# Maui County Water Use and Development Plan Update

Maui County Council Water Resources Committee Briefing

> July 13, 2016 Maui County Department of Water Supply

## **Presentation Outline**

- Status
- Purpose and Requirements
- Key Issues & Constraints
- Existing Use & Projected Demand
- Public Process
- Strategies

## Status of WUDP Update

Moloka`i ...2017

#### Lana`i - adopted 2011

#### Hawai'i Water Plan Water Resource Protection - 2008 Water Quality – 2014 Draft State Water Projects - 2003 Agricultural Plan - 2004

#### County Plans

Hawaiʻi County - 2011 Maui, Kauaʻi, Oʻahu - in progress

#### Maui, in process

- DWS Central District plan not approved, incorporated
- Revised Project Description all providers and users, 2012
- CWRM Briefing June 2015, May 2016
- BWS Briefing June 2016
- WRC Briefing Jan., July 2016

# Timeline (Tentative)

#### Maui Island

Winter 2015 Public meetings, Targeted Stakeholder Meetings Public Workshops Spring 2016 May/June 2016 Brief CWRM/Board of Water Supply July 13, 2016 **Brief Council Water Resources Committee** Summer 2016 **Draft Plan Internal Review** Fall 2016 3<sup>rd</sup> Round Public Meetings, Draft Plan Review November 2016 Board of Water Supply Draft Plan Review Water Resources Committee/County Council Plan May 2017 Submittal for Approval **CWRM Final Plan Submittal for Approval** August 2017 <u>Moloka'i</u> **Commence** process 2017

## **WUDP Purpose & Requirements**

To inventory projected water demands and insure that future water needs of the county are met, to allocate water to land use, and provide guidance to the CWRM for decision-making regarding water management area designation, on water use and water reservation requests.

HRS§174C-31, HAR §13-170-30 – 32

To aid the County in the conservation, development, and use of the County's water resources.

Maui County Code Chapter 14.02

CENTRAL

KAHIKINU

#### Legend



## In a Nutshell

- Comprehensive water planning / all water providers, not DWS-centric
- Incorporate / implement Maui Island Plan island-wide
- Planning by hydrologic units
- Base year 2014, planning horizon 2015-2035
- Projections: Full land use build-out based on zoning / DHHL land use
  20 year population-based scenarios
- Drought and Climate adaptation scenarios
- Consider / Protect Public Trust Purposes. Emphasis on traditional and customary practices (Ka Pa'akai O Ka 'Aina court case)

## Many Providers & Purposes

Water Use, 2014



#### **Public Trust Purposes**

Maintenance of waters in their natural state ("resource protection")

Domestic use (primarily drinking water)

Hawaiian traditional and customary practices, including appurtenant rights

DHHL water reservations for future reasonable-beneficial use

#### **Potable Purveyors/Users**

County DWS, Kaʻanapali, Kahakuloa, Kapalua, Olowalu, Mahanalua Nui, Maui Highlands, West Kuiaha Meadows, Hana Water Resources, Hana Water Co

State and Federal systems

Other Non-community systems

**Non Potable Purveyors/Users** 

Kuleana needs

EMI, WWC, etc.

Public Providers / Other

Additional unused surface water not shown on pie chart

### Identify, Evaluate, Prioritize Strategy Options

## Planning Objectives

### Resources

options, alternatives policies, programs

### Viability

legal issues, scarcity, use restrictions, other constraints

Relative cost comparison

WUDP Foundation 2004-13 Focus Maui Nui General Plan Committee WUDP Public Meetings Policy Board Meetings

### 2015-2016 Background-Issues

**Targeted Meetings** 

Agriculturalists Aha Moku Diverse Stakeholders

#### Public Meetings

Central-South 3/10 West 3/17 Upcountry 3/21 Hana 4/19

## **Public Process**

#### 2016 Strategy Options

Saturday Community <u>Workshops</u> Upcountry 4/23 Central-South 4/30 West 5/7 Hana 5/21

> Targeted Groups Mokus As identified On request

### Fall 2016 Defined Strategy

**Community Workshops** 

Central-South

Upcountry

West

Hana

2016/2017

Policy Body Input, Hearings

### Key Issues - Native Hawaiian Rights

- Respect Hawaiian water rights and State law
- Ahupua'a management: recognize ground and surface water system connectivity
- Protect resource and consider effects of water transport
- Water adequacy to DHHL lands



#### **WUDP Opportunities**

- Collaborate to identify and project water needs for kuleana, appurtenant, and traditional and customary practices
- Meaningful consultation about resource use and management
- Protective policies
- Consider alternatives to water transport
- Integrate DHHL plans and reservations
- Resource allocations outside courts

### Key Issues - Resource Protection and Restoration

- Extend resource protection mauka to makai versus upper forested watersheds?
- Guidance on integrating drought and climate change into WUPD?
- Restrict uses that pose high risk to water quality around drinking water wells?
- What is the community's role in resource protection?



### Key Issues - Reliability

- Groundwater transports for maximum reliability and longer droughts?
- Rely on surface water seasonally (after all public trust uses are satisfied)?
- Increase surface water use and build raw water storage?
- Diversify to a combination of ground, surface, recycled & alternative sources as long as cost effective?
- Maximize use of alternative resources even if not the lower cost option?

![](_page_11_Picture_6.jpeg)

![](_page_11_Picture_7.jpeg)

- Closely tie conservation to regional resource constraints?
- Apply conservation to existing users (including diversified ag, public trust uses)?
- Regulatory vs voluntary?

![](_page_12_Picture_3.jpeg)

## Key Issues-Conservation

![](_page_12_Figure_5.jpeg)

## **Administrative Issues**

- HONOLUAHONOKOHAU KAHAKULOA WAIHEE HONOKOWAI West Maui Paia-Haiku HONOPOU IAO HAIKU Wailuku-Kahului LAUNIPOKO KAHULUI OLOWALU Differing planning boundaries AIKAPU UKUMEHAM Kihei-Makena MAKAWAO KEANAE KUHIWA Issues differ geographically Legend KAWAIPAPA Community Plan Boundary Makawao-Pukalani-Kula Hana Aquifers DWS vs other systems KAMAOLE WAIHOI SECTOR KIPAHULU CENTRAL NAKULA Unresolved court cases HANA KAUP LUALAILUA KAHIKINUI KOOLAU Uncertain agricultural future LAHAINA WAILUKU Conflicting planning objectives
- Policy guidance lacking or unresolved
- Drought and climate change guidance lacking
  Data and studies lacking

# **Ongoing Legal Constraints**

Ongoing East Maui contested case/HC&S Transition Affects comprehensive strategy Evaluate various scenarios

Na Wai 'Eha contested case Adjust/incorporate decision on interim instream flows

West Maui – Lack of numerical instream flow standards Affects comprehensive strategy WUDP process - consult with Native Hawaiian community on approach & scenarios

## **Future Agricultural Water Use**

#### **HC&S** Transition

- Future land use, water allocation, EMI role scenarios?
- Consequences of changes in irrigation return flow?

#### State Ag WUDP Update – Guidance lacking

- AWUDP diversified ag forecast 3 – 12 MGD by 2021
- Consult with DOA, agricultural & Native Hawaiian communities
- UH, Other studies

![](_page_15_Figure_8.jpeg)

AWUDP 2004 New Diversified Ag High Case Forecast Demand (mgd)

![](_page_15_Figure_10.jpeg)

2014 Water Use By Type

## Water Use by Resource - 2014

![](_page_16_Figure_1.jpeg)

## Potable & Nonpotable Sources

RESOURCE	Available (mgd)	Used (mgd)	Balance		
GROUNDWATER	427 SY	92	335		
Potable Uses		29			
Nonpotable Uses		62		Reclaimed Water	
SURFACE WATER	197 - 396				
Potable Uses		10			
Nonpotable Uses		203		Potable Uses	
ALTERNATIVES	26	3			
Reclaimed	26	3			
Other Nonpotable	?	?	Nonpotable Uses		

2014. Figures rounded. Potable groundwater- well pumpage of domestic (0.24) and municipal (29.29) wells. Surface Water: lowest median flow to gaged or estimated baseflow. Reclaimed water available -design capacity, some upgrades required, assumes Wailuku-Kahului upgraded to R-1; reclaimed water used-R-1.

## **Projected Demand Scenarios**

Maui Island Population Growth and Land Use Build-Out Based Demand, 2010-2035 (MGD)

![](_page_18_Figure_2.jpeg)

![](_page_18_Figure_3.jpeg)

![](_page_19_Figure_0.jpeg)

## **Community Workshops- Round 2 Component of Integrated Planning Process**

- **Confirm Regional Issues**
- **Principles**
- **Planning Objectives**
- Water Allocation
- **Comprehensive Strategies**

SHARE YOUR THOUGHTS! QUESTIONNAIRE Water Use & Development Plan

residents, businesses, community

groups, everyone

## Guiding Principles for a successful process

- Respect the Public Trust doctrine and State water code as a foundation for water planning.
- The Native Hawaiian ahupua'a system and cultural traditions can provide guidance on water stewardship.
- The "water kuleana" of all Mauians creates responsibilities as well as rights.
- Recognize the complexity and interconnectedness of the hydrologic cycle, groundwater and surface water systems.
- Use the 'precautionary principle' in water planning, recognizing climate unpredictability.
- Water resource management demands comprehensive and integrated policies and solutions.
- Water planning and solutions should support ecological, social and financial sustainability.
- Consider island-wide and regional effects and solutions to issues important to Mauians.
- Create an actionable plan that provides water supplies for our diverse water uses.
- The options for solving water resource and supply issues will decrease and costs will increase with each year of delay.
- Be transparent and inclusive in all aspects of water planning and management.

## **Strategies** – Native Hawaiian Rights

- Apply an ecosystem ahupua'a based, precautionary approach based on science, local knowledge, coordination, community education
- Consult with Native Hawaiian community/moku representative on regional resource use and management
- No new stream diversions for off-stream uses until IFS are adopted
- Expand watershed protection mauka to makai, promote reforestation

### **Strategies** – Resource Protection

- Watershed partnership programs for invasive plant and ungulate control
- Quantify the impact of watershed management on groundwater recharge and distribute funding proportionally
- Scientific studies necessary to support decision making, including drought impacts
- Protect and recharge ground water during non drought periods to stabilize supply
- Use drought conditions as a baseline to evaluate water supply and effects of water use
- Restrict land uses with high risk of well contamination near drinking water wells

### **Strategies** – Alternative Resources

- Use the appropriate level of water for the use
- Maximize R-1 reclaimed wastewater system capacity and use
- Require commercial properties >100 feet to connect and use R-1 water
- Explore greywater system programs and incentives for catchment
- Low impact project design for onsite water retention
- Maintain plantation ditch systems for potable and nonpotable water conveyance

### Strategies – Reliability

- Reliable source at higher cost acceptable for diversified agriculture
- Seasonal use of surface water for non public trust needs
- Diversify conventional resources to account for climate change and longer droughts

### **Strategies** – Conservation

- WaterSense standard for new development, retrofit programs for existing development
- Climate appropriate landscaping; ag focus on on climate appropriate crops
- More aggressive landscape water conservation measures in dry areas than wet areas to minimize water transport
- Combination tiered water rates, water waste control, incentive programs and targeted community education

## In Sum...

- One island-wide document
- "Sister" document to Maui Island Plan
- It's Maui's plan address local conflicts
- Address all water providers and users, not just DWS
- Hydrologic unit based
- Plan for uncertainty
- Use previous studies & available data
- New models, data, court cases, issues addressed
- Continuation of extensive public process

## Mahalo!

Maui County DWS Water Resources & Planning

www.mauiwater.org