

Maui County

Water Use and Development Plan

Update

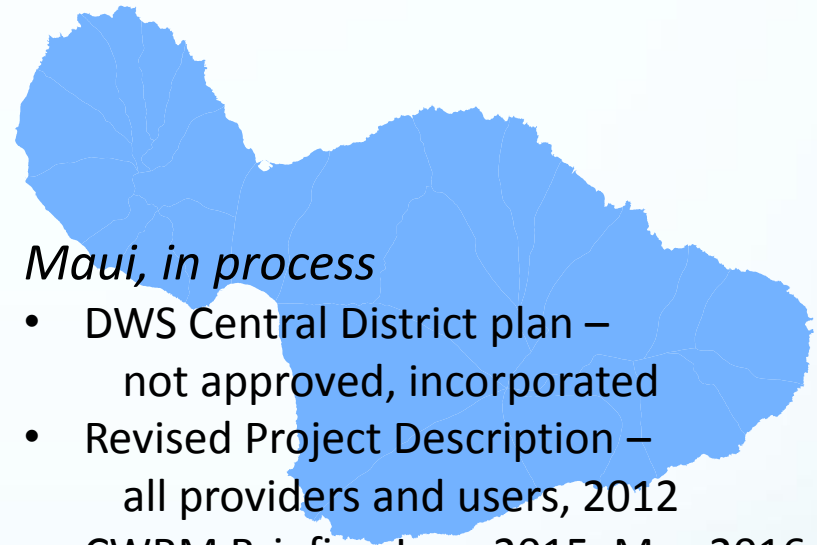
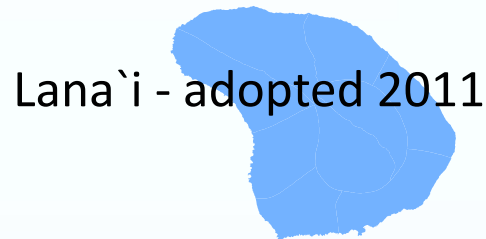
*Maui County Council Water Resources Committee
Briefing*

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



- 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

Hawai'i Water Plan

Water Resource Protection - 2008
Water Quality – 2014 Draft
State Water Projects - 2003
Agricultural Plan - 2004

County Plans

Hawai'i County - 2011
Maui, Kua'i, O'ahu - in progress

Timeline (Tentative)



	<u>Maui Island</u>
Winter 2015	Public meetings, Targeted Stakeholder Meetings
Spring 2016	Public Workshops
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 rd Round Public Meetings, Draft Plan Review
November 2016	Board of Water Supply Draft Plan Review
May 2017	Water Resources Committee/County Council Plan Submittal for Approval
August 2017	CWRM Final Plan Submittal for Approval
	<u>Moloka'i</u>
2017	Commence process

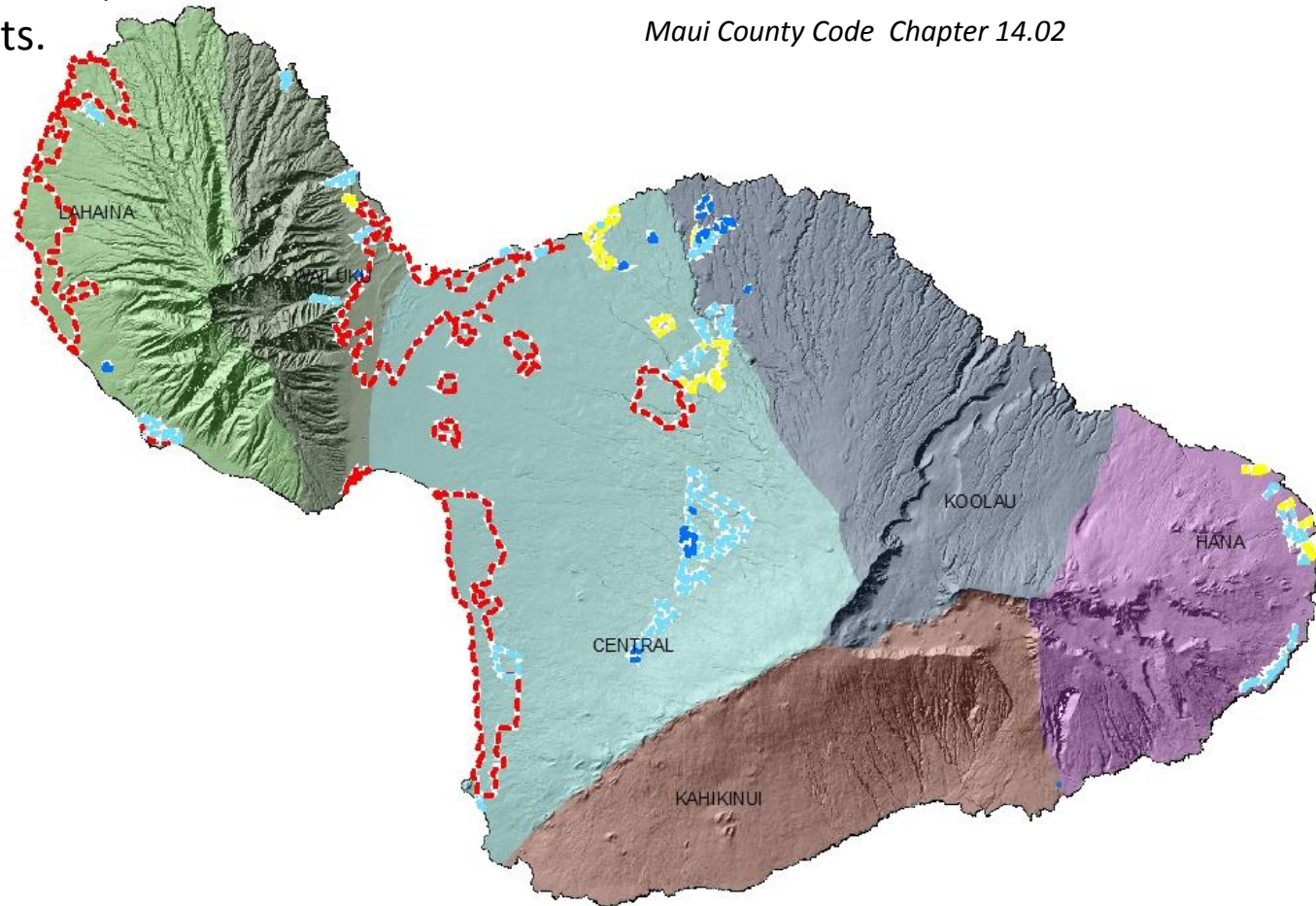
WUDP Purpose & Requirements

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



Legend

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

SECTOR

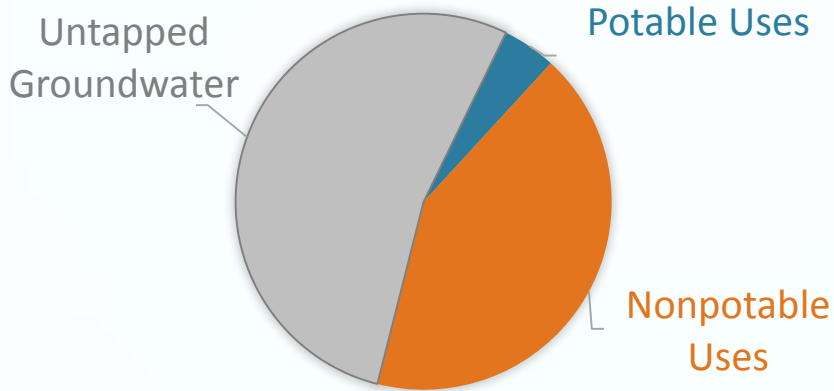
- CENTRAL
- HANA
- KAHIKINUI
- KOOLAU
- LAHAINA
- WAILUKU

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, Ka’anapali, 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

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

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

Key Issues - Native Hawaiian Rights

WUDP Opportunities



- 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

- 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?



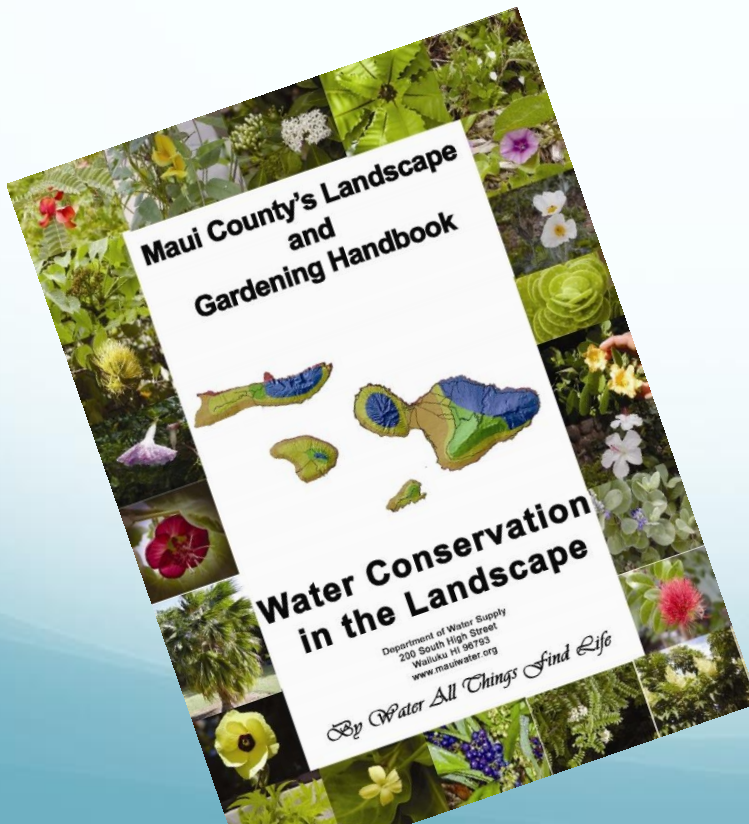
Key Issues - Reliability

- 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?

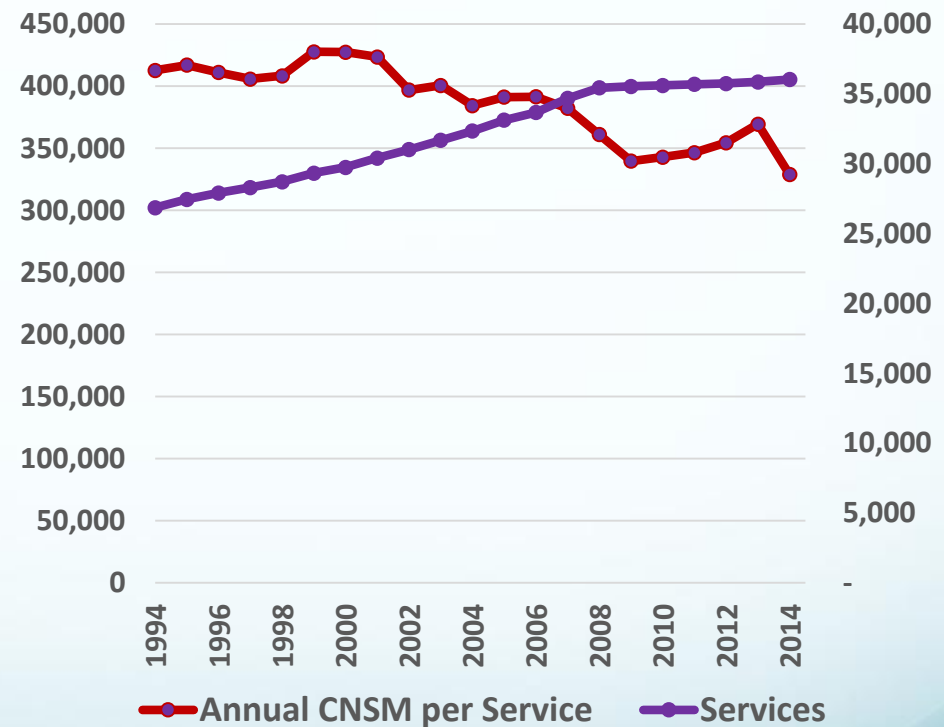


Key Issues-Conservation

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

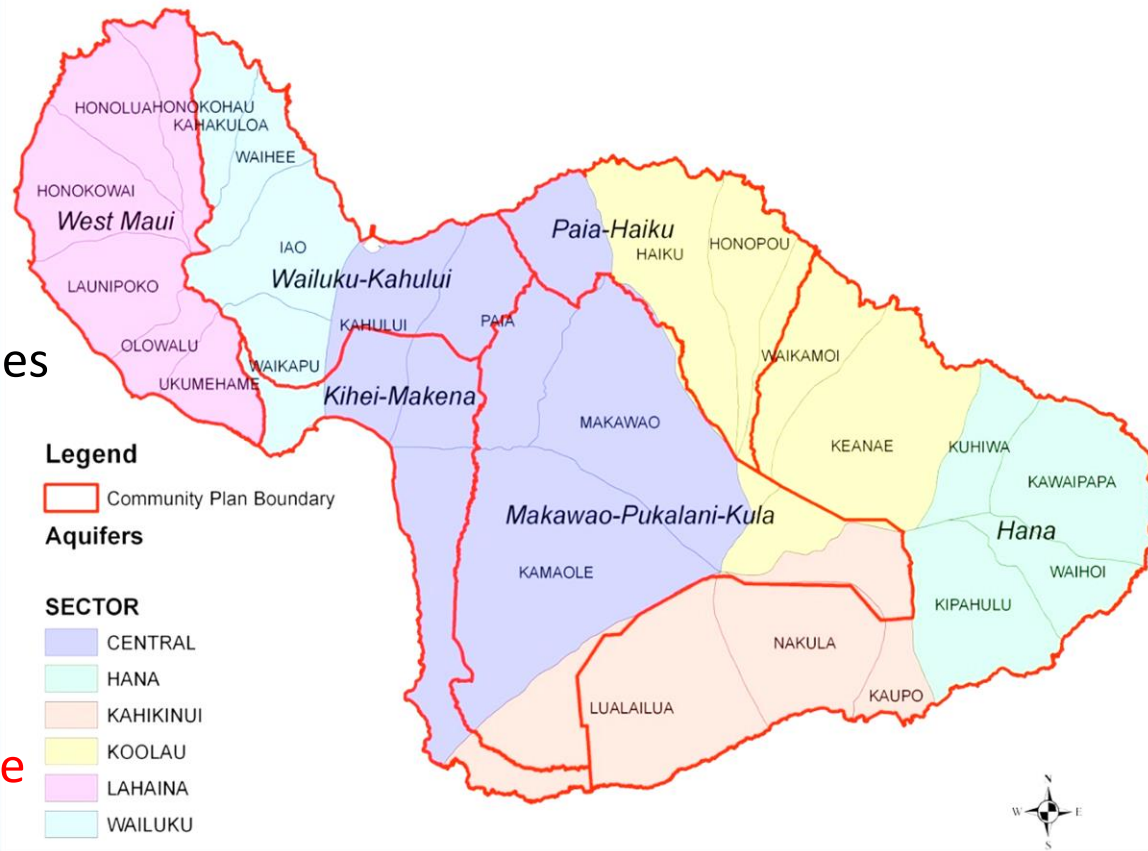


DWS METERS AND DEMAND
Maui Island 1994-2014



Administrative Issues

- Differing planning boundaries
- 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

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

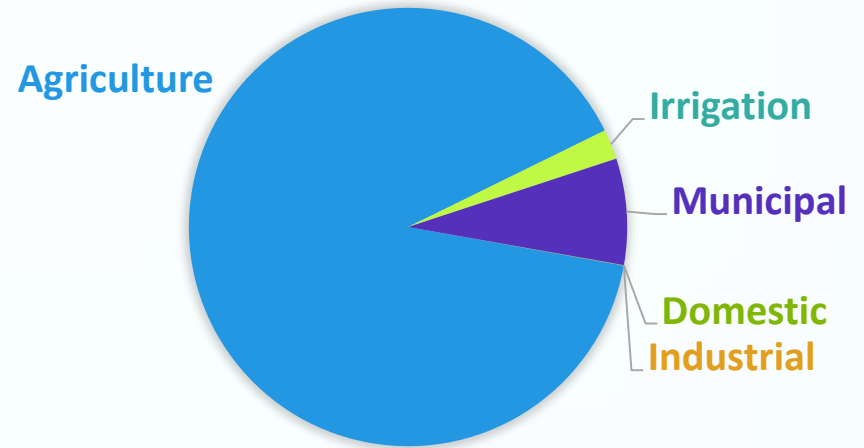
HC&S Transition

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

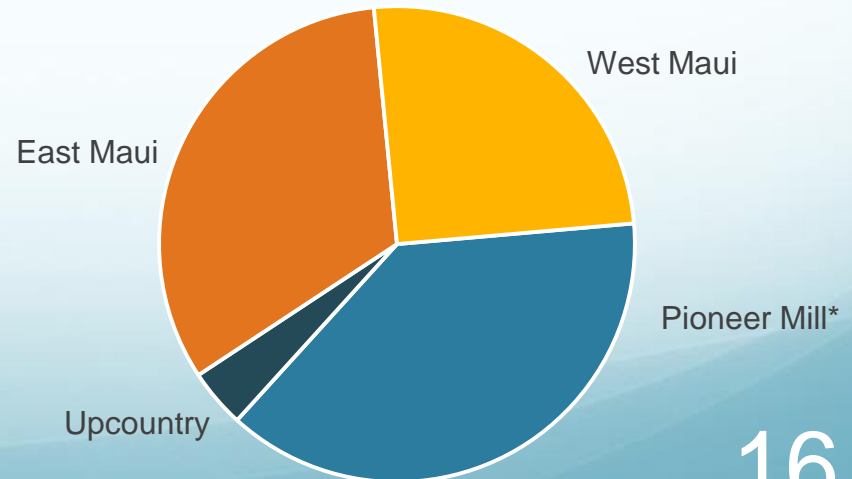
State Ag WUDP Update – Guidance lacking

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

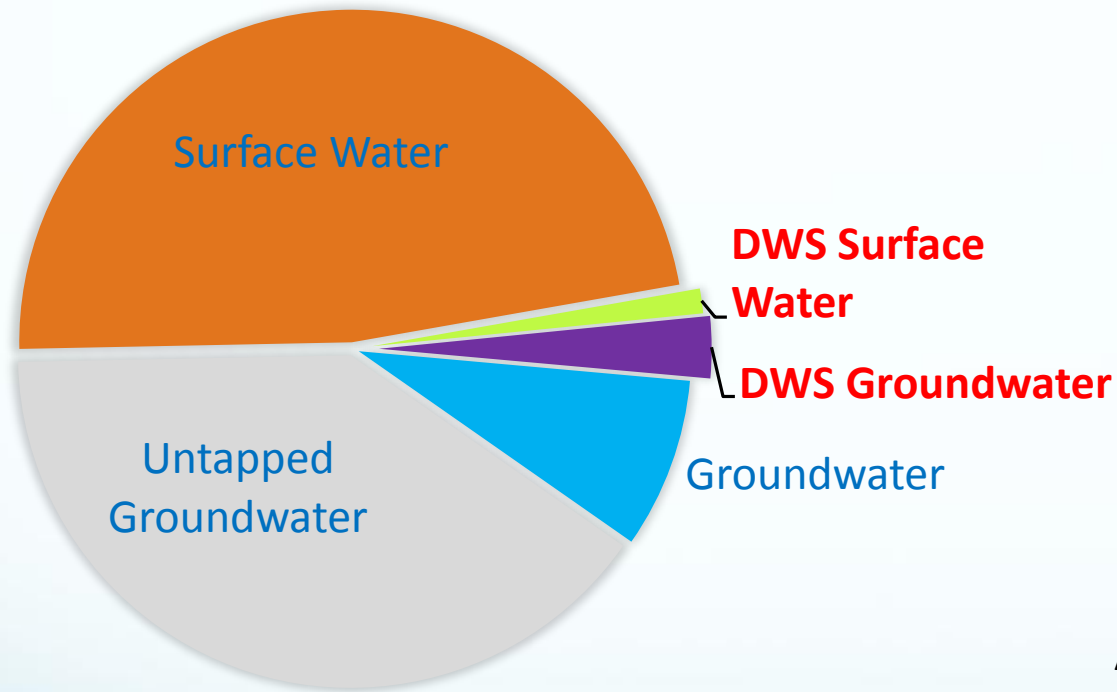
2014 Water Use By Type



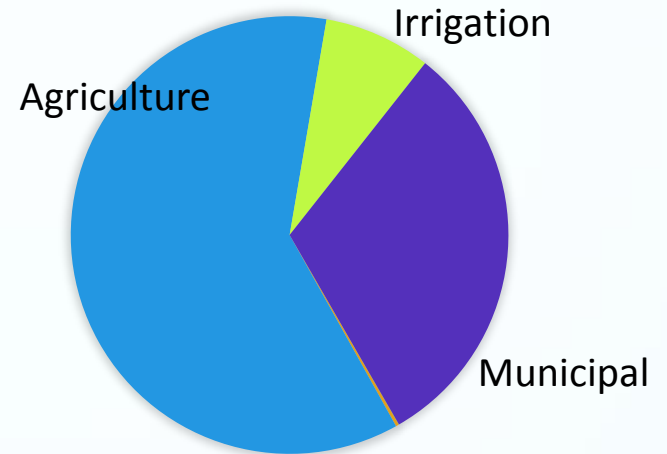
AWUDP 2004 New Diversified Ag High Case Forecast Demand (mgd)



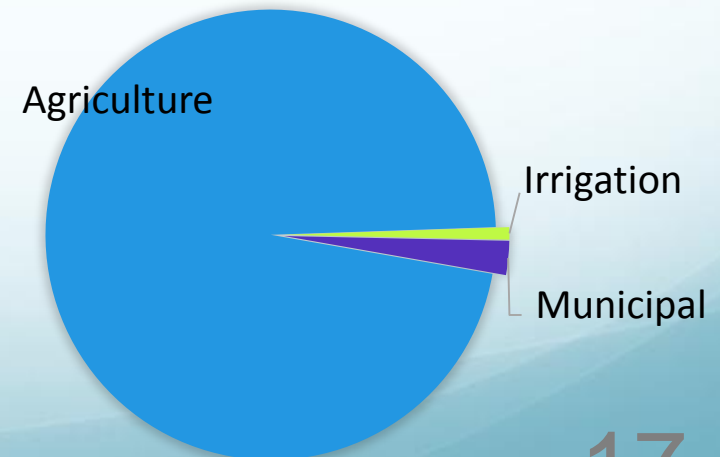
Water Use by Resource - 2014



GROUNDWATER



SURFACE WATER

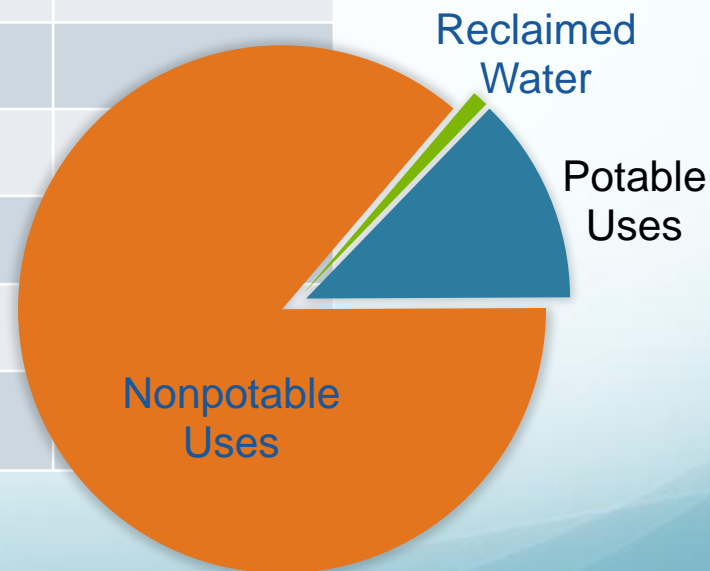


800+ mgd- based on sustainable yield and existing surface water use/gaged or assessed base flow.

Untapped ground water: sustainable yield – reported pumpage

Potable & Nonpotable Sources

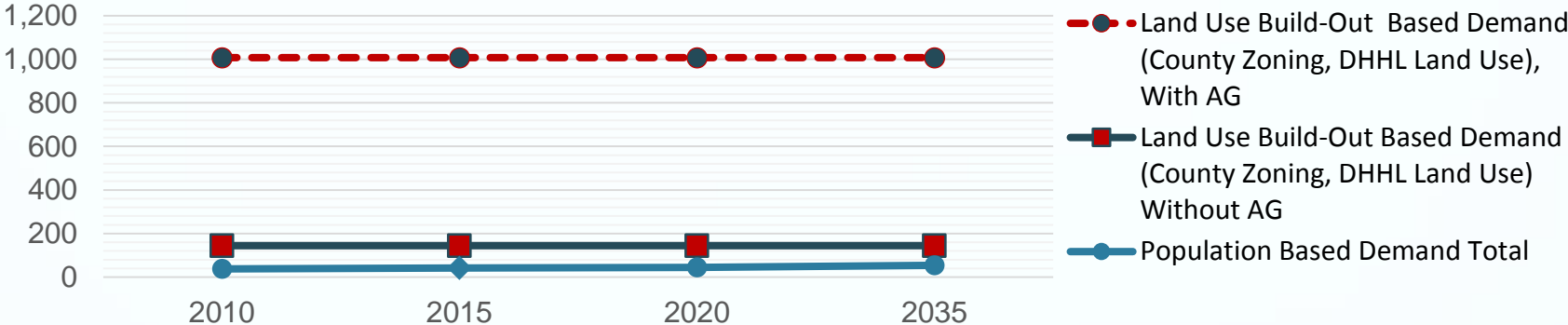
RESOURCE	Available (mgd)	Used (mgd)	Balance
GROUNDWATER	427 SY	92	335
Potable Uses		29	
Nonpotable Uses		62	
SURFACE WATER	197 - 396		
Potable Uses		10	
Nonpotable Uses		203	
ALTERNATIVES	26	3	
Reclaimed	26	3	
Other Nonpotable	?	?	



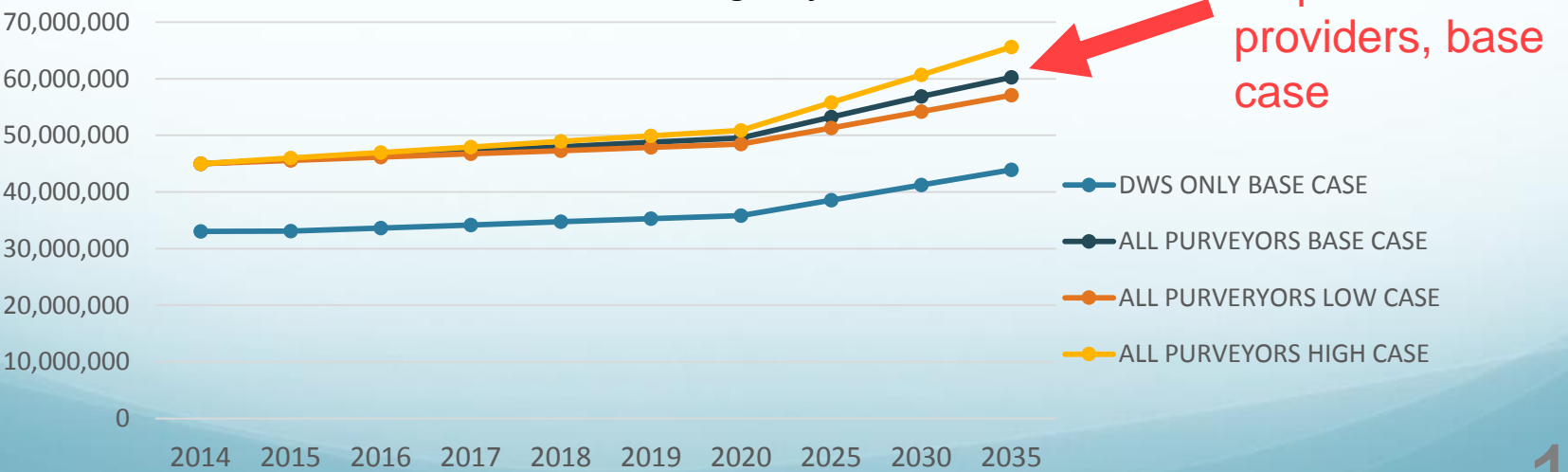
2014. Figures rounded. Potable groundwater- well pumpage of domestic (0.24) and municipal (29.29) wells. Surface Water: lowest median flow to gaged or estimated baseflow. Reclaimed water available -design capacity, some upgrades required, assumes Wailuku-Kahului upgraded to R-1; reclaimed water used-R-1.

Projected Demand Scenarios

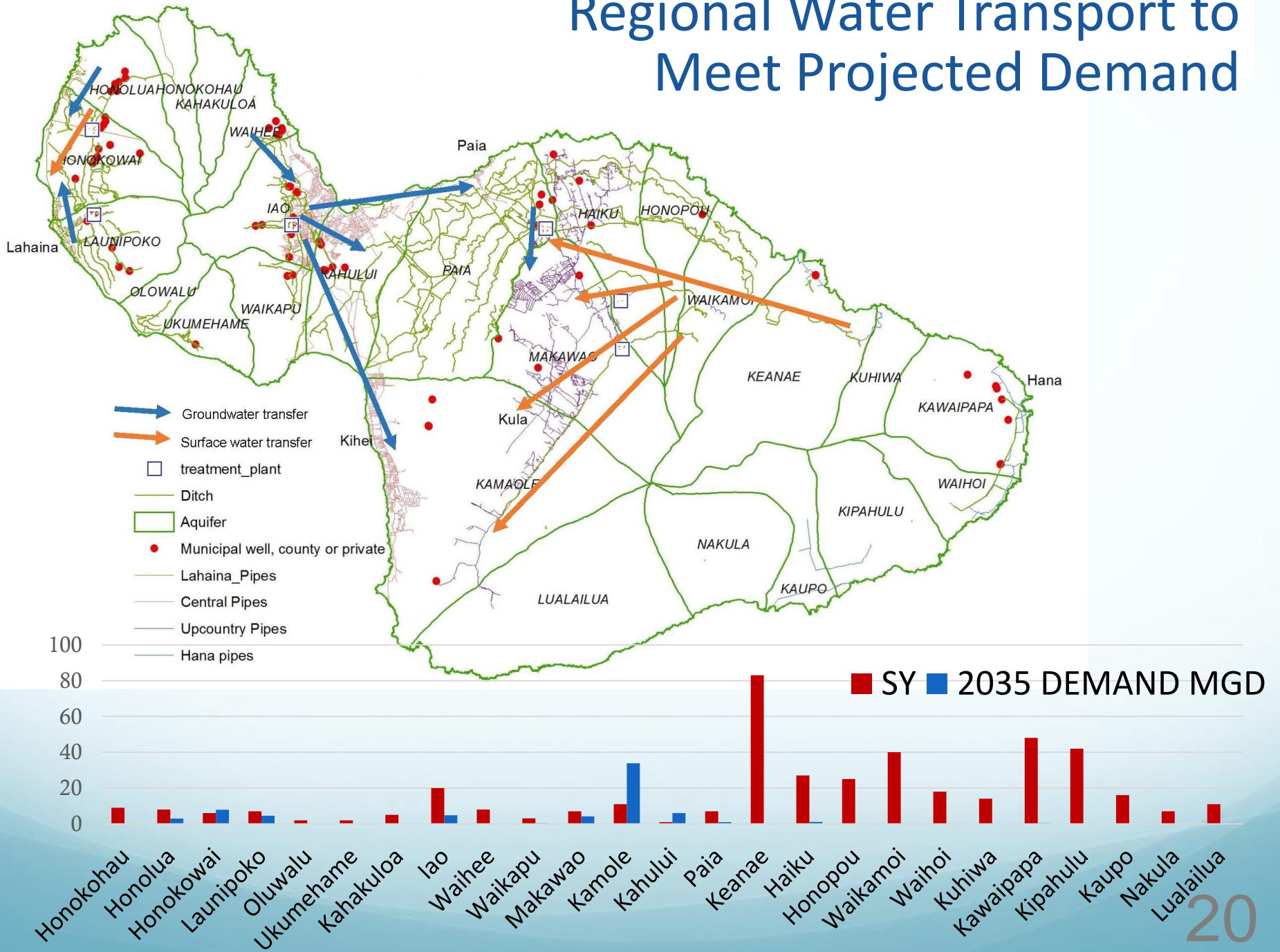
Maui Island Population Growth and Land Use Build-Out Based Demand, 2010-2035 (MGD)



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



Regional Water Transport to Meet Projected Demand



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

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.mauewater.org