Presentation Topics

- Water Use & Development Plan - Purpose and Requirements
- Background: Hawai’i Water Plan Update Status
- Maui Island WUDP approach
- Regional Issues: Upcountry Maui
- Next Steps
WUDP Purpose & Requirements

- 20-year plan
- Conservation, development, use of water resources
- Guidance to Commission on Water Resource Management
- Future needs of County, Dept. of Hawaiian Homelands, State
- Allocate water to land use per Maui Island Plan
- Plan by ground and surface water units
- Consistency with Hawai’i Water Plan, County land use plans

HRS § 174C-31, HAR § 13-170-30 – 32, Maui County Code Chapter 14.02
WUDP Purpose & Requirements

Allocate water to land use in Maui Island Plan by aquifers

Consider and Protect Public Trust Uses
Adopt Water Resources Trust Principles

Legend
- Urban Growth Boundary
- Rural Growth Boundary
- Country Town
- Rural Service Center

SECTOR
- CENTRAL
- HANA
- KAHIKINUI
- KOOLAU
- LAHAINA
- WAILUKU

- Kuleana rights
- 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

HRS § 174C-101, HHCA § 221
Hawai‘i Water Plan Status

County Plans
Hawai‘i—adopted
Maui, Kaua‘i, O‘ahu
in progress

Water Resource Protection
Water Quality
State Water Projects
Agricultural Plan

Hawai‘i Water Plan

MAUI COUNTY WUDP

2011

2016...

2016

• 2010 Central Maui Plan
  on DWS system only

• Not approved by CWRM

• Revised Scope 2012
How Does the WUDP Affect Me?

- Your involvement in WUDP process
  - Seek real solutions to conflicts
  - Identify wide range of options, scenarios

- WUDP considers water resource management
  - Sustainable water resources for the future
  - Protects your investment in property and community

- WUDP vetted by the community, adopted by County and State
  - Sound foundation for decision making and action
WUDP Approach

The WUDP will:

- Support and implement Maui Island Plan as technical document
- Use integrated resource planning based on hydrologic units
- Include all water systems and water users on Maui Island
- Apply updated data, scientific studies, climate models
- Recommend water allocation policies

The WUDP will not:

- Propose growth rates or locations different from Maui Island Plan
- Contain CIP level detail
- Be DWS centric

Major Uncertainties:

- Court cases- Na Wai ‘Eha & East Maui Streams
- Future agricultural use of HC&S Lands
Integrated Planning Process

Planning Objectives

Evaluation Criteria

Public Process

Coordinate with other Plans

Demand Forecast
Base year 2014
Planning horizon to 2035

Identify and Prioritize
Options and Strategies

Recommend Water Allocation Policies

Resource Assessment

Studies, Previous WUDP chapters, Modeling, Legal Decisions

State Plans

Land use based, full build-out, County zoning & DHHL

20 year population based scenarios
Public Process

Multi-Year Foundation:

- Focus Maui Nui
- General Plan Committee
- Past WUDP Public Meetings
- Policy Board Meetings

Ongoing Public Process:

- Public input, targeted meetings
- Opportunities at each draft Plan stage
- Regional Public Meetings
- Board of Water Supply
- County Council
- CWRM
# Planning Objectives

**Derived from:**
- Maui Island Plan
- State Plans
- WUDP public process
- Policy board meetings

*More input is welcome!*

<table>
<thead>
<tr>
<th>Objective</th>
<th>Description</th>
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<tbody>
<tr>
<td>Availability</td>
<td>Provide Adequate Volume of Water Supply</td>
</tr>
<tr>
<td>Quality</td>
<td>Maximize Water Quality</td>
</tr>
<tr>
<td>Reliability</td>
<td>Maximize Reliability of Water Service</td>
</tr>
<tr>
<td>Efficiency</td>
<td>Maximize Efficiency of Water Use</td>
</tr>
<tr>
<td>Cost</td>
<td>Minimize Cost of Water Supply</td>
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<tr>
<td>Viability</td>
<td>Establish Viable Plans</td>
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<tr>
<td>Conformity</td>
<td>Maintain Consistency with General &amp; Community Plans</td>
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<tr>
<td>Equity</td>
<td>Manage Water Equitably</td>
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<tr>
<td>DHHL</td>
<td>Provide for DHHL Needs</td>
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<tr>
<td>Agriculture</td>
<td>Provide for Agricultural Needs</td>
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<tr>
<td>Culture</td>
<td>Protect Cultural Resources</td>
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<tr>
<td>Sustainability</td>
<td>Maintain Sustainable Resources</td>
</tr>
<tr>
<td>Environment</td>
<td>Minimize Adverse Environmental Impacts</td>
</tr>
<tr>
<td>Resources</td>
<td>Protect Water Resources</td>
</tr>
<tr>
<td>Streams</td>
<td>Protect and Restore Streams</td>
</tr>
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</table>
Multiple Resource Assessment & Planning Boundaries

- Maui Island Plan
- Aquifers, Watersheds
- Community Plans
- Moku, Ahupua’a
- Water System Areas
Surface Water Use Assessment

Na Wai ‘Eha
- CWRM provisional order of appurtenant rights; amendments to Interim In-stream Flow Standards (IIFS)
- Surface water use permitting phase
- Petition to amend IIFS, re: HC&S closure

East Maui
- Contested Case Hearings Officer’s Proposed Findings of Fact, Conclusion of Law & Decision and Order, Jan. 15, 2016

West Maui
- USGS Study of Low-flow Characteristics of Streams completed, June 2014
- CWRM staff begin preparing in-stream flow standard assessments
Groundwater Transfers Upcountry
(Haiku, Makawao, Pukalani, Kula)

Makawao to Haiku, Kamaole: 1.3 MGD
Paia to Haiku, Makawao, Kamaole: 1.5 MGD
(DWS systems)

Legend

WellIndex_Maui_20150529
- <all other values>

USE
- DOM; DOMN; DOMNOTH
- MUNCO; MUNPR

Community Plan Boundary
Upcountry_Pipes

dlnr_mau_i_aquifer_poly
- <all other values>

SECTOR
- CENTRAL
- HANA
- KAHIKINUI
- KOOLAU
- LAHAINA
- WAILUKU
Makapipi - Waikamoi streams to Makawao, Kamaole & Haiku: 3.6 MGD
Haipuaena – Waikamoi streams to Makawao, Kamaole & Haiku : 1.6 MGD
Honomanu – Waikamoi streams to Makawao, Kamaole & Haiku : 2.5 MGD

(DWS Systems)
Groundwater and Projected Demand

Existing regional groundwater transfer by aquifer system

16
Maui Island, 2010-2035 (mgd)
Does NOT Include AG Use
Water Demand – Upcountry
(Haiku, Makawao, Pukalani, Kula)

DWS Water Production
2014 Daily Average

Population Based Water Demand (Not AG)
2014 - 2035 (mgd)
Identify, Evaluate & Prioritize Strategy Options

Planning Objectives

Viability
legal issues, scarcity, use restrictions, other constraints

Resources
options, alternatives policies, programs

Relative cost comparison
Focus Issues
Competing Interests
Uncertainty

- Native Hawaiian rights
- Water allocation policies
- Agricultural needs
- Use of irrigation infrastructure
- Use of alternative water sources
- Resource efficiency & protection
- Reliability & Alternative Sources
- Drought and climate change
- Other issues!

- Differing planning boundaries
- Conflicting planning objectives
- Policy guidance lacking or unresolved
- Multiple stakeholders
- Issues differ geographically
- DWS vs other systems
- Contingencies (court cases) and uncertainty (future ag)
Kuleana Rights & Public Trust Purposes

- **Kuleana rights** - appurtenant water rights

- **Public Trust Uses**: No absolute **priorities** between broad categories of public trust uses (environmental protection, native Hawaiian T & C practices including appurtenant rights, DHHL, domestic uses)

- **Water Resources Trust Principles**:

  ... Competing public and private water uses must be weighed on a case-by case basis...

  ...the public trust may have to accommodate uses inconsistent with the mandate of protection ...
  ...requires that all uses, offstream or instream, public or private, promote the **best economic and social interests** of the people of the State..

HRS 174C
Supreme Court of Hawai‘i, Waiāhole Ditch Combined Contested Case No. 21309)
• Instream Flow Standards to protect instream values (including kuleana)
• Restore 18 mgd from HC&S water needs for sugar
• Insignificant impact on municipal use

CCH MA13-01Hearings Offices Proposed Findings of Fact, Conclusions of Law & Decision and Order, Jan 15, 2016

WUDP Opportunities
• Ahupua’a / watershed management system
• Recognize ground and surface water system connectivity
• Consider effect of water transport
• Additional stream restoration?
• Priorities between off-stream public trust uses (DHHL, domestic)?
• Surface water for non public trust uses (ag, irrigation, commercial)?
• Reduce reliance on surface water in dry season?
• Available surface water for diversified ag?
Water Allocation Policies: Upcountry

**Directed Growth Plan:**
“Direct growth to areas proximate to existing employment centers, where infrastructure and public facility capacity can be cost-effectively provided, and where housing can be affordably constructed.”

“Reduce the proliferation and impact of residential development outside of urban, small town, and rural growth boundaries”

- Population based growth
  +1.75 MGD
- Upcountry waiting list growth
  +7.5 MGD (not planned for in Maui Island Plan)
Resource Protection and Restoration

“How can resource protection incorporate ahupua`a (mauka to makai) rather than limited to upper forested watersheds?”

“Restrict uses that pose a risk to water quality around drinking water wells (wellhead protection)?”

“What is the community’s role in resource protection?”
Resource Efficiency

DWS METERS AND DEMAND
Maui Island 1994-2014

Maui County's Landscape and Gardening Handbook

Water Conservation in the Landscape

Department of Water Supply
210 South High Street
Wailuku, HI 96793
www.mauiwaters.org

By Water All Things Find Life
Reliability & Alternative Sources

“Adequate water quantity and quality, pressure and response”

Generally, surface water, recycled, storm-water reuse and catchment are less reliable

Seasonal outdoor demand +20%

- Full groundwater backup for maximum reliability and longer droughts?
- Rely on surface water seasonally (other than low flow conditions)?
- Increase surface water use as most cost efficient and build raw water storage?
- Diversify to most cost effective combination of groundwater, surface water, aggressive conservation?
- Maximize alternative resources even if not cost effective?
# Next steps...

<table>
<thead>
<tr>
<th>UPCOUNTRY DISTRICT</th>
<th>CENTRAL DISTRICT</th>
<th>HANA DISTRICT</th>
<th>WEST MAUI DISTRICT</th>
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</thead>
<tbody>
<tr>
<td>Eddie Tam Memorial Center  &lt;br&gt; March 21, 2016  &lt;br&gt; 6:00 - 8:30 p.m.</td>
<td>✓ Wailuku Community Center  &lt;br&gt; March 10, 2016  &lt;br&gt; 6:00 - 8:30 p.m.</td>
<td>Hana Community Center-Helene Hall  &lt;br&gt; April 19, 2016  &lt;br&gt; 6:00 - 8:30 p.m.</td>
<td>✓ Lahaina Civic Center  &lt;br&gt; March 17, 2016  &lt;br&gt; 6:00 - 8:30 p.m.</td>
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### SATURDAY WORKSHOPS

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<thead>
<tr>
<th>UPCOUNTRY DISTRICT</th>
<th>CENTRAL DISTRICT</th>
<th>HANA DISTRICT</th>
<th>WEST MAUI DISTRICT</th>
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</thead>
<tbody>
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<td>Kahului Community Center  &lt;br&gt; April 30, 2016  &lt;br&gt; 10 a.m. - 1:00 p.m.</td>
<td>Hana Community Center-Helene Hall  &lt;br&gt; May 21, 2016  &lt;br&gt; 10 a.m. - 1:00 p.m.</td>
<td>Lahaina Civic Center  &lt;br&gt; May 7, 2016  &lt;br&gt; 10 a.m. - 1:00 p.m.</td>
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### Workshop Concepts
- Confirm Regional Issues
- Testing the Planning Objectives
- Testing Water Management, Use and Allocation “Guidelines”
- Working the Issues—Options, Consistency with Planning Objectives and Guidelines
- Putting Together the Strategies
In sum...

- “Sister” document to Maui Island Plan
- Resource based, not DWS centric
- Use previous studies & data
- Continuation of extensive public process
- It’s Maui’s plan - address local conflicts
- Plan for uncertainty

www.mauiwatert.org

Maui County DWS
Water Resources & Planning

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