Maui County
Water Use and Development Plan
Update

Commission on Water Resource Management Briefing

May 19, 2016
Maui County Department of Water Supply
Presentation Outline

- Status
- Key Issues & Constraints
- Existing Use & Projected Demand
- Public Process
- Strategies
Status of WUDP Update

Moloka`i 2017

Lana`i adopted 2011

Maui, in process
- Department of Water Supply Central District - not approved, incorporated
- Revised Project Description 2012
- CWRM Briefing June 2015
Timeline

Maui Island
Public meetings, Targeted Stakeholder Meetings
Public Workshops .................................
Brief CWRM/Board of Water Supply................
Draft Plan Internal Review...........................
3rd Round Public Meetings Draft Plan Review.....
Board of Water Supply Draft Plan Review.........
County Council/CWRM Final Plan Approval......

Moloka’i
Commence process......................................

Winter 2015
Spring 2016
Summer 2016
Fall 2016
Winter 2016
2017
2017
In a Nutshell

June 24, 2015 CWRM Update

- Comprehensive water planning / not DWS centric
- Incorporate Implement Maui Island Plan island-wide
- Planning by hydrologic units
- Focus on Native Hawaiian issues & DHHL planning
- 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
- *Include Ka Pa'akai analysis – continue consultation with Mokus*
**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 Native Hawaiian traditional and customary uses
- Meaningful consultation about resource use and management
- Build relationships, mutual respect, trust
- 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 to entire ahupua‘a (mauka to makai) versus upper forested watersheds?
- Guidance on integrating drought and climate change into WUPD?
- Restrict uses that pose a risk to water quality around drinking water wells?
- What is the community’s role in resource protection?
Key Issues - Reliability

- Full groundwater backup 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?
Key Issues - Conservation

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

Maui County's Landscape and Gardening Handbook

Water Conservation in the Landscape

By Water All Things Find Life
Administrative Issues

- Differing planning boundaries
- Multiple stakeholders
- Issues differ geographically
- DWS vs other systems
- Unresolved court cases
- Uncertain agricultural future
- Conflicting planning objectives
- Policy guidance lacking or unresolved
- Drought and climate change guidance lacking
- Data and studies lacking
Ongoing Legal Constraints

Settlement of Na Wai ‘Eha contested case
- Incorporate decision on interim instream flows

Ongoing East Maui contested case → HC&S Transition/Hearing Officer’s 1/15/16 D&O
- Affects comprehensive strategy
- Evaluate status quo and various scenarios

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?
- Hearing Officer’s 1/15/16 CoL, FOF, D&O as guidance?
- 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
800+ mgd - based on sustainable yield and existing surface water use/gaged flow. Untapped ground water is difference between pumpage and sustainable yield.
# Potable & Nonpotable Sources

<table>
<thead>
<tr>
<th>RESOURCE</th>
<th>Available (mgd)</th>
<th>Used (mgd)</th>
<th>Balance</th>
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<tr>
<td><strong>GROUNDWATER</strong></td>
<td>427 SY</td>
<td>92</td>
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<td>Potable Uses</td>
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<td>Nonpotable Uses</td>
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<tr>
<td><strong>SURFACE WATER</strong></td>
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<tr>
<td>Nonpotable Uses</td>
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<tr>
<td><strong>ALTERNATIVES</strong></td>
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<tr>
<td>Reclaimed</td>
<td>26</td>
<td>3</td>
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<tr>
<td>Other Nonpotable</td>
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<td>?</td>
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<tr>
<td>Nonpotable Uses Total</td>
<td>458 (most is HC&amp;S)</td>
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</table>

2014. Figures rounded. Potable groundwater-well pumpage of domestic (0.24) and municipal (29.29) wells. Groundwater Nonpotable-pumpage of other wells. Reclaimed water available -design capacity, some upgrades required, assumes Wailuku-Kahului upgraded to R-1; Reclaimed water used-R-1. Surface Water Used Potable-Municipal treated. Surface Water Used Nonpotable- HC&S – approx. 344.
Projected Demand Scenarios

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

- Land Use Build-Out Based Demand (County Zoning, DHHL Land Use), With AG
- Land Use Build-Out Based Demand (County Zoning, DHHL Land Use) Without AG
- Population Based Demand Total

Maui Island Population Growth Based Demand 2014 - 2035 (GAL)
Not including Major AG Use

- DWS ONLY BASE CASE
- ALL PURVEYORS BASE CASE
- ALL PURVEYORS LOW CASE
- ALL PURVEYORS HIGH CASE
Regional Water Transport to Meet Projected Demand

**Groundwater transfer**

**Surface water transfer**

**Treatment plant**

**Ditch**

**Aquifer**

**Municipal well, county or private**

**Lahaina Pipes**

**Central Pipes**

**Upcountry Pipes**

**Hana pipes**

**SY** 2035 DEMAND MGD
Identify, Evaluate, Prioritize Strategy Options

Planning Objectives

Resources
options, alternatives policies, programs

Viability
legal issues, scarcity, use restrictions, other constraints

Relative cost comparison
Public Process

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

2016 Strategy Options

Saturday Community Workshops
- 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
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

NOTICE!
Maui Water Workshops
residents, businesses, community groups, everyone's invited
Guiding Principles for a successful process

- Water planning and solutions should support ecological, social and financial sustainability.
- 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.
- 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.
- 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.
- The "water kuleana" of all Mauians creates responsibilities as well as rights.
- 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 baseline to evaluate water supply and effects of water use
- Restrict land uses with high risk of well contamination near drinking water wells

*Strategies the state can assist with*
**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
- Desalination of brackish or sea water for irrigation
- Maintain plantation ditch systems for potable and nonpotable water conveyance

**Strategies – Reliability**

- Reliable source at higher cost acceptable for diversified ag
- 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
- Hydrologic unit based
- Not DWS-centric
- Use previous studies & available data
- New models, data, court cases, issues addressed
- Continuation of extensive public process
- It’s Maui’s plan - address local conflicts
- Plan for uncertainty

Mahalo!

Maui County DWS
Water Resources & Planning
www.mauiwater.org