



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

STAFF SUBMITTAL

for the meeting of the  
COMMISSION ON WATER RESOURCE MANAGEMENT

September 19, 2012  
Honolulu, Hawaii

Adoption of the 2012 Koolaupoko Watershed Management Plan to  
Update the City and County of Honolulu's Water Use and Development Plan for  
Incorporation into the Hawaii Water Plan

SUMMARY OF REQUEST:

Staff recommends the Commission adopt the Koolaupoko Watershed Management Plan (February 2012), which is an update to the City and County of Honolulu'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.

### 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.*

### OAHU WATER MANAGEMENT PLAN

The initial HWP, including all component plans, was adopted by the Commission in 1990. In compliance with the State Water Code, the City and County of Honolulu enacted the Oahu Water Management Plan (OWMP) by Ordinance No. 90-62 and codified as Chapter 30, Articles 1, 2 and 3, Revised Ordinances of Honolulu (ROH), 1990, as amended. The OWMP serves as the WUDP for the City and County of Honolulu. The OWMP consists of policies and strategies, which guide the activities of the City and County of Honolulu and advises the Commission in the areas of planning, management, water development and use and allocation of Oahu's natural water resources.

The 1990 OWMP described existing uses of water and contemplated future needs for the island of Oahu. The plan highlighted regional water problems and identified major water development projects. It also described the quality of water required for the contemplated uses. Informational needs and data gaps identified in the plan included surface water availability and use and agricultural water demand projections.

The OWMP was updated in 1992, but Commission adoption was deferred pending additional refinement of plan components.

In 1999, the Honolulu Board of Water Supply (BWS) began the integrated island-wide water planning effort to update the OWMP. However, this approach met with significant opposition by the public. One of the major public concerns centered on the need to have equal focus on resource protection, conservation, and restoration as on water use and development. Communities wanted to be active participants in a community-based planning process. The communities also wanted assurance that there were sufficient water resources within their watersheds before island-wide regional water needs were addressed.

#### 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.

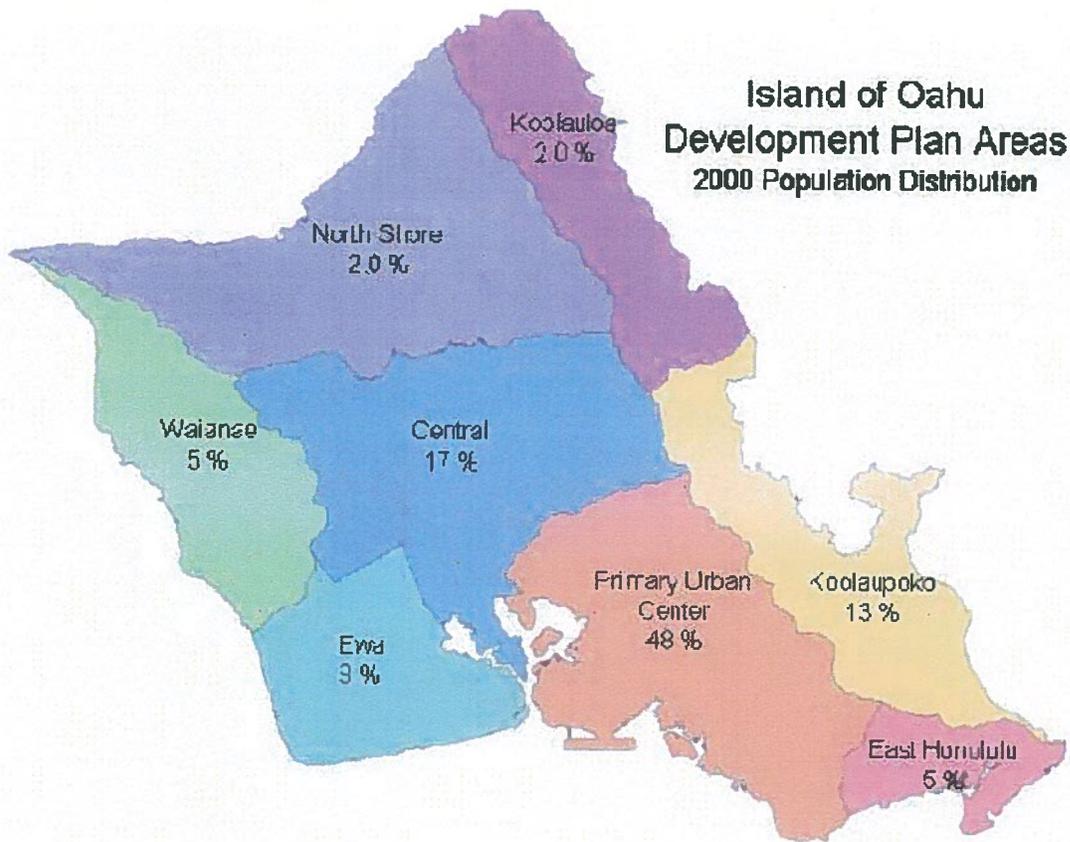
In adopting the Framework, the Commission recognized that each county faces a unique set of conditions that have an impact on the county's planning process, including:

- 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.

#### OWMP FRAMEWORK AND WUDP PROJECT DESCRIPTION

On March 17, 2004, the Commission approved the Oahu Water Management Plan Framework in conjunction with the Scope of Work (project description) for the Waianae and Koolauloa Watershed Management Plans (OWMP Framework; Exhibit 2). The OWMP Framework proposes individual planning documents referred to as regional watershed management plans, which collectively will be the updated OWMP. The regional watershed management plans will focus on resource protection, conservation and restoration as well as address current and future water needs for each of Oahu's eight land use planning regions.



Source: Koolāupoko Watershed Management Plan, 2009

Under the OWMP Framework, the eight regional Watershed Management Plans (WMP) will be developed using an ahupuaa planning approach and will share the following key themes:

- Community-Based
- Environmentally Holistic
- Action-Oriented
- Aligned with State and County Water and Land Plans and Policies
- Reflective of Ahupuaa Management Principles

The OWMP Framework proposes that each WMP will be submitted for approval as separate documents which support each respective development plan/sustainable communities land use plan.

Each of the WMPs will include an island-wide overview section. This will provide context for the regional WMPs. As each regional WMP is established, the island-wide overview section will be further refined.

On July 23, 2008, BWS submitted their project description for the Koolāupoko Watershed Management Plan (Exhibit 3).

On August 28, 2008, the Commission approved the project description. The approach is similar to that taken in the development of the Waianae and Koolauloa district WMPs. The Waianae and Koolauloa WMPs were adopted by the Commission on March 16, 2011.

#### KOOLAUPOKO WATERSHED MANAGEMENT PLAN:

On March 1, 2012, the City formally transmitted the Koolaupoko WMP to the Commission. The letter noted that the plan had also been submitted to the City Council for adoption.

On July 18, 2012, the Commission held a public hearing on the Koolaupoko WMP at the Waimanalo Public Library. The comments received are discussed further below.

On August 15, 2012, the Koolaupoko WMP was adopted by the City Council by ordinance.

The Koolaupoko WMP is a long-range plan to the year 2030 for the protection, preservation, restoration, and balanced management of ground water, surface water and related watershed resources for the Koolaupoko land use planning district. As noted above, the overall goal of the plan was to formulate an environmentally holistic, community-based, and economically viable watershed management plan that will provide a balance between:

- (1) the protection, preservation, and management of Oahu's watersheds; and
- (2) sustainable groundwater and surface water use and development to serve present users and future generations.

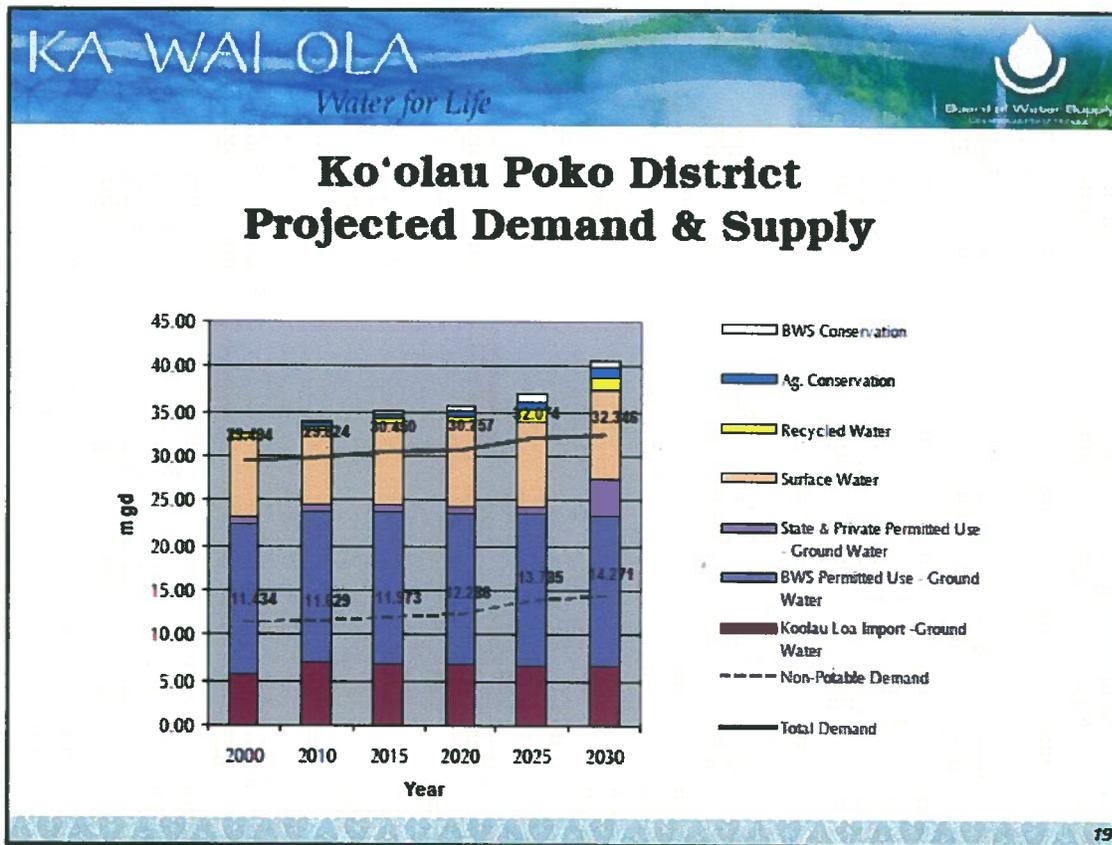
An extensive stakeholder consultation process was employed to capture regional issues and district-specific concerns. A list of the stakeholders consulted is provided in Exhibit 4. Through community outreach and consultation, region-specific objectives, sub-objectives, and strategies to meet these were developed (Exhibit 5). The development of these objectives, sub-objectives and strategies were facilitated through the regional approach outlined in the OWMP Framework. Extensive community involvement and detailed community concerns, values, and issues would not have been feasible though an island-wide scoping and update.

In terms of water use and development planning, the Koolaupoko WMP included the following key findings:

- Koolaupoko uses a combination of ground, surface, and recycled water sources to meet its water demands
- Adequate water supply exists in Koolaupoko
- Urban water use is projected to decrease as population decreases and conservation increases
- Decreases in pumpage will restore streamflow to the surface waters affected by groundwater pumpage
- Water conservation efforts will continue
- Non-potable water supply for agriculture and landscape irrigation needs to be developed
- Surface water can continue to supply agricultural demands, but improvements are needed to increase efficiency
- Water will continue to be imported from Koolauloa, but this water needs to be used efficiently

- Because of drought impacts to dike water sources, transfers need to be managed to build up aquifer storage

The following chart summarizes the projected water demand and supply strategies for Koolaupoko.



ISSUES/ANALYSIS

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

The Koolaupoko WMP 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. Regional WMPs versus Island-Wide WUDP

The State Water Code and Framework provide for the development of regional plans. These plans are “living documents” and must be continually updated to remain useful and relevant. This watershed-based approach is consistent with the “living document” approach that the Commission adopted for updating the HWP. The approach is consistent with ahupuaa-based management recommended in the Water Resource Protection Plan. Plans by their very

nature are temporary and must be continually reviewed, refined, and updated. Any discrepancies between districts will be addressed as part of the next iterative update for the region.

Each WMP includes an island-wide overview section to provide context for the regional WMPs. As each WMP is established, the island-wide overview section will be revised. Island-wide information in the overview section and appendices include: plan goals and objectives applying the watershed-based approach to holistic resource management; plans, policies, guidelines and controls covering federal laws, State Water Code, Hawaii Water Plan, Framework, water rights, public trust doctrine, the precautionary principle, and City land use plans and ordinances; urban and agricultural forecasts by land use district; sustainable yield, permitted use and water uses by water management area; mean perennial stream flows; existing and potential ground water, surface water and alternative sources of water to meet demand; summary of adequacy of supply; uncertainties and contingencies for ground water and surface water supplies and demand forecasts; and plan implementation.

### III. Public Testimony

The Commission received both oral and written testimony through the public hearing process. A summary of the questions/comments and staff's response follows:

- What effect will lining of the Maunawili Ditch have on the flows into Kawainui Marsh?

Staff response: There is uncertainty as to whether the leakage from the ditch system contributes to the marsh. Improvements in ditch system efficiency may result in a reduction of the amount of water needed to be diverted from the stream. This should result in an increase of natural flows to Kawainui Marsh.

- What assurances does the public have that the water resources from the Windward side of Oahu will not be used to supply new developments in leeward Oahu, such as Hoopili and Koa Ridge?

Staff response: The OWMP overview section in the Koolauapoko WMP identifies the amount and direction of transfers within the island-wide BWS system. The transfers identified in the Koolauapoko WMP are policies that are adopted by ordinance thereby requiring the BWS to adhere to them until the plans are updated. Water needs for new urban developments in leeward Oahu, such as those mentioned, are planned to be met using ground water from Central Oahu and Ewa aquifers. There are also options for increased conservation, conversion to reclaimed water (where appropriate), and desalination. This will be further addressed in the Ewa WMP, which is currently under development. In addition, the Commission has regulatory controls in place that would require Commission approval prior to the use of Windward waters for new Leeward developments.

- The plan states that there is no expectation for major growth in the Koolauapoko area. If a major development should occur, would a permit be required for that development to obtain water?

Staff response: If the development plans call for the installation of a private water system, then permits from the Commission would be required to develop a new well, increase pump capacity, and/or install a new pump. Commission approvals are also needed to divert surface waters. However, if the development seeks to obtain water from the municipal system, they would go to the BWS to get an allocation from the municipal system. If the BWS requires an increase in water allocation from the Commission to meet municipal demands, then the BWS would seek an increase in their allocation of water from the Commission. The entire Windward Oahu region is designated as a water management area so any withdrawal of groundwater requires a permit from the Commission to do so. The public has the opportunity to comment on or oppose proposed water use permits through the Commission's monthly public meetings when the permits are submitted for approval. The Commission also posts a monthly bulletin of all permit applications received by the Commission.

- How are Department of Hawaiian Homestead (DHHL) needs addressed in the plan?

Staff response: DHHL needs are accounted for through the State Water Projects Plan (SWPP), which is a component of the Hawaii Water Plan that feeds into the County Water Use and Development Plans. The SWPP is prepared by the Engineering Division of the Department of Land and Natural Resources (DLNR) and is intended to account for the water needs of State projects. The Engineering Division is currently conducting a partial update of the SWPP focusing on DHHL needs statewide. The Water Code and Framework require that DHHL needs are incorporated in the county water use and development plans. DHHL has a reservation from the Waimanalo Aquifer System Area, and their needs are accounted for in the Koolaupoko WMP. Therefore, water will be available for DHHL needs when their projects are developed.

We also received comments regarding various aspects of the Kawainui Marsh master plan update, including project goals, public access, the development and location of an interpretive facility/education center, and signage. Staff consulted the Divisions of Forestry and Wildlife (DOFAW) and State Parks (DSP), which are jointly spearheading the update of the 1994 Kawainui Marsh Master Plan. They noted the comments are similar to those being received from community organizations as part of the Kawainui-Hāmākua Marsh Complex master plan update project that started late last year. Stakeholder consultation is ongoing, and another public information meeting is planned for next November. DOFAW and DSP agree that these comments are more appropriately addressed in their master plan update project.

Finally, testimony was received that noted the stellar job BWS and their consultants have done in regards to their community outreach in developing the Koolaupoko WMP.

#### IV. Timeframe for Completion of all the WMPs

BWS has submitted an updated schedule for completing the WMPs. The following table lists the eight land use districts on Oahu with the revised funding schedules and revised target dates for submittal to the Commission for plan approval as of September 2012. The revised dates are estimates, based on best available information from recent experience in compiling

a comprehensive watershed based plan with a significant public participation component and an extensive plan endorsement/approval process with the neighborhood boards, City Council and Commission. The schedule is highly dependent on available funding from both BWS and City Department of Planning and Permitting (DPP) and therefore subject to change.

Watershed Planning Areas	BWS/DPP Funding Schedule	Target Dates for Submittal to CWRM for Plan Approval
Waianae, Koolauloa	FY 2004	Submitted to CWRM in 2010 Adopted in 2011
Koolaupoko	FY 2008, 2009, 2010	Submitted to CWRM in 2012. Adoption in 2012
North Shore	FY 2008, 2010, 2011	2014
Ewa	FY 2012, 2013	2014
Central Oahu	FY 2013, 2014	2016
Primary Urban Center	FY 2015, 2016, 2017	2018
East Honolulu	FY 2016, 2017	2018

The multi-year funding schedule is proposed due to the following reasons:

1. Plan complexity of the watershed approach to water resource management. The Statewide Framework recognizes that implementation of the requirements and recommendations will need to be phased over the next several years and possibly over successive iterations of the updating process for the Hawaii Water Plan. (Statewide Framework Implementation Plan, Page 4-1)
2. BWS and DPP budgetary and staffing constraints.
3. To allow time for the completion of the State Agricultural Water Use and Development Plan for all agricultural zoned areas on Oahu.
4. Provide allowances for the lengthy plan approval process at the 36 neighborhood boards, City Council and Commission levels.

V. Chapter 343 – Environmental Assessment (EA) Compliance

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

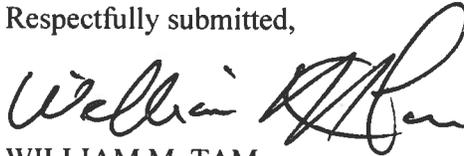
*For agency actions, chapter 343, HRS, exempts from applicability any feasibility or planning study for possible future programs which the agency has not approved, adopted, or funded. Nevertheless, if an agency is studying the feasibility of a proposal, it shall consider environmental factors and available 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 watershed management 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 Koolaupoko Watershed Management Plan as an update to the City and County of Honolulu's Water Use and Development Plan for incorporation into the Hawaii Water Plan.

Respectfully submitted,



WILLIAM M. TAM  
Deputy Director

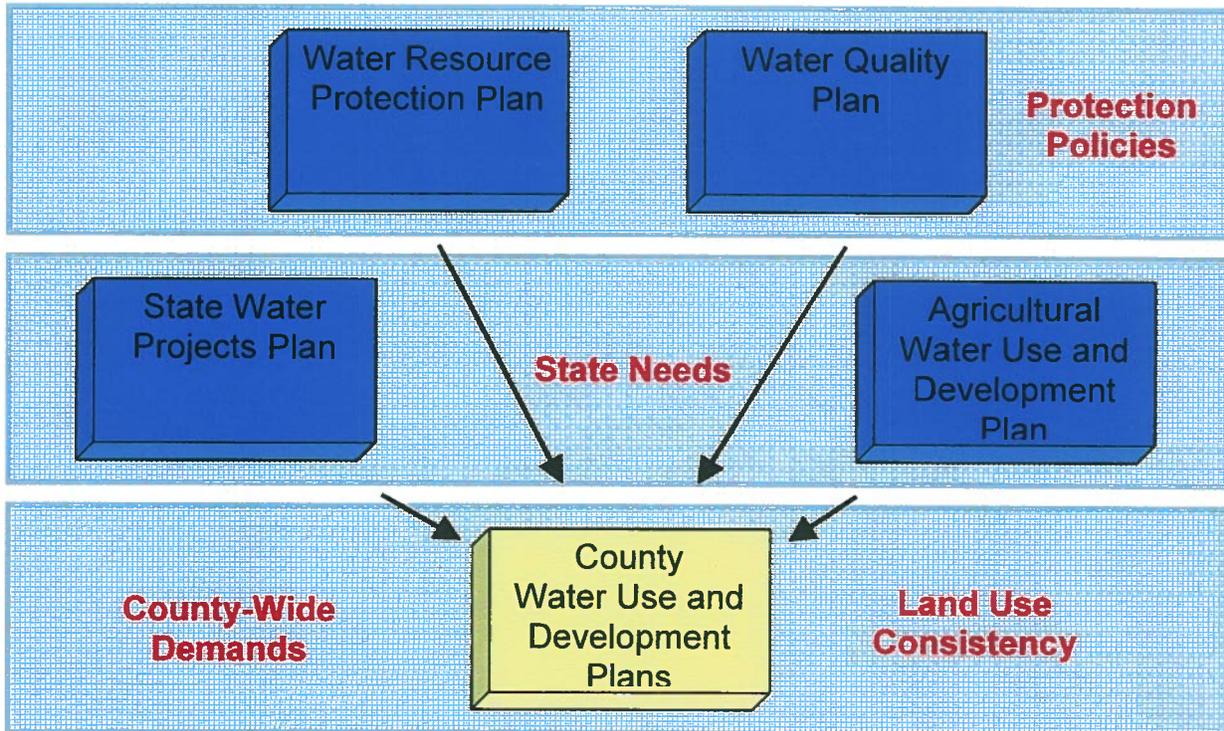
- Exhibit (s):
- 1 Hawaii Water Plan Components
  - 2 OWMP Framework
  - 3 Project Description for the Koolaupoko Watershed Management Plan
  - 4 Stakeholder Consultation List
  - 5 Summary of Objectives, Sub-Objectives, and Strategies

APPROVED FOR SUBMITTAL:



WILLIAM J. AILA, JR.  
Chairperson

## HAWAII WATER PLAN COMPONENTS



### Water Resource Protection Plan:

- Prepared by the Commission on Water Resource Management
- Protects and sustains statewide ground- and surface-water resources, watersheds, and natural stream environments
- Last update in 2008; next update planned for 2013

### 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 update in 1990; partial update underway for groundwater quality protection only

### State Water Projects Plan:

- Prepared by the Department of Land and Natural Resource's Engineering Division
- Provides a framework for planning and implementation of water development programs to meet projected water demands for State projects
- Last update in 2003; partial update underway for Department of Hawaiian Home Lands only

### Agricultural Water Use and Development Plan

- Prepared by the Hawaii Department of Agriculture

- Develops a long-range management plan that assess state and private agricultural water use, supply, and irrigation water systems
- Last update in 2008, draft is under review by DOA

County WUDPs:

- Prepared by each County's Planning and/or Water Department
- Sets forth the allocation of water to land use in each county
  
- County of Hawaii
  - Adopted by the Commission in 2011
  
- County of Maui
  - Lanai Water Use and Development Plan adopted by the Commission in 2012
  - Maui Island update underway
  
- City and County of Honolulu
  - Koolauloa and Waianae Watershed Management Plans adopted by the Commission in 2011
  - North Shore Watershed Management Plan underway
  - Ewa Watershed Management Plan underway
  - Koolaupoko Watershed Management Plan up for Commission adoption



Oahu Water Management Plan Framework  
And Scope of Work for Wai`anae and Ko`olauloa  
Watershed Management Plans

Submitted to the State Commission on Water Resource Management  
in Compliance with the Statewide Framework for Updating the Hawaii  
Water Plan, Oahu County Water Use and Development Plan.

Attachment to BWS Transmittal Letter to CWRM, Dated February 20, 2004.

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OWMP Framework Summary

The OWMP consists of policies and strategies, which guide the activities of the City and County of Honolulu and advises the State Commission on Water Resource Management (CWRM) in the areas of planning, management, water development and use and allocation of Oahu’s natural water resources. The OWMP framework proposes regional plans entitled “watershed management plans” and shall be consistent with the following:

1. State Water Resource Protection Plan, State Water Quality Plan, State Water Projects Plan, State Agricultural Water Use and Development Plan and Department of Hawaiian Home Lands water plans as listed in Chapter 174C-31, Hawaii Water Plan, State Water Code.
2. The Statewide Framework for Updating the Hawaii Water Plan (Statewide Framework)
3. The General Plan for the City and County of Honolulu. The General Plan is a comprehensive statement of objectives and policies, which sets forth the long range aspirations of Oahu’s residents and the strategies of actions to achieve them. It is the focal point of a comprehensive planning process that addresses physical, social, economic and environmental concerns affecting Oahu. This planning process serves as the coordinative means by which the City provides for the future growth of the metropolitan area of Honolulu. <http://www.honoluluodpp.org/Planning/OahuGenPlan.asp>
4. 8 Development Plan (DP) and Sustainable Community Plan (SCP) land use planning regions of Oahu. Each community oriented land use plan is intended to help guide public policy, investment, and decision making over the next 20 years. Each plan responds to specific conditions and community values of each region. Ewa and Primary Urban Center are “development plan” areas where growth and supporting facilities will be directed and be the policy guide for development decisions and actions needed to support that growth. The remaining 6 land use areas are “sustainable communities” plans, which are envisioned as relatively stable regions in which public programs will focus on supporting existing populations. The following table lists the 8 land use planning reports with links.

Oahu’s Land Use Planning Regions	Web Page Links to the Plans
Waianae	<a href="http://www.honoluluodpp.org/Planning/DevSust_Waianae.asp">http://www.honoluluodpp.org/Planning/DevSust_Waianae.asp</a>
Ko`olauloa	<a href="http://www.honoluluodpp.org/Planning/DevSust_Koolauloa.asp">http://www.honoluluodpp.org/Planning/DevSust_Koolauloa.asp</a>
Ko`olaupoko	<a href="http://www.honoluluodpp.org/Planning/DevSust_Koolaupoko.asp">http://www.honoluluodpp.org/Planning/DevSust_Koolaupoko.asp</a>
North Shore	<a href="http://www.honoluluodpp.org/Planning/DevSust_NorthShore.asp">http://www.honoluluodpp.org/Planning/DevSust_NorthShore.asp</a>
Ewa	<a href="http://www.honoluluodpp.org/Planning/DevSust_Ewa.asp">http://www.honoluluodpp.org/Planning/DevSust_Ewa.asp</a>
Central Oahu	<a href="http://www.honoluluodpp.org/Planning/DevSust_CentralOahu.asp">http://www.honoluluodpp.org/Planning/DevSust_CentralOahu.asp</a>
East Honolulu	<a href="http://www.honoluluodpp.org/Planning/DevSust_EastHonolulu.asp">http://www.honoluluodpp.org/Planning/DevSust_EastHonolulu.asp</a>

Primary Urban Center	<a href="http://www.honoluludpp.org/Planning/DevSust_PrimaryUrbanCenter.asp">http://www.honoluludpp.org/Planning/DevSust_PrimaryUrbanCenter.asp</a>
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5. City and County of Honolulu Ordinance 90-62, Water Management establishing the Oahu Water Management Plan establishing water management policies and strategies “for water use and development within each development plan area.”
6. Annual Report to the Twenty-First Legislature 2001 Regular Session on Act 152, SLH 2000, Relating to Watershed Protection. The annual report set forth the development of a watershed master plan, including identifying protected watersheds areas, enhancement projects and an implementation plan.
7. Supreme Court Decision on Waiahole Ditch Contested Case applying the Public Trust Doctrine and the Precautionary Principle to water resource management.
8. BWS Sustainability Vision and Mission of “Water for Life” to enhance the quality of life of our community by providing world-class water services. Protecting the environment and supporting Oahu’s economy while involving the community achieve BWS goals of sustainable water supplies for future generations. BWS accomplishes these goals with our watershed protection and water conservation partnership programs and diversifying our water supplies, both natural and alternative technologies, such as recycled water, seawater desalination and ocean resource development.

Background:

The Commission in 1990 formally adopted the initial Hawaii Water Plan, prepared by various state and county agencies. Further updates in 1992 were deferred pending additional refinement of plan components. In 1994, the City and County of Honolulu began their initial revision to the Oahu Water Management Plan. The draft OWMP update was completed in January 1998 and is the most current reference document. However, it was not submitted for adoption because Oahu’s water situation was in a state of flux, with major changes in the agriculture industry, including the closing of the Oahu Sugar Company and the Waialua Sugar Company.

In 1999, the Honolulu Board of Water Supply (BWS) initiated the integrated resource planning process to update the Oahu Water Management Plan, Oahu’s County Water Use and Development Plan. The integrated islandwide water planning effort was met with significant opposition, which surfaced in our public participation process. After almost two years of effort, we did not move beyond the public participation process and so before we started the water planning stage, we decided to stop and re-evaluate our approach. We summarize the main lessons learned as follows:

1. It is important to have equal focus on resource protection, conservation and restoration as on water use and development. There needs to be a reassurance that our natural resources are protected and our water supplies are sustainable before planning on water use and development can successfully occur.

2. It is important to elevate the community's knowledge about water related issues so the interested community can actively participate in a community-based planning process. It is equally important that the planning document is written so that it is easily understood.
3. The islandwide integrated approach elevated community concerns on growth limits and regional water transport. The integrated approach is more complex on Oahu because approximately ¾'s of Oahu's water systems are interconnected. The communities needed assurance that there were sufficient water resources within their watersheds before islandwide regional water needs were discussed.

In February 2000, CWRM adopted a framework for updating the Hawaii Water Plan to provide focus and additional guidance to each agency responsible for updating specific plan components. CWRM recognized the complexities in addressing water resource planning and views the plans as "living documents which over several plan iterations will result in a truly comprehensive water plan" (Statewide Framework page 1-2)

In August 2000, the Hawaii Supreme Court's decision on the Waiahole Ditch Contested Case, and the remand hearings, provided additional guidance for water resources planning, like the precautionary principle. In addition, three public trust uses of water were identified; domestic use, instream use and water for traditional and cultural practices. Commercial and agricultural water uses are in a lower category.

In 2001, BWS broadened its mission to "Water for Life", which strives for sustainability of all water supplies and to enhance the quality of life of our community by providing world-class water services.

The 2000 Act 152 Watershed Protection required the development of a watershed protection master plan that identified priority watersheds and protection projects for implementation. Act 152 renewed BWS investment in watershed protection recognizing the importance of watersheds for the sustainability of our groundwater supplies and streams. To date, about \$1 million has been invested by BWS into Oahu's watersheds and aquifers. Noteworthy watershed protection projects are as follows:

- Ka`ala Bog Fencing to prevent feral animals from destroying the Mt. Ka`ala native habitat.
- Grant to the Oahu Invasive Species Committee to control invasive plant species within the Ko`olau watersheds
- Ala Wai Mauka Restoration Project for the Ko`olau Mountain Watershed Partnership
- BWS and Kamehameha Schools funded a USGS study to assess the hydrological and biological features and also funded the Punalu`u Agricultural Lands and Irrigation System Assessment to help set the in-stream flow standard for Punalu`u Stream.
- Waihe`e Valley Make a Difference Day invasive species removal
- Malama O Manoa "Kuleana Project" to change the residential practices of the Manoa Ahupua`a to increase awareness of water conservation and polluted runoff control.
- Watershed protection studies in Ala Wai, West Honolulu and Central Oahu.
- Ka`ala Farms and Mohala I Ka Wai educational awareness program
- Makaha Valley Restoration project
- Wai`anae and Ko`olauloa Watershed Management Plans

From 2001 to the present, several mountain and urban watershed partnerships have been established among BWS, agencies, organizations and community groups. Together, these partnerships have identified watershed protection projects and plans have been developed and funded. The following partnerships have been developed:

- Ko'olau Mountain Watershed Partnership
- Mohala I Ka Wai in Wai'anae
- Punalu'u Watershed Partnership
- Waihe'e Ahupua'a Initiative
- Ahupua'a Restoration Council of He'eia
- Malama O Manoa
- Wai'anae Kai Watershed Partnership
- University of Hawaii Manoa / BWS Water Conservation Partnership
- Hawaiian Electric Co. / BWS Energy and Water Conservation Partnership

#### Watershed Planning Approach:

The OWMP Framework proposes individual planning documents referred to as regional watershed management plans, which collectively will be the Oahu Water Management Plan. The regional watershed management plans will address the water needs, both present and future, for the 8 land use districts on Oahu. Rather than an islandwide approach brought down to each watershed, the watershed planning approach will start from the basic planning unit, each watershed or "ahupua'a" and expand it to the region or "moku". It is important that this watershed management plan allow equal focus on resource protection, conservation and restoration as well as on water use and development. The watershed approach is supported by the following references:

- The planning regions will be consistent with and support each of the 8 DP/SCP land use planning regions established in the General Plan. The State Water Code, Chapter 174C-31(b)(2), requires that "Each water use and development plan shall be consistent with the respective county land use plans and policies, including general plan and zoning".
- The Statewide Framework for Updating the Hawaii Water Plan, Page 3-26, Need for Flexibility, recognizes the need for appropriate flexibility in the county plans due to institutional and /or funding constraints, to encourage innovation as well as to accommodate unique and county-specific concerns.
- The Statewide Framework Page 3-19 also requires the preparation of "regional plans for water development including recommended and alternative plans, costs, adequacy of plans and relationship to water resource protection and quality plan." (Emphasis added).

The watershed management plans will have the following key themes:

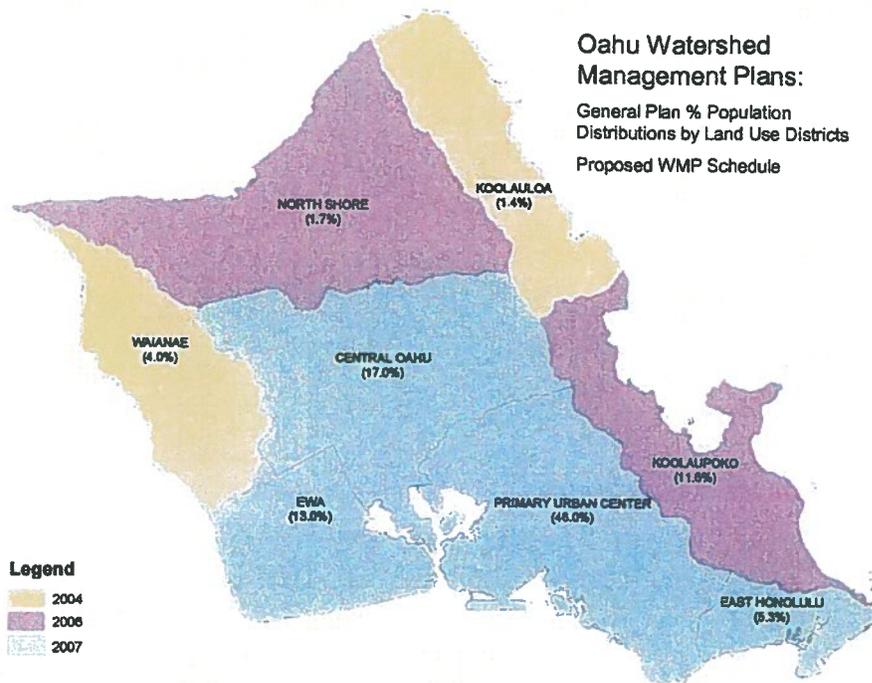
- Community-Based: In addition to public meetings, there will be many small group meetings with the community to educate, understand and apply the community's thinking and values about water resources. A wide-range of community meetings will be conducted including regional organizations such as Mohala I Ka Wai, Malama Ohana and the Neighborhood

Boards, to local councils and associations, down to key individual meetings. The BWS watershed partnerships will be asked to provide representation for the community and key stakeholder groups.

- **Environmentally Holistic:** The watershed approach from mountains to the coral reefs recognizes the inter-dependence of water and land. The watershed management planning approach will not only address water use and development in the urban and agricultural zoned lands, but also describe protection strategies and enhancement projects for the forest reserves, conservation districts, streams and near-shore waters.
- **Action-Oriented:** The plan will describe specific watershed protection projects as well as natural and alternative water supply facilities that can be implemented by federal, state and city agencies and programs. The projects will be presented in a budgetary level format with information specific enough to support grant funding requests or an agency's capital improvement program.
- **Alignment with State and County Water and Land Use Policies** as stated above.
- **Reflects Ahupua`a Management Principles:** The watershed management plans will incorporate Ahupua`a principles in the plans. The community's help will be needed to identify their thinking and values about water. Living with Ahupua`a values and protocols is very important to culturally intact communities, like Wai`anae and Ko`olauloa. Ahupua`a principles are not major factors in all districts, such as the urban metropolitan districts, however, these principles can still be used to guide water resource planning.

Proposed Schedule of Funding and Plan Approval:

The Oahu graphic below, shows the 8 land use areas on Oahu and the proposed funding schedule for the watershed management plans.



The following table lists the proposed funding schedules and anticipated target dates for submittal to CWRM for plan approval. The approval dates are based on an 18-month planning time frame and are only estimates and therefore subject to change.

Watershed Planning Areas	BWS Funding Schedule Fiscal Year	Target Dates for Submittal to CWRM for Plan Approval
Wai`anae, Ko`olauloa	FY 2004	1 <sup>st</sup> Qtr FY 2006
North Shore, Ko`olaupoko	FY 2006	2 <sup>nd</sup> Qtr FY 2007
South Oahu: (Ewa, Central Oahu, Primary Urban Center, East Honolulu)	FY 2007	2 <sup>nd</sup> Qtr FY 2008

\* BWS Fiscal Year is July 1 to June 30.

The four-year funding schedule is proposed due to the following reasons:

1. The Statewide Framework recognizes that implementation of the requirements and recommendations will need to be phased over the next several years and possibly over successive iterations of the updating process for the Hawaii Water Plan. (Statewide Framework Implementation Plan, Page 4-1)
2. BWS budgetary and staffing constraints.
3. As this watershed approach is new and unique, we are proposing an 18-month planning process to develop a baseline format and obtain the necessary approvals.

4. Wai`anae, Ko`olauloa, North Shore and Ko`olaupoko are designated as low growth, sustainable communities in the General Plan. The water demand projections for these areas show only marginal water demand increases through the planning horizon, currently 2025.
5. BWS is participating in active watershed partnerships in the Wai`anae and Ko`olauloa areas among others and these partnerships could assist in the public participation process.
6. South Oahu will be funded after the 4 rural districts for the following reasons:
  - To allow time for progress on the Section IV Framework Implementation Plan; Phase I Framework Adoption and Initial Updates to Hawaii Water Plan components, Phase II Development and Funding of New Framework Initiatives and Phase III Component Integration Phase of the Statewide Framework.
  - To allow time to complete the on-going products of the CWRM led Pearl Harbor Monitoring Group as part of the Milestone Framework for the Revised Pearl Harbor Sustainable Yields. Since 1998, BWS has funded over \$4 million for the construction of deep monitor wells throughout Oahu and have committed staffing resources for the monitoring of these wells on a quarterly basis. These wells will be essential in the groundwater monitoring and modeling efforts currently underway to increase our understanding of the groundwater supply in the Pearl Harbor and Honolulu aquifers.
  - To allow time to complete the Board of Water Supply's 3-dimensional groundwater model of the Honolulu aquifers.
  - To allow time to incorporate state projects water demands and agricultural water needs. We understand that the State Water Projects Plan was recently completed and the State Agricultural Water Use and Development plan is now underway.
  - The watershed management plans for South Oahu will be funded in the same fiscal year and may be combined into a single plan to more easily address the integration of water resources.

In calendar year 2000, South Oahu consumed about 78% of the islandwide municipal source pumpage of 154.6 mgd. We anticipate that the South Oahu watershed management plan(s) will fully utilize the IRP decision tools as described in the Statewide Framework for Updating the Hawaii Water Plan. The scope of work contemplated for the South Oahu regional watershed plan(s) will provide for compiling and developing water demand projections for domestic, commercial, industrial, agricultural, and nonpotable uses of municipal, state, federal and private water systems. It will also include assessment of environmental factors as part of the project objectives and evaluation criteria to be developed for the purpose of evaluating resource options and water management strategies.

#### Commitment for Agency Coordination:

As each watershed management plan moves forward and in addition to the public participation process, we anticipate several staff meetings with CWRM, City Department of Planning & Permitting and BWS to update our planning progress and obtain feedback and guidance. At key milestones, as coordinated with CWRM staff, we will present updates to the CWRM, tentatively mid-way through the planning process, after the public review draft is available, during plan approval and as otherwise requested by the CWRM. A schedule will be developed.

Each watershed management plan will be submitted for approval as separate documents, closely supporting each respective DP/SCP land use plan. At the completion of the first iteration of all planning regions, there will be a consolidating process to provide an islandwide perspective and to resolve any remaining inter-regional issues.

Proposed Scope of Work, Major Project Elements:

As each planning region is funded, their scopes of work will be submitted to the CWRM for review and approval. The proposed scopes of work for the Wai`anae and Ko`olauloa sustainable community plan areas are being submitted for CWRM review and approval (see attached). The draft scopes and planning approach were discussed with some of the community leaders and organizations in Wai`anae and Ko`olaupoko, and their feedback incorporated. The major project elements for the FY 2004 watershed management plans for Wai`anae and Ko`olauloa are:

1. Project Organization
2. Preliminary Watershed Analysis
3. Preliminary Stakeholders Consultations
4. Preliminary Watershed Management Strategies
5. 5-year Watershed Action Plan
6. Water Use and Development Plan
7. Draft Report
8. Final Report
9. Watershed Management Plan Approval

Summary of Current Water Distribution:

As part of the process of initiating the update of the OWMP and consistent with the guidelines set forth in the Statewide Framework for Updating the Hawaii Water Plan, we have compiled information on existing and projected water demands and sources of supply for the municipal system. BWS has evaluated the adequacy of the supply to meet the potable and nonpotable needs through ground water and recycled water sources. Water demand will be met with existing and funded source projects beyond the estimated 5-year planning period during the completion of all of the regional watershed management plans for Oahu.

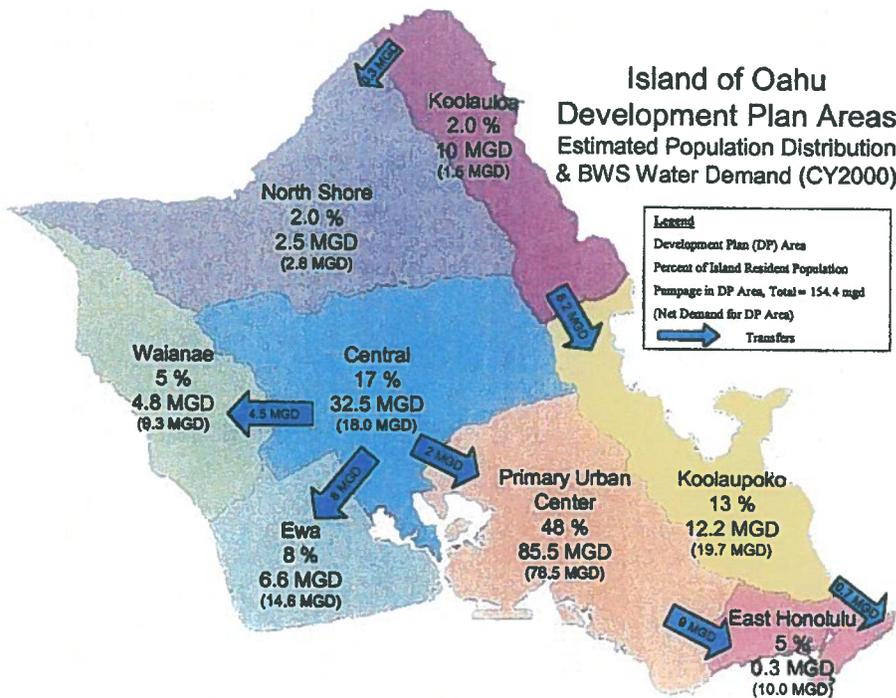
The sustainable communities of Wai`anae, North Shore, Ko`olauloa and Ko`olaupoko have essentially the same water demand throughout the planning period. The existing sources and infrastructure in these areas are adequate to provide potable water service through the planning horizon and therefore, additional integration of water supplies between these regions will be limited.

In South Oahu, the water supplies, both natural and alternative, will be fully integrated and described in a future scope of work that once funded in FY 2007, will be submitted to CWRM for their review and approval. The following summarizes the main land use and water planning highlights in South Oahu.

- The City's General Plan directs the majority of the growth to South Oahu.

- Based on the City's growth forecast evaluating population, visitors, housing and employment factors, we forecast an increase in potable water demand for Oahu averaging about 1.1 million gallons per day per year, most of which will occur in South Oahu. In 5 years the BWS system demand is expected to increase by about 5.5 mgd, from 156 mgd in 2003 to 161.5 in 2008. New sources in the Waipahu-Waiawa Water Management Area, as identified in the City DP and SCP land use plans, will be able to provide adequate water supply.
- In addition, in that time period, recycled water facilities in Ewa and Central Oahu will be expanded to continue to off-set additional groundwater development.
  - In 2000, BWS acquired and now operates the 12 mgd Honouliuli Water Recycling Facility supplying irrigation and industrial process water for Ewa.
  - BWS has also funded the design of a delivery system to utilize approximately 3.0 mgd of Wahiawa recycled water in Central Oahu.
- The Kalaheo seawater desalination plant is currently under design and will bring an additional 5.0 mgd of potable water supply to the second city of Kapolei.

For your information, a summary of Oahu's estimated population distribution based on the 2000 census, BWS potable water demand in calendar year 2000 and water distribution is provided among the 8 land use regions. This is essentially the base case of existing water demand and distribution in the BWS system that will be referenced in establishing future watershed management plans scenarios. As we have stated above, the future water demand and distribution in the Waianae, North Shore and Windward regions will not change significantly.



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## City and County of Honolulu – Board of Water Supply KO'OLAU POKO WATERSHED MANAGEMENT PLAN

### SCOPE OF WORK

March 3, 2008

*The overall goal of the Ko'olau Poko Watershed Management Plan (KPWMP) is to develop a community-based, environmentally holistic, action-oriented plan for the watersheds of the Ko'olau Poko District that will be in alignment with the State of Hawaii Water Code, Act 152 SLH 2000 Relating to Watershed Protection, the Hawaii Water Plan, the Statewide Framework for Updating the Hawaii Water Plan, the Hawaii Supreme Court Decision on the Waiahole Ditch Contested Case applying the Public Trust Doctrine and the Precautionary Principle to water resource management, the Oahu Water Management Plan Ordinance 90-62, the Ko'olau Poko Sustainable Communities Plan, the Honolulu Board of Water Supply's vision of "sustainability through stewardship," and other relevant Plans and Principles, and that will also reflect the ahupua`a management values and principles of the people of the Ko'olau Poko region.*

*The Ko'olau Poko Watershed Management Plan will be **community-based** through extensive and intensive discussions and consultations with community leaders, community organizations, ahupua`a councils, landowners, public agencies and officials, and other stakeholders. The Plan will be **environmentally holistic** through an inventory and analysis of data on the many natural processes and resources that interact within the stream watersheds of the Ko'olau Poko District, including climate, geology, topography, soils, surface water, groundwater, nearshore ocean waters, plants, animals, and ecological communities, as well as human uses and impacts. The Plan will be **action-oriented** by defining and describing projects and programs that can be implemented by the Board of Water Supply, and also by other federal, state, and city agencies and by community groups and organizations.*

*There are three phases for this plan. The first phase will provide a Water Use and Development Analysis. This will be a technical analysis of water sources and uses, with a preliminary forecast of future water needs and options for meeting these needs. The second phase will provide a Holistic Watershed Analysis. This analysis will include research on watershed resources and ecology, as well as ideas and watershed issues from community stakeholders. The third phase will then be the development of the Watershed Management Plan, providing water use and watershed management strategies for sustainable water development for Ko'olau Poko. The Third and last phase will also include tasks needed for Plan approval.*

## **PHASE 1: WATER USE AND DEVELOPMENT ANALYSIS (8 months)**

### **1.0 Monthly Coordination Meetings with BWS, DPP, and CWRM.**

#### **1.1 Project Organization (Month 1)**

- 1.1.1 Confirm goals and objectives of the Plan with BWS, CWRM, DPP.
- 1.1.2 Develop detailed Work Plan and Schedule for Phase 1
- 1.1.3 Organize the planning team
- 1.1.4 Develop client communications plan
- 1.1.5 Request/receive access to current BWS, CWRM and DPP GIS files and other relevant data

#### **1.2 Gather, Review and Analyze Existing Data (Months 2-3)**

- 1.2.1 Gather, review and analyze available data and reports on Ko'olau Poko water resources and systems, both historical and contemporary, from federal, state, city and other sources.
- 1.2.2 Gather, review and analyze available critical data on historical, current and potential future human use of water in the Ko'olau Poko District, including data on stream diversions from existing CWRM files.
- 1.2.3 Review existing plans, policies, rules and laws regulating land and water use in the Ko'olau Poko District.

#### **1.3 Develop Forecasts of Future Water Demands (Months 4-5)**

- 1.3.1 Using available data, develop forecasts of future water needs and demands for State, City and private sector users, in 5 year increments, to at least the planning year 2030.
- 1.3.2 Develop three future water demand scenarios.
- 1.3.3 Identify a "probable future water demand scenario."
- 1.3.4 Prepare a progress memo and submit to BWS, CWRM and DPP.

#### **1.4 Develop Preliminary Water Use and Development Options (Months 6-8)**

- 1.4.1 Compare current sustainable yields, instream flow standards, and water system capacities with the probable future demand scenario. Identify future deficiencies in water supply by location, water provider, water type (potable vs. non-potable) and volume.
- 1.4.2 Identify additional facilities and programs (options) that may be needed to provide for future potable and non-potable water needs.
- 1.4.3 Consult with BWS, CWRM and DPP staff to identify additional ground water and alternative water resource development options.
- 1.4.4 **Working Paper # 1 - Water Use and Development Analysis:** Develop a working paper of 20 to 30 pages and 4 to 6 color maps that presents a profile of water sources, preliminary forecast of future land use and population growth, associated water demand scenarios, and preliminary water management options.  
NOTE: Preferred water use and development strategies will not be selected until

after the watershed analysis and stakeholder consultations have identified other important issues that may affect the selection.

## **PHASE 2: HOLISTIC WATERSHED ANALYSIS (8 months)**

*Note re: community and agency meetings: Phases 2 and 3 include 40 individual / small group meetings, 16 Neighborhood Board briefings, 5 advisory group meetings, 3 public informational meetings, 20 public agency meetings, 1 Interagency meeting, 2 progress briefings to CWRM, 1 briefing on the Draft Plan to the BWS Chief Engineer, to the Planning Director, and to the Council Member for Ko`olau Poko (3 separate briefings), 2 City Council public hearings, 1 CWRM public hearing, and 1 CWRM "Plan adoption" meeting = **grand total of 94** community, agency, and stakeholder meetings, large and small – not including monthly coordination meetings with BWS, DPP, and CWRM.*

**2.0 Monthly coordination meetings with BWS, DPP, and CWRM.** Also: frequent working meetings with BWS staff to identify and articulate critical watershed values and planning principles.

### **2.1 Project Organization (Month 9)**

- 2.1.1 Confirm goals and objectives of the Plan with BWS, CWRM, DPP.
- 2.1.2 Develop detailed Work Plan and Schedule for Phase 2 and 3
- 2.1.3 Organize the planning team
- 2.1.4 Update the client communications plan
- 2.1.5 Agree on procedures for posting project information on BWS web site.
- 2.1.6 Design stakeholders/community consultation plan, including a consideration of the objectives and schedule for other current planning initiatives for Ko`olau Poko, including the DPP "Ko`olau Poko Sustainable Communities Plan" update.

### **2.2 Preliminary Watershed Analysis (Months 10-16)**

- 2.2.1 Gather, organize and analyze data and reports not previously reviewed on Ko`olau Poko watershed resources and ecology.
- 2.2.2 **Working Paper #2 – Preliminary Watershed Analysis:** Develop a working paper of 30 to 40 pages and 4 to 6 color maps that presents a succinct profile of the Ko`olau Poko Watershed and the important watershed issues that were identified by the foregoing technical analysis.

### **2.3 Preliminary Stakeholders Consultations and Identification of Watershed Issues (Months 10-16 – i.e., in tandem with the Preliminary Watershed Analysis)**

- 2.3.1 Develop a list of stakeholder organizations and individuals.
- 2.3.2 Set up a schedule for individual and "small group" meetings with stakeholders.
- 2.3.3 Attend 4 Neighborhood Board Meetings (Waimanalo, Kailua, Kane`ohe, Kahalu`u) to brief the NBs on the scope and schedule of the KPWMP.
- 2.3.4 Conduct and record a series of 30 individual and "small group" stakeholder meetings. Invite all stakeholders to send a representative to the "Ko`olau Poko Watershed Management Plan Advisory Group" (KPWMPAG) meetings.

- 2.3.5 Meet with 10 key City, State, and Federal agencies that have jurisdiction over and/or a stake in watershed management initiatives for Ko'olau Poko.
- 2.3.6 Organize and conduct general Public Informational Meeting #1 to inform the Ko'olau Poko community about the scope and schedule for the planning project, and to solicit comments on community values, planning principles, and watershed issues, problems and needs.
- 2.3.7 Develop a list of potential KPWMPAG members: names, addresses, phone and email numbers.
- 2.3.8 Convene Meeting No. 1 of the KPWMPAG and discuss water use and watershed analysis, presenting key findings.
- 2.3.9 **Working Paper #3 – Community and Stakeholders' Issues:** Write a working paper of 20 to 30 pages that summarizes the ideas and issues that were discussed in the stakeholders' meetings and in the public informational meeting, and also **preliminarily define critical watershed values and planning principles** that were expressed in these consultations.

### **PHASE 3: WATERSHED MANAGEMENT PLAN (8 months)**

- 3.0 **Monthly coordination meetings with BWS, DPP, and CWRM.** Also: frequent working meetings with BWS staff as the Plan is being developed.
- 3.1 **Preliminary Watershed Management Projects and Programs (Months 17-19)**
  - 3.1.1 Based on the watershed analysis, the several scenarios for future water demands, and the stakeholder consultations, refine the statement of project objectives that will be used to shape the Watershed Management Plan.
  - 3.1.2 Based on these objectives, and in accordance with community values as well as federal, state, and County policies and regulations for land and water use, and the water use analysis that was developed in Phase 1, develop a preliminary list and short description of watershed and water resources restoration, preservation and management projects, programs and strategies that would be appropriate for the Ko'olau Poko Watershed and that will meet the long-range demands for potable and non-potable water. Some projects will be "district-wide" in scope, while others will be place-specific. Send the list of water use and watershed management projects and programs to the KPWMPAG members, and to key public agencies for their review and comment.
  - 3.1.3 Convene Meeting No. 2 of the KPWMPAG and discuss watershed issues and the list of preliminary water use and watershed management projects and programs.
  - 3.1.4 Revise and refine the list of projects and programs as appropriate, and develop draft 2-page project descriptions for each of the important projects, programs and strategies.
  - 3.1.5 Perform supplemental research and stakeholder consultations to fill in the various project descriptions, including 10 individual and small group meetings, and 10 public agency meetings.

- 3.1.6 Convene a separate “interagency” meeting of federal, state, and city agencies that may have an interest in the various watershed management projects and programs.
  - 3.1.7 Attend 4 Neighborhood Board Meetings (Waimanalo, Kailua, Kane`ohe, Kahalu`u) to brief the NBs on the draft water use and watershed management projects and programs, and to announce the Public Informational Meeting.
  - 3.1.8 Conduct Public Informational Meeting #2 to inform the Ko`olau Poko community about preliminary planning findings to date.
  - 3.1.9 Organize the project descriptions in three sets: short-range projects (1 to 5 years), mid-range projects (6 to 10 years) and long-range projects (10+ years). The short-range projects should be projects that BWS could realistically organize and fund. “Action Plan” details will be developed for the short-range projects.
  - 3.1.10 Send the project descriptions to the KPWMPAG members for their review and comment.
  - 3.1.11 Convene Meeting No. 3 of the KPWMPAG and discuss the project descriptions and project priorities for each of the 4 sub-districts.
  - 3.1.12 Revise the project descriptions as needed.
  - 3.1.13 **Working Paper #4 – Preliminary Watershed Management Strategies:** Send copies of the revised project descriptions to BWS, CWRM, DPP, interested agencies, and KPWMPAG members for their information and review.
- 3.2 Preliminary Draft and Public Review Draft Reports (Months 20-23)**
- 3.2.1 Compile material from work completed to date into a Preliminary Draft Report for the Ko`olau Poko Watershed Management Plan.
  - 3.2.2 Print 50 copies of the Preliminary Draft Report and submit to the BWS for internal review. Also submit copies to and consult with CWRM, DPP and the KPWMPAG. This report will be a “full report” totaling 300 or more pages, including critical technical appendices.
  - 3.2.3 Convene Meeting No. 4 of the KPWMPAG to discuss and address comments on the Preliminary Draft Report.
  - 3.2.4 Incorporate review comments and finalize a Public Review Draft Report. Print 150 copies of the report and send to the BWS, DPP, CWRM, and the KPWMPAG members. Also post a pdf copy of the report on the BWS web site. This report will be a “Summary Report” that provides the highlights of the Plan. The full text of the Draft Plan will be posted on the BWS web site.
  - 3.2.5 Attend 4 Neighborhood Board Meetings (Waimanalo, Kailua, Kaneohe, Kahalu`u) to brief the NBs on the Draft Report and programs, and to announce the Public Informational Meeting.
  - 3.2.6 Schedule, advertise and conduct a final general Public Informational Meeting #3 to present the Draft Report to the Ko`olau Poko community.
  - 3.2.7 Compile comments received from the general community, and revise the Draft Report as appropriate.
  - 3.2.8 Convene Meeting No. 5 of the KPWMPAG to discuss public comments on the Public Review Draft, and the process for plan approval.

3.2.9 Provide a briefing on the Draft Plan to the BWS Chief Engineer, to the Planning Director, and to the City Council person representing the Ko'olau Poko District.

**3.3 Final Plan (Month 24)**

3.3.1 Do final edits and revisions, and print 50 copies of the Final Plan and send to the BWS, DPP, CWRM, and the KPWMPAG members. Also post a pdf copy of the report on the BWS web site.

**3.4 Plan Approvals (Months 25-30+)**

The consultant will assist BWS during the Plan Approval process. Work will include the following briefings, presentations, and public hearings:

3.4.1 Briefing the Final Plan to the 4 Neighborhood Boards

3.4.2 Presentations as needed at 2 City Council public hearings

3.4.3 Presentation at one CWRM public hearing

3.4.4 Attend CWRM "Plan adoption" meeting.



Aloha 'Āina Programs
ALU LIKE Inc.'s Ke Ola Pono Na Kūpuna Program
Cynthia Wahinekapu – Waimānalo Neighborhood Board
Dr. Charles Burrows – 'Ahahui Mālama I ka Lōkahi
Charlie Reppun
Daniel Bishop
Dr. Clyde Tamaru – Windward Community College
Dr. Paul Brennan – Kailua Historical Society
God's Country Waimānalo
Hakipu'u Learning Center
Hālawa-Lulukū Interpretive Development
Herb Lee – Pacific American Foundation
Ho'olaulima ia Kawainui
Hui Ku Maoli Ola
Hui o Ko'olaupoko
Just Add Water Farms (Waimānalo)
Kanoe Fukumitsu
Kahalu'u Neighborhood Board Representatives
Kailua Hawaiian Civic Club
Kailua Neighborhood Board Representatives
Kaipo Faris
Kako'o Ō'iwi
Kāne'ohe Ranch
Kapua Sproat
KEY Project
Kim Kalama
Ko'olau Mountain Watershed Partnership
Ko'olaupoko Hawaiian Civic Club
Kualoa Ranch
Lisa Ferentinos
Mark Stride
Paepae o He'eia
Paul Reppun
Ulalia Woodside
Waimānalo Agriculture Association
Waimānalo Hawaiian Civic Club
Waimānalo Hawaiian Homes Association
Wali Camvel – Ka'ailehua
William Sager – Kāne'ohe Neighborhood Board
Wong's Taro Leaf Farm (Kahalu'u)

## **Koolaupoko Watershed Management Plan Objectives, Sub-Objectives and Strategies**

### **1. Objective: Promote Sustainable Watersheds**

- 1.1 Promote the cultivation of more locally grown food and the concept of “food security”
- 1.2 Protect and restore Koolaupoko wetlands and streams for their ecological, cultural, and recreational values
- 1.3 Prevent and mitigate the impacts of litter and illegal dumping in Koolaupoko
- 1.4 Remove invasive species and increase areas of healthy native forests in Koolaupoko
- 1.5 Adapt to and plan for climate change and sea level rise

### **2. Objective: Protect & Enhance Water Quality & Quantity**

- 2.1 Recognize the connection between land and sea by improving stream water, ground water, and coastal water quality through a reduction in land-based sources of pollution
- 2.2 Restore and enhance fresh water to Koolaupoko streams, wetlands, and estuaries to ensure enough water for agricultural, cultural, environmental, and ocean purposes
- 2.3 Establish measurable in-stream flow standards
- 2.4 Ensure that the export of water from Koolaupoko will not be detrimental to Koolaupoko

### **3. Objective: Protect Native Hawaiian Rights and Traditional and Customary Practices**

- 3.1 Provide support to place-based natural and cultural resources management and Native Hawaiian cultural educational programs in Koolaupoko
- 3.2 Incorporate traditional Hawaiian values and cultural practices into the modern context
- 3.3 Restore and utilize *kalo* lands and the fishponds of Kaneohe Bay for food production and cultural educational use
- 3.4 Plan for the enhancement of Native Hawaiian water rights and cultural and traditional uses

### **4. Objective: Facilitate Public Participation, Education, and Project Implementation**

- 4.1 Promote public participation in planning and implementation of watershed management projects and programs
- 4.2 Foster community-government partnerships to help with plan implementation
- 4.3 Increase public awareness and educational efforts regarding “where Koolaupoko’s water comes from” and how human water use impacts Koolaupoko’s natural environment

### **5. Objective: Meet Future Water Demands at Reasonable Costs**

- 5.1 Explore various options to diversify Koolaupoko’s municipal water supply
- 5.2 Develop alternative water sources for agriculture
- 5.3 Promote advanced water conservation programs

- 5.4 Develop strategies to deal with longer periods of drought that may occur from climate change
- 5.5 Maintain and improve BWS island-wide system reliability, adequacy and efficiency.

### **DISTRICT-WIDE STRATEGIES**

#### **District-wide Surface Water Management Strategies**

1. Establish “Customized” Stream Buffers for Specific Streams
2. Concrete Flood Channel Redesign Projects

#### **District-wide Land Management Strategies**

1. Comprehensive Koolaupoko Litter and Illegal Dumping Mitigation Program
2. Native Plant Propagation Program
3. Establish Alien Plant Control Programs
4. Establish Fencing Enclosures in High Priority Areas for Feral Pig Control
5. Coordinate Pig Hunting Programs
6. Minimize the Impacts of Small Mammals on Watershed Resources
7. Restrict Off-Road Recreational Vehicles in *Mauka* Areas
8. Convert Cesspools to Septic Tanks to Protect Estuaries and Aquifers
9. Preserve and Restore the Forested Areas Above Groundwater Sources District-wide Implementation Strategies
10. Develop an Efficient Alternative Process that Assists the KBRC with
11. Implementation of the Kaneohe Bay Master Plan
12. Create and Maintain a “Directory” of Koolaupoko Community Organizations and Groups
13. Establish a Stream Signage Program to Educate the Public About Stream Processes and Characteristics

#### **District-wide Cultural Resources / Traditional Practices Strategies**

1. Conduct Koolaupoko Oral History Studies
2. Promote *Kalo* Restoration Projects
3. Conduct Periodic Surveys of Active *Loi* to Use as Future Baseline Data for Monitoring and Evaluation District-wide Water Supply Strategies
4. Utilize More Surface Water for Agricultural Irrigation
5. Develop Groundwater Wells to Provide Additional Water for Diversified Agriculture
6. Develop an Agriculture Water Conservation Program
7. Implement the Recommendations of the Hawaii Drought Plan
8. Encourage Gray Water Reuse to Reduce the Amount of Ground Disposal of Wastewater
9. Encourage Water Efficient Fixtures in Current and Future Development
10. Encourage Low Impact Development Design Concepts in Future Development
11. Storm Water Reclamation Projects

### **KAHALUU STRATEGIES**

1. Management and Stewardship of Moli Fishpond
2. Kahaluu Neighborhood Board Area Long Range Agriculture
3. Expansion Plan

4. Dredge the Kahaluu Flood Lagoon
5. Create a Hakipuu Ahupuaa Land Trust
6. HHFDC Repair and Upgrade of the Waiahole Valley Water System
7. Restoration of Heiau in Ahuimanu

#### **KANEOHE STRATEGIES**

1. Restore the Estuary Area near Waikalua Loko Fishpond (presently Bay View Golf Course)
2. Utilize Water from Hoomaluhia Reservoir for Irrigation

#### **KAILUA STRATEGIES**

1. Increase MCBH WWTP Capacity to Recycle Wastewater to R-1 Water Quality Standards
2. Maintain "Green Spaces" in Kailua

#### **WAIMANALO STRATEGIES**

1. Waimanalo Long Range Agriculture Expansion Plan
2. Implement the NRCS "Alternatives for Restoration of Waimanalo Stream" Report
3. Establish a Waimanalo Community Composting Facility to Dispose of Animal Wastes
4. Convert the DOA Kailua Reservoir to a Sediment Retention Basin