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COUNTY OF MAUI

BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Petition of

LANA'I RESORT PARTNERS

To consider further matters related to an Order To Show Cause as to whether certain land located at Manele, Lana'i, should revert to its former Agricultural and/or Rural land use classification due to Petitioner's failure to comply with Condition No. 10 of the Land Use Commission's Findings of Fact, Conclusions of Law, and Decision and Order filed April 16, 1991, Tax Map Key No. 4-9-002:049 (por.), formerly Tax Map Key No. 4-9-002:001 (por.)

DOCKET NO.: A89-649

RESPONDENT COUNTY OF MAUI'S
LIST OF EXHIBITS; EXHIBITS "1" - "6";
CERTIFICATE OF SERVICE

RESPONDENT COUNTY OF MAUI'S LIST OF EXHIBITS

LAND USE COMMISSION

DOCKET NO./PETITIONER: A89-0649

PARTY: County of Maui

LIST OF EXHIBITS

EXHIBIT NUMBER	DESCRIPTION	PARTY: OBJECTIONS	ADMIT
1	Resume for William Spence, Director of Planning		
2	Testimony of the Maui Planning Department		
3	Lana'i Water Use and Development Plan (LWUDP)		
4	Relevant sections of the Maui County Code		
5	Portion of the Lana'i Community Plan: Relating to water issues on Lana'i		
6	Findings of Fact, Conclusions of Law, and Decision and Order granting approval for a Reverse Osmosis Desalination Facility and Distribution System on Lana'i		

DATED: Wailuku, Hawaii, OCT 10 2016, 2016.



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William Spence, Planning Director
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Planning Director, January 2011 to Present

As Planning Director, I am the chief planning officer for Maui County and am the technical advisor to the mayor, council, and planning commissions on all planning related matters.

The Planning Director has the authority to prepare, administer, and propose amendments to zoning ordinances and maps, and to enforce the same. The Director also proposes revisions to the general and community plans.

I am the administrative head of the Planning Department, which is comprised of 65 employees in four divisions: Long Range, Current, Plan Implementation, and Zoning and Enforcement. I am responsible to staff the Maui, Molokai, and Lanai planning commissions, the Cultural Resources Commission, Urban Design Review Board, Maui Redevelopment Agency, and the Hana Advisory Committee. My office also regularly attends and advises two council committees, Land Use and Planning. Other committees are staffed on request.

The William Spence Company, 2002 to December 2010.

As an independent consultant, I primarily worked with private landowners to obtain discretionary approvals or legislative actions. The applications that I wrote and processed varied widely in complexity, from basic Special Management Area assessments, to compound approvals for multi-million dollar facilities or housing projects. I worked closely with other professionals such as attorneys, engineers, or architects, as well as multiple government agencies.

Maui Planning Department, Senior Staff Planner, 1992 to 2002.

As a staff planner, I was responsible for a number of multi-year, regional projects that resulted in legislation being passed. These include community plan updates, mass rezoning to implement the plans. All of the projects required independent research and analysis using socio-economic or other data, mapping, and other sources of information. All of them involved multiple presentations and hearings before public-interest groups, citizen committees, planning commissions, and the Maui County Council.

I was also responsible for virtually every type of discretionary permit or legislative action within the Maui Planning Department, including SMA permits, Land Use Commission and County special permits, Conditional Permits, and Changes in Zoning. Two applications involved extensive contested case hearings.

Myra Frank and Associates, Associate Planner, 1990 to 1992, Los Angeles, CA.

As an associate planner, I performed technical environmental analysis for various public works or public facilities as well as regional planning projects. Most of my work involved cumulative and project specific air quality analysis.

Formal Education – Bachelor of Science in Urban and Regional Planning, School of Environmental Design, California State Polytechnic at Pomona, graduated 1990.

Affiliations - American Planning Association (APA) since 1987, former board member of Art Maui, and the Hui Noeau Visual Art Center.

BEFORE THE LAND USE COMMISSION

STATE OF HAWAII

In the Matter of the Petition of:

LANA'I RESORT PARTNERS

To consider an Order to Show Cause as to whether certain land located at Manele, Island of Lana'i, should revert to its former Agricultural and/or Rural land use classification due to the Petitioner's failure to comply with Condition No. 10 of the Land Use Commission's Findings of Fact, Conclusions of Law and Decision and Order filed on April 16, 1991, identified by Tax Map Keys: (2) 4-9-002: 049 (por.), formerly (2) 4-9-002: 001 (por.), Manele, Island of Lana'i, State of Hawai'i

Docket No. A89-649

LANA'I RESORT PARTNERS

TESTIMONY OF THE MAUI PLANNING DEPARTMENT

The County of Maui Department of Planning (hereinafter referred to as "Department") recognizes the importance of both protecting the public's water supply and a healthy economy for the citizens of Lana'i. The Department is also committed to a fair enforcement of regulations pertaining to land use permits. Based on the information available at this time, the Department does not believe that there is sufficient evidence to support returning the subject land back to its former Agricultural and/or Rural land use designation.

I. BACKGROUND

The island of Lana'i is located within the County of Maui. The island is comprised of just over 141 square miles and is the sixth largest of the eight major Hawaiian islands. The island has a population of 3,102 per the 2010 Census residing in 1,158 households. The population was 2,119 during the 1980 Census, 2,426 during the 1990 Census, and 3,193 during the 2000 Census.

Since the late 1800's, the economy of the island has been based almost entirely on a single-sector that has changed over the years, originally consisting of sheep, then cattle, then pineapple and now tourism. Approximately 98 percent of the island is privately owned (by Larry Ellison). Likewise, the island's water system is also privately owned and not under the jurisdiction of the County. The Lanai Water Advisory Committee is the organization that has been charged with the formulation of water policies for the island. The Committee drafted the Lana'i Water Use and Development Plan (LWUDP) which was accepted by the Maui Board of Water Supply in 2011.

According to the LWUDP, Lana'i has five water supply systems, including two public drinking water systems, two reclaimed water systems, and a brackish water system. All are privately operated and owned Pulama Lana'i. The sustainable yield of Lana'i is estimated at 6 million gallons per day (MGD).

Lana'i's water system includes roughly 79 miles of active pipeline, 35 million gallons (MG) of storage (of which approximately 4.8 MG is potable water storage in 8 tanks), and approximately 6.394 MGD in well capacity (of which 5.04 MGD is potable). About 23 well holes exist, but only 7 are in use. The system serves about 1,573 customers. The system is privately owned and not operated or regulated by the County of Maui Department of Water Supply.

The site has adjacent State land use designations of Agriculture and Conservation. The Community Plan designation for the land is PD-1 Project District, which "builds around one of Lanai's most beautiful and easily accessible beaches, Hulopoe Bay, and provides a major employment opportunity to the island through a planned luxury resort". The land is zoned Lanai Project District 1 (Manele), which provides for "golf courses" as a permitted use.

The land subject to this hearing contains the Challenge at Manele Bay golf course and related improvements and is located adjacent to the Manele Bay Hotel, on the south shore of Lanai.

II. PROCEDURE

In 1991, the State Land Use Commission (LUC) issued an Order approving an application from the Petitioners for a District Boundary Amendment for the site from Agriculture/Rural to Urban. The Petitioners or owners of the subject land have changed over time, but will be referred to as Lanai Resort Partners (LRP), who are the current owners, in the remainder of this document.

The 1991 LUC Order contained a number of conditions of approval, including Condition 10 which reads:

"Petitioner shall not utilize the potable water from the high-level groundwater aquifer for golf course irrigation use, and shall instead develop and utilize only alternative non-potable sources of water (e.g. brackish water, reclaimed sewage effluent) for golf course irrigation requirements.

In addition, Petitioner shall comply with the requirements imposed upon the Petitioner by the State Commission on Water Resource Management as outlined in the State Commission on Water Resource Management's Resubmittal - Petition for Designating the Island of Lanai as a Water Management Area, dated March 29, 1990."

Condition 10 has been the subject of litigation over the years, the more significant cases being:

- In 1993, the LUC issued an Order to Show Cause why the land should not be returned to its original land use designation due to LRP's non-compliance with Condition 10;
- In 1996, the LUC issued an Order which found LRP was in violation of Condition 10 and ordered LRP to cease and desist;

- In 1997, the Second Circuit Court reversed the 1996 LUC Order on the ground that the LUC's conclusion was clearly erroneous; and finally
- In 2004, the Hawaii Supreme Court remanded the case back to the LUC for clarification of its findings, or for further hearings if necessary, as to whether LRP used potable water from the high-level aquifer, in violation of Condition 10.
- In 2010, the LUC issued an Order which vacated the 1996 cease and desist order, and granted the petitioner's motion for modification of Condition 10 to clarify the definition of "potable water".

III. DISCUSSION

The Department provides the following responses the issues that will be covered during the hearing. Our response to "a" and "e" are combined as we feel these issues go hand in hand:

- a. Does Lana'i Resorts use potable water from the high-level groundwater aquifer to irrigate the golf course?
- e. What is the definition of "potable"?

After reviewing the documents and minutes associated with the original approval, there are multiple references to "brackish" water and the Petitioner's intent to use brackish water for golf course irrigation. There is also testimony that developing alternative sources of water for golf course irrigation would only take 1 year, and the Petitioner did not see the need to blend potable water with brackish water to lower salinity levels.

Based on the discussion, testimony, and information provided during the original approval process it appears that the LUC may have intended "potable" water to be non-brackish water. Condition No. 10 itself supports this premise as the LUC provided examples of "non-potable" water including "brackish water, reclaimed sewage effluent". However, there is no clear definition, such as a specific amount of chlorides, provided or mentioned, or other criteria that would indicate precisely what the Commission meant by "potable".

Given the lack of clarity in what the LUC meant by "potable", the Department feels there is no ground at this time to conclude that Lana'i Resorts LLC (LR) is in non-compliance with Condition 10. The Department is not able to enforce a condition that is not clearly defined. Therefore, we cannot support finding a violation or reverting the subject land to its former Agricultural/Rural land use designation.

- b. Is any source of irrigation water for the golf course within the high-level groundwater aquifer?

The Department feels that this issue is more appropriately addressed by LR.

- c. Is that water "potable" or not?

This issue depends on the how "potable" is defined.

- d. Does leakage of potable water to the wells in the Palawai Basin constitute "use" of potable water?

The Department feels that leakage of potable water to the wells in the Palawai Basin does not constitute the "use" of potable water. Even if this has occurred as a direct result of pumping of non-potable water, Condition 10 only restricts LR from using potable water for irrigation of the golf course. Condition 10 could have been worded to prohibit the use of any potable water that seeps into the irrigation wells or to prohibit the indirect use of potable water; but the condition was not so worded. We feel it is a stretch to say that the mere movement of potable water is the same as "utilizing" potable water from a pump.

Along with the 2004 remand to the LUC, the Hawaii Supreme Court also ruled that Condition 10 restricted the use of potable water from the high-level groundwater aquifer, but did not prohibit the use of non-potable water.

The issue has been raised as to the interpretation of the rather vaguely worded phrase "only alternative non-potable sources of water" found in Condition 10. The Department does not believe that it is reasonable to interpret this phrase as "alternative to the high-level aquifer". The Hawaii Supreme Court did not simply remand the case to the LUC for clarification of its findings. The Court took the extra effort to rule that Condition 10 allowed the use of non-potable water from the aquifer. The interpretation as "alternative to the high-level aquifer" is contradictory to the Court's ruling that allows the use of water from the aquifer so long as it is non-potable. In light of the Court's ruling, the Department believes the only available interpretation of this clause is "alternative to potable water". Admittedly, this interpretation makes Condition 10 redundant, but consistent with the Court's ruling.

Based on this standard, the Department cannot find a violation of Condition 10. While the irrigation water could be diluted to reduce chloride levels to an acceptable level, this could be true for any water. Under such a scenario, the inclusion of "potable" in Condition 10 would be meaningless.

The Department believes that when the Supreme Court ruled that the taking of non-potable water from the high-level aquifer was allowed under Condition 10, it rendered moot several issues that have been raised, namely: where the high-level aquifer is located, whether wells 1 and 9 are within the aquifer and whether the LUC intended to prohibit the use of any water from the aquifer. Locations and intentions become immaterial in light of the Court's ruling that non-potable water could be taken from the high-level aquifer. The Court did not qualify their ruling in regard to location or intention.

Thus, the issue of compliance with Condition 10 has now been distilled down to whether the water used for the golf course irrigation is "potable", and what exactly is considered "potable"?

Having said this, the Department feels there are several issues that need to be addressed in this docket.

IV. RECOMMENDATIONS

The County of Maui has an adopted standard regarding what is "potable water". According to the Maui County Code §14.01.010, "Potable water" means water that has been certified by the department of health as suitable for cooking or drinking purposes. This standard is in line with Federal Safe Drinking Water requirements. The Department recommends that the LUC rely on this County standard in determining compliance with Condition 10. Using a clear

standard would provide for clear interpretation of Condition 10, which as written is rather opaque. The lack of clarity in Condition 10 has led to, and will continue to lead to various interpretations and contests. A clear standard in regard to Condition 10 would allow regulating authorities to have a distinct means to determine if the condition is being complied with, and allow appropriate enforcement action if necessary.

Non-compliance with Condition 10 could result in the land being reverted back to its Agricultural/Rural designation. The impacts of closing the golf course to a community where tourism is the major economic force would be tremendous and should not be ordered without substantial evidence that the LR is in violation of Condition 10.

The Department believes that the issue of compliance with Condition 10 is actually one portion of the larger issue of the overall water use and availability on Lanāi. Accordingly, the issue of irrigation water and impacts to the high-level aquifer should be considered within a comprehensive analysis of projected water supply and projected water demand for the island. Input from the citizens of Lanāi is necessary in determining something as values-based as "projected water demand". A community's vision is critical in projecting any future growth for that community. A comprehensive planning process that affords sufficient time for agency analysis and public input is the most appropriate methodology to arrive upon a solution regarding the water allocation on Lanāi.

Such a plan has been drafted by the Lanāi Water Advisory Committee. As mentioned previously, the Committee drafted the Lana'i Water Use and Development Plan (LWUDP) which was accepted by the Maui Board of Water Supply in 2011. The LWUDP predicts that the development proposed for Lana'i is, "ambitious, with total build-out of Project Districts plus other known projects likely to meet or exceed sustainable yields." The LWUDP proposes watershed protection measures, water resource protection measures, water conservation measures, new supply resource development, and ensuring sufficient water resources and infrastructure are available prior to approving land use entitlements.

With respect to developing new water supply resources, Pulama Lana'i obtained approval for a reverse osmosis desalination plant on July 16, 2014. The proposed plant is capable of providing up to 2.5 MGD. The LWUDP estimates the sustainable yield of Lana'i at 6 MGD, therefore the amount of water the desalination plant would provide is a substantial increase in the overall water supply of Lana'i. However, it is worth noting that Lana'i Planning Commission limited the approval to a 15 year time limit while the applicant sought 30 years. In addition, a condition restricting the use of the high level aquifer for the Manele Project District once the desalination plant is operational with the exception of emergencies was also placed on the project. These conditions may affect the feasibility of the desalination plant.

The LUDWP also points out the amount of unaccounted water on Lana'i due to leaks and deteriorated pipelines. Unaccounted water is the difference between what is pumped and metered consumption. It is estimated that 28% of the water pumped is unaccounted for. The percentage is highest for the Manele-Hulopo'e, Palawai Irrigation Grid, where the amount of water unaccounted for is approximately 44.61%.

If the desalination plant is constructed and water conservation measures in the form of repairing deteriorating or leaking supply pipes is implemented, these two actions alone could potentially make a substantial difference in the water issues on Lana'i.

Water issues are also addressed in the Lana'i Community Plan (LCP) which was recently amended and approved on July 26, 2016. The LCP proposes the continuation of planning, exploration, testing, and development of alternative water resources, such as a desalination plant. The LCP also proposes to prohibit the use of high-level aquifer water for golf course irrigation purposes. The LCP states that, "Producing potable water through desalination would greatly decrease the potential of overpumping the aquifer. Increased production of potable water for human consumption means there could be adequate water supply for the re-introduction of agricultural operations. Potable water can be saved by using brackish and treated water for the irrigation of the golf courses and resort landscaping."

The LCP goes on further to say that the Lana'i Community Plan Advisory Committee (CPAC) predicated its decisions on the availability of significant additional water sources for future development proposals. The Lana'i CPAC also prioritized the expansion of water sources in its desired sequence of future development.

Thus, while the water situation on Lanai clearly merits attention, there is no evidence to suggest that the situation is dire, or that irreparable harm to the water system is imminent. It has been argued that due to the composition of the aquifer, there may be little if any warning preceding irreparable harm to the aquifer. While this may be true to some extent, it shouldn't be the basis to determine non-compliance with Condition 10, but instead should be taken into account when the water policies for the island are formulated.

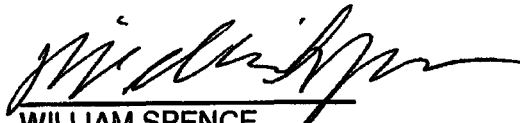
In addition, Pulama Lana'i has planned for, sought, and obtained approval for a desalination plant that can provide 2.5 MGD to an island with a sustainable yield estimated at 6 MGD. This is over a 40% increase in the amount of water currently available on island. Whether the desalination plant is constructed is yet to be seen, however thus far, it is clear that efforts are being made to increase the supply of water on Lana'i.

CONCLUSION

The Maui County Planning Department recommends the State Land Use Commission issue findings based on County standards regarding the definition of "potable water", in determining compliance with Condition 10.

DATED: Wailuku, Hawaii, AUGUST 11, 2016.

Approved:



WILLIAM SPENCE
Director of Planning
Maui Planning Department

CERTIFICATE OF SERVICE

I hereby certify that a copy of the Planning Department's Testimony was served on the following as indicated below:

DANIEL E. ORODENKER Executive Director Land Use Commission P.O. Box 2359 Honolulu, Hawaii 96804	Mail (original and 15 copies)
BENJAMIN A. KUDO, ESQ. CONNIE C. CHOW, ESQ. Attorneys for Petitioner Ashford & Wriston LLP 999 Bishop Street, Suite 1400 Honolulu, Hawaii 96813	Mail
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DATED: Wailuku, Hawaii, AUGUST 11, 2016.

A handwritten signature in black ink, appearing to read 'William Spence', written over a horizontal line.

WILLIAM SPENCE
Planning Director
Maui Planning Department

February 25, 2011 DWS Amended Draft

**LANA'I
ISLAND
WATER USE &
DEVELOPMENT
PLAN**

Submitted by the Department of Water Supply

Maui County Water Use & Development Plan - Lana'i Island

Exhibit "3"

Members of the Lana'i Water Advisory Committee:

Reynold "Butch" Gima

John Irons

Sol Kaho'ohalahala

Ron McOmer

John Ornellas

Ed Oyama

Clay Rumbaoa

Ricky Sanches

John Stubbart

Julio Russi - Alternate at Large Member

Sally Kaye - Recent Past Chair of the Lana'i Planning Commission

Charley Ice - Ex Officio Representative for CWRM

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Supporting Documentation

- Chapter 1 - Introduction
- Chapter 2 - Regulatory Framework
- Chapter 3 - Existing Resources and Systems
- Chapter 4 - Demand Analysis
- Chapter 5 - Supply Options
- Chapter 6 - Watershed Protection
- Chapter 7 - Policy Issues
- Chapter 8 - Implementation Matrix

Appendices

- Appendix A - Final Report of the Lana'i Water Working Group - 1997
- Appendix B - Water Conditions of Project Approvals
- Appendix C - Documentation of the Public Process
- Appendix D - Lana'i Species
- Appendix E - Conservation - Preliminary Draft Ordinance
- Appendix F - Wellhead Protection - Draft Ordinance
- Appendix G - Resolution Establishing Lana'i Water Advisory Committee
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- Appendix I - Saving Water in the Yard
- Appendix J - Consistency with the 1998 Community Plan
- Appendix K - Presentation Made at Public Fence Meeting - April 11, 2000

Acronyms and Abbreviations

The following acronyms and abbreviations are used throughout this document in various text and tables, and are provided here for the convenience of the reader.

AG	Agriculture, Agricultural Uses of Water
CCR	Castle & Cooke Resorts, LLC.
CFR	Code of Federal Regulations
COMM	Commercial, Commercial Uses of Water
CWRM	State of Hawai'i Commission on Water Resource Management
DBPR	Disinfection By-Products Rule
DEVEL	Development, Use of Water for Development
DOH	State of Hawai'i Department of Health
DWS	County of Maui, Department of Water Supply
EPA	United States Environmental Protection Agency
GOV	Government, Use of Water for Government
GPD	Gallons Per Day
GPM	Gallons Per Minute
GWUDI	Ground Water Under the Direct Influence of Surface Water
HAR	Hawai'i Administrative Rules
HOT	Hotel, Use of Water for Hotel(s)
HRS	Hawai'i Revised Statutes
IGGP	Irrigation Grid in Palawai, Palawai Area
IND	Industry, Industrial Uses of Water (mainly combined into Comm for Lana'i)
IRR-AG	Agricultural Irrigation
IRR-DEV	Outdoor Uses of Water for Development, Dust Control, Irrigation, Etc.
IRR-GEN	Irrigation Uses Other Than Those Specifically Listed

Acronyms and Abbreviations

IRR-GOLF	Irrigation for Golf
IRR-HOT	Irrigation for Hotel Grounds
IRR-MF	Irrigation of Grounds & Common Areas in Multi-Family Developments
IRR-SF	Irrigation Use By Single Family Homes
LHI	Lana'i Holdings, Inc.
LSG	Lana'ians for Sensible Growth
LWAC	Lana'i Water Advisory Committee
LWCI	Lana'i Water Company, Inc.
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MGD	Million Gallons Per Day
MNPD	Manele Project District, Manele-Hulopo'e Area
MRDL	Maximum Residual Disinfectant Level
NNP	Not Necessarily Potable
NP	Non-Potable
NPV	Net Present Value
NPDWS	National Primary Drinking Water Standards
P	Potable (used in some tables where there is insufficient space to write POT)
PD	Project District
PER	Percussion Drilled
POT	Potable
PQP	Public Quasi-Public
PUC	Public Utilities Commission
RES-MF	Multi-Family Residential
RES-SF	Single-Family Residential
ROT	Rotary Drilled
SDWA	Safe Drinking Water Act
SHF	Shaft
TUN	Tunnel
UAFW	Unaccounted-for Water
WHPA	Wellhead Protection Area

Summary

Lana'i faces some daunting challenges in preparing for its water future. The sustainable yield of the island is small. Recharge is highly dependent on its forested watershed. The watershed itself is mesic and rather low elevation for a cloud forest, making it susceptible to rising inversion layers, climatic change, and fires as well as invasive species. That watershed has been in decline for decades as this report is written. Development programs are ambitious, with total build-out of Project Districts plus other known projects likely to meet or exceed sustainable yields. Unaccounted-for water is high. Much of the pipe on the island, particularly in the Palawai Grid, is old, leaking and in need of replacement. While this represents a conservation opportunity, the rate and fee structure of the Lana'i Water Company is not sufficient to enable the necessary replacements. Per-unit consumption rates are also high, both in Manele and Koele.

FIGURE 7-1. Sustainable Yields of Hawaiian Islands

Island	1990 WRPP Sustainable Yield MGD	2007 Draft WRPP Update Sustainable Yield MGD	June 2008 Final WRPP Sustainable Yield MGD
Hawaii	2,431	2,175	2,410
Kauai	388	306	310
Lana'i	6	6	6
Maui	476	386	427
Molokai	81 / 38 Dev	71	79
Oahu	446	419	407

Lana'i also faces several regulatory challenges. The Commission of Water Resource Management (CWRM) decided in January 1990 to authorize the Chairperson to reinstitute water management area proceedings if the static water level of any production well should fall below one half its original level above sea level. It granted the same authorization should any source of supply in the Company's plans fail to materialize but full land development continues. In March of 1991, another trigger was set, to reinstitute designation proceedings should total pumpage exceed 4.3 MGD. Even without these triggers, the State may initiate designation proceedings when the withdrawal from any aquifer reaches 90% of its sustainable yield, which in the case of Lana'i's aquifer systems would be 2.7 MGD each in the Windward and Leeward systems of the island's Central Aquifer sector.

In response to such challenges, a resource development strategy is identified that includes sufficient conservation and new supply resources to meet expected water demand for the 2030 planning horizon. Conservation opportunities are identified to help bring per-unit consumption and unaccounted-for water rates down. Roughly 485,000 GPD in reasonably achievable conservation opportunity has been identified. New supply resources are identified that, in conjunction with the identified conservation measures can meet water demands resulting from build-out of projects with existing entitlements, staying within groundwater pumping sustainable yield limits.

If conservation and leak reduction targets are achieved, this strategy would result in pumpage between 3.3 MGD and 3.66 MGD in the year 2030 assuming expected levels of water demand and build-out of projects with existing entitlements. Without implementation of the identified conservation measures, pumpage could exceed the 4.3 MGD trigger for proceedings by the State Commission on Water Resource Management (CWRM) to designate Lana'i as a groundwater management area. Measures for watershed protection and source protection are identified, as well as recommendations for changes to monitoring and data management.

Planning Process

Planning Process

Regulatory Framework

The Water Use & Development Plan (WUDP) for Lana'i is undertaken to meet the requirements of HRS §174(C)-31, HAR §13-7-170 and Maui County Code §2.88 A. Water Use & Development Plans under these provisions are required to:

- Be consistent with the State Water Resources Protection Plan; State Water Quality Plan, State Water Projects Plan, State Agricultural Projects Plan, State District Land Use Classifications and County General & Community Plans
- Provide an inventory existing water sources and uses
- Discuss existing and future land uses and related water needs
- Set forth a program by which water needs will be met
- Allocate water to land uses
- Discuss resource impacts of proposed capital and other plans
- Incorporate public involvement
- Consider multiple forecasts
- Consider a twenty year time frame for planning analysis
- Include specific suggestions for implementation

Chapter 2 of the Supporting Documentation provides a detailed discussion of the regulatory framework applicable to the WUDP and water resources more generally.

History

In 1990 each county in the State of Hawaii prepared and adopted its initial WUDP. These WUDP's were incorporated by CWRM into the Hawaii State Water Plan. Each county prepared a 1992 draft update to the 1990 WUDP's but none were approved by the CWRM. The most recent adopted WUDP for the Island of Lana'i is part of the Maui County WUDP adopted in 1990.

Resolving a petition filed in 1989, the CWRM in 1990 decided not to designate any of Lana'i's aquifers as groundwater management areas. In lieu of designation the CWRM required ongoing monitoring, preparation of a water shortage plan and

annual information status hearings. The CWRM also set conditions that would trigger reconsideration of groundwater management area designation.

In 1993 the Maui County Council established a nine-member Lana'i Water Subcommittee. The Council re-established the sub-committee with amended membership in 1995.

In 1996 the CWRM established a Lana'i Water Working Group as a successor to the County subcommittee. The Working Group met regularly and drafted the *Final Report of the Lana'i Water Working Group* which it adopted in 1997. This document is included as Appendix A.

The Lana'i Water Working Group continued to meet under the unofficial auspices of the Maui Board of Water Supply (BWS) until it was formally reconstituted by resolution by the BWS as the Lana'i Water Advisory Committee (LWAC). The purpose of the LWAC is to "provide public input and involvement during the development of the Lana'i WUDP and to monitor the Lana'i WUDP implementation."

The CWRM adopted a "Statewide Framework for Updating the Hawaii Water Plan" in February 2000. This document serves as a guideline to the state and county agencies to prepare each of the components of the Hawaii Water Plan. Since preparation of Lana'i's WUDP update was already underway when the CWRM Framework was adopted, it was agreed by the County and CWRM that the specific requirements of the new Framework would not necessarily apply to the Lana'i WUDP.

After extensive involvement and review by the LWAC, a draft Lana'i WUDP, dated June 28, 2010 was submitted by the Maui Department of Water Supply (DWS) to the BWS for public hearings and recommendations. The BWS held public hearings on the Island of Lana'i and, after deliberations, approved its recommendations transmitted to the Maui DWS on December 23, 2010. The BWS "accepted" the draft Lana'i WUDP but with several recommendations.

In February 2011, the DWS amended the June 28, 2010 draft Lana'i WUPD in response to the recommendations by the BWS. Both the June 28, 2010 draft and the amended February 25, 2011 draft (this draft) are being transmitted to the Maui County Council for review.

Detailed documentation of the Lana'i water planning process is provided in Appendix C.

Existing Resources and Systems

Existing Resources and Systems

Lana'i's existing water resources and systems are identified and discussed in detail in the Supporting Documentation Chapter 3.

The sustainable yield of Lana'i is estimated at 6 MGD. Virtually all of this is located in the Central aquifer sector which is divided into two aquifer systems with 3 MGD each. Total withdrawals in 2008 were about 2.2 MGD, with 1.9 MGD from the Leeward Aquifer System, and 0.33 MGD from the Windward Aquifer System. Withdrawals came primarily from six wells, with the exception of about 2,000 GPD.

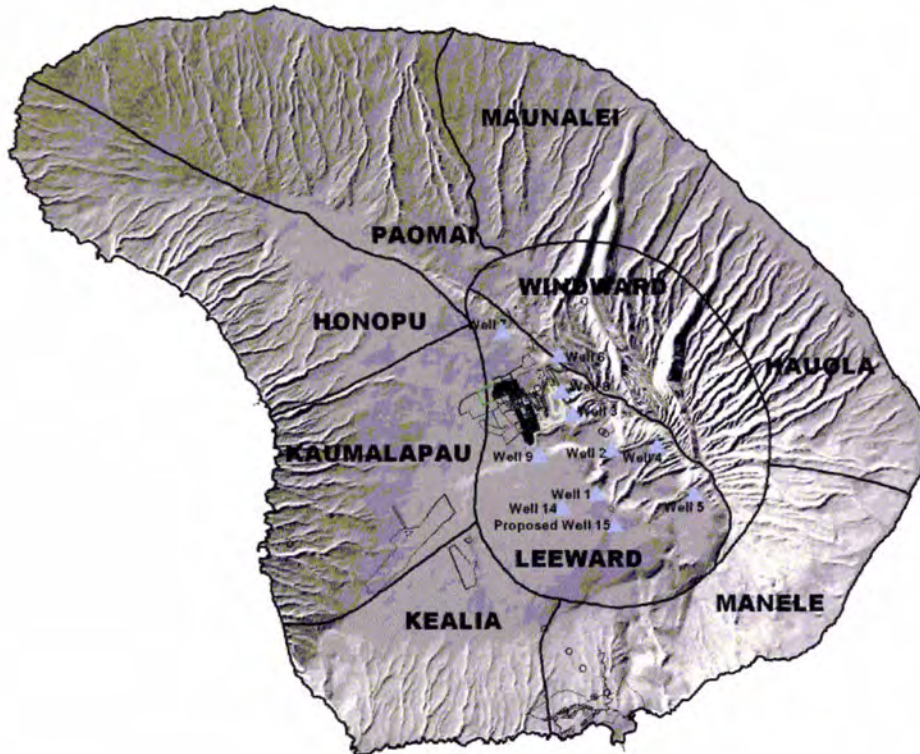


FIGURE 1-2. Lana'i Aquifers and Wells

The island has no major surface water sources. Taro lo'i are found in Maunalei gulch. Lana'i has 13 ahupua'a in which 110 kuleana claims were made, and 56 awarded.

Fog drip from Lana'ihale is unusually important on Lana'i. The State Commission on Water Resource Management has estimated that the loss of fog drip from the watershed could cause water levels in the key recharge area to drop by half. Groundwater recharge in the primary aquifer is also closely tied to survival of the watershed forest, and would be diminished by its loss. Precipitation on Lana'ihale summit averages 35"-40" per year, unusually low for a Hawaiian Cloud Forest. This is because Lana'i lies in the rain-shadow of Maui and Molokai.

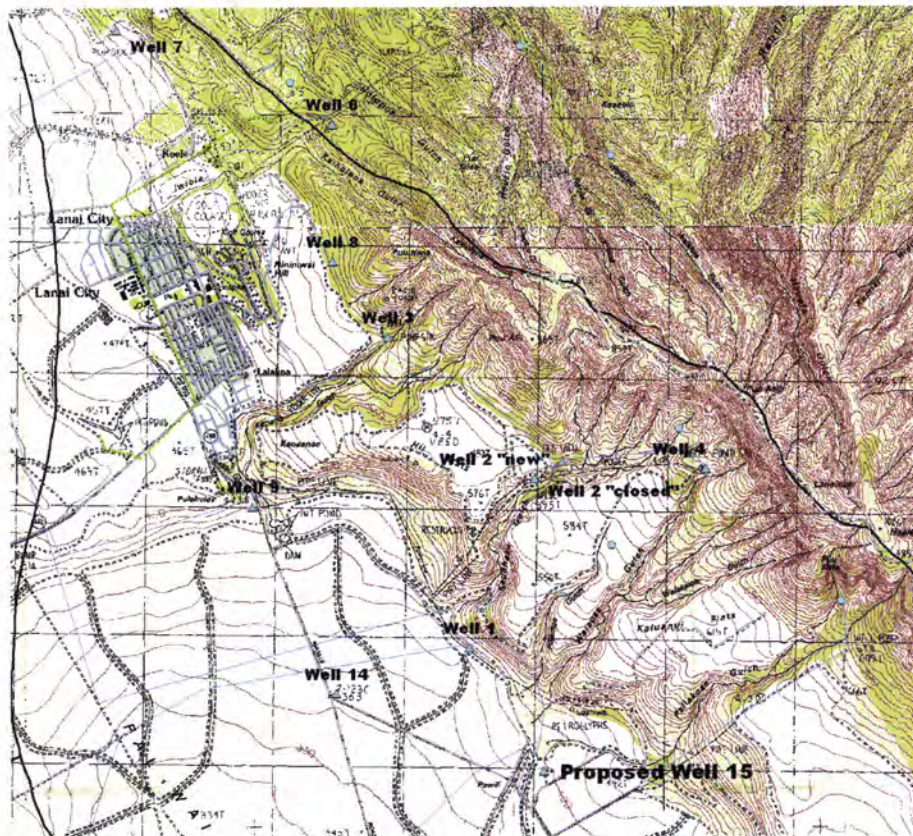


FIGURE 1-3. Lana'i Wells

Lana'i has five water supply systems, including two public drinking water systems, two reclaimed water systems, and a brackish water system. All are owned

Existing Resources and Systems

and operated by wholly owned subsidiaries of Castle & Cooke Resorts, LLC (CCR).

Lana'i's water systems include roughly 79 miles of active pipeline, 35 MG of storage (of which about 4.8 is potable water storage in eight tanks), and about 6.394 MGD in installed well capacity (of which 5.04 MGD is potable). About 23 well holes exist, but only 7 are in use, with one of those in use at a tiny rate of only about 2,000 GPD in 2008. The systems serve about 1,573 customers.

Reclamation facilities in Lana'i have a total design capacity of about 1.9 MGD.

Existing potable water rates (effective in June 2010) are \$1.10 for the first 25,000 gallons, and \$1.62 thereafter. Existing rates and fees are not sufficient for the utility to be self-supporting. The cost of well operation is estimated at \$2.17/Kgal for the Lana'i City and Koele areas; \$1.77 for the Manele and Palawai Grid areas., and \$1.71 for brackish service to Manele.

Key system facilities issues include the age and condition of the system, substantial leaks and high pressures in certain areas - especially the irrigation grid, and inadequate revenue streams to support the necessary improvements.

Demand Analysis

Terminology

Water “demand” refers generally to the amount of underlying “need” for water associated with existing and projected end uses. Water demand can be met by supplying sufficient water to users or by conservation measures.

Water “consumption” refers to the amount of water (usually metered) that is delivered at the point of use.

Water “production” refers to the amount of water put in to the water system.

“Pumpage” refers to water production from wells.

“Unaccounted-for water” is the difference between production and metered consumption and consists of system leaks and unmetered consumption (including water used for fire protection, line flushing, unmetered services, illegal use).

On Lana‘i, water is divided into several independent water distribution systems for potable water, brackish water and recycled wastewater.

Historical and Existing Water Demand

Historical pumpage on Lana‘i peaked at around 3.5 million gallons per day (MGD) in 1989. With the end of the pineapple economy in 1992, pumpage dropped to just under 2 MGD, gradually rising to 2.24 MGD in 2008 (2,241,222 GPD).

Metered demand on Lana‘i in 2008 was roughly 1.66 MGD. Of that amount, roughly 0.76 MD was from Wells 1, 9 & 14, serving brackish water for irrigation to the Manele Project District area. Roughly 0.52 MGD was for the areas of Lana‘i City, Koele and Kaumalapau, and roughly 0.38 was fresh water for Manele Project District and the Palawai Irrigation Grid.

By region, metered demand for the Manele Project District was the highest, with consumption in 2008 of 1.08 MGD of combined fresh and brackish water, followed by Lana‘i City with 0.36 MGD of metered demand, Koele Project District with 0.15 MGD of metered demand, the Palawai Irrigation Grid with 0.05 MGD of metered demand, and finally Kaumalapau with 0.015 MGD of metered demand.

Demand Analysis

FIGURE 1-4. Metered Consumption by Service District Area

Service District Area	Abbreviation	2008 GPD	Wells Serving Area
Koele Project District	KOPD	149,128	6 & 8 (potable)
Lana'i City	LCTY	358,008	6 & 8 (potable)
Kaumalapau	KPAU	15,604	6 & 8 (potable)
Manele Project District	MNPD	1,082,999	2 & 4 (potable) 1, 9 & 14 (brackish)
Palawai Irrigation Grid	IGGP	52,505	2 & 4 (potable)

By type of use, irrigation was the largest, at about 0.9 MGD, followed by hotel use at 0.27 MGD, single-family residential at 0.26 MGD, commercial at 0.08 MGD, multi-family residential at 0.08 MGD, agricultural use at 0.04 MGD, government at 0.016 MGD and public-quasi-public at 0.008 MGD.

FIGURE 1-5. Metered Consumption by Type of Use

	By Meters	Adjusted
AG	44,401	44,401
OTHER IRR	897,462	1,087,111
COMM	82,007	66,772
DEVEL	411	411
GOV	15,944	15,944
HOT	272,102	123,200
PQP	8,218	8,218
RES-MF	79,865	79,865
RES-SF	257,835	232,323
	-----	-----
	1,658,244	1,658,244

Unaccounted-for Water Unaccounted-for water includes water lost due to leaks in water system storage and pipeline components as well as several types of unmetered consumption, including water used for fire protection, line flushing, unmetered services and possible theft.

Fresh and brackish water service on Lana'i is broken down into three well service areas. Wells 6 and 8 serve Lana'i City, Koele and Kaumalapau. Wells 1, 9 & 14 serve brackish water to Manele for irrigation. Wells 2 & 4 provide fresh water to Manele and the Palawai Irrigation Grid. An unaccounted-for water analysis was performed for each of these well service areas. About 13.52% of pumped water in Lana'i City, Koele and Kaumalapau was unaccounted-for. About 18.76% of pumped water on the brackish system was unaccounted-for. About 44.61% of the fresh water

pumped from Wells 2 and 4 to serve the Manele Project District area and the Palawai Irrigation Grid was unaccounted-for. This unaccounted-for water analysis revealed some opportunities for supply side savings, which were included in the proposed capital plan.

FIGURE 1-6. Pumped, Metered & Unaccounted-for Water by Well Service Area

Wells	Areas Served	Pumped Water 2008 MGD	Metered Demand 2008 MGD	Unaccounted -For Water 2008%
6 & 8	Koele, Lana'i City, Kaunalapau	0.605	0.523	13.52%
2 & 4	Manele-Hulopo'e, Palawai Irrigation Grid	0.683	0.375	44.61%
1, 9 & 14	Manele-Hulopo'e Irrigation	0.944	0.760	18.76%
		2.232	1.658	

Note: Percents are accurate, but are average of twelve individual monthly amounts, so may not match precisely here.

Lana'i's unaccounted water for 2008 was 28% of production. This is depicted in the chart below. This is substantially higher than industry standards and is primarily due to leaks in water storage facilities and deteriorated pipelines.

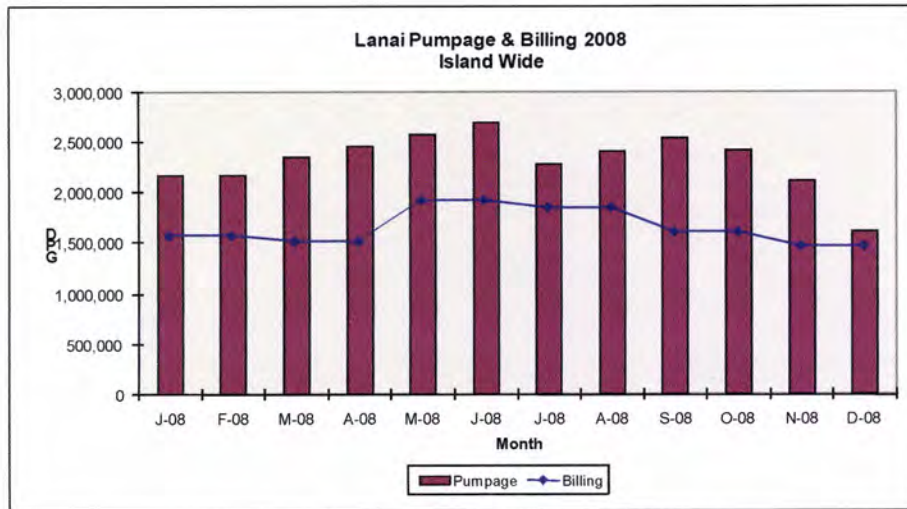


FIGURE 1-7. Lana'i pumpage and billing - Island-wide unaccounted-for water

Demand Analysis

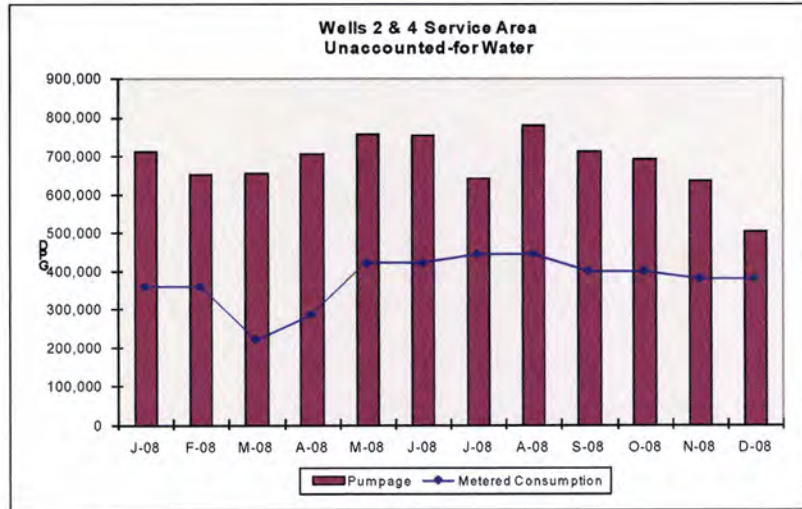


FIGURE 1-8. Pumpage and billing - Palawai grid unaccounted-for water

Unaccounted-for water losses on the Palawai grid are particularly high on a percentage basis, totalling 45% for the 2008 period depicted in the chart above. This means that only slightly more than half of the water pumped into the Palawai grid is actually delivered to metered water users.

Chapter 4 of the Supporting Documentation provides detailed information regarding the unaccounted-for water and improvement potential for Lana'i's water systems.

Projected Water Demand

The State's *Framework for Updating the Hawaii Water Plan* recommends that a range of forecasts be considered, and a range of supply options to meet multiple forecasts developed. This guideline was followed for Lana'i. Demand was forecasted to the year 2030 using three methods: simple time trend regressions; projections using forecast coefficients derived based upon the SMS forecast prepared for the ongoing Community Plan update process; and analysis of build-out of CCR project development proposals.

Trending Projections

Time trend analysis yielded projections of water consumption ranging from 2.4 to 3.2 MGD in 2030.

Simplified Econometric Projections

Forecast coefficients were derived for a low case, base case and high case forecast, each of which was run with three assumptions: 1) assuming each new consumer

would use about the same amount of water as existing consumers, 2) assuming each new consumer would use one and a half times as much water as existing consumers, and 3) assuming each new consumer would use twice as much as existing consumers. Assuming new consumers would use the same amount per meter as existing consumers, projections of water production to the year 2030 ranged from 2.6 MGD to 3.1 MGD. Assuming new consumers would use one and a half times as much water as existing consumers, projections ranged from 3 MGD to 4 MGD. Assuming new consumers would use twice as much as existing consumers, projections ranged from 3.4 to 5 MGD.

Build-out Demand Analysis

Estimates of demand by analysis of project build-outs was somewhat higher, ranging from about 3.6 MGD for build-out of Phase II approvals, to over 7 MGD, for full build-out of proposals submitted by CCR, plus Project District elements approved by ordinance but not included in the proposals, plus other known projects.

Demand projections were made for both potable and non-potable water uses. The delineation between these types of water use is uncertain because it is affected by future supply resource choices, as well as by demand trends. Projected demands for potable uses ranged from 1.4 to 2.7 MGD. The projection of combined brackish and reclaimed uses ranged from 1.6 to 2.8 MGD. The low end of these projections assumes the low-case forecast, and that each new meter will use about the same amount of water as existing meters. The high end assumes both the high case forecast, and that each new meter will use twice as much pumped water as existing meters.

Two build-out projections were proposed by CCR:

- A 2006 CCR proposal included projects with a total demand of 6,079,523 GPD, of which roughly 4.163 MGD was to be met by pumping potable and brackish water, (3.411 potable and 0.752 brackish), 0.616 MGD was to be met by reclaimed water, and 1.3 MGD was to be met by one or more unidentified "alternative" sources.

A 2009 CCR proposal included projects with a total demand of 6,969,848 GPD, of which roughly 4.208 MGD was to be met through pumping potable and brackish water, (3.374 MGD potable and 0.834 MGD brackish), 1.209 MGD was to be met by reclaimed water, and 1.553 MGD was to be met by one or more unidentified "alternative sources". Several adjusted versions of the CCR build-out projections were prepared recognizing that the water demand for the CCR build-out projections could be greater than shown, due to project district elements that are not included, known projects for which estimates are not included, and actual unaccounted-for water rates which are higher than what is characterized. Projections

Demand Analysis

that include other known projects and portions of the project districts which are not included in the CCR projections indicate total demands as high as 7.13 MGD.

Combined Econometric and Build-out Projections

For planning purposes, a resource development strategy was developed that incorporates a projection of water demand that (1) includes an estimate of the rate of increase in water demand predicted by economic and demographic considerations through 2030 and (2) identifies the amount of water necessary for build-out of known projects and projects with Phase II approval. The Phase II build-out projection indicates water demand of over 5 MGD. With the conservation measures identified as part of the base plan resource development strategy described below, total pumpage would be 3.7 MGD.

FIGURE 1-9. Island-wide Projections for 2030 - Various Methods - MGD

Method	Low	High	Base Range
Time Trend of Production	2.43	3.23	2.43 - 3.23
Econometric Forecast - 2008 Base Year Production	2.98	5.84	3.03 - 4.10
Econometric Forecast - Metered Consumption Plus 12% UAFW LCTY, 15% MNPD	2.56	5.03	2.61 -3.53
Build-out - CCR 2006 Estimate * includes 12% UAFW			6.08
Build-out - CCR 2009 Estimate *includes 12% UAFW			6.97
Build-out - Re-Analysis of 2006 CCR proposal using system standards or forecast coefficients, adjusting existing uses to billed records, adding other known projects etc.*			6.29
Build-out - Re-Analysis of 2006 CCR proposal as above, adding Existing Phase I Project District Elements not included in proposal, updated scopes for affordable housing and HHL.			7.13
Build-out of Known Projects Plus Projects with Phase II Entitlements			5.07
Note: 2030 build-out numbers shown in this table do NOT include resource reserves, but DO include water demands which may be met by means other than pumpage, such as use of reclaimed water, unidentified sources, desalinization or conservation and efficiency measures.			

As shown in the table above, build-out of the projects with Phase I approval, including the CCR proposals would require more water demand than is available from groundwater sources. For comparison, the sustainable yield of the Windward and Leeward aquifers is 3 MGD each. 90% of the total sustainable yield is 5.4 MGD.

Resource Options

Supply Resource Options

Detailed information regarding a list of potential supply resource options is provided in Chapter 5 of the Supporting Documentation.

New supply resource options that were examined include:

- High level potable well near Well 5 in the Leeward Aquifer
- Well 2-B at the site of Shaft 3 in the Leeward Aquifer
- Recommissioning Well 7 in the Leeward Aquifer
- New wells in the Windward Aquifer at Mala'au
- Recommissioning the Maunalei Shaft and Tunnels in the Windward Aquifer
- New wells in the Windward Aquifer at or near the Maunalei Shaft and Tunnel sites
 - Two (2) new wells using existing transmission
 - Three (3) new wells using existing transmission
 - Three (3) new wells using new transmission
- New wells in the Windward Aquifer at Kauiki
 - Assuming that these wells can tie into Maunalei Wells transmission
 - Assuming new transmission had to be constructed
- New wells in the Windward Aquifer at Kehewai Ridge
 - At 2,250' elevation
 - At 2,750' elevation
- New Brackish Well 15 in the Leeward Aquifer
 - Used without additional desalinization
 - Used with desalinization
- "General" Desalinization Options
 - Brackish to potable
 - Seawater to potable
 - Seawater to brackish for irrigation

Supply Side Efficiency Options include:

- Loss Reduction - Repair of Palawai Grid Pipes
- Loss Reduction - Cover for the 15 MG Brackish Reservoir
 - Floating cover

Resource Options

- Aluminum cover
- Hypalon balls
- Expanded use of Lana'i City Reclaimed Water
 - Lana'i City to Miki Basin
 - Lana'i City to Manele
 - Lana'i City to Manele via Miki Basin

Description and discussion of each of these potential resources is provided in the Chapter 5 of the Supporting Documentation. In order to develop a meaningful comparison of the value of each option, total costs of each option were derived and expressed as levelized to costs per 1,000 gallons of water produced. A summary is presented in the tables below.

Option Name	Plant Capacity		Capital Cost		Fixed Operating Cost		Variable Operating Cost		Plant Life Economic	Total NPV	Economic Life Total Discounted Cost		Var Op. Levelized \$ / kgal	
	Installed	Effective	Average Output	Cost	Unit Cost	Cost	Unit Cost	Cost			Unit Cost	Levelized \$ / kgal		Levelized \$ / kgal
	MGD	MGD	MGD	\$M	\$/Year	\$/Year/MGD	\$/kgal	Years	NPV \$/000' \$M/MGD	Levelized \$ / kgal	Levelized \$ / kgal	Levelized \$ / kgal	Levelized \$ / kgal	
Proposed New Well #2B @ Shaft 3 Site	0.854	0.300	0.300	\$1,883	\$8,276	\$15,415	\$51,383	\$0.92	30	\$14,901	\$2.97	\$1.25	\$0.20	\$1.51
Proposed New Brackish Well #15	0.854	0.300	0.300	\$2,657	\$8,856	\$19,519	\$65,063	\$1.30	30	\$20,894	\$4.16	\$1.76	\$0.26	\$2.14
Well - High Level Potable (1) 1mgd near HI Tank	0.854	0.300	0.300	\$2,867	\$9,556	\$20,599	\$68,663	\$1.41	30	\$22,554	\$4.49	\$1.90	\$0.27	\$2.31
Well - High Level Potable (1) 1MGD near Well #5	0.854	0.300	0.300	\$2,957	\$9,856	\$22,759	\$76,883	\$1.61	30	\$24,650	\$4.91	\$1.96	\$0.30	\$2.64
Recommission Well#7	0.720	0.300	0.300	\$2,678	\$8,927	\$28,719	\$89,062	\$2.37	30	\$30,266	\$6.02	\$1.78	\$0.35	\$3.89
Wells - Windward (3) 1MGD at Maunalei w/Existing Transmission	3.000	0.750	0.750	\$8,001	\$10,698	\$118,144	\$157,525	\$2.43	30	\$33,860	\$6.74	\$2.12	\$0.62	\$3.99
Wells - Windward (2) 1 MGD Maunalei w/Existing Transmission	2.000	0.500	0.500	\$6,786	\$13,531	\$78,763	\$157,525	\$2.43	30	\$36,723	\$7.31	\$2.69	\$0.62	\$3.99
Windward Well at Maiau	0.854	0.300	0.300	\$5,377	\$21,256	\$23,839	\$79,463	\$1.71	30	\$36,948	\$7.35	\$4.23	\$0.31	\$2.81
Windward Well at Kauiki (Incremental)	0.854	0.300	0.300	\$4,865	\$16,216	\$40,334	\$134,445	\$2.73	30	\$41,431	\$8.25	\$3.23	\$0.53	\$4.49
Recommission Maunalei Shaft/Tunnels	1.000	0.500	0.500	\$10,110	\$20,220	\$48,513	\$97,025	\$2.43	30	\$42,213	\$8.40	\$4.02	\$0.38	\$3.99
Wells - Windward (3) 1MGD at Maunalei w/New Transmission	3.000	0.750	0.750	\$14,607	\$19,476	\$118,144	\$157,525	\$2.43	30	\$42,668	\$8.49	\$3.87	\$0.62	\$3.89
Windward Well at Kahawai Ridge 2250ft.	0.854	0.300	0.300	\$9,275	\$30,916	\$28,159	\$93,893	\$2.11	30	\$50,200	\$9.99	\$6.15	\$0.37	\$3.47
Windward Well at Kahawai Ridge 2750ft.	0.854	0.300	0.300	\$9,659	\$32,196	\$32,479	\$108,263	\$2.51	30	\$55,073	\$10.96	\$6.40	\$0.43	\$4.12
Windward Well at Kauiki	0.854	0.300	0.300	\$10,925	\$36,416	\$40,334	\$134,445	\$2.73	30	\$61,631	\$12.27	\$7.24	\$0.53	\$4.49
Desalination - Seawater to 400 ppm Chlorides	0.250	0.250	0.250	\$3,335	\$13,338	\$100,348	\$401,390	\$6.37	30	\$73,969	\$14.72	\$2.65	\$1.58	\$10.48
Desalination - 50% Seawater to 225 ppm Chlorides	0.250	0.250	0.250	\$3,272	\$13,086	\$111,588	\$446,390	\$6.97	30	\$104,372	\$20.77	\$2.60	\$1.76	\$16.40
Desalination - Seawater to 225 ppm Chlorides	0.250	0.250	0.250	\$3,382	\$13,527	\$121,698	\$486,390	\$13.17	30	\$132,062	\$26.29	\$2.69	\$1.92	\$21.66

Levelized costs are calculated based on 3.0% inflation, 6.0% cost of capital and 6.0% discount rate. Operating costs are estimates of Haiku Design & Analysis. Electricity costs included in Variable Operating Costs are \$0.40 per KWH (= \$125/bbl crude oil price) escalated at 4.0% for levelization. All engineering assumptions, estimated costs and impacts are planning projections that will need to be verified by specific studies prior to implementation. NPV = net present value. MGD = millions of gallons per day. kgal = one thousand gallons. \$2007 = constant (real) dollars.

Resource Options

Option Name	Plant Capacity		Capital Cost		Fixed Operating Cost		Variable Operating Cost		Plant Life Economic	Total NPV	Economic Life Total Discounted Cost		Var. Op. Levelized
	Installed	Effective	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost			Levelized	Levelized	
	MGD	MGD	\$M	\$/MGD	\$/Year	\$/Year/MGD	\$/gal	\$/gal	Years	NPV \$2007 \$M/MGD	Levelized \$/kgal	Levelized \$/kgal	Levelized \$/kgal
Pipe Replacement / Loss Reduction IGGP	0.202	0.202	\$3.840	\$19,010	-\$3,737	-\$18,500	-\$1,49		20	\$9,782	\$2.34	\$4.54	-\$0.07
Recycled Water Line to Miki Basin Industrial Prk	0.060	0.060	\$1,536	\$25,600	\$248	\$4,140	\$0.40		30	\$28,974	\$5.77	\$5.09	\$0.02
Recycled Water Line to Manale (2030)	0.500	0.500	\$16,896	\$33,792	\$2,070	\$4,140	\$0.40		30	\$37,166	\$7.40	\$6.72	\$0.02
Phase II Recycled Water Line Miki Basin to Manale	0.440	0.440	\$15,456	\$35,127	\$1,822	\$4,140	\$0.40		30	\$38,501	\$7.66	\$6.99	\$0.02
Phase I Recycled Water Line to Miki Basin Industrial Park	0.060	0.060	\$2,304	\$38,400	\$248	\$4,140	\$0.40		30	\$41,774	\$8.31	\$7.64	\$0.02
Floating Cover on 15 MG Reservoir	0.017	0.013	\$0,366	\$27,682	\$0	\$0	\$0.00		10	\$27,682	\$10.31	\$10.30	\$0.00
Hypalon Balls on 15 MG Reservoir	0.017	0.014	\$0,485	\$55,294	\$0	\$0	\$0.00		10	\$55,294	\$13.14	\$13.13	\$0.00
Aluminum cover on 15 MG Reservoir	0.017	0.013	\$4,024	\$304,821	\$0	\$0	\$0.00		30	\$304,821	\$60.67	\$60.63	\$0.00

Levelized costs are calculated based on 3.0% inflation, 6.0% cost of capital and 6.0% discount rate. Operating costs are HDA estimates. Electricity costs included in Variable Operating Costs are \$0.40 per KWH (= \$125/bbl crude oil price) escalated at 4.0% for levelization. All engineering assumptions, estimated costs and impacts are planning projections that will need to be verified by specific studies prior to implementation. NPV = net present value MGD = millions of gallons per day kgal = one thousand gallons \$2007 = constant (real) dollars

**Conservation
“Demand-Side”
Resource Options**

A list of “demand-side” management (DSM) conservation measures was analyzed. DSM refers to measures that are implemented on the customer “side” of the water meter. DWM programs are implemented by the utility or other agency to encourage, finance or directly install conservation measures on the premises of water users.

Discussion and detailed information regarding the characterization and analysis of conservation measures is provided in Chapter 5 of the Supporting Documentation. A table showing economic analysis of some of the DSM measures is provided below. In order to provide meaningful comparison of the costs of various measures with one another and with supply resource options, costs are expressed as levelized life-cycle costs per thousand gallons of reduced water consumption.

Resource Options

Candidate DSM Program Characterization

Program Name	Delivery Mechanism	Equip Cost	Measure Cost Total	Rebate	Utility Cost Admin	Total	Participant	Program Cost	Savings Efficacy	Measure Life	Levelized Unit Cost Participant	Levelized Unit Cost TRC
		per unit	per unit	per unit	per unit	per unit	per unit	per unit	gpd/yr	Years	\$/kgal	\$/kgal
Per SPU CPA		\$8	\$0	\$8	\$12	\$20	\$0	\$20	\$20	10	\$0.000	\$0.804
Toilet Flapper Install	Direct installation of fixtures in targeted buildings with existing 5.7 gpf fixture	\$80	\$100	\$180	\$75	\$255	\$0	\$255	\$255	15	\$0.000	\$1.438
Toilet Targeted Retro	Rebate Application similar to Honolulu toilet rebate program	\$250	\$100	\$350	\$50	\$200	\$200	\$400	\$400	15	\$1.015	\$2.031
Urinal Retro Rebate	Bounty for old fixtures brought to depot (dumpster) and destroyed	\$80	\$100	\$180	\$50	\$150	\$80	\$150	\$230	15	\$0.752	\$2.162
Toilet Retro Rebate	Rebate Application based on Honolulu program	\$80	\$100	\$180	\$50	\$150	\$80	\$150	\$230	15	\$0.752	\$2.162
Shwrd Direct Install	Showerheads installed by trained technicians			\$0	\$30	\$30	\$0	\$30	\$30	10	\$0.000	\$1.531
Shwrd Canvass	Showerheads distributed by door to door canvass with choice of type			\$0	\$20	\$20	\$0	\$20	\$20	10	\$0.000	\$1.531
Showerhead Giveaway	Showerheads distributed at public events or by request			\$0	\$10	\$10	\$0	\$10	\$10	10	\$0.000	\$2.296
Shwrd Mass Mail	Showerheads mailed to all customers			\$0	\$15	\$15	\$0	\$15	\$15	10	\$0.000	\$3.444
Water Eff Clothes Wash	Rebate Application with purchase documentation	\$350	\$0	\$350	\$70	\$220	\$200	\$220	\$420	10	\$4.400	\$9.240
Water Eff Dish Washer	Rebate Application with purchase documentation	\$50	\$0	\$50	\$70	\$120	\$0	\$120	\$120	10	\$0.000	\$44.640
Improve Irr. Scheduling	Per SPU CPA - Improve irrigation efficiency by better scheduling	\$25	\$0	\$25	\$9	\$34	\$0	\$34	\$34	10	\$0.000	\$0.534
Low Water Use Plantings	Per SPU CPA - Replace 300sq ft. lawn with low water req. plants	\$25	\$0	\$25	\$9	\$34	\$0	\$34	\$34	10	\$0.000	\$1.231
Xeriscaping	HDA per SPU CPA - Replace irrigated lawns with xeriscaping	\$500	\$1,000	\$1,500	\$300	\$800	\$1,000	\$800	\$1,800	500.00	\$0.744	\$0.595
Soil Moisture Sensor	Per SPU CPA - Install soil moisture sensors on automatic irrigation systems	\$150	\$0	\$150	\$9	\$159	\$0	\$159	\$159	10	\$0.000	\$1.735
Improve Perf. of Irr. Sys.	Per SPU CPA - repair, replacement, adjustment of in-ground irr. system	\$188	\$0	\$188	\$9	\$197	\$0	\$197	\$197	10	\$0.000	\$1.923
Auto Rain Shut Off	Per SPU CPA - Install automatic rain shut-off on automatic irrigation systems	\$50	\$0	\$50	\$9	\$59	\$0	\$59	\$59	10	\$0.000	\$2.063
Rain Barrel Catchment	Per SPU CPA - Install 50 gallon barrels to guide downspouts for irrigation	\$50	\$0	\$50	\$9	\$59	\$0	\$59	\$59	10	\$0.000	\$11.050
Greywater for Irrigation	Per SPU CPA - Install grey water collect/disk system -new and removed with sand filter	\$2,000	\$0	\$2,000	\$9	\$2,009	\$0	\$2,009	\$2,009	16.11	\$0.000	\$35.169

Notes: Shaded cells are data entry cells; other numerical cells are calculated
 SPU CPA = Seattle Public Utilities Conservation Potential Assessment Final Project Report, May 1988. Delivery mechanisms were not explicitly identified for several programs
 Documentation, calculations of estimates and sources are identified on a more detailed source spreadsheet
 Levelized costs are calculated according to the identified measure life assuming a 3.0% inflation rate, 6.0% cost of capital, 6.0% discount rate.
 All estimates and calculated costs and savings impacts should be considered rough approximations for purposes of initial measure and program assessment.
 Abbreviations: gpd = gallons per day; gpd/yr = gallons per year; kgal = thousand gallons; TRC = Total Resource Cost Test HDA = Haku Design & Analysis (Carl Freedman)

Resource Development Strategy

A base case “resource development strategy” was developed to investigate and identify a viable approach to meet anticipated planning period water needs most economically within resource availability constraints. The strategy identifies new supply resources and conservation measures sufficient to provide for existing water needs as well as anticipated water needs for known new projects and projects with Phase II project district entitlements.

The resource development strategy serves as a planning and analysis tool to determine what new resources and conservation measures will be necessary and will most economically and effectively meet water demands that could develop during the planning period. In the context of Lana‘i’s limited water resources, the resource development strategy also serves to show what economic challenges can be expected in conjunction with build-out of entitled land developments.

Resource Strategy Demand Projections

The resource development strategy incorporates a projection of water demand through the year 2030 based on econometric analysis of the Socio-Economic forecast used in the current County general plan update. Projections beyond 2030 include estimate of water needs for build-out of known projects and projects with Phase II project district entitlements.

The table below shows the projected water production broken down by water system and service area for five year increments to the year 2030. The rightmost column shows production requirements to meet the needs of build-out of known projects and projects with Phase II entitlements. The projections identify and include the impacts of the conservation and leak reduction measures identified below.

A 10% percent aquifer pumping reserve (to keep pumping below 90% of sustainable yield) is included in the projections. Totals are shown both including and excluding this pumping reserve. Production requirements in the year 2030 and for Phase II build-out exceed the pumpage sustainable yield of the Leeward aquifer (3 MGD) and would therefore require some contribution from resources developed in the Windward aquifer.

A more detailed version of the table below, along with clarifying footnotes, is provided in Chapter 4 *Demand Analysis* in the Supporting Documentation starting at page 4-113.

Resource Development Strategy

RESOURCE DEVELOPMENT STRATEGY - SOURCE USE TO THE YEAR 2030

Land Use Category	Present Metred (2009)	Source Requirement with Target UAFW		Pumped Water For Each Demand Stream Including UAFW				Phase II Plus Other Known Projects	
		12% in LCITY, KOPD, KPALU 15% in MNPD, IGGP	15% in MNPD, IGGP	2010	2015	2020	2025		2030
Koole PD - Fresh	148,128	0	185,149	0	157,403	185,909	206,816	229,426	335,507
Koole PD - Brackish	0	0	0	0	0	0	0	0	0
Koole PD - Reclaimed Water	234,093	234,093	234,093	258,235	261,552	278,477	297,204	316,798	316,798
Lana'i City & Related Areas - Residential - Fresh	268,127	304,690	333,374	287,071	348,037	379,530	421,030	421,030	367,608
Lana'i City & Related Areas - Other - Fresh	105,486	119,870	131,173	116,067	134,386	151,073	167,457	185,467	165,502
Lana'i City Housing Project	87,290	87,290	223,813	87,290	155,551	223,813	257,943	292,074	292,074
County Lana'i City Recreation Area	15,455	15,455	15,455	15,455	15,455	15,455	15,455	15,455	15,455
DHHL Project	11,591	112,396	112,396	112,396	112,396	112,396	112,396	112,396	143,068
Lana'i City Redevelopment Project	0	41,081	41,081	41,081	41,081	41,081	41,081	41,081	144,604
Kaunaloa Subdivision	0	0	0	0	0	0	0	0	30,862
Lana'i City & Kaunaloa - Conservation Target - Fresh	0	5,750	5,750	91,200	95,800	100,400	100,400	105,000	105,000
Potable Resource Reserve - 10% of Aquifer Sustainable Yield (300 KGal each)	0	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000
Palawai IGGP - Agricultural - Fresh	28,044	32,893	35,590	19,616	22,707	26,074	28,524	28,524	28,067
Palawai IGGP - Agricultural - Reserve - Fresh	0	588,235	588,235	588,235	588,235	588,235	588,235	588,235	588,235
Palawai IGGP - Other - Fresh - incl warehouse (total is offset by reclaimed)	24,461	28,778	30,755	17,109	16,712	21,544	25,267	23,523	23,523
Palawai IGGP - Miki Basin Industrial Park (120 Kgal total offset by reclaimed)	0	0	0	0	0	0	0	0	86,629
Palawai IGGP - Agricultural - Brackish	0	0	0	0	0	0	0	0	0
Palawai IGGP - Other - Brackish	0	0	0	0	0	0	0	0	0
Palawai IGGP - Reclaimed Water from Lana'i City	0	0	0	0	0	0	0	0	60,000
Manole PD - Potable	322,641	441,348	405,819	169,448	148,726	242,046	284,311	284,311	474,603
Manole PD - Brackish (2008 actual metred)	760,357	650,000	650,000	650,000	650,000	650,000	650,000	650,000	650,000
Manole PD - Brackish Water Over 650,000 (2008 purchase area 943,776, w/19% UAFW & water levels decline)	0	244,538	112,634	163,191	199,091	240,285	270,220	270,220	294,639
Manole PD - Reclaimed Water from Lana'i City	0	0	0	0	0	0	0	0	124,666
Source Water to Brackish Desalt or Other Approved Source	0	0	0	0	0	0	0	0	300,000
Manole PD & IGGP - Conservation Target - Fresh	0	15,400	15,400	250,800	266,200	291,600	297,000	297,000	297,000
Manole PD & IGGP - Conservation Target - Brackish	0	14,000	14,000	27,800	41,600	55,400	83,000	83,000	83,000
Manole PD - Reclaimed Water	72,940	72,940	80,462	81,496	86,769	92,605	98,711	119,507	119,507
TOTAL	1,965,277	2,898,713	3,446,576	3,656,405	4,029,203	4,433,164	4,860,700	5,664,322	5,664,322
including resource reserve									
TOTAL REMOVING RESOURCE RESERVE	1,965,277	2,298,713	2,846,576	3,056,405	3,429,203	3,833,164	4,260,700	5,064,322	5,064,322
(above i.e. POTENTIAL PUMPED including System Losses WITHOUT Conservation, Reclaimed Water or Desalt)									
SUBTOTAL PUMPED FROM AQUIFER incl System Losses WITH Conservation & Etc.	1,658,244	1,991,680	2,472,728	2,343,557	2,660,357	2,995,955	3,300,191	3,658,351	3,658,351
(metred)									

Note: 500 Kgal Ag Reserve is assumed to be pumped in all but "present" years

Water Conservation Measures

The resource development strategy includes a mix of conservation measures and new supply resource development. The conservation measures identified and assumed in the resource development strategy are shown in the table below. The derivation of these estimates of conservation measure impacts is presented in Chapter 5 of the Supporting Documentation.

FIGURE 1-10. Supply and Demand Side Conservation Measures Included in Resource Development Plan

	Manele & Grid Fresh	Manele Brackish	Lanai City Koele & Kaumalapau	
Palawai Grid	200,000.0			200,000
Landscape	50,000.0	50,000.0	11,000.0	111,000
Fixture Replacement	20,000.0		80,000.0	100,000
Leak Detection & Repair	15,000.0	13,000.0	12,000.0	40,000
Hypalon Cover		14,000.0		14,000
Hotel & Landscape Incentives	12,000.0	6,000.0	2,000.0	20,000
Rate Structure				
	297,000.0	83,000.0	105,000.0	485,000

Supply Resource Measures

A supply resource strategy was developed based on the supply resource options investigated and characterized as presented in Chapter 5 of the Supporting Documentation at pages 5-10 through 5-61. A schedule of potential new supply resources was identified that indicates how much water demand could be met with cumulative implementation of the new supply resources. This schedule is shown in the table below. The schedule identifies more new resources than are necessary to meet the needs of the base case resource development strategy. The supply resource schedule is explained in Chapter 5 of the Supporting Documentation starting at page 5-76.

Resource Development Strategy

FIGURE 1-11. Cumulative Capacity of Additional Supply Resources

Options in Order of Levelized Cost/w/Adjustments Existing System	Gal	Average Day Ability to Meet Demand		Cumulative Withdrawals		Cumulative Leeward Aquifer		Cumulative Windward Aquifer		Conservation and Reclaimed
		1,685,224	2,241,222	2,241,222	1,913,310	2,241,222	1,913,310	2,241,222	1,913,310	
Well 2 Replacement(2-A)	300,000	1,685,224	2,241,222	2,541,222	2,213,310	2,241,222	1,913,310	2,241,222	1,913,310	307,033
Shaft 3 Replacement(2-B) *	150,000	1,865,224	2,541,222	2,691,222	2,363,310	2,541,222	2,213,310	2,691,222	2,363,310	327,912
Well 15 **	100,000	2,135,224	2,691,222	2,791,222	2,463,310	2,691,222	2,463,310	2,791,222	2,463,310	327,912
Well 3 Replacement**	200,000	2,485,224	2,991,222	2,991,222	2,663,310	2,991,222	2,663,310	2,991,222	2,663,310	327,912
Well Near Hi'i Tank (btwn Hi'i and Well 3) **										
High Level Well Near Well 5 / Well 5 Replacement										
Well 7 Recommission										
Palawai Grid Pipe Replacement	200,000	2,635,224	2,991,222	2,991,222	2,663,310	2,991,222	2,663,310	2,991,222	2,663,310	200,000
Toilet and Fixture Replacement Program	100,000	2,735,224	2,991,222	2,991,222	2,663,310	2,991,222	2,663,310	2,991,222	2,663,310	300,000
Landscape Conservation	111,000	2,846,224	2,991,222	2,991,222	2,663,310	2,991,222	2,663,310	2,991,222	2,663,310	411,000
Hypalon Cover on 15 MG Reservoir	14,000	2,860,224	2,991,222	2,991,222	2,663,310	2,991,222	2,663,310	2,991,222	2,663,310	425,000
Annual Water Audit and Leak Detection Program	40,000	2,900,224	2,991,222	2,991,222	2,663,310	2,991,222	2,663,310	2,991,222	2,663,310	465,000
Hotel Incentives Program	20,000	2,880,224	2,991,222	2,991,222	2,663,310	2,991,222	2,663,310	2,991,222	2,663,310	485,000
Tiered Rate Structure										
Reclaimed Water Lana'i City & Koele	82,710	2,962,934	2,991,222	2,991,222	2,663,310	2,991,222	2,663,310	2,991,222	2,663,310	567,710
Reclaimed Water Manele	25,771	2,988,705	2,991,222	2,991,222	2,663,310	2,991,222	2,663,310	2,991,222	2,663,310	593,481
Windward Well at Malau	300,000	3,288,705	3,291,222	3,291,222	2,663,310	3,291,222	2,663,310	3,291,222	2,663,310	627,912
Windward Well sat Maunaloa (3)	750,000	4,038,705	4,041,222	4,041,222	2,663,310	4,041,222	2,663,310	4,041,222	2,663,310	1,377,912
Windward Wells at Kauiki	300,000	4,338,705	4,341,222	4,341,222	2,663,310	4,341,222	2,663,310	4,341,222	2,663,310	1,677,912
Windward Wells at Kauiki - Incremental	300,000	4,638,705	4,641,222	4,641,222	2,663,310	4,641,222	2,663,310	4,641,222	2,663,310	1,977,912
Windward Well at Kehewai Ridge - 2,250' /oth wndwr	300,000	4,938,705	4,941,222	4,941,222	2,663,310	4,941,222	2,663,310	4,941,222	2,663,310	2,277,912
Windward Well at Kehewai Ridge - 2,750' /oth wndwr	300,000	5,238,705	5,241,222	5,241,222	2,663,310	5,241,222	2,663,310	5,241,222	2,663,310	2,577,912
Reclaimed Water Lana'i City & Koele	184,661	5,423,366	5,241,222	5,241,222	2,663,310	5,241,222	2,663,310	5,241,222	2,663,310	778,142
Reclaimed Water Manele	20,796	5,444,162	5,241,222	5,241,222	2,663,310	5,241,222	2,663,310	5,241,222	2,663,310	798,938
Ocean to Brackish	250,000	5,694,162	5,241,222	5,241,222	2,663,310	5,241,222	2,663,310	5,241,222	2,663,310	2,577,912

Wells are assumed to be installed, though they do not yield as much as anticipated.
 Levelized cost for Well 2-B at 150,000 instead of 300,000 goes from \$2.97 to \$4.35. Well 15 goes from \$4.16 to \$8.05, & Well 7 from \$5.02 to \$8.08.
 Well between Hi'i Tank and Well 3 could serve either system & appears to be less expensive than Well 7. Levelized costs go from 4.49 at 300K Gal to 6.60 at 150 K gal.
 It may be desirable to go straight to Malau Well rather than Hi'i Tank or Well 7.
 As conservation savings are achieved, leeward aquifer wells can raise closer to design pumpage. Some resource reserve is still recommended.

Resource Strategy Costs A list of resources and system improvements necessary to implement the resource development strategy needs was developed to determine the cost of implementing

the strategy. These include: source development, pipe replacements, storage improvements, pump improvements, needs for monitoring and telemetry, etc. The assumptions and derivation of costs are provided on pages 5-65 through 5-79 of Chapter 5 of the Supporting Documentation.

In order to determine the rate impacts associated with the necessary capital improvements, schedules of bi-monthly charges, water rates and new meter fees were developed. Several potential rate designs were considered. To estimate rate impacts, capital needs were converted to approximate carrying costs, and added to annual revenues and revenue losses as reported to the PUC and to anticipated increased costs in labor and facilities identified by Brown & Caldwell in the *Lana'i Water System Acquisition Appraisal*. The rate impact and design analysis is described on pages 5-80 to 5-84 of Chapter 5 of the Supporting Documentation.

Source Water Protection

Source water protection measures discussed for Lana'i include watershed protection, wellhead protection and operational management to avoid over-pumpage.

- Lana'i is unusually dependent upon its mauka watershed, because Lana'i is dependent upon fog drip. Over 65% of the recharge in the primary high level aquifer for Lana'i is believed to be attributable to fog drip. Loss of fog drip from Lana'i Hale would lead to the loss of over 50% of the water levels in the Central aquifer, essentially the only viable water source for the island. Estimates from studies elsewhere indicate that fog drip interception by mountain forests increase precipitation by as much as 30%, and recharge by 10-15%.
 - The watershed on Lana'i is a low elevation cloud forest, with a strong mix of mesic species. Maintaining native cover becomes especially important in light of its role in the water budget for Lana'i and the rising inversion layer. Yet less than 30% of the native cover in the cloud forest remains.
 - Threats to the watershed include: habitat alteration by feral animals, human activity and invasive species; continuing intrusion of exotic plant and animal species which can trample, prey on or out-compete native species; loss of critical populations; loss of native pollinators and other keystone species; introduced pathogens and insects; erosion; drought, and; high vulnerability to fire due to mesic conditions combined with the spread of fire inducing weeds.
 - Key management measures include: fencing the most valuable watershed; eliminating feral animal ingress to fenced areas; removal of non-desirable weed and animal species; planting of desirable native species; erosion and fire prevention measures; and limiting human activities in key areas. More specifics are provided in Chapter 6.
 - During the course of the planning process, a statewide sky bridge meeting of forestry experts was held to determine the most critical measures for watershed protection. This meeting resulted in recommendations for a fence on the Lana'ihale. This was followed by a joint effort between the LWAC, The Nature Conservancy, and the community group *Hui Malama* to present fence options to the public, and finally by the establishment of the Lana'i Forest and Watershed Partnership. Because this was deemed a crucial aspect of the plan by LWAC members, Chapter 6-A of this document is dedicated to measures to protect the Lana'ihale forest. It is

hoped that inclusion of these items in the Water Use and Development Plan will lend weight to funding efforts to protect Lana‘ihale.

- Where drinking water is concerned, prevention of pollution is less expensive and more efficient than cleaning it up. One of the first tasks in any effective prevention program is to identify and inventory wells to be protected, areas that feed them and activities or sources of pollutants that pose a potential risk or could degrade water quality.
 - Drinking water wells on Lana‘i were mapped, and a computer model was used to evaluate the area surrounding each well which could contribute to its water withdrawals within a 2, 5, 10, 15, 20 and 25 year time periods.
 - Water that can reach a well within two years can contribute bacteria and viruses to the drinking water in that well. Although chemical contaminants may be persistent well beyond 10 years, this is the time frame broadly used in wellhead protection programs, as it is assumed that within that time frame protective measures may be taken in the event of a spill.
 - Among the potential contaminant sources identified were the following: Wells 1, 9 and 7 are located in or near former pineapple fields. Well 9 is also near some former underground storage, and Well 7 near some old above ground storage. Traces of atrazine have been found in Well 1 in the past. Well 8 is within 1,000 feet of the Koele golf course. A list of contaminants that may be generated by the types of activities found is provided.
 - Potential management strategies and measures are described. These include regulatory measures such as overlay zones and prohibitions, non-regulatory measures such as purchase of easements or incentivization of best management practices, guidelines, education and others.
 - The recommended wellhead protection strategy involves an overlay zoning ordinance which either prohibits or prescribes best management practices for various uses at different times of travel. Also included in the strategy are non-regulatory measures, such as guidelines for mixed use developments, protective land agreements, incentives and education for best management practices or protective measures, and measures to improve well siting. Implementation of this ordinance would require coordination between the DWS and other agencies, particularly the Planning Department.
 - A draft wellhead protection ordinance is included in this document as Appendix F. The purpose of the wellhead protection strategy and ordinance is to ensure the protection of public health and safety by minimizing the risk of contamination to aquifers and sources used for drinking water sup-

Source Water Protection

ply. The proposed ordinance establishes a zoning overlay district to be known as the Wellhead Protection Overlay District. The wellhead protection strategy sets forth measures for the protection of this district, both through public education and public cooperation, as well as by creating appropriate land use regulations that may be imposed.

- The Wellhead Protection Overlay District is superimposed on current zoning districts and, based on the proposed strategy and ordinance, applies to new construction, reconstruction, or expansion of existing buildings and new or expanded uses. Applicable activities/ uses allowed in a portion of one of the underlying zoning districts which fall within the Wellhead Protection Overlay District must also comply with the requirements of this district. Requirements are set based upon whether a proposed use is within 1,000', two year time of travel or ten year time of travel to a well.
- If water levels in pumping wells reach half their initial head level, this is now grounds for designation proceedings, based on a January 31, 1990 decision by the CWRM.
 - Operating guidelines for withdrawals from Lana'i's wells were designed by Tom Nance for CCR. These guidelines were reviewed by the State Commission on Water Resource Management, and are included in the Source Water Protection Chapter.
 - These voluntary guidelines set action levels at about 2/3 of initial head in addition to the lowest allowable levels, consistent with the CWRM level of half initial head.
 - Upon reaching an action level, a well is to receive scientific review and investigation, as well as some public scrutiny.
 - Upon reaching a designation trigger or lowest allowable level, pumpage in a well is expected to stop.
 - Action levels and lowest allowable levels from CCR's voluntary well operating and management guidelines, as well as designation triggers, are provided on page 6-101.

Lana'i Island Water Plan Provisions

Overview

Lana'i faces several substantial water resource use and development challenges.

- Lana'i has the smallest amount of total water resources of any major inhabited Hawaiian island.
 - Gross water demands for build-out of projects with existing land use entitlements (without conservation) could exceed 90% of the total sustainable yield of the Island.
 - With conservation and supply system leak reduction measures identified in this plan, water demand for build-out of projects with existing land use entitlements would be within total Island sustainable yield but would still exceed the sustainable yield of the currently developed Leeward aquifer.
- The Lana'ihale watershed area, which provides rainfall capture essential to support Lana'i's groundwater aquifers, is critically threatened by feral deer and mufon and by invasive plants.
- The existing plantation-era water supply system infrastructure is in need of substantial repair and replacement.

To address these challenges the Lana'i WUDP identifies several strategies that, together, may ensure adequate water supply for Lana'i's existing communities as well as planned growth. These strategies include:

- Diligent measures to re-establish and maintain the integrity of Lana'i's essential watershed areas
- Conservation measures to ensure that water is produced, distributed and used efficiently
- Development of new supply sources to distribute groundwater withdrawals and provide for increased system capacity to meet growing demand
- Deferral of additional or incremental discretionary land use development entitlements pending careful consideration of the adequacy of long term water supply sources and infrastructure.

The provisions below are identified as elements of a plan for responsible use and development of Lana'i's water resources necessary to maintain the long term adequacy and quality of water supplies for existing and future Lana'i residents and businesses.

Lana'i Island Water Plan Provisions

**Watershed
Protection
Measures**

The Lana'ihale watershed area is an essential resource that supports the groundwater aquifers that provide all of Lana'i's water needs. It is crucial that sufficient programmatic measures are diligently implemented to reestablish and protect the indigenous flora in the Lana'ihale watershed area. Herbivores and invasive plants must be removed and effectively excluded from the watershed area.

The following measures have been identified as essential program components to improve and maintain the integrity of the Lana'ihale watershed area:

- Development of a new publicly reviewed and supported comprehensive watershed protection plan incorporating the watershed protection provisions identified in Chapter 6 of the Supporting Documentation.
- Installation and maintenance of fencing adequate to exclude deer, muflon and other ungulates.
 - Maintain fencing Increments I and II and complete Increment III
 - Resolve issues regarding watershed area access
 - Eliminate ungulates from fenced watershed areas
 - Manage populations of deer and muflon outside fenced areas
- Review, funding and implementation of adequate fire protection measures for the Lana'ihale watershed area
- Eradication or control and ongoing exclusion of invasive plants from the watershed area.
- Investigation and implementation of reasonable erosion management and appropriate reforestation measures

Existing agreements to implement these measures should be honored and enforced and further agreements, partnerships and measures as necessary should be identified, funded and implemented to effectively restore and protect Lana'i's watershed areas.

**Water Resource
Protection
Measures**

Several measures are identified to monitor and protect the integrity of Lana'i's groundwater aquifers:

- Wellhead protection : The County should draft, review and, as appropriate, adopt a wellhead protection ordinance with input from the Lana'i community

- Aquifer monitoring and reporting: The existing required *Periodic Water Reports* should be broken down by the 3 well service areas or the 5 individual districts and, if feasible, should be reported monthly.
- Watershed monitoring: The County and CWRM should support appropriate research and monitoring to improve understanding of aquifer recharge and determine measures to maintain or improve effective groundwater sustainable yield
- The CWRM should monitor aquifer use, conditions and contested issues on an ongoing basis to determine whether any of Lana'i's aquifers should be designated as groundwater management areas.
- All participating parties should abide by and enforce existing water management and allocation agreements

**Water
Conservation
Measures**

Efficient use of water and reductions in supply system leakage are essential to reduce waste of Lana'i's limited water resources.

- Lana'i's water and wastewater utilities should implement water recycling and water conservation programs targeting landscape and indoor water uses to substantially reduce water consumption to the extent allowed by the Public Utilities Commission.
- The County and public utilities should implement education and supporting measures to encourage planting of low-water-use plants for new and existing landscaping
- Lana'i's public water utility should reduce unaccounted for water to reasonable levels including implementation of the following measures:
 - Replace and/or repair deteriorating or leaking supply pipes including replacement of deteriorated Palawai grid pipeline
 - Implement programmatic leak detection and repair programs
 - Install floating or Hypalon Ball cover on existing 15MG brackish water reservoir

**New Supply
Resource
Development**

Sufficient new water supply resources are necessary to meet anticipated growth in water demands, distribute pumpage in the Leeward aquifer and, ultimately, to distribute pumpage as necessary to the Windward aquifer.

- Based on the analysis performed in the preparation of this plan, implementation of the following specific new supply resources is recommended in con-

Lana'i Island Water Plan Provisions

junction with any other measures necessary to provide economical and reliable water service:

- Develop planned Well 15 to distribute brackish groundwater withdrawals
- Replace Well 2-A equipment as necessary to provide operable system reliability
- Replace Well 3 equipment or drill new well as necessary to provide system reliability and distribution of groundwater withdrawals
- Evaluate and implement future expansion of wastewater recycling facilities
- Plan and ultimately develop operable groundwater sources in the Windward aquifer to distribute groundwater pumping and provide resources, as necessary, to provide for system growth beyond the capacity of the Leeward aquifer.

**Land Use
Entitlements**

Water demand for build-out of projects with existing land use entitlements would exceed the capacity of the existing water system infrastructure. With implementation of the conservation and supply system leak reduction measures identified in this plan, build-out of these projects would exceed the sustainable yield of the currently developed Leeward aquifer.

Prior to issuing new land use development entitlements or subdivision approvals, the determining County agencies and any other determining administrative and regulatory agencies should ensure that sufficient water resources and infrastructure are available to meet resulting additional water demands without unreasonable risk or harm to existing or previously entitled water users and without overtaxing Lana'i's water resources. In making determinations the following factors should be considered:

- No groundwater aquifer should be drafted exceeding the 90% existing trigger for groundwater management area designation of the aquifer sustainable yield as periodically amended by the CWRM
- 500,000 GPD should be reserved for development of an agricultural park on Lana'i
- Projections of future water resource development should be based on resources that are identified and funded, with firm commitments for implementation.

Supporting Documentation

Chapter 1 - Introduction

Chapter 2 - Regulatory Framework

Chapter 3 - Existing Resources and Systems

Chapter 4 - Demand Analysis

Chapter 5 - Supply Options

Chapter 6 - Watershed Protection

Chapter 7 - Policy Issues

Chapter 8 - Implementation Matrix

Appendices

Appendix A - Final Report of the Lana'i Water Working Group - 1997

Appendix B - Water Conditions of Project Approvals

Appendix C - Documentation of the Public Process

Appendix D - Lana'i Species

Appendix E - Conservation - Preliminary Draft Ordinance

Appendix F - Wellhead Protection - Draft Ordinance

Appendix G - Resolution Establishing Lana'i Water Advisory Committee

Appendix H - Establishing Water Advisory Committees - Draft Ordinance

Appendix I - Saving Water in the Yard

Appendix J - Consistency with the 1998 Community Plan

Appendix K - Presentation Made at Public Fence Meeting - April 11, 2000

Article 1. - Water*

* Editor's Note: The title of article 1 of title 14 was amended by Ord. 3404 § 3.

Chapter 14.01 - GENERAL PROVISIONS

Sections:

14.01.010 - Title.

This article shall be known as the "County water code."

(Ord. 3404 § 4 (part), 2006)

14.01.020 - Purpose.

The County water code is intended to comply with and complement the State water code, chapter 174C, Hawaii Revised Statutes. The County water code seeks to provide a just and fair distribution of water to the people of the County of Maui. It is the policy of the County of Maui to provide clean, healthful, and plentiful water to its residents. The County water code shall be liberally interpreted and applied in a manner that conforms to the general plan.

(Ord. 3404 § 4 (part), 2006)

14.01.030 - Administration.

Except as otherwise provided in this article, the director shall administer, implement, and enforce the provisions herein. All powers granted to, or duties imposed upon, the director may be delegated by the director to personnel within the department. The director may promulgate administrative rules pursuant to the Hawaii Administrative Procedures Act to implement the provisions of this article.

(Ord. No. 3670, § 1, 2009; Ord. 3404 § 4 (part), 2006)

14.01.040 - Definitions.

Unless otherwise expressly provided in separate provisions of this article, or unless plainly evident from the context that a different meaning is intended, for the purposes of this article the following words, terms, and phrases shall be defined as follows:

Exhibit "4"

"Agricultural consumer" means a consumer that actively engages in crop production, livestock raising, dairy farming, or aquaculture for commercial production, and whose minimum gross annual income from such activities is \$1,000.

"Applicant" means any person who causes, or applies to cause, land to be subdivided. It also means any person applying for water service or additional water service.

"Application" means a request for water service or additional water service.

"Approved engineering report" means a report prepared by a licensed professional engineer, experienced in such fields as water resources, hydrogeology, water supply, or environmental engineering, and approved by the director of the state department of health pursuant to department of health rules, for non-County water service.

"Board" means the Board of Water Supply of the County of Maui.

"Building permit" means the official document or certificate issued by the County of Maui authorizing the construction of any structure.

"Commission" means the Commission on Water Resource Management of the State of Hawaii.

"Community garden" means a parcel of land with a minimum lot size of 22,000 square feet, which is actively cultivated and engaged in crop production collectively by a group of no less than 15 people.

"Consolidated metering system" means water that is furnished to multiple dwellings through a centralized or single meter.

"Construction" means any work associated with development of a new water source.

"Consumer" means the person, firm, corporation, association, or governmental entity, whether owner or tenant, whose name appears on the records of the department as the party responsible and liable for receiving water service from the department.

"Consumer's supply pipe" means the pipe extending from the consumer's end of the service connection.

"Cost of service lateral" means the sum of the cost of the labor, materials, meter box, transportation, equipment, and road repair, if any, and other charges necessary for the complete installation of a service lateral, but excluding the cost of the meter.

"Council" means the Council of the County of Maui.

"County" means the County of Maui.

"Cumulative impact" means the impact on the environment and water supply that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

"Dedicated water system improvements" means water system improvements that are privately designed, constructed, and dedicated to the department for operation, for which credits may be applied to all or a portion of the water system development fee.

"Department" means the department of water supply of the County, excluding the board of water supply unless the context so indicates.

"Department of Health" means the State of Hawaii Department of Health.

"Department of health rules" means Hawaii administrative rules, title 11, chapter 20, entitled "Rules Relating to Potable Water Systems."

"Director" means the director of the department of water supply of the County.

"Dwelling unit" means a dwelling unit as defined in title 19 of this code.

"Groundwater" means any water found beneath the surface, whether in perched supply, dike confined, flowing or percolating in underground channels or streams, under artesian pressure or not, or otherwise.

"Infill development" means a development composed of:

1. Five or fewer residential dwelling units, including accessory dwellings, on one or more contiguous vacant parcels that meet the following requirements:
 - a. A minimum of fifty percent of the parcel's or combined parcels' perimeter, or at least two sides of a four-sided parcel, is bordered by already developed land;
 - b. The development is located in the service area of the department's central Maui water system or west Maui water system;
 - c. Infrastructure for public services and facilities is already in place and immediately available; and

- d. The proposed development is consistent with the general plan, community plans, and zoning requirements; or
2. Six to ten residential dwelling units, including accessory dwellings, on one or more contiguous vacant parcels that meet the following requirements:
 - a. A minimum of seventy-five percent of the parcel's or combined parcels' perimeter, or at least three sides of a four-sided parcel, is bordered by already developed land;
 - b. The development is located in the service area of the department's central Maui water system or west Maui water system;
 - c. Infrastructure for public services and facilities is already in place and immediately available; and
 - d. The proposed development is consistent with the general plan, community plans, and zoning requirements.
3. For purposes of this definition:
 - a. "Already developed land" means all State and County parks, public or private schools, and residential parcels with a structure that has received all appropriate permits before March 1 of the preceding fiscal year.
 - b. Conservation and agricultural lands, and land fronting the ocean, shall not be considered "already developed land" regardless of the presence of any structure.
 - c. If the development's parcel or combined parcels are bordered by a roadway, stream, or gulch, then the parcel or parcels across the roadway, stream, or gulch, shall be considered in determining whether the parcel or parcels are already developed land.

"Irrigation" means the use of water for grazing, agricultural, or landscaping purposes.

"Long-term, reliable supply of water" means:

1. A County water meter reservation, as established by a receipt for payment of a County water meter reservation verifying that the proposed subdivision will be provided source and service; or
2. The total water supplies from a private, non-County source that will meet the projected demand associated with a proposed development, in addition to existing and planned future demand, as established by an approved engineering report.

"Main" or "main pipe" means the department's supply or distribution pipe from which service connections are made.

"Off-site water improvements" means that portion of a subdivision water system from the point

of adequacy to the point of entry of such system into the subdivision or premises boundaries.

"On-site water improvements" means that portion of the subdivision water system constructed within the property limits of the subdivision or development, to include all fire hydrant assemblies and service laterals whether on or off the property and as required by the department.

"Plan" means the water use and development plan.

"Point of adequacy" means that point in the public water system, as determined by the director or the director's duly authorized representative, where there is adequate pressure, storage, and pipeline size to supply water to meet the fire flow, domestic, and irrigation demands for water without detriment to the existing consumers.

"Potable water" means water that has been certified by the department of health as suitable for cooking or drinking purposes.

"Premises" means a parcel of real property and any structures thereon which have water service, will require water service, or requires additional water service.

"Private water system" means a water system constructed, owned, operated, and maintained by private individuals, corporations, or organizations.

"Public water system" means the water system owned, operated, and maintained by the department of water supply.

"Run" means the distance of water main and appurtenances to be installed from the point of adequacy to the point in question.

"Service lateral" means the connection to a water main, pipes, fittings, valves, and other appurtenances from the water main up to and including the consumer shut-off valve and water-meter box, but not including the water meter.

"Source development" means the construction of any structure to capture, convey, store, and treat currently unutilized, non-potable surface waters; or the construction of facilities for currently unutilized ground water and its treatment, including pumps, motor control stations, pump control, or disinfection contact time tanks; or the construction of desalination facilities; or any other technique which provides or recaptures water acceptable by the State of Hawaii department of health, together with any easements required for the improvements.

"State water code" means chapter 174C, Hawaii Revised Statutes.

"Storage tank" means a reservoir to store water.

"Structure" shall have the same meaning as defined in the building code as amended and adopted by the County.

"Subdivider" means a subdivider as defined in title 18 of this code.

"Subdivision" means improved or unimproved land or lands divided into two or more lots, parcels, sites, or other divisions of land for the purpose, whether immediate or in the future, of sale, lease, rental, transfer of title to or interest in, any or all of such parcels, and includes the process of consolidation and resubdivision, and, when appropriate to the context, shall relate to the process of subdividing land. The term also includes the construction of a building or group of buildings, other than a hotel, on a single lot, parcel, or site which will contain, result, or be divided into four or more dwelling units, including planned developments pursuant to chapter 19.32 of this code, condominium projects established pursuant to Hawaii Revised Statutes, or other forms of development, provided, that unless requested by the developer, condominium projects shall not be required to install separate water meters for each condominium unit.

"Subdivision water system" means that water system from the point of adequacy, as determined by the director or the director's duly authorized representative, to and within any subdivision, including mains, valves, hydrants, laterals, pumps, tanks, reservoirs, and all appurtenances necessary to provide water and fire protection for such subdivision.

"Surface water" means both contained surface water, that is, water upon the surface of the earth in bounds created naturally or artificially, including, but not limited to, streams, other watercourses, lakes, reservoirs, and coastal waters subject to state jurisdiction, and diffused surface water, that is, water occurring upon the surface of the ground other than in contained water bodies. Water from natural springs is surface water when it exits from spring onto the earth's surface.

"Sustainable yield" means the maximum rate at which water may be withdrawn from a water source without impairing the utility or quality of the water source, as determined by the commission, and set forth in the plan.

"Temporary meter" means any meter connected to a fire hydrant or a service lateral used less than one year in accordance with an agreement with the department.

"Traditional and customary native Hawaiian rights and practices" means the rights of Ahupuaa tenants who are descendents of native Hawaiians who inhabited the Hawaiian Islands prior to 1778, including the cultivation or propagation of taro on one's own Kuleana and the gathering of Hihiwai,

Opae, Oopu, Limu, Thatch, Ti Leaf, Aho Cord, and medicinal plants for subsistence, cultural, and religious purposes, as set forth in article XII, section 7 of the Hawaii State Constitution, and section 174C-101, Hawaii Revised Statutes.

"Transmission pipeline" means a pipeline that delivers water from a source development to a storage tank or distribution system, including any booster pump stations and appurtenances to the transmission pipeline system to increase its capacity, and any easements required for the improvements.

"Water meter" means a device that measures the volume of water delivered to any premises.

"Water service" means the complete installation of pipes, fittings, appurtenances, and meter necessary to provide service to a consumer. This term also refers to the delivery of water to any premises.

"Water system" means a network of pipelines, storage, facilities, pumps, and other appurtenances, wells, water filtration treatment facilities, or other sources which furnishes a supply of water to the premises.

"Water system development fee" ("WSDF") means a monetary rate imposed on any applicant to fund a portion of costs to construct water system improvements or to recover the cost of existing water system improvements made in anticipation of additional demand on the water system.

"Water system improvements" means improvements or developments which will construct facilities to provide additional source development capacity, additional transmission or distribution pipeline capacity, or additional storage tank capacity for any of the department's water systems.

(Ord. No. 4158, § 1, 2014; Ord. No. 3934, § 1, 2012; Ord. No. 3759, § 1, 2010; Ord. No. 3670, § 1, 2009; Ord. 3502 § 1, 2007; Ord. 3404 § 4 (part), 2006)

14.01.050 - Hamakuapoko Wells.

- A. Water from Hamakuapoko Wells 1 and 2 shall only be used for the following:
 1. Agricultural purposes.
 2. Consumers of the department's upcountry water system as defined in section 14.13.030 of this title when a water shortage is declared pursuant to chapter 14.06A of this title.
 3. Backup to the department's existing upcountry water system.
- B. Water quality sampling schedules shall comply with department of health regulations and with standards set by the United States Environmental Protection Agency.

(Ord. No. 4178, § 1, 2014; Ord. No. 3859, § 1, 2011; Ord. 3404 § 4 (part), 2006)

14.01.060 - Water source development agreements with private entities.

The council shall approve by resolution any water source development agreement with private entities. For purposes of this section, a "water source development agreement with a private entity" means an agreement, executed by the County and any person, to develop water resources by constructing a structure to capture, convey, store, and treat currently unutilized, nonpotable surface waters; constructing facilities for currently unutilized ground water and its treatment, including pumps, motor control stations, pump controls, or disinfection contact time tanks; constructing desalination facilities; or using any other technique that provides or recaptures water that is acceptable to the State of Hawaii, department of health, together with any easements required for the improvements. This section shall not apply to County contracts that are subject to the Hawaii public procurement code, as set forth in chapter 103D, Hawaii Revised Statutes.

(Ord. No. 4178, § 2, 2014)

14.01.070 - Native Hawaiian water rights.

Article 1 of this title shall not be construed to amend or modify rights or entitlements to water as provided for in section 221 of the Hawaiian Homes Commission Act, 1920, as amended, and native Hawaiian rights customarily and traditionally exercised for subsistence, cultural, and religious purposes in accordance with article XII, section 7, of the Constitution of the State of Hawaii.

(Ord. 3514 § 1, 2007)

7 | INFRASTRUCTURE AND UTILITIES

No.	Action	Policy No.	Lead Agency	Partners
7.08	Cover the 15 MG brackish reservoir to reduce evaporation by the end of June 2017.	1, 3, 7	Pūlama Lāna`i	LWC
7.09	Implement demand-side water conservation management through education, initiatives, and regulations.	8	Pūlama Lāna`i	LWC LWAC NGOs
7.10	Continue planning, exploring, testing, and developing alternative water resources, such as a desalination plant.	9	Pūlama Lāna`i	LWC LWAC NGOs
7.11	Prohibit the use of high-level aquifer water for golf course irrigation purposes, consistent with the Water Use and Development Plan for Lāna`i and as provided for by law.	10	Pūlama Lāna`i	LWC LWAC NGOs

13 | IMPLEMENTATION AND MONITORING

Community Plan Chapter	Action No.	Description	Type	Priority	Timing	Lead Agency*	Est. Cost (\$1,000)	Funding Source(s)
Infrastructure – Water	7.10	Continue planning, exploration, testing, and development of alternative water resources, such as a desalination plant.	Program	1	Ongoing	Pūlama Lāna`i	TBD	Private
Infrastructure – Water	7.11	Prohibit the use of high-level aquifer water for golf course irrigation purposes, consistent with the Water Use and Development Plan for Lāna`i and as provided for by law.	Program	1	Ongoing	Pūlama Lāna`i	TBD	Private
Infrastructure – Wastewater	7.12	Coordinate with the landowner to develop a comprehensive wastewater functional plan for Lāna`i that addresses the long-term goals for maintenance and upgrading of facilities.	Project	1	2016-2021	DEM	TBD	County
Infrastructure – Wastewater	7.13	Maintain an ongoing sewer inspection program for public and private multi-user systems to identify potential problems and forecast each system's residual life.	Program	2	Ongoing	DEM	TBD	County
Infrastructure – Wastewater	7.14	Coordinate with the landowner to regularly update and implement the County's wastewater reuse plans.	Project	2	Ongoing	DEM	TBD	County
Infrastructure – Wastewater	7.15	Work with the State to develop code and regulation changes to allow graywater reuse systems for home garden irrigation and toilet flushing as long as the system meets County and State safety standards. Provide educational materials to encourage residential use.	Program	2	2022-2035	DPW (DSA) DEM	TBD	County
Infrastructure – Wastewater	7.16	Study options for using biological sanitation treatment systems.	Project	2	2022-2035	DEM	50	County
Infrastructure – Solid Waste	7.18	Provide information on what can be recycled, where facilities are located, and when facilities are operated (hours and days). Develop and distribute educational materials to residents and businesses to encourage reduction, reuse, recycling efforts. Expand recycling options.	Program	2	2016-2021	DEM	TBD	County
Infrastructure – Solid Waste	7.20	Conduct an education program to discourage residents and tourists from dumping garbage, cars, and machinery in remote locations and locations other than the landfill or appropriate recycling sites.	Program	2	2016-2021	DEM	TBD	County

LANAI PLANNING COMMISSION

COUNTY OF MAUI

STATE OF HAWAII

In The Matter of The Applications of

PULAMA LANAI

To Obtain a State Land Use Commission Special Use Permit and Project District Phase II Approval for a proposed reverse osmosis desalination facility and distribution system located in the Manele Project District on Approximately 14.95 acres of Land at Maui Tax Map Key No. (2) 4-9-002:001 (por.), (2) 4-9-017:009 (por.) and 010 (por.), Manele, Lanai, Hawaii

DOCKET NO. SUP2 2013/0028
PH2 2013/0001

Pulama Lanai, Reverse Osmosis
Desalination Facility and Distribution Facility

Findings of Fact, Conclusions of Law and
Decision and Order Granting a State Land
Use Commission Special Use Permit and a
Project District Phase II Approval for a
Reverse Osmosis Desalination Facility and
Distribution System; Certificate of Service

**FINDINGS OF FACT, CONCLUSIONS OF LAW,
AND DECISION AND ORDER GRANTING A STATE LAND USE COMMISSION
SPECIAL USE PERMIT AND A PROJECT DISTRICT PHASE II APPROVAL FOR
A REVERSE OSMOSIS DESALINATION FACILITY AND DISTRIBUTION SYSTEM**

I. PROCEDURAL HISTORY

1. The Lanai Planning Commission ("Commission") conducted a public hearing on April 16, 2014, and subsequently held public meetings on May 21, June 18, and July 16, 2014, pursuant to Section ("§") 205-6 of the Hawaii Revised Statutes ("HRS"), Section 15-15-95, Hawaii Administrative Rules ("HAR"), Rule 12-401-34 of the Lanai Planning Commission Rules, and Chapter 19.45, Maui County Code ("MCC"), regarding applications for a State Land Use Commission Special Use Permit No. SUP2 2013/0028 ("SUP Application," Exhibit 1) and Project District Phase II Approval Permit No. PH2 2013/0001 ("Project District Application," Exhibit 2) submitted by Munekiyo & Hiraga, Inc. on behalf of Pulama Lanai. Minutes of the meetings referenced herein are attached as Exhibits 3, 4, 5, and 6, respectively.

Exhibit "6"

2. No person filed a petition to intervene.

3. The effective date of the Commission's final action on the Project District Application and SUP Application is June 18, 2014.

4. On July 8, 2014, the Applicant submitted a request that the Commission amend its decision concerning one of the conditions placed on the SUP permit, which was placed on the July 16, 2014 Commission agenda (Exhibit 7). It was moved, seconded, and approved to file Applicant's request without taking action (Exhibit 6, Pg. 12).

5. The Commission makes the following Findings of Fact and Conclusions of Law, based on the record in this case, including all documents submitted and testimony provided to the Commission, as well as all other items of record properly brought before the Commission:

II. FINDINGS OF FACT

1. To the extent that any finding of fact is more properly characterized as a conclusion of law, the Commission adopts it as such.

2. Portions of Parcel 9 and Parcel 10 are located within the Residential PD-L/1 sub-district of the Lanai Project District 1 (Manele) (hereafter "Manele Project District"), which was established by Chapter 19.70, Maui County Code ("MCC"). The Project District Application proposed Reverse Osmosis ("RO") Well No. 3 (source well), water transmission lines, and access roads. The Commission finds that the uses proposed in the Project District Application are "accessory uses" as defined in MCC § 19.04.04, being incidental and subordinate to the principal uses of the land, which is single-family residential, multifamily residential, hotel, commercial, park, golf course, open space, and public. The Commission further finds that the proposed uses are located on the same zoning lots as the principal uses.

3. The SUP Application proposed a reverse osmosis desalination water treatment facility located on property described as Tax Map Key (TMK) (2) 4-9-002:001 (por.) Attendant facility components of the water treatment facility are located within portions of two (2) other lots designated as TMK (2) 4-9-017:009 and (2) 4-9-017:010, within a total area of 14.95 acres

within the State Agricultural District. (Exhibit 1, Pg. 21; Exhibit 3, Pg. 7-8)

4. The proposed desalination water treatment facility is intended to provide 2.5 million gallons per day of water for potable use, golf course irrigation, and landscape irrigation at the Manele Project District and additionally provide irrigation to support agriculture in the Palawai Basin, located at a higher elevation. (Exhibit 1, Pg. 69; Exhibit 2; Exhibit 3, Pg. 7; Exhibit 8, Pg. 3)

5. The project includes water source wells, saline brine disposal wells, utility lines, and roadways, all of which are permissible uses in the State Agricultural district that do not require a special use permit pursuant to HRS § 205-6. (Exhibit 9, Pg. 2)

6. The proposed water treatment facility, attendant administration building, and power plant facility improvements are not outright permitted uses in the State Agricultural district as set forth in HRS §§205-2(d) and 205-4,. The Commission found that the uses proposed in the SUP application are "unusual and reasonable," and therefore may be authorized under a special permit pursuant to HRS §205-6 and HAR §15-15-95(b).

7. The requested uses are not contrary to the objectives sought to be accomplished by Chapters 205 and 205A, HRS, and the rules of the Hawaii Land Use Commission, pursuant to HAR §15-15-95(b)(1). The project is not located within the Special Management Area. (Exhibit 8, Pg. 8)

8. The Four Seasons Resort Lanai at Manele Bay is located approximately seven (7) miles from both the Lanai Airport and Lanai City. The Resort facilities are neighbored by the Challenge at Manele Golf Course to the west and north, single and multi-family residential units to the west and north, single and multi-family residential units to the west, and Hulopoe Beach Park to the east and south. Beyond that, a broad expanse of vacant, undeveloped lands typify the major land uses in the general vicinity of the resort area. Hulopoe Bay and Manele Bay have

been designated by the State Department of Land and Natural Resources as a Marine Life Conservation District ("MLCD"). MLCD's are designated to conserve and replenish marine resources by limited or prohibiting consumptive uses. The Manele-Hulopoe MLCD encompasses 309 acres and was established in 1976. (Exhibit 8, Pgs. 8-9)

9. The Manele Wastewater Treatment Facility, which provides wastewater treatment and disposal capacity for the area, is located to the north of the resort. The wastewater plant is located in the State Agricultural district and is permitted via State Special Use Permit. The proposed water treatment facility site and its attendant facility components are located at an elevation of approximately 700 feet above mean sea level to the west of the existing Manele Wastewater Treatment Facility (Exhibit 8, Pg. 4). Pursuant to HAR §15-15-95(b)(2), the Commission found that the proposed uses would not adversely affect surrounding property.

10. Pursuant to HAR §15-15-95(b)(3), the uses proposed by the SUP Application involve no additional burden to the state or county related to provision of roads and streets, sewers, water drainage and school improvements, and police and fire protection. Access and infrastructure to the project site are privately owned and maintained by the Applicant. (Exhibit 1, Pg. 123; Exhibit 8, Pgs. 24-25 and sub-exhibits A-2, A-5, A-8, A-11)

11. Unusual conditions, trends, and needs have arisen since the state district boundaries were established, pursuant to HAR §15-15-95(b)(4), in that there is a need for additional sources of water on the island of Lanai for human consumption and non-potable uses, including irrigation and agriculture, which do not rely on the High Level Aquifer as a source. The 2011 Lanai Water Use and Development Plan determined that planned future development in the Manele Project District as well as in other areas of the island of Lanai presents an overall increase in the demand for water, potentially resulting in well pumpage exceeding the sustainable yield of the High Level Aquifer. The proposed project could prove to be a dependable alternative water supply that reduces the island's reliance on the High Level

Aquifer, and could positively contribute to the availability of potable and non-potable water on the island and meeting the anticipated long-term water demand. The project could have a beneficial impact on agricultural production and land in that a portion of the water produced by the project will be used for irrigation and agriculture in the Palawai Basin (Exhibit 1, Pgs. 72, 93, 115, 119, 123; Exhibit 8, Pgs. 3, 21, and sub-exhibits A-4, A-9; Exhibit 11)

12. Groundwater on Lanai occurs in two (2) different modes: high level and basal. The island of Lanai's primary current water source is a High Level Aquifer located in the central section of the island and extending across the Palawai Basin. The total sustainable yield from the High Level Aquifer is 6 million gallons per day. Basal groundwater exists in the areas between the High Level Aquifer and the shoreline. Basal groundwater is a lens of brackish water floating on denser saline groundwater beneath it. The proposed project's source wells draw water from below the basal groundwater lens at a depth of 50-145 feet below sea level. The proposed desalination water treatment facility's groundwater supply wells are located approximately six-tenths (.6) of a mile from the coastline. The project will not draw water from the High Level Aquifer and is not anticipated to have an adverse impact on hydrogeologic conditions and features. (Exhibit 1, Pgs. 69, 72, 93-94, and Appendix C; Exhibit 3, Pgs. 9, 15; Exhibit 4, Pg. 3-5; Exhibit 8, Pgs. 3-4 and sub-exhibit A-4; Exhibit 10)

13. Disposal of the hypersaline concentrate ("brine") from the reverse osmosis process occurs in two deep disposal wells, at a depth of 160 to 300 feet below sea level. The brine, being 1.8 times saltier than sea water, is denser than the receiving saline groundwater and will sink deeper as it travels seaward and is anticipated to discharge approximately 2 miles offshore at an ocean floor depth of approximately 650 feet. At the point that the brine commingles with the open ocean water, it will be approximately the same salinity level as the receiving water. The Applicant consulted with the U.S. Fish and Wildlife Service, which determined that

the hypersaline discharge is not anticipated to affect the near-shore environment. (Exhibit 1, Pgs. 72, 97, Appendix E; Exhibit 4, Pgs. 3-4; Exhibit 8, sub-exhibit A-14; Exhibits 10, 11)

14. The project site, as reflected by the Agricultural Lands of Importance to the State of Hawaii ("ALISH") map, is located on lands designated as "Unclassified" agricultural lands. The University of Hawaii Land Study Bureau ("LSB") developed by Overall Productivity rating, which classified soils according to five (5) levels, with "A" representing the class of highest productivity soils and "E" representing the lowest. These letters are followed by numbers which further classify the soil types by conveying such information as texture, drainage, and stoniness. The proposed project lies on lands with an overall productivity rating of "E". The LSB classification for the proposed project area is "E19" with some utility transmission lines located on lands classified as "E20". The "E19" classification reflects an Overall Productivity Rating of E, the lowest rating of agricultural productivity. The soils are characterized as rocky, with shallow soil depths featuring exposed bedrock, and with an average slope of 0 to 35 percent. The soil is of coarse to fine grain, and is well to excessively-drained. This land is typically found at an elevation of 0 to 1000 feet, and experiences a mean annual rainfall of 15-25 inches. The "E20" classification also reflects an Overall Productivity rating of E. The soils are characterized as stony to rocky, with shallow soil depths featuring exposed substratum, and with an average slope of 0 to 35 percent. The soil is of coarse grain and is well-drained. This land is typically found at an elevation of 0 to 2000 feet, and experiences a mean annual rainfall of 15 to 35 inches. Based upon the foregoing, the Commission found that the land upon which the proposed use is sought is unsuited for the uses permitted within the Agricultural district, pursuant to HAR §15-15-95(b)(5). (Exhibit 1, Pgs. 89-93; Exhibit 8, Pg. 19)

15. The Planning Department recommended approval of the Project District Application and recommended approval of the SUP Application, subject to 22 conditions as described in the April 16, 2014, Staff Report (Exhibit 8). Said recommended conditions were revised and provided to the Commission for consideration on June 18, 2014. (Exhibit 9)

16. The Planning Department recommended a 30 year Special Use Permit time limit based on the anticipated useful life of the desalination plant, and stated that this was consistent with other long-term projects granted extended permit time limits although no other 30-year permit was identified. The Applicant testified that the 30 year limit was necessary due to the significant financial cost of the project, and that any shorter time period would render the project unfeasible. The project was designed to meet long-term needs for potable and non-potable water on the island of Lanai, as identified in the 2011 Lanai Water Use and Development Plan. (Exhibit 5, Pgs. 25-26, 28, 51; Exhibits 8, Pg. 3; Exhibit 9, Pg. 5)

17. The Commission found that the SUP 30-year time limit recommended by the Department and proposed by the Applicant was too long and further that the Commission should review requests for time extensions beyond the initial permit term. The Commission found that the Special Use Permit should not be 30 years due to the Commission's desire to review the project's operational status and the island's economy, after the project had been in operation for a period of time and prior to any extension of the SUP. (Exhibit 5, Pgs. 26-28, 51-52)

18. Members of the public testified as to their concerns that the project may affect the ocean. Testifiers questioned whether the project could affect the High Level Aquifer. The Applicant stated that safeguards include monitoring the supply water for salinity, to ensure that the supply wells only draw salt water. A permit condition recommended by the Department and agreed to by the Applicant included quarterly assessments of groundwater input to the near shore ocean waters and offshore water quality monitoring and reporting, which was adopted by the Commission without modification (Exhibit 4, Pgs. 4-5, 10; Exhibit 5, Pgs. 5, 24; Exhibit 9, Condition 10)

19. On July 8, 2014, the Applicant submitted a request that the Commission rescind

or amend its June 18, 2014, decision, stating that one of the conditions, Condition 23, impermissibly restricted use of water from the High Level Aquifer by properties located within the Manele Project District. The Applicant submitted that the Commission did not have the authority to restrict the Manele Project District's use of High Level Aquifer water, as that authority rests with the Hawaii Commission on Water Resources Management. Further, the Applicant submitted that Condition 23 had no nexus with the SUP application. At the Commission's July 16, 2014, meeting, the Applicant provided oral and written testimony in support of its request that the Commission amend its prior decision by eliminating Condition 23. (Exhibits 6, Pgs. 1-3, 7-12; Exhibits 7, 12)

20. It was moved, seconded, and approved to file the Applicant's communication as is with no action. (Exhibit 6, Pgs. 11-12)

III. CONCLUSIONS OF LAW

Based on the foregoing Findings of Fact, the Commission hereby enters the following Conclusions of Law:

1. To the extent that any conclusion of law is more properly characterized as a finding of fact, the Commission adopts it as such.
2. The Commission has jurisdiction regarding the approval of the Applicant's preliminary site plan pursuant to MCC §19.45.050(B).
3. Based on the record before it, evidence presented, and the findings set forth above, the Commission concludes that the Project District Application and preliminary site plan conform to the project district ordinance, which is Lanai Project District (Manele), Chapter 19.70, MCC, and include the criteria set forth in MCC §19.45.050(B). The uses proposed in the Project District Application are approved as "accessory uses" as defined in MCC §19.04.04.
4. Pursuant to HRS §205-6 and HAR §15-15-95(a), the Commission has jurisdiction regarding the SUP Application and may permit certain unusual and reasonable uses within the

Agricultural and Rural districts other than those for which the district is classified.

5. HAR §15-15-95(b) establishes the following guidelines in determining an “unusual and reasonable use.”

- (1) The use shall not be contrary to the objectives sought to be accomplished by chapters 205 and 205A, HRS, and the rules of the Land Use Commission;
- (2) The desired use would not adversely affect surrounding property;
- (3) The use would not unreasonably burden public agencies to provide roads and streets, sewers, water, drainage, and school improvements, and police and fire protection;
- (4) Unusual conditions, trends and needs have arisen since the district boundaries and rules were established; and,
- (5) The land upon which the proposed use is sought is unsuitable for the uses permitted within the district.

6. Based on the record before it, evidence presented, and the findings set forth above, the Commission concludes that the uses requested in the SUP Application constitute an “unusual and reasonable” use in the Agricultural district.

DECISION AND ORDER

Pursuant to the authority of the Commission as set forth in MCC §19.45.050(B), the Project District Application and preliminary site plan are APPROVED without modification.

Pursuant to HRS §205-6 and HAR §15-15-95, the SUP Application is hereby GRANTED, subject to the following conditions:

1. That the State Land Use Commission Special Use Permit shall be valid until June 17, 2029, subject to further extension by the Commission upon a timely request for extension

filed at least 90 days prior to its expiration. The Commission may require a public hearing on the time extension.

2. That the conditions of this State Special Use Permit shall be enforced pursuant to HRS §§205-12 and 205-13. Failure to comply with one or more of the conditions herein shall result in a notice of violation issued by the appropriate enforcement agency, notifying the permit holder of the violation and providing the permit holder no more than sixty (60) days to cure the violation. If the permit holder fails to cure the violation within sixty (60) days of said notice, the appropriate enforcement agency shall issue an order which may require one or more of the following: that the violative activity cease; that the violative development be removed; that a civil fine be paid not to exceed \$1,000 per violation; that a civil fine not to exceed \$5,000 shall be issued if violations not cured within six months of the issuance of the order. The order shall become final thirty (30) days after the date of its mailing or hand-delivery unless written request for a hearing is mailed or delivered to the planning department within said thirty (30) days. Upon receipt of a request for a hearing, the planning department shall specify a time and place for the permit holder to appear and be heard. The hearing shall be conducted by the planning director or the director's designee in accordance with the provisions of Chapter 91, HRS, as amended.

3. That the subject Land Use Commission Special Use Permit shall not be transferred without the prior written approval of the Lanai Planning Commission. However, in the event that a contested case hearing preceded issuance of said Land Use Commission Special Use Permit, a public hearing shall be held by the appropriate Planning Commission upon due published notice, including actual written notice to the last known addresses of parties to said contested case and their counsel.

4. That Pulama Lanai and its successors and permitted assigns shall exercise reasonable due care as to third parties with respect to all areas affected by subject Land Use Commission Special Use Permit and shall procure at its own cost and expense, and shall

maintain during the entire period of this Land Use Commission Special Use Permit, a policy or policies of comprehensive liability insurance in the minimum amount of ONE MILLION AND NO/100 DOLLARS (1,000,000.00) naming the County of Maui as an additional insured, insuring and defending Pulama Lanai and County of Maui against any and all claims or demands for property damage, personal injury and/or death arising out of this permit, including but not limited to: (1) claims from any accident in connection with the permitted use, or occasioned by any act or nuisance made or suffered in connection with the permitted use in the exercise by the Applicant of said rights; and (2) all actions, suits, damages and claims by whomsoever brought or made by reason of the non-observance or non-performance of any of the terms and conditions of this permit. A copy of a policy naming County of Maui as an additional insured shall be submitted to the Department within ninety (90) calendar days from the date of transmittal of the decision and order. The proof of insurance and all subsequent certifications of insurance coverage shall be submitted directly by the insurance carrier to the Department and shall include the applicable Tax Map Key and permit numbers.

5. That full compliance with all applicable governmental requirements shall be rendered.

6. That the Applicant shall submit to the Commission five (5) copies of a detailed report addressing its compliance with the conditions established with the subject Land Use Commission Special Use Permit. A preliminary compliance report shall be reviewed and approved by the Commission prior to issuance of the building permit. Plans regarding the location of any construction related structures such as, but not limited to trailers, sheds, equipment and storage areas and fencing to be used during the construction phase shall be submitted to the Department for review and approval prior to or along with the preliminary compliance report. The preliminary compliance report shall also include evidence that final construction plans are in substantial compliance with preliminary architectural plans dated

September 27, 2013. A final compliance report shall be submitted to the Department for review and approval prior to issuance of a final certificate of occupancy.

7. That the Applicant shall develop the property in substantial compliance with the representations made to the Lanai Planning Commission in obtaining the Special Use Permit. Failure to so develop the property may result in the revocation of the permit.

8. That Best Management Practices be used in the implementation of the proposed work. Appropriate measures to minimize dirt and water runoff, noise, and dust must be used.

9. That in the event that historic sites, including human burials are uncovered during construction activities, all work in the vicinity shall cease immediately, and the Applicant shall contact DLNR-SHPD at (808) 243-1285 on Maui, and shall notify the Lanai Archaeological Committee.

10. That the Applicant shall provide quarterly assessments of the groundwater input to the near shore ocean waters, outside and inside Hulopoe Bay and inside Manele Bay, Lanai, Hawaii. This assessment shall compare the current testing results with the testing that was done by Marine Research Consultants, Inc. in March 2014 to assess existing marine water chemistry within the coastal ocean waters downslope of the desalination facilities. Testing shall include six (6) transects that cover the ocean area below the source wells and disposal wells, and future testing shall include two (2) transects that are in areas that would not be affected by desalination facilities. The transects shall cover different depths and distances from the shoreline. The quarterly assessments shall begin upon initiation of construction of the project and may cease if this condition is modified by the Lanai Planning Commission. Quarterly reports shall be sent to the Lanai Planning Commission and Maui County Planning Department.

11. That the Applicant shall provide an Annual Report that includes: desalination facility capacity (mgd), water utilization, any emergency(ies) and corrective action(s) that have taken place, alternative energy components, value added product opportunities (such as disposal well alternatives), and archeological issues. This report shall be sent to the

Commission and Maui County Planning Department, and shall be posted on a Pulama Lanai website. The Annual Reports shall begin upon operation of the facility.

12. That the Applicant shall require all contractors, subcontractors, and employees to receive an orientation on the social culture of Lanai and to comply with all applicable county, state, and federal rules and laws, including those relating to alcohol, drugs and personal conduct. The Applicant shall provide a "hotline" telephone number for the public to report any emergency relating to the Applicant, contractor, subcontractor, or employee. The hotline shall be operational 24/7 and its telephone number shall be printed on notices that shall be sent to every post office box on Lanai and posted on a Pulama Lanai website. The 24/7 hotline may be discontinued after the facility is operational.

13. That the Applicant shall design the RO Desal Facility to ensure containment and treatment of any hazardous materials on-site and submit the plans for review and approval to the Fire Prevention and Public Safety to comply with their comment letter dated December 23, 2013, during the building permit review process prior to commencement of construction; and the Applicant shall prepare a Storm Water Best Management Practices Plan, to prevent any potential water pollution related practices, in compliance with the County's grading and erosion control ordinances prior to commencement of construction, to the satisfaction of the Department of Public Works, with evidence in the preliminary compliance report.

14. That the Applicant shall submit a parking analysis, parking plan and site plan including flood zone limits and designation prior to commencement of construction, to the satisfaction of Planning staff, with evidence in the preliminary compliance report.

15. That the Applicant shall contact the Department of Health, Clean Water Branch to determine whether a National Pollution Discharge Elimination System (NPDES) permit is required, prior to commencement of construction, to the satisfaction of the Department of

Health, to comply with their comment letter dated January 14, 2014, with evidence in the preliminary compliance report. Copies of the preliminary compliance report shall be sent to the Lanai Planning Commission.

16. That the Applicant shall obtain all proper permits issued through the Department of Health including, but not limited to air and noise. The Applicant shall provide in the Engineering Report an emergency plan for contamination and equipment failure, prior to commencement of construction, to the satisfaction of the Department of Health, to comply with their comment letter dated January 14, 2014, with evidence in the preliminary compliance report.

17. That the Applicant shall coordinate with the Department of Defense, to comply with their comment letter dated January 14, 2014, to ensure the installation of one (1) omnidirectional 121 db(c) solar powered, satellite/cellular controlled siren mounted on a 45-foot composite pole be installed for coverage of the proposed development, prior to commencement of construction, to the satisfaction of the Department of Defense, with evidence in the final compliance report.

18. That the Applicant shall coordinate with Maui County Department of Fire and Public Safety on the proposed project during the building permit review process for fire access, water supply for fire protection, fire and life safety requirements and the storage of hazardous materials, prior to commencement of construction, to the satisfaction of the Fire Department in compliance with their comment letter dated December 10, 2013, with evidence in the final compliance report.

19. That the Applicant shall coordinate with the State Department of Transportation with regard to obtaining a permit from the DOT Highways Division, Maui District Office, for the transport of oversized and/or overweight materials and equipment on State highway facilities, prior to commencement of construction, to the satisfaction of the Department of Transportation to comply with their comment letter dated December 4, 2013, with evidence in the final

compliance report.

20. That the Applicant shall coordinate with the U.S. Department of Fish and Wildlife Service to comply with their comments transmitted by email on December 27, 2013 with regard to the protection of native hoary bat and endangered or protected seabirds through Best Management Practices, prior to commencement of construction, to the satisfaction of the U.S. Department of Fish and Wildlife Service based on the December 27, 2013 comments, with evidence in the preliminary compliance report.

21. That the Applicant shall contact the Department of Health, Safe Drinking Water Branch, to comply with the Department of Health comments in their letter dated January 14, 2014, which will need to approve the quality of the Reverse Osmosis product of the Water Treatment Facility to ensure that it meets all potable water standards, prior to commencement of construction, to the satisfaction of the Department of Health, Safe Drinking Water Branch with evidence in the preliminary compliance report.

22. That the Applicant shall coordinate with the State Department of Historic Preservation Division with regard to ground disturbing activities should any archaeological resources or human burials be encountered during ground-altering activities, all work in the vicinity of the find will cease, and SHPD will be notified as required by HRS §6E-43.6 and Chapter 13-300, HAR, to the satisfaction of the State Department of Historic Preservation Division to comply with their comment letter dated January 22, 2014, with evidence in the final compliance report.

23. Once the desalination plant is operational no High Level Aquifer water will be pumped to or used in the Manele Project District except in the event of an emergency as determined by the Lanai Water Company and the Lanai Water Advisory Committee, and then only for human consumption.

24. The Applicant shall install a berm around the project's liquefied natural gas storage tanks, at a height greater than the height of the tanks, and the entry to that berm shall face toward the mountain or to Miki Basin, away from Lanai's electrical plant.


25. The land must be restored to its original state if the project does not move forward.

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The parties are advised of their right to appeal this Decision and Order pursuant to HRS §91-14, and Rule 12-401-32, Rules of Practice and Procedure for the Lanai Planning Commission.

Dated this 21 day of January, 2015, Lanai City, Lanai, Hawaii.

IN AGREEMENT



JOHN ORNELLAS
Chair
Lanai Planning Commissioner



STACIE LEE KOANUI NEFALAR
Vice Chair
Lanai Planning Commissioner



KELLI GIMA
Lanai Planning Commissioner



BEVERLY ZIGMOND
Lanai Planning Commissioner



BRADLEY OSHIRO
Lanai Planning Commissioner

NOT IN AGREEMENT

SHELLY BARFIELD
Lanai Planning Commissioner

STUART MARLOWE
Lanai Planning Commissioner

NOT PRESENT/EXCUSED ABSENCE

JOELLE AOKI
Lanai Planning Commissioner

CERTIFICATE OF SERVICE

In The Matter of The Application of

PULAMA LANAI

DOCKET NO.
SUP2 2013/0028 and PH2 2013/0001

To Obtain a State Land Use Commission Special Use Permit and Project District Phase II Approval for a proposed reverse osmosis desalination facility and distribution system located in the Manele Project District on Approximately 14.95 acres of Land at Maui Tax Map Key No. (2) 4-9-002:001 (por.), (2) 4-9-017:009 (por.) and 010 (por.), Manele, Lanai, Hawaii

Findings of Fact, Conclusions of Law and Decision and Order Granting a State Land Use Commission Special Use Permit and a Project District Phase II Approval for a Reverse Osmosis Desalination Facility and Distribution System

CERTIFICATE OF SERVICE

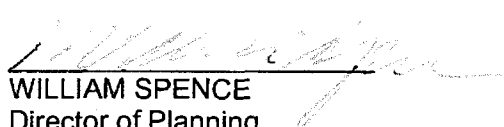
I hereby certify that a copy of the foregoing was duly served today, in the manner indicated below, upon the following parties by depositing the same with the U.S. mail, postage prepaid, addressed as follows:

KURT MATSUMOTO
Pulama Lanai
733 Bishop Street, Suite 2000
Honolulu, HI 96813

By Certified Mail No. _____
(Return Receipt Requested)

CRAIG NAKAMURA
Carlsmith Ball LLP
2200 Main Street, Suite 400
Wailuku, HI 96793

Dated: Wailuku, Maui, Hawaii, _____, 2015


WILLIAM SPENCE
Director of Planning
Department of Planning
County of Maui

(SUP2 2012/0032) (PH2 2013/0012)
(K:\WP_DOCS\PLANNING\SUP2\2013\0028_Manele_Desalination_Plant\Legal_Docs\Decision_&_Order_.doc)

BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Petition of
LANA'I RESORT PARTNERS

To consider further matters related to an Order To Show Cause as to whether certain land located at Manele, Lana'i, should revert to its former Agricultural and/or Rural land use classification due to Petitioner's failure to comply with Condition No. 10 of the Land Use Commission's Findings of Fact, Conclusions of Law, and Decision and Order filed April 16, 1991, Tax Map Key No. 4-9-002:049 (por.), formerly Tax Map Key No. 4-9-002:001 (por.)

DOCKET NO.: A89-649

CERTIFICATE OF SERVICE

CERTIFICATE OF SERVICE

I hereby certify that on this date a true and correct copy of the foregoing document was served upon the following by email and by depositing same via U.S.

Mail, postage prepaid on:

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Executive Director
Land Use Commission
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This Affidavit is provided in compliance with §15-15-50(c)(5)(C), HAR.

DATED: Wailuku, Hawaii, OCT 10 2016, 2016.



GALEB P. ROWE, ESQ.
MICHAEL J. HOPPER, ESQ.
Deputies Corporation Counsel
Department of the Corporation Counsel