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DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
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STAFF SUBMITTAL

for the meeting of the
COMMISSION ON WATER RESOURCE MANAGEMENT

August 15, 2012
Honolulu, Hawaii

Adoption of the Lanai Water Use and Development Plan for
Incorporation into the Hawaii Water Plan

SUMMARY OF REQUEST:

Staff recommends that the Commission adopt the February 25, 2011 DWS Amended Draft Lanai Water Use and Development Plan, which is an update to the County of Maui's Water Use and Development Plan.

AUTHORITY:

The State Water Code's Declaration of Policy recognizes the need for comprehensive water resources planning and establishes the Hawaii Water Plan (HWP) as the guide for developing and implementing this policy. The HWP is intended to serve as a continuing long-range guide for the Commission in executing its general powers, duties, and responsibilities assuring economic development, good municipal services, agricultural stability, and environmental protection.

The HWP currently consists of five major components (plans) identified as the: 1) Water Resource Protection Plan, 2) Water Quality Plan, 3) State Water Projects Plan, 4) Agricultural Water Use and Development Plan, and 5) County Water Use and Development Plans.

The Water Code recognizes that the HWP must be continually updated to remain useful and relevant and further specifies that "[e]ach county shall update and modify its water use and development plans as necessary to maintain consistency with its zoning and land use policies". §174C-31(q) HRS

Exhibit 1 summarizes the agencies responsible for preparing each of the components, the primary objectives, and the current status of each of the HWP components.

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WATER USE AND DEVELOPMENT PLAN (WUDP)

A separate WUDP is to be prepared by each of the four counties and adopted by ordinance. The objective of the WUDPs is to set forth the allocation of water to land use in that county. Administrative Rule §13-170-31 states that each WUDP shall include, but not be limited to:

(1) *Status of county water and related land development including an inventory of existing water uses for domestic, municipal, and industrial users, agriculture, aquaculture, hydropower development, drainage, reuse, reclamation, recharge, and resulting problems and constraints;*
(2) *Future land uses and related water needs; and*
(3) *Regional plans for water developments including recommended and alternative plans, costs, adequacy of plans, and relationship to the water resource protection plan and water quality plan.*

Additional guidelines for preparing the WUDPs are provided in Administrative Rule §13-170-32:

(1) *Each water use and development plan shall be consistent with the water resource protection plan and the water quality plan.*
(2) *Each water use and development plan and the state water projects plan shall be consistent with the respective county land use plans and policies, including general plan and zoning as determined by each respective county.*
(3) *Each water use and development plan shall consider a twenty year projection period for analysis purposes.*
(4) *The water use and development plan for each county shall also be consistent with the state land use classification and policies.*
(5) *The cost of maintaining the water use and development plan shall be borne by the counties; state water capital improvement funds appropriated to the counties shall be deemed to satisfy Article VIII, section 5 of the State Constitution.*

STATEWIDE FRAMEWORK FOR UPDATING THE HAWAII WATER PLAN

HRS Section 174C-31(n) provides that "[t]he commission may add to the Hawaii water plan any other information, directions, or objectives it feels necessary or desirable for the guidance of the counties in the administration and enforcement of this chapter".

In February 2000, the Commission adopted the Statewide Framework for Updating the Hawaii Water Plan (Framework). The objectives of developing and outlining a statewide framework for the Hawaii Water Plan are:

- To achieve integration of land use and water planning efforts that are undertaken by federal, state, county, and private entities so that a consistent and coordinated plan for the protection, conservation and management of our water resources is achieved;
- To recommend guidelines for the HWP update so that the plan and its component parts are useful to the Commission, other state agencies, the counties, and the general public;
- To develop a dynamic planning process that results in a "living document" for each component of the HWP which will provide county and state decision-makers with well

formulated options and strategies for addressing future water resource management and development issues;
- To better define roles and responsibilities of all state and county agencies with respect to the development and updating of the HWP components;
- To describe and outline the techniques and methodologies of integrated resource planning as the basic approach that should be utilized in developing and updating the County WUDPs;
- To facilitate permitting and to identify potential critical resource areas where increased monitoring or baseline data gathering should proceed;
- To establish an overall schedule for phased updating of the HWP; and
- To outline an Implementation Plan for near-term and long-term actions.

The Framework includes the following recommended plan elements for the County WUDP update process:

- County-Specific WUDP Project Description
- Coordination with Commission on Water Resource Management
- Stakeholder and Public Involvement
- Development of Policy Objectives and Evaluation Criteria
- Description of Water System Profiles
- Identification of Resource and Facility Options
- Development and Evaluation of Strategy Options
- Implementation Plan

The Framework further recommends integration of HWP components at the county level and advocates the use of an integrated resource planning (IRP) approach. IRP is a comprehensive form of planning that encompasses least-cost analyses of resource management options, as well as a participatory decision-making process. It involves the development of water resource alternatives that take into consideration communities and environments that may be affected, the numerous institutions concerned with water resource development and protection, and the potential for competing policy goals.

In adopting the Framework, the Commission recognized that each county faces a unique set of conditions that have an impact on the county's planning process, including:

- The nature and occurrence of water resources and existing infrastructure in the county;
- The planning issues and water use priorities the county must address;
- The financial resources available to the county; and
- The financial and organizational structure that has been established by its County Council and administration.

Thus, the Framework recognizes the need for appropriate flexibility and versatility to encourage innovation as well as to accommodate unique and county-specific concerns that may be addressed within the WUDP. In light of the above conditions, the Framework requires that each county develop a scope of work for updating its WUDP which best meets its overall objectives. The process by which these objectives are to be achieved should be set forth in a detailed project description and schedule for updating the County WUDP.

LANAI WATER USE AND DEVELOPMENT PLAN:

In compliance with the State Water Code, the County of Maui prepared and adopted the initial County of Maui WUDP by ordinance in October 1990. The Commission subsequently adopted it for incorporation into the HWP in November 1990. The 1990 Maui County WUDP consisted of one summary plan divided into island chapters to accommodate variances in water resources, ownership patterns, and development plans.

Maui County's WUDP was updated in 1992, along with all other HWP component plans, but Commission adoption was deferred pending additional refinement of plan components.

On February 18, 2004, the Commission approved the project description to update the County of Maui's WUDP (Exhibit 2).

On February 25, 2011, the Maui County Council adopted the Lanai WUDP under Ordinance No. 3885 Bill No. 60 (2011). The Lanai WUDP is a component of the Maui County WUDP.

On January 31, 2012, the Department of Water Supply transmitted the Lanai WUDP to the Commission for formal adoption by the Commission.

On June 13, 2012, the Commission held a public hearing on the island of Lanai, as required under the State Water Code.

The Lanai WUDP serves as a continuing long-range guide for water resource protection, development, and use to the year 2030. The plan provides an inventory of existing water sources and uses; an assessment of future land uses and related water needs; a resource development strategy to meet existing and future demands; an implementation plan; and a thoughtful discussion of policy issues and recommendations.

The Island of Lanai has a total sustainable yield of 6 million gallons per day (mgd). Virtually all of the island's available ground water resources are confined to dike compartments in the Central Aquifer Sector Area , which is divided into two aquifer system areas having sustainable yields of 3 mdg each (Exhibit 3). Recharge is highly dependent on the forested mauka watershed, with a significant amount deriving from fog drip. Although historical evidence suggests the existence of perennial streams, no surface water sources currently exist on the island. Lanai has two drinking water systems, one brackish water system used for irrigation, and two recycled water systems, also used for irrigation.

Total pumpage in 2008 was about 2.24 mgd. However, metered consumption was found to be 1.66 mgd. Therefore, Lanai's unaccounted for water was over 25% of production. This analysis revealed opportunities for supply-side savings, which are included in the proposed capital plan. However, unaccounted-for losses are already being addressed, and so water losses are less than that identified in the plan.

Future water demands were assessed based on the estimated rate of increase in demand predicted by economic and demographic considerations through 2030 and based on build-out of known projects and projects with Phase II approval. The estimated demand for projects with Phase II approval is over 5 mgd. However, with water conservation measures, total pumpage would be 3.7 mgd.

The resource development strategy includes new ground water source development, water reuse expansion, and desalination in addition to both supply-side and demand-side conservation (Exhibit 4). Pumpage from the Leeward Aquifer System Area, where most of the existing supply is currently derived, would be limited to 2.67 mgd under the plan. New Windward sources are identified and would be brought online as needed. Identified source contributions from the Windward Aquifer System Area total 2.58 mgd. Water conservation measures, which would contribute 0.485 mgd toward meeting demands, include pipe repair/replacement, fixture replacement, leak detection and repair, reservoir loss reduction, and various demand-side management programs. Total reclaimed water use, currently at 0.307 mgd, would rise to 0.416 mgd under the planning horizon. Under the strategy, desalination of 0.300 mgd would only be needed to meet build out demands.

A significant portion of the Plan addresses the issues of source water protection and watershed protection. The importance of watershed management and drinking water source protection are recognized along with proposed actions to achieve both. These include but are not limited to inventorying wells at risk from overland contamination, refinement of a well-head protection strategy, fencing valuable watershed areas, ungulate control, weed removal, and education.

ISSUES/ANALYSIS

I. Consistency with State Water Code Requirements and Recommended Framework Elements

The Lanai WUDP meets the statutory requirements set forth in the State Water Code and sufficiently addresses the recommended elements in the Framework pertaining to the update of the County WUDPs. The envisioned outcomes, benefits, and products support the Commission's duties and responsibilities set forth in HRS §174C-5, the requirements of the HWP described in HRS §174C-31, and the requirements for the WUDP described in the Administrative Rules.

II. Public Hearing

Following a 90-day statewide notice, the Commission held a public hearing on Lanai on June 13, 2012.

We received strong testimony in support of the adoption of the Lanai WUDP from the community and members of the Lanai Water Advisory Committee (LWAC). There was no testimony in opposition or any requests for changes to be made to the plan. Concerns were expressed regarding the future role of the LWAC, the ability of the community to have a strong voice, transparency and information dissemination on water use and development, unaccounted-for water, and the overall health of the aquifers and mauka forest.

III. WUDP Provisions

Lanai faces challenges with respect to its limited natural supplies, water needs for existing land use entitlements, watershed decline, and aging infrastructure. The following measures are identified as essential elements to be implemented in order to maintain the sustainability of ground water resources and meet demands:

- Watershed protection – development of a new watershed protection plan, fencing, ungulate removal, fire protection, invasive plant eradication, and erosion management. (It should be noted that Lanai has an existing watershed partnership covering 4,000 acres.)

- Water resource protection – well head protection, aquifer monitoring and reporting, watershed monitoring and recharge assessments, water use monitoring, and enforcement of existing water management allocation agreements.

- Water conservation – water recycling, demand-side management, education, replacement and/or repair of leaking pipes, leak detection and repair, and reservoir loss control.

- New supply resource development – develop Leeward Aquifer System Area sources (Well 15, replace Well 2-A, replace Well 3 equipment or drill a new well), expand wastewater recycling, develop Windward Aquifer System Area sources.

- Land use entitlements – determine whether sufficient water resources are available for new land use entitlements without unreasonable risk or harm to existing users or water resources based on: 1) non-exceedance of 90% of sustainable yield, 2) reservation of 0.5 mgd for an agricultural park, and 3) future resource developments that are identified and funded, with firm commitments for implementation.

IV. Chapter 343 – Environmental Assessment (EA) Compliance

Chapter 343 is not applicable to the proposed action. §HAR 11-200-5(d) provides

> *For agency actions, chapter 343, HRS, exempts from applicability any feasibility or planning study for possible future programs which the agency has not approved, adopted, or funded. Nevertheless, if an agency is studying the feasibility of a proposal, it shall consider environmental factors and available alternatives and disclose these in any future assessment or subsequent statement. If, however, the planning and feasibility studies involve testing or other actions which may have significant impact on the environment, then an environmental assessment shall be prepared.*

The water use and development plans are planning studies, which do not involve testing or other actions that will impact the environment. Therefore HRS Chapter 343 is not applicable to this agency action.

RECOMMENDATION:

Staff recommends that the Commission adopt the Lanai Water Use and Development Plan as an update to the County of Maui's Water Use and Development Plan for incorporation into the Hawaii Water Plan.

Respectfully submitted,

WILLIAM M. TAM
Deputy Director

Exhibit (s):

1 Hawaii Water Plan Components
2 County of Maui Water Use and Development Plan Update Project Description
3 Lana'i Aquifers and Sustainable Yield Values
4 Resource Development Strategy

APPROVED FOR SUBMITTAL:

WILLIAM J. AILA, JR.
Chairperson

Hawaii Water Plan Components

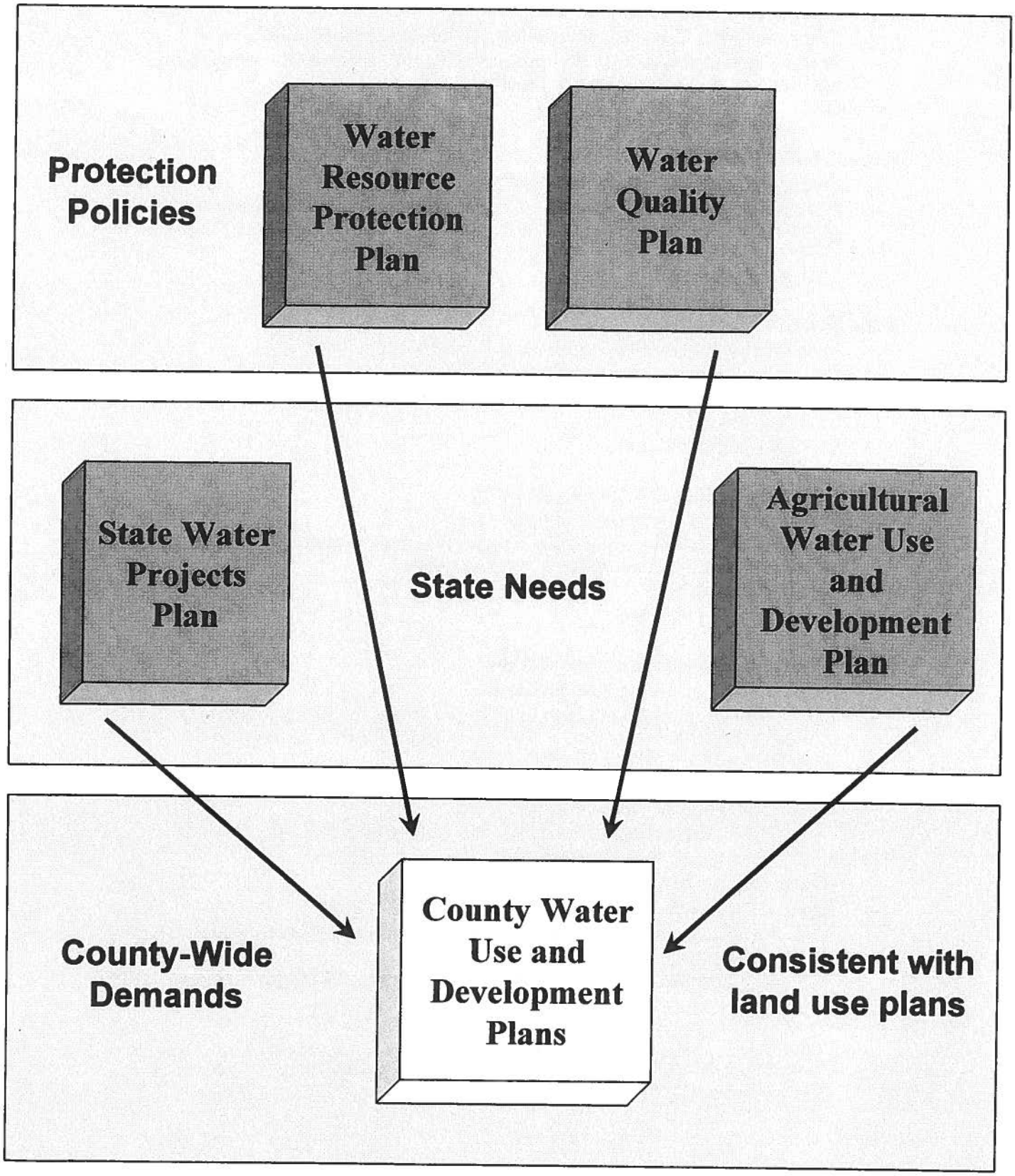

EXHIBIT 1

Hawaii Water Plan Components Status

- **Water Resource Protection Plan**
  - Prepared by the Commission on Water Resource Management
  - Protects and sustains statewide groundwater and surfacewater resources, watersheds, and natural stream environments.
  - Last updated in 2008

- **Water Quality Plan**
  - Prepared by the Department of Health
  - Protects the public health and sensitive ecological systems by preserving, protecting, restoring and enhancing the quality of ground- and surface-waters throughout the State
  - Last updated in 1990

- **State Water Projects Plan**
  - Prepared by the DLNR's Engineering Division
  - Provides a framework for planning and implementation of water development programs to meet projected water demands for State projects
  - Last updated in 2003
  - Currently being updated

- **Agricultural Water Use and Development Plan**
  - Prepared by the Department of Agriculture
  - Develops a long-range management plan that assess state and private agricultural water use, supply, and irrigation water systems
  - Last updated in 2004
  - Currently being updated

- **County Water Use and Development Plans**
  - Prepared by each of the four counties
  - Sets forth the allocation of water to land use through the development of policies and strategies to guide the County in its planning, management, and development of water resources to meet projected demands
  - Kauai County WUDP last updated in 1990
  - Maui County WUDP last updated in 1990
    - 2009 Central District Review Draft adopted by the County Council
    - 2011 Lanai Plan adopted by the County Council
  - Hawaii County WUDP last updated in 2010
  - City and County of Honolulu WUDP last updated in 2011
    - Koolau Loa and Waianae Watershed Management Plans adopted by the Commission in 2011
    - Koolau Poko, Ewa, and North Shore Watershed Management Plan update underway

ALAN M. ARAKAWA
Mayor

GEORGE Y. TENGAN
Director

JEFFREY T. PEARSON, P.E.
Deputy Director

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COMMISSION ON WATER RESOURCE MANAGEMENT

January 12, 2004

Ernest Y. W. Lau, Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Re: Request to Present Proposed Process and Project Description for Water Use & Development Plan Update to Commission

Dear Mr. Lau,

The Maui County Department of Water Supply has been working toward initiating a Water Use and Development Plan update process consistent with the guidelines in the *Statewide Framework for Updating the Hawaii Water Plan* (*Framework*). In keeping with these guidelines, we hereby submit a project description for updating the Maui County Water Use & Development Plan, and request that we be placed on the Commission's February Agenda to present our proposed process and milestones for the Commission's approval.

We intend to use the *Framework* as the blueprint for the proposed update. A brief description of key points of our proposed process follows:

BACKGROUND

System Overview

The County of Maui includes the islands of Maui, Molokai, Lana'i and Kahoolawe. The Maui Department of Water Supply serves roughly 35 million gallons per day to 32,000 customers on the islands of Maui and Molokai. The Department has about 262 MG in storage capacity, 39 deepwell sources with a pump capacity totaling about 58 MGD, and various intakes. The Department's 730 miles of pipe represent about 2/3 of the system's estimated value of $715 Million. Investment per account is roughly $23,000, as versus the national average from $4,000 - $8,000. In addition, the Department serves water to elevations over 4,000', making it an expensive system to operate and maintain. The Department serves water in 5 major district areas, delineated below.

FY2003 Annual Report - District Breakdowns

Central Maui	17,070 Meters	20.95MGD
Upcountry Maui	9,410 Meters	7.43 MGD
West Maui	3,107 Meters	5.28 MGD
East Maui	515 Meters	0.19 MGD
Molokai	1,5708 Meters	0.93 MGD
TOTAL	31,680 (DWS)	34.78 MGD

Roughly 41% of county water is sold to single-family residences, 18% to multi-family, 12% to agricultural uses, 12% to commercial and industrial uses, 8% to government and 8% to hotel uses, and <1% religious uses. These

numbers are rounded and reflect adjusted 2001 and 2002 data.

A sixth planning district, the island of Lana`i, is unique in that the County has no systems on the island, but is still responsible for county-level resource protection and planning functions for the area. Lanai has roughly 1,530 Meters - and currently consumes roughly 1.98 MGD . Kahoolawe is also technically a part of the County of Maui, but planning for this island falls under the auspices of the Kahoolawe Island Reserve Commission.

In addition, there exist within the county of Maui several private water systems, including: Lanai; Kaanapali / Aquasource / Pioneer Mill; Kapalua / Maui Land & Pine; Wailea non-potable; EMI Irrigation; Brewer; Molokai Irrigation; Molokai Ranch; and Makila Water System / Launiupoko Irrigation Company.

A USGS analysis of county-wide water data from the year 2000 indicated that just under 88% of water use went to irrigation, just under 12% to public supply, and just under ½% to industrial use.

Requirements

Requirements for the Water Use & Development Plans are set forth in HRS §174(C)-31, HAR Title 13, Subtitle 7 Chapter 170, and more recently in the guidance document *Statewide Framework for Updating the Hawaii Water Plan* (*Framework*). The following summary notes some highlights of the requirements only. The County Water Use & Development Plans are required to be consistent with State and County land use plans and policies, including the State Water Resource Protection Plan, Water Quality Plan, State Water Projects Plan, and Agricultural Water Use & Development Plan, and County Community and General Plans. The County WUDP is required to consider the status of water and development, inventory uses and sources, as well as future uses and related needs, consider regional development plans, capital costs, and the relationship between source proposals and resource protection and quality as well as other resulting problems and constraints. Water Use & Development Plans should be updated as necessary to remain consistent with other plans, consider a minimum of 20 year projection for analysis, utilize hydrologic units set by the State Commission on Water Resource Management and other information inventoried within the State Water Resources Protection Plan. Further guidance to establish an integrated resources planning process for water is set forth in the *Framework*. We have designed the proposed process to meet both Code requirements and guidance.

Prior Efforts

The 1990 Water Use and Development Plan was approved by County ordinance on October 19, 1990 and by the State Commission on Water Resource Management on November 14, 1990. Stipulations included the requirement for update of the plan. An update was drafted in 1992. In August and September of 1992 the Commission held briefings on the WUDP updates of all four counties and opted not to approve any of the four County WUDP updates. Instead, Commission staff proposed that the Commission spend additional time developing consistent standards and outline for the WUDP, among other steps. A three-fold approach was suggested, in which the Commission would develop goals and priority policy areas of the Hawaii Water Plan, use a general/community plan approach in which the WUDP would provide the general framework while Water Management plans focus on smaller pressure point areas, and adopt portions of the WUDP and State Water Projects Plan related to forecasts in order to establish the planning framework. A draft schedule included development of consistent standards and outline for the WUDPs. On April 20, 1993 the Board of Water Supply moved (in agenda item VII-D) "..that the Water Use & Development Plan for all three islands of Maui County be accepted as the current long range plan of Maui County, pending revision and update and further revisions when those updates are completed." The wording is awkward, but the intent was to accept the 1992 Draft as the interim Water Use & Development Plan. Two areas which were county-level pressure points included Molokai and Lana`i where designation of major aquifers had been proposed. Water Working Group reports were published for these islands in 1995 and 1997, respectively.

Project History

Due to designation issues on all three islands, CWRM staff requested that the Department begin the plan update process before the IRP guidelines were actually finished. In deference to this request, a contract was issued in 1997 for update of the Water Use & Development Plan, to focus initially on Lana`i. Therefore, the proposed Water Use & Development Plan update process includes the use of some work which was commenced prior to the establishment of the *Statewide Framework for Updating the Hawaii Water Plan*.

During preparation of the 1997 contract, DWS and CWRM staff discussed a "simplified" Integrated Resource Planning (IRP) process, one that would fit within the Department's budget, but still hold to the spirit of IRP. Elements of the initial process for each of six planning districts included the following:

- Regulatory Framework
- System Descriptions
- Range of Demand Forecasts & Analysis includes CP, regression, econometric
- Capital & Operational Considerations
- Supply Side, Demand Side & Alternate Development Options
- Resource Issues
- Contingency Plans
- Policy Considerations
- Externalities
- Summary & Conclusions
- Resolution of Issues Between Districts

The public process for Lanai is primarily finished, with most of the individual sections of the plan having been reviewed and approved by the Lanai Water Advisory Committee. The Lanai plan has yet to be compiled into a single cohesively written document, but the goal is to do so before the end of this fiscal year. The public process for West Maui commenced, but upon publication of the framework, DWS elected to put this process on hold pending re-evaluation of our contracts and approval of a proposed process, and then further delayed when it was decided to start with planning for the Central and Upcountry systems. Minutes and sample handouts of the initial meetings are attached.

The work described above was performed under a contract with M&E Pacific, which seemed limited in scope versus the guidelines proposed in the Statewide Framework. Upon publication of the framework, additional scope of work and contracts were bid. These contracts are described later in this document. However we will be requesting that the CWRM accept the work already completed as part of this WUDP update effort.

PROPOSED COMPONENTS OF THE UPDATED WATER USE & DEVELOPMENT PLAN

Districts

The initial scope for the Water Use & Development Plan update involved a chapter for each of six planning districts: Central Maui, Upcountry Maui, West Maui, East Maui, Molokai and Lana`i. However, due to conflicting policies regarding water resource use that arose during the Community Plan process, we now propose to combine the Central and Upcountry districts, in order to be able to resolve these discrepancies during the planning process.

The proposal now involves sections for Central Maui & Upcountry together, West Maui, East Maui, Molokai and Lana`i. In addition some time will be dedicated at the end to resolve any outstanding issues between districts. Each district chapter will be submitted to the County Council and Commission for approval upon completion.

Efforts will be made to identify and address potential conflicts between districts as the process moves along. However, a final period for resolution of any outstanding issues between districts is also proposed.

This schedule was designed to include 7 CWRM briefings: 1) process proposal, 2)Lanai District Chapter, 3) Upcountry/Central District Chapter 4) West Maui District Chapter 5) East Maui District Chapter 6) Molokai District Chapter, 7) Final resolution and compilation of all chapters. At the suggestion of Commission staff, we propose to add a mid-point briefing for the most complex Central/Upcountry Maui district, to insure that the process is moving in a fashion consistent with the Commission's wishes.

For purposes of data analysis, information pertaining to these six districts can be further broken into subdistricts which enable us to examine community plan areas as well as to examine system areas within districts more closely.

Public Stakeholder Participation & Information

DWS has committed to a robust public process. The core of this process will be the Water Advisory Committees for each district - which will take somewhat different forms depending upon the district.

In `Lana`i the Water Advisory Committee was established based on the balanced "Water Working Group" previously formed by the State Commission on Water Resources Management. Additional at-large members were selected by the committee from a pool of applicants. The Lanai WUDP update process was well underway when the Framework was published. However work toward this update has also included a robust public participation component. Meetings are posted & open to the public . When a controversial issue arises that needs broader input - such as the proposal for construction of a lanaihale fence, a broader public forum is advertised and held. This has worked well for Lana`i. It should also be noted that although the initial process called for only 3-6 meetings on Lanai, the LWAC was established as an ongoing advisory committee to the Department and continues to meet monthly with Department attendance on a quarterly basis. Although as stated above, the final draft has not been compiled, implementation of several of the committee's recommendations regarding primary objectives and issues is underway. A watershed protection program has been established. An ongoing advisory committee and discussion venue has been established. There have been improvements made in company water information systems and reporting, such as mapping, clarification of periodic water reports and preliminary efforts at customer use class analysis. So the process has been effective. Again, we hope to have the final WUDP for Lanai prepared by the end of fiscal year 2004. This document will be based on the 1997 Final Report of the Lanai Water Working Group as well as the considerable public process which has continued since.

Similarly, the primary advisory group on Molokai will probably be based on the participants identified by the State for its Water Working Group, with effort made to identify any additional interested parties or newer stakeholders.

In contrast, for West Maui participants were identified by extensive phone calling, soliciting suggestions from an initial shortlist of agencies, landowners, companies, private purveyors, community groups, etc. Included in the participant list were members of the Citizen's Advisory Committee for the Community Plans, as well as the County Planning Department. The full list of interested stakeholders was roughly 75 people. Agendas and minutes are sent to all of these and to other interested parties when requested. Despite the large invite list, meetings have not been unwieldy. Attendance at initial meetings averaged between 20 and 30 per meeting.

Central Maui and Upcountry Stakeholders are being identified by a similar process to those in West Maui. In addition, we plan to place an ad in the paper and a public service announcement on the radio to invite interested parties to participate. Because there are source questions which stand to have impacts on both districts, the Department is proposing to combine the Central Maui and Upcountry committees into one Water Advisory Committee. Finally, East Maui stakeholders will also probably be identified in this fashion.

Aside from the primary water advisory committees and issue specific meetings described above, another public participation strategy - the group focused on one issue - is being employed. The department has a wellhead protection advisory committee which has met several times with the aim of developing a wellhead protection strategy and ordinance to be proposed as part of the Water Use and Development Plan. Work produced by this group will be reviewed by Water Advisory Committees prior to final inclusion in the Water Use & Development Plan.

Early in the planning process, presentations will be offered to community associations or other interested groups to discuss basic information and invite participation. While there are no specific plans for surveys, if issues arise that seem to require this broader input, questions or surveys can also be sent out with billing or separately.
A small allowance has been budgeted in DWS operating budget to accommodate such needs should they arise.

Establishment of Objectives & Criteria

These will be established in several ways. Advisory Committee members will be polled both initially and after some group focus work to ascertain their key issues, objectives and criteria. Departmental staff will be polled internally, with issues that arise presented to the Water Advisory Committees. Presentations and exercises will also help to get at such criteria. Draft write ups describing objectives and criteria selected by each group will be run by these groups for review. Feedback from public hearings and presentations whether about the WUDP process or other topics will be considered and an effort made to raise these questions with the Advisory Committees.

Some of the issues of note in Maui include the recent designation of the Iao aquifer, balancing of resource preservation and development, pacing and equitablity of county availability policies, timing of entitlements, home rule and the need for the county to have access data and monitoring of all existing and proposed resource uses.

Examples of some preliminary work toward objectives and criteria for the West Maui Water Advisory Committee are found in the minutes and handouts attached. These were formulated in part before the publication of the Framework, and may be adapted. As noted above, a portion of the process has also been allotted to enable resolution of issues between districts or between objectives.

Demand Forecasts & Uncertainties

Several forecast methods will be employed. These include time trends, econometric forecasts using data prepared for the Community Plan process but with added factors (such as precipitation, degree days, etc.) included in the analysis; analysis of community plan build-out, discretionary projects on the books and needs of large landowners, developers and purveyors as solicited during the planning process. State Agricultural Water Use and Development Plan, State Water Project Plan, DHHL plans and other State and Federal plans as available will be referred to and incorporated. Efforts will be made to obtain updated data where these are dated. County use will be broken into user classes of single family, multi-family, commercial, industrial, hotel/motel, mixed residential/hotel, government, religious, and agricultural use. All use will be broken into classes to the extent feasible. Base case, low, med-low, med-high and high case forecasts will be developed. In addition, forecast ranges will include short term annual and 5,10,15, and 20 year forecasts as a minimum. Scenarios will be developed that are flexible enough to meet the low, base or high forecasts.

Source Development Options, Impacts & Selection

Some of these have been identified in the Department's Capital Planning process and these will be presented to the committees. Committee members will be polled for suggestions. Private purveyors will be requested to submit their planned requests. In addition, in terms of demand-side management, an ongoing contract for development and calibration of forecasting, conservation and cost-benefit analysis modules of IWR-Main Software will assist not only in future forecasting efforts, but also in evaluating conservation savings and costs of various programs from several perspectives including costs & benefits to the customer as well as to the utility. Options and strategies will be considered against uncertainties and contingencies, costs, and other criteria identified in the objectives process. In addition, options will be screened for performance against high, low and base case forecasts. An implementation matrix with near term, mid term and long range items will be developed.

Expertise Available to Perform the Work

The selected consultant team has an extensive planning background from various perspectives; engineering, forecasting, public relations and economic analysis.

Services to Augment the Water Use & Development Plan Process: Resource Strategies & Screening, Cost Benefit, Financial Analysis Sections of the Water Use and Development Plan, and Portions of Demand Analysis - Haiku Design & Analysis - Principal Investigator Carl Freedman

This is the major contract for analysis and preparation of the Water Use & Development Plan. Project scope and schedule are attached, but major items include the following:

- IRP Economic Analysis
- Estimates of marginal costs of supply by district
- Characterize & screen resource options
- Evaluate capital, operational and avoided costs
- Characterize & screen strategies
  - life-cycle, capital, operating, financing, other
- Various cost perspectives (rate-payer, utility, etc.)
- Reporting, Documentation, Presentations
- Improvement of Department Historical Billing Data

Maui County Water Use and Development Plan Update and Completion; M&E Pacific, Principal Investigator James

Kumagai.

- The scope of this contract was initially the "modified IRP" described in the section on project history above. However, the budget was small and relied primarily on in-house work, with work allocation to be negotiated as the contract went along. With the publication of the Framework, it was felt by both the Department and the Consultant that budget and effort described would not meet the State's guidelines. A new scope was drafted and bid with the approval of the consultant . Although the bulk of the Lanai WUDP was drafted under this old contract, consultant services for ensuing districts will focus more deeply on specific elements engineering, regulatory and policy aspects only for the upcoming districts. Advice and assistance will be rendered on the following issues: Regulatory Framework, System Descriptions, Capital & Operational Considerations, Hydraulic Analysis of Alternatives, Engineering Perspective on Resource Options, Assistance with Recharge Regimes, Engineering Perspectives on Contingencies, Guidance on Policy Issues. The initial scope was flexible enough to accommodate these revisions. The official contract scope and budget have not changed. However an allowance is budgeted in the event that a contract amendment is deemed necessary for this or any of the other contracts.

Development and Calibration of IWR-Main Demand Forecasting, Conservation Savings and Cost-Benefit Modules; Haiku Design & Analysis, Principal Investigator Carl Freedman

The elements of this project are as follows:

- Establish IWR-Main Workstation
- Gather Data Necessary for Forecasting Module
- Develop Range of Forecasts for Each District
- Document Forecast Procedures, Assumptions, etc.
- Gather Data for Conservation Cost-Benefit Module
- Preliminary Cost-Benefit Estimates of Measures
- Documentation & Recommendations For More Data
- Train DWS Staff on Forecasting Model

This project will improve both forecasting and conservation program planning for the WUDP process currently proposed as well as for future planning.

Facilitation and Related Services for the Update of the Water Use and Development Plan - Peter Adler, The Accord Group

The scope of this project includes the following items:

- Facilitate Water Advisory Committees
- Optimize Public Participation Process
- Provide training on group management to staff
- Assist in compliance with the Hawaii Water Plan Framework
- Documentation and Report on public process
- Prepare / Assist with Meeting Agendas & Materials
- Assist with Coordination of Plan Process

COORDINATION WITH CWRM & OTHER AGENCIES - SCHEDULE, MILESTONES, ASSISTANCE REQUESTED

Schedule & Milestones

The proposed schedule is attached. Assuming the process is approved in late February of 2004, the schedule calls for commencement of meetings in April of 2004.

As milestones we propose eight CWRM briefings over the roughly 4 year process. The first of these is the process proposal which is the subject of this agenda item. The second is a mid-point presentation for the Central/Upcountry Maui district. In addition, we propose to report back to CWRM at the completion of each of the five district chapters: Lanai, Central/Upcountry Maui; West Maui, East Maui, Molokai and to report a final time after any necessary work at the end for reconciliation of outstanding discrepancies between districts. We will request approvals with each of the latter six presentations.

We propose to complete a near-final draft chapter for Lanai by June 30, 2004. To make any final changes for draft submittal to Board, and Council by July 31,2004, and to be prepared with any county level revisions approved in time to present to the State Commission on Water Resources Management by October 2004.

We propose to combine the Central Maui and Upcountry Systems into one advisory committee and chapter. This will help us to resolve anticipated discrepancies and inconsistencies between the wishes of these communities during the planning process. Estimated time of completion for an initial review draft for these two districts is late July 2005, with review and approval steps continuing to October 2005. This allows some time for discussion, revisions as necessary and approvals of the proposed draft.

Next we will proceed to West Maui, scheduled for completion of review draft in May 2006 and Approval completion in December 06. East Maui will begin slightly after West Maui, but will be ongoing during the same time frame , and is scheduled for completion in December 06 with edits and approval completion by July 07, and finally Molokai is also scheduled to stagger with East Maui, and is scheduled for initial draft completion in November 2007 with edits and approvals scheduled for completion in June 2008. Final resolution between districts is also anticipated to occur between November 2007 and June 2008. This was initially designed as a three year process. However, additional time has been added to accommodate resolution between districts as well as public review, revisions and approvals, as these can be time consuming.

We propose to have each chapter approved independently by our Board, council and administration as well as by the State. Interim approvals of each of these chapters will enable these districts to have updated and approved WUDPs functioning pending final approval of the composite document. We propose a period at the end of the process to resolve any remaining inter or intra district issues.

Although this district by district approval process is not specified in the Framework, we believe that it is consistent with its intent and hope that the CWRM will find this process acceptable.

Assistance Requested

One of the most important forms of assistance that could be rendered by Commission staff in support of the planning process would be to provide updated and well-characterized ground and surface water use data for Maui County, especially for ground and surface water use by private purveyors. Assistance in revisiting apparent discrepancies in certain source data - especially regarding certain ditch withdrawals - would also be appreciated. Finally, we would appreciate assistance with acquisition and review of various private purveyor source permits such as pump permits, stream diversion permits, or even PUC filings or other data that can assist with characterization of private systems. These materials will also be requested from private purveyors, however as the repository for much of this work, CWRM staff is in a unique position to assist in these areas.

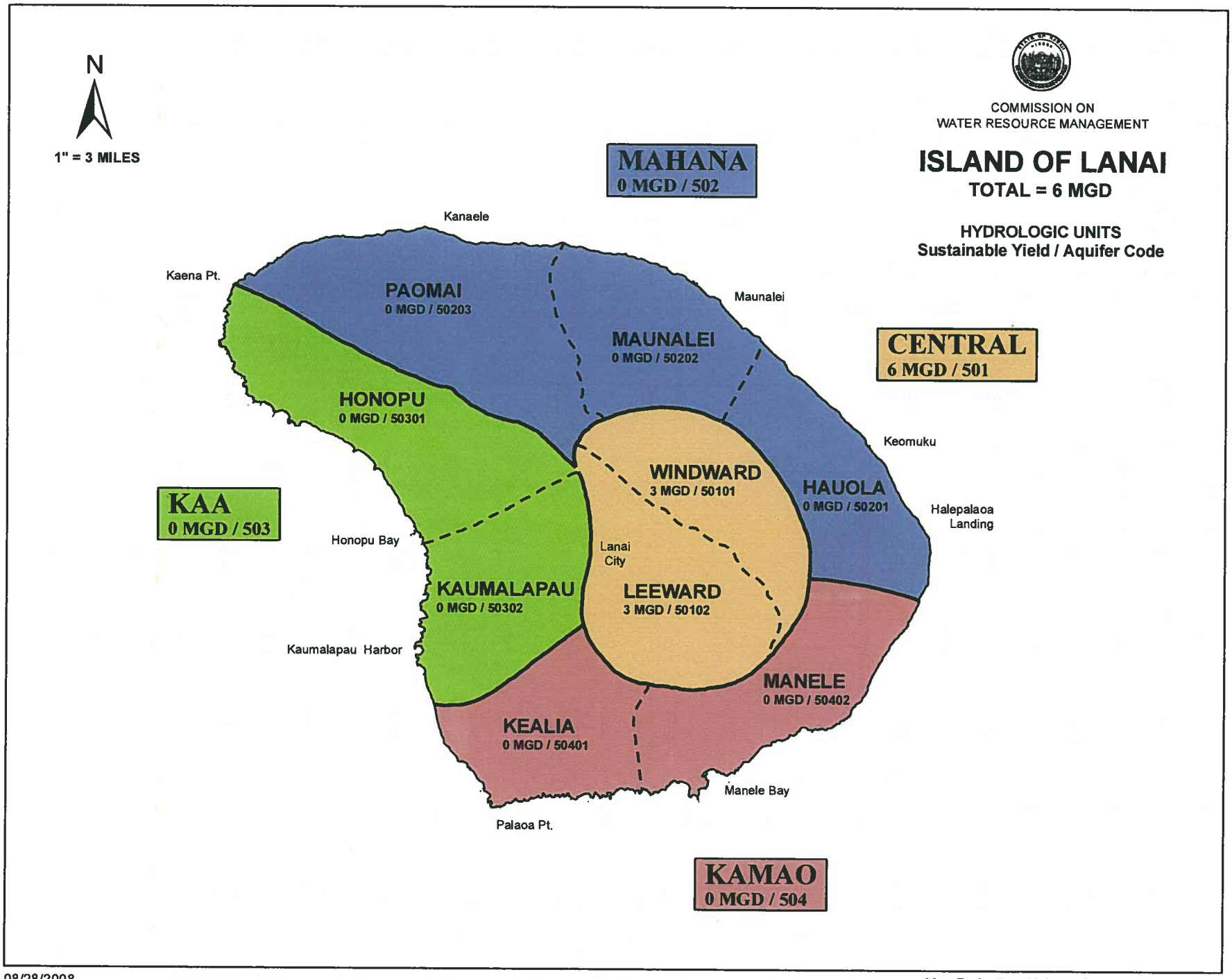
Additional information, including a PowerPoint presentation, will be provided at the meeting.

Please feel free to contact me at 270-7816, or Ellen Kraftsow of our Water Resources & Planning Division at 270-8045 should you have any questions. Thank you for your consideration of this request.

Sincerely,

George Y. Tengan
Director
elk

attachments:
minutes of West Maui meetings with handouts
scope of major contract with schedule
1997 final report of the Lana`i Water Working Group



Map ID: 1017

08/28/2008

Map Projection: Universal Transverse Mercator

EXHIBIT 3

RESOURCE DEVELOPMENT STRATEGY - SOURCE USE TO THE YEAR 2030

Land Use Category	Present Metered (2008)	Source Requirement with Target UAFW 12% in LCTY,KOPD,KPAU 15% in MNPD, IGGP	Pumped Water For Each Demand Stream Including UAFW 2010	2015	2020	2025	2030	Phase II Plus Other Known Projects
Koele PD - Fresh	149,128	169,464	185,149	157,403	185,909	206,816	229,426	335,507
Koele PD - Brackish	0	0	0	0	0	0	0	0
Koele PD - Reclaimed Water	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	367,508
Lana`i City & Related Areas - Other - Fresh	105,486	119,870	131,173	116,067	134,386	151,973	165,457	165,592
Lana`i City Housing Project				87,290	155,551	223,813	257,943	292,074
County Lana`i City Recreation Area				15,455	15,455	15,455	15,455	15,455
DHHL Project				11,591	112,386	115,114	129,091	143,068
Lana`i City Redevelopment Project				41,081	82,161	133,071	144,604	156,136
Kaumalapau Subdivision								30,682
Lana`i City & Kaumalapau - Conservation Target - Fresh			5,750	91,200	95,800	100,400	105,000	105,000
Potable Resource Reserve - 10% of Aquifer Sustainable Yield (300 KGal each)		600,000	600,000	600,000	600,000	600,000	600,000	600,000
Palawai IGGP - Agricultural - Fresh	28,044	32,993	35,590	19,616	22,707	28,074	28,524	28,067
Palawai IGGP - Agricultural - Reserve - Fresh			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	29,267	23,523
Palawai IGGP - Miki Basin Industrial Park (120 Kgal total offset by reclaimed)							86,629	93,262
Palawai IGGP - Agricultural - Brackish	0	0	0	0	0	0	0	0
Palawai IGGP - Other - Brackish	0	0	0	0	0	0	0	0
Palawai IGGP - Reclaimed Water from Lana`i City							60,000	60,000
Manele PD - Potable	322,641	441,348	405,819	189,448	149,726	242,046	284,311	474,603
Manele PD - Brackish (2008 actual metered)	760,357	650,000	650,000	650,000	650,000	650,000	650,000	650,000
Manele PD - Brackish Water Over 650,000 (2008 pumpage was 943,776, w/19% UAFW & water levels declini		244,538	112,634	163,191	199,091	240,285	270,220	294,639
Manele PD - Reclaimed Water from Lana`i City								124,666
Seawater to Brackish Desalt or Other Approved Source								300,000
Manele PD & IGGP - Conservation Target - Fresh			15,400	250,800	266,200	291,600	297,000	297,000
Manele PD & IGGP - Conservation Target - Brackish			14,000	27,800	41,600	55,400	83,000	83,000
Manele PD - Reclaimed Water	72,940	72,940	80,462	81,496	86,769	92,605	98,711	119,507
TOTAL	1,965,277	2,898,713	3,446,576	3,658,405	4,029,203	4,433,164	4,860,700	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
(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 (metered)	1,991,680 a	2,472,728 b	2,343,557 c	2,660,357 d	2,995,955 e	3,300,191 f	3,658,351 g

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

EXHIBIT 4