.8	\$20,934	\$1,461	0.256
June-09	80598	150.0	\$20,187	\$1,568	0.250
May-09	67064	134.0	\$15,736	\$1,400	0.235
April-09	77972	136.0	\$17,373	\$1,421	0.223
March-09	69892	138.0	\$15,691	\$1,442	0.225
February-09	68478	136.0	\$16,149	\$1,421	0.236
January-09	80194	144.0	\$20,863	\$1,505	0.260
December-08	73124	128.0	\$24,219	\$1,338	0.331
Average (whole year)					0.274
Average (last 4 months)					0.315
Avg less Demand Chg (last 4 months)					0.297

Power Demand per unit of Water Demand			
Current average daily use	2,500	kWh	
Corresponding water produced	2,245	Mgal	
Power consumption rate	1,114	kWh per	/gal
Current average demand factor	1.312		

TABLE E-6

County of Kaua'i Department of Water
Needs Assessment Study and Facilities Reserve Charge Update

Grove Farm Water Treatment Facility Assessment
Solar Parameters

Sizing				
Peak Demand Charge	150			kW
% of Connected Capacity	28%			
Peak day : avg day ratio	1.15			
% of Plant Firm Capacity	93%			
% of Peak Possible	30%	of	528	kW
Max kW for Expansion	390			kW
Safety Factor	0%			
Use	400			kW
Cost				
per RWB estimates	\$5,800	per kW =		\$2,300,000
per County sample	\$8,333	per kW =		\$3,300,000
per Beach Side Solar estimate	\$7,500	per kW =		\$3,000,000
Value used for further calcs				\$3,000,000
Land				
per RWB estimates	500	sf	per kW =	4.6 ac
per County sample	363	sf	per kW =	3.3 ac
per Beach Side Solar estimate	500	sf	per kW =	4.6 ac
Value used for further calcs		sf	per kW =	4.2 ac
Land Cost	\$40,000		per ac =	\$166,881

TABLE E-7

County of Kaua'i Department of Water
Needs Assessment Study and Facilities Reserve Charge Update

Grove Farm Water Treatment Facility Assessment
KIUC Savings

Demand Charges

Current \$10.45 per peak kW

Daily kWh Power Costs (\$000)

		Rate (\$/kWh)									
		.250	.280	.297	.310	.320	.330	.350	.380	.400	
Daily Demand (MGD)	2.0	0.56	0.62	0.66	0.69	0.71	0.74	0.78	0.85	0.89	
	3.0	0.84	0.94	0.99	1.04	1.07	1.10	1.17	1.27	1.34	
	4.0	1.11	1.25	1.32	1.38	1.43	1.47	1.56	1.69	1.78	
	6.0	1.67	1.87	1.99	2.07	2.14	2.21	2.34	2.54	2.67	
	8.0	2.23	2.49	2.65	2.76	2.85	2.94	3.12	3.39	3.56	
	10.0	2.78	3.12	3.31	3.45	3.56	3.68	3.90	4.23	4.46	
	11.2	3.12	3.49	3.71	3.87	3.99	4.12	4.37	4.74	4.99	

Hours of PV output 6.0 or 25%

Daily Savings (\$000)

		Rate (\$/kWh)									
		.250	.280	.297	.310	.320	.330	.350	.380	.400	
	0.60	0.67	0.71	0.74	0.77	0.79	0.84	0.91	0.96		

Payback Period (years)

		Rate (\$/kWh)									
		.250	.280	.297	.310	.320	.330	.350	.380	.400	
	14	13	12	12	11	11	10	10	9		

DEPARTMENT OF WATER

County of Kaua'i

"Water has no Substitute – Conserve It!"

Administrative rule material to be repealed is bracketed. New material is underscored. Deleted material is stricken through. In printing this rule amendment, the brackets, bracketed material, underscoring, strikes need not be included.

SECTION VII - FACILITIES RESERVE CHARGE WATER SYSTEM DEVELOPMENT FEE

~~1. The water system facilities reserve charge shall be assessed against all new developments and subdivisions requiring supply of water from the County of Kauai, Department of Water, and existing developments requiring additional supply of water from the Department's system. The facilities reserve charge must be paid before water services are made available to the new or existing development.~~

1. The Water System Development Fees will be raised or lowered each year according to the percentage increase or decrease in the Engineering News Record Construction Cost Index increase over previous year index held as the base. This shall not increase more than four percent average per year.

~~2. The water system facilities reserve charge shall be paid by all applicants for water service, including but not limited to the following:~~

2. The Water System Development Fee shall be determined by the following schedule:

a. ~~All irrigation services and/or meters.~~

b. ~~Additional buildings to be connected to existing services where additional demands or supplies are indicated. The charges shall be based on the meter sizes required if the buildings were metered separately.~~

c. ~~Additional units connected to existing services and meters under the categories of single family and multi-family residential units. The charges will be based on the established schedule of charges for the respective categories.~~

	\$ per Fixture Unit	\$ per gallon	\$ per 5/8" meter	PERCENTAGE
SOURCE	\$104.70	\$4.15	\$3126.10	19%
STORAGE	\$201.50	\$8.25	\$6225.25	35%
TRANSMISSION	\$271.30	\$10.90	\$8138.65	46%
Credit Applied	\$(0.00)	\$(0.00)	\$(0)	
TOTAL	\$583	\$23.30	\$17490	100%

~~3. The water system facilities reserve charges shall apply to all applicants for water service as follows:~~

- a. ~~For each parcel created by subdivision, including the first lot created; and for every new single family residential dwelling unit not yet metered and a facilities reserve charge has not yet been paid, the charge shall be \$4,600.00.~~
- b. ~~For each unit or hotel room in a multi-family residential development and/or resort development, which applies to each unit or hotel room, the charge shall be \$4,600.00.~~
- e. ~~For all other uses, the facilities reserve charge shall be determined by the size of the meter as follows:~~

<u>Meter Size</u>	<u>Amount</u>
5/8"	\$ 4,600.00
3/4"	\$ 14,300.00
1"	\$ 26,400.00
1 1/2"	\$ 53,200.00
2"	\$ 90,700.00
3"	\$ 170,000.00
4"	\$ 283,400.00
6"	\$ 566,800.00
8"	\$ 907,000.00

- 3. For meter sizes up to two inch the water system development fee will increase according to the AWWA Standard C-700-95 for Cold Water Meters-Displacement type, Bronze Main Case Recommended Maximum Rate for Continuous operations gpm flow rate ratio of larger sizes to the 5/8" meter which is as follows:

<u>SIZE</u>	<u>GPM</u>	<u>Ratio to 5/8"</u>
<u>5/8 "</u>	<u>10</u>	<u>1</u>
<u>3 / 4"</u>	<u>15</u>	<u>1.5</u>
<u>1"</u>	<u>25</u>	<u>2.5</u>
<u>1 1/2"</u>	<u>50</u>	<u>5</u>
<u>2"</u>	<u>80</u>	<u>8</u>

Should the Department use meters different than the Badger meters currently used this same methodology will be used for the meter approved by the Department.

~~Meter sizes shall be determined by the Department and not by the Developer or Applicant. The facilities reserve charge for multi-family and/or resort development will be determined by the approved meter size or the number of units, whichever number is larger. Facilities reserve charges are periodically adjusted by the Department. These adjustments may increase or decrease existing facilities reserve charge amounts. Where adjustments to facilities reserve charges result in decreases of such charges, no refund will be made of the difference between the higher, pre-existing charges and the lower, adjusted charges.~~

- 4. ~~FRC Offsets.~~

a. ~~Definitions and construction of words. As used in this paragraph 4, the following definitions shall apply:~~

~~“Applicant” means any person, individual, corporation, partnership, business, organization, association, or other entity whatsoever that applies for water service from the Department.~~

~~“Consumer” has the meaning ascribed to it under Section I of Part 2 of the Department’s Rules and Regulations.~~

~~“FRC” means the facilities reserve charges described in section VII of Part 4 and Section III of Part 3 of the Department’s rules.~~

~~“Offset” means reduced or reduction.~~

~~“Subdivider” has the meaning ascribed to it under section I of Part 3 of the Department’s Rules and Regulations.~~

~~“Subdivision” has the meaning ascribed to it under section I of Part 3 of the Department’s Rules and Regulations.~~

~~“Water transmission main” or “main” means a main extension under Paragraph 2.d [2.a.(4)] of Section II of Part 2 of the Department’s Rules and Regulations.~~

~~As used in this Paragraph 4, the following rules of construction shall apply:~~

~~Number. Words in the singular or plural number signify both the singular and plural number.~~

~~“Or”, “and”. Each of the terms “or” and “and”, has the meaning of the other or of both.~~

b. ~~When an applicant, consumer, or subdivider is required to construct and dedicate water source or water storage facilities, or water transmission mains, to the Department, the following rules shall apply.~~

~~Subject to the provisions of this paragraph 4, the applicable FRC liability of such applicants, consumers, or subdividers shall be offset by up to 33% each where water source or water storage improvements are constructed, and up to 50% where water transmission mains are constructed; provided that the total amount of all offsets that an applicant, consumer, or subdivider receives shall not exceed 100% of the applicant’s, consumer’s, or subdivider’s FRC liability, and provided further that the offset for any source or storage improvement or transmission main shall not exceed the actual cost of the source or storage improvement or transmission main.~~

~~The Department, and not the applicant, consumer, or subdivider, shall calculate and determine the total amount of an applicant's, consumers, or subdivider's FRC offset in any given case. The Department may require the applicant, consumer, or subdivider to submit documentation verifying the actual cost of a source or storage improvement or transmission main.~~

- e. ~~The offsets described in this Paragraph 4 "FRC Offsets" shall not apply to water transmission mains constructed by a subdivider, applicant or consumer which are within or adjacent to a subdivision or lands either 1) owned by the applicant or consumer, or 2) developed by the applicant or consumer for uses such as, but not limited to, residential, agricultural, commercial, resort, industrial, governmental, religious, or educational uses. Where water transmission mains are constructed within, adjacent to, or outside of such subdivisions or lands, the offsets shall apply only to mains constructed outside of and off-site from such subdivisions or lands."~~

4. Private Fire lines shall pay a Water System Development Fee for the portion of the fee related to storage and transmission cost only for the number of gallons of fire flow needed times 0.01 for residential fire flow and 0.025 for commercial detector check installations.

The administrative charge for review of Water Requests is \$2 per fixture unit as defined by the Uniform Plumbing Code latest edition. This same definition for fixture unit will be used for the schedule above as adjusted by Department staff for low flow devices which are built as part of the structure and are not easily changed to high flow devices.

Amended Version:

SECTION VII - WATER SYSTEM DEVELOPMENT FEE

1. The Water System Development Fees will be raised or lowered each year according to the percentage increase or decrease in the Engineering News Record Construction Cost Index increase over previous year index held as the base. This shall not increase more than four percent average per year.
2. The Water System Development Fee shall be determined by the following Schedule:

	\$ per Fixture Unit	\$ per gallon	\$ per 5/8" meter	PERCENTAGE
SOURCE	\$104.70	\$4.15	\$3126.10	19%
STORAGE	\$201.50	\$8.25	\$6225.25	35%
TRANSMISSION	\$271.30	\$10.90	\$8138.65	46%
TOTAL	\$583	\$ 23.30	\$17490	100%

3. For meter sizes up to two inch the water system development fee will increase according to the AWWA Standard C-700-95 for Cold Water Meters-Displacement type, Bronze Main Case Recommended Maximum Rate for Continuous operations gpm flow rate ratio of larger sizes to the 5/8" meter which is as follows:

SIZE	GPM	Ratio to 5/8"
5/8 "	10	1
3 / 4"	15	1.5
1"	25	2.5
1 1/2"	50	5
2"	80	8

Should the Department use meters different than the Badger meters currently used this same methodology will be used for the meter approved by the Department.

4. Private Fire lines shall pay a Water System Development Fee for the portion of the fee related to storage and transmission cost only for the number of gallons of fire flow needed times 0.01 for residential fire flow and 0.025 for commercial detector check installations.

The administrative charge for review of Water Requests is \$2 per fixture unit as defined by the Uniform Plumbing Code latest edition. This same definition for fixture unit will be used for the schedule above as adjusted by Department staff for low flow devices which are built as part of the structure and are not easily changed to high flow devices.