WIT.Committee

From: Eva Blumenstein <Eva.Blumenstein@co.maui.hi.us>
Sent: Wednesday, May 27, 2020 2:23 PM
To: WIT.Committee
Cc: Jeff Pearson; Lesley J. Milner
Subject: Re: WIT
Attachments: WIT-25 WUDP Hana Kahikinui 060120.pdf

Aloha,

Please find the Department of Water Supply June 1 presentation of the Water Use and Development Plan Chapters 17 and 18.

Mahalo,

Eva

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MAUI ISLAND WATER USE & DEVELOPMENT PLAN UPDATE

PART III: Hana and Kahikinui Aquifer Sectors

Council of the County of Maui

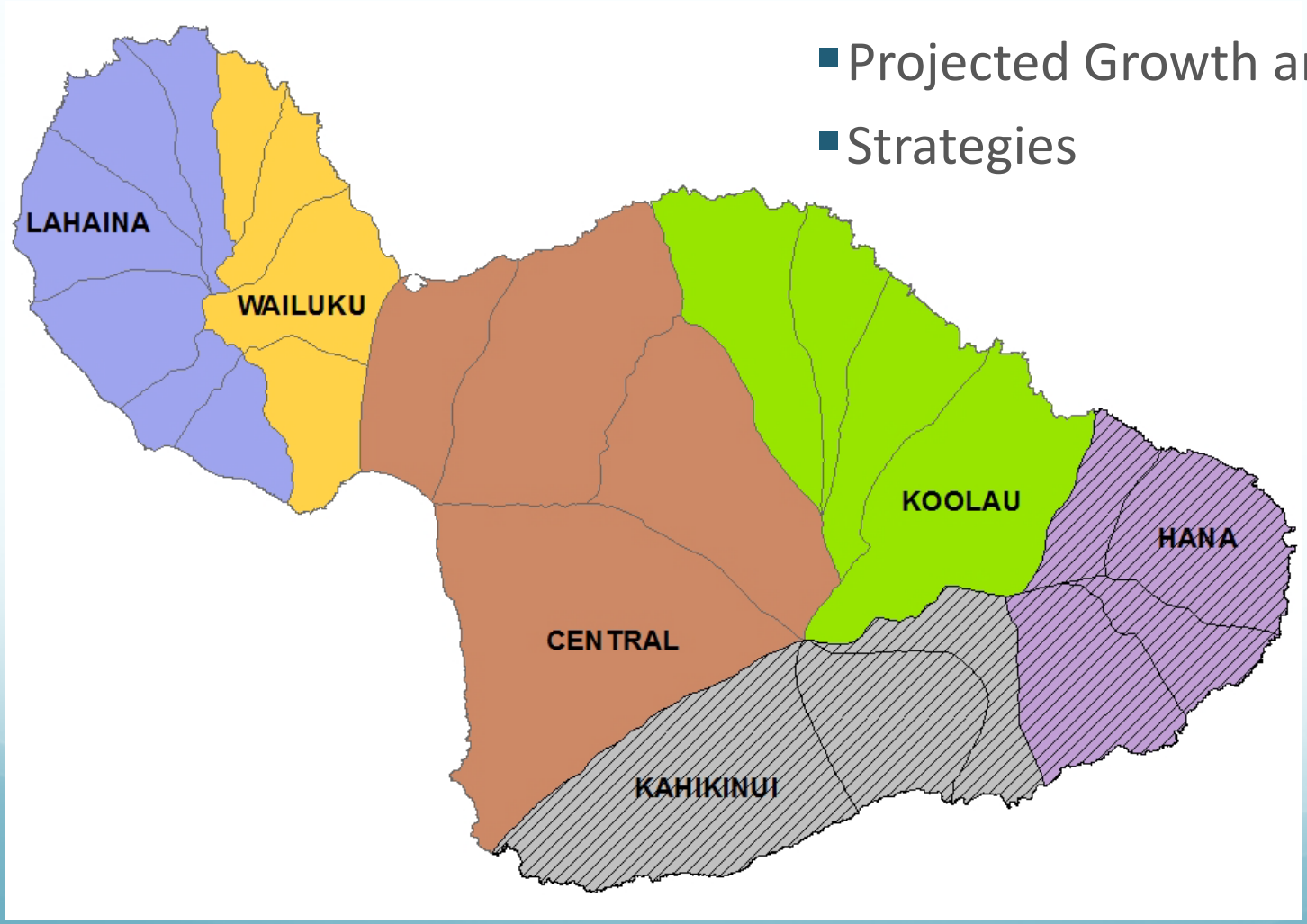
Water, Infrastructure and Transportation Committee

June 1, 2020

County of Maui Department of Water Supply

Presentation Outline

- Key Issues
- Water Resources
- Projected Growth and Demand
- Strategies



KEY ISSUES

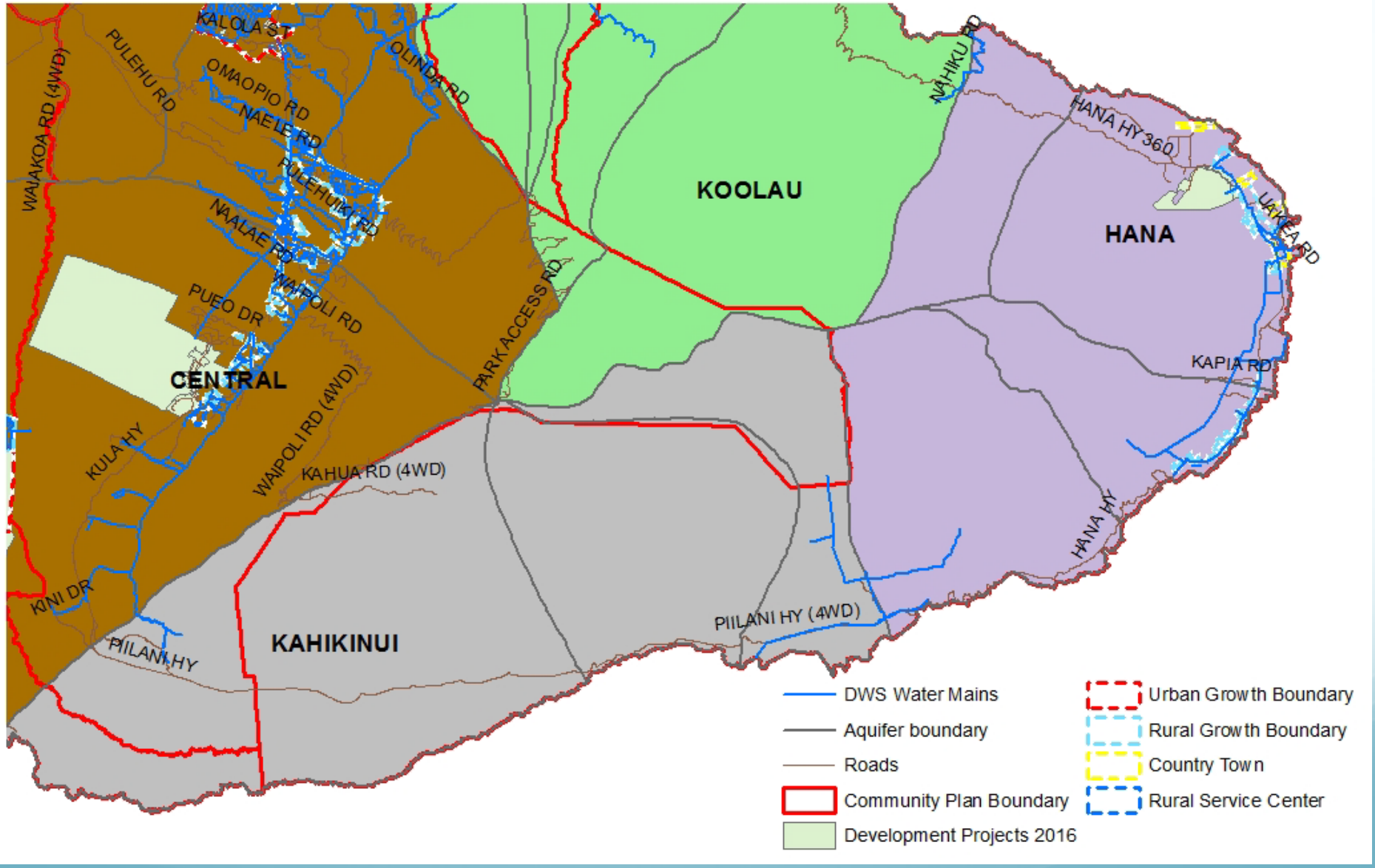
Hāna: Watershed management and participation by the local community; maintenance of traditional resource management using the ahupua`a system, safeguard traditional and customary practices

- Watershed protection
- Maintaining access to lands for gathering, hunting and other native Hawaiian traditional and customary practices
- Precautionary planning
- DHHL water needs
- Adapting future populations to local water resource conditions
- Consultation and coordination with Native Hawaiian community/moku

Kahikinui: Alternative ways to meet water needs, given remote and sparse rural population, undeveloped water resources and limited infrastructure. Decreased groundwater recharge and streamflow due to droughts and climate change

- Adapt to the effects of drought and climate change upon water resource availability and quality.
- Maintain access to lands for gathering, hunting and other native Hawaiian traditional and customary practices.
- DHHL water needs
- Watershed protection consultation and coordination with Native Hawaiian moku/community and local experts on resource management.

Water Resources and Planning Boundaries

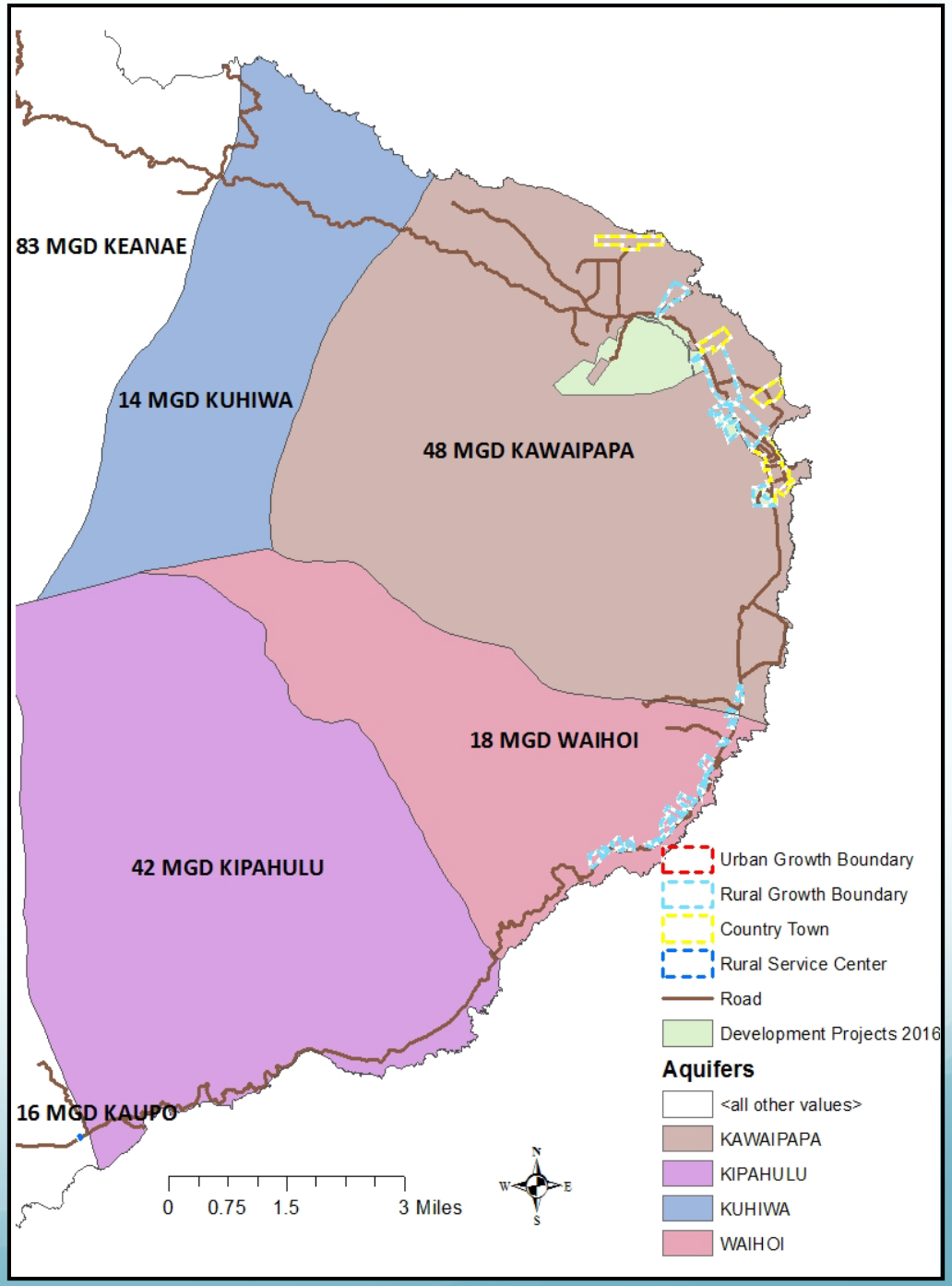


Hāna Ground Water Resources

- ✓ Groundwater Sustainable Yield = 122 MGD, revised to 78 mgd 2019
- ✓ Climate change impacts: increased rainfall and groundwater recharge (Kūhiwa and Kawaipapa)

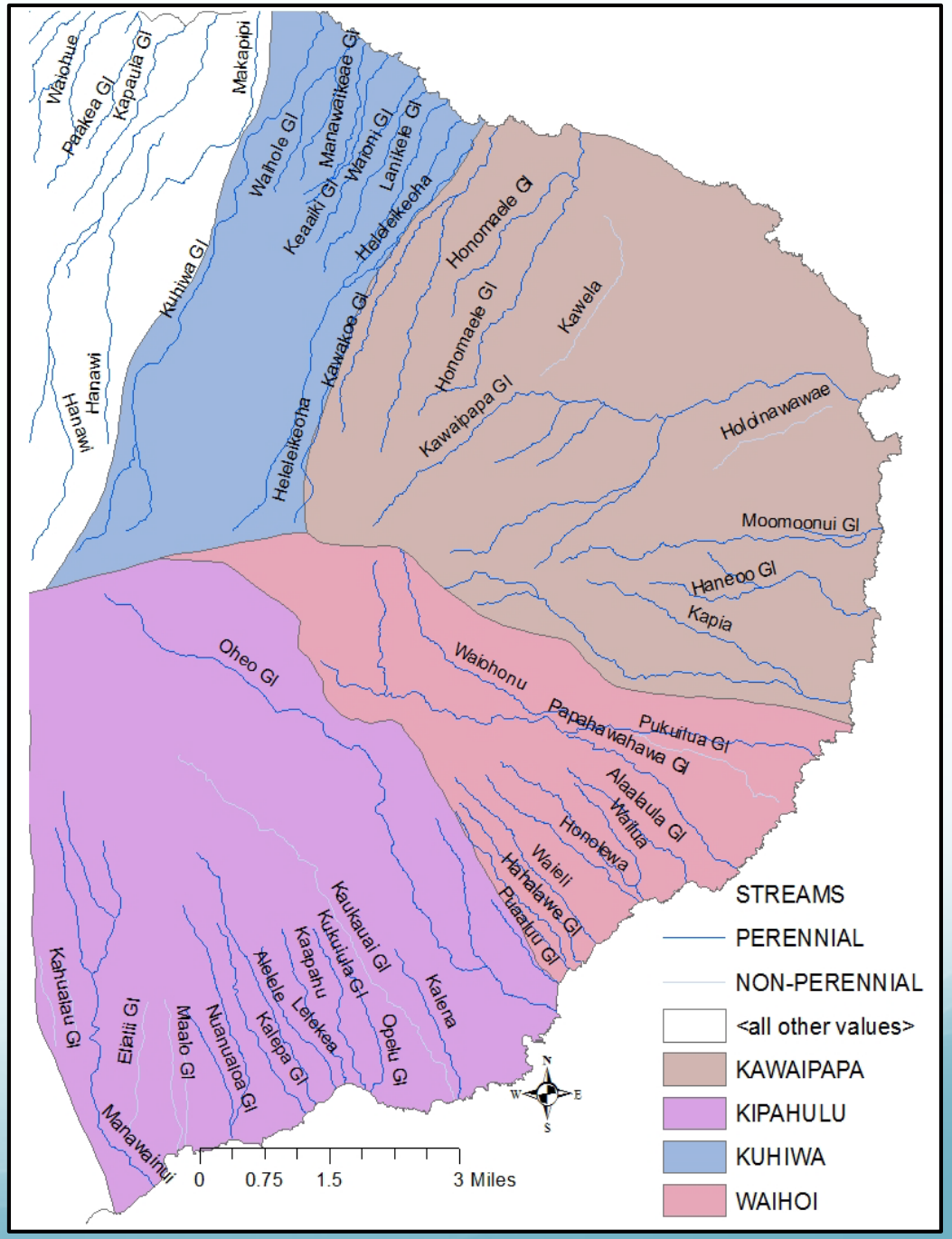
Aquifer System/SY (MGD)	Pumpage (MGD)	As % of SY
Kūhiwa (14)	0.007	0.05%
Kawaipapa (48)	0.600	1.25%
Waiho`i (18)	0	0.00%
Kīpahulu (42)	0.006	0.02%
Total (122)	0.614	0.50%

Sustainable Yield Revisions 2019 do **not** affect strategies

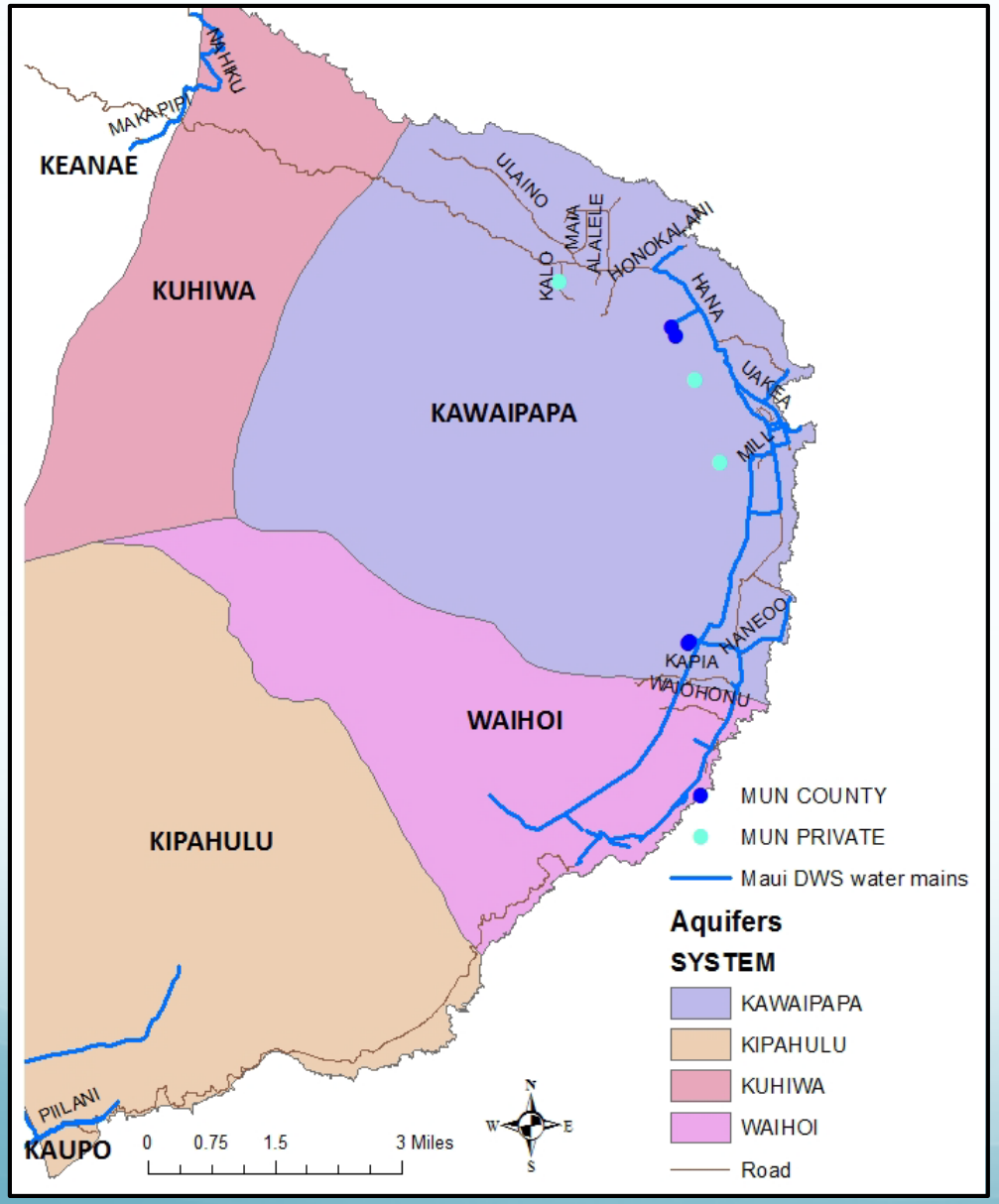


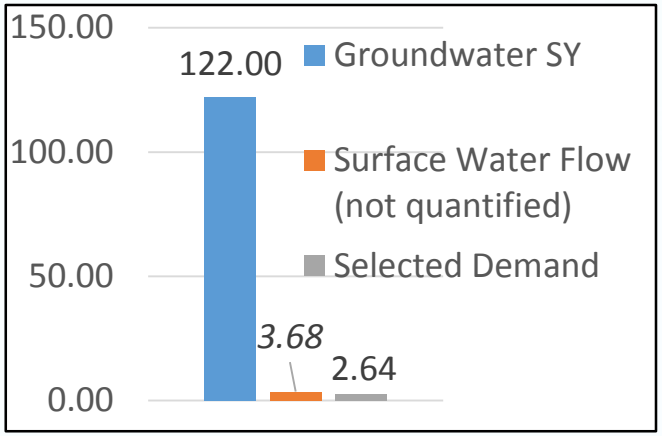
Hāna Surface Water Resources

- ✓ Streams east of Makapipi not subject to contested case
- ✓ No numerical Instream Flow Standards
- ✓ Very limited diversion reports
- ✓ Water use based on 1989 declarations of water use, kuleana parcel inventory, agricultural GIS baseline data
- ✓ Climate change impacts: stream flow variable and unstable (flashy)



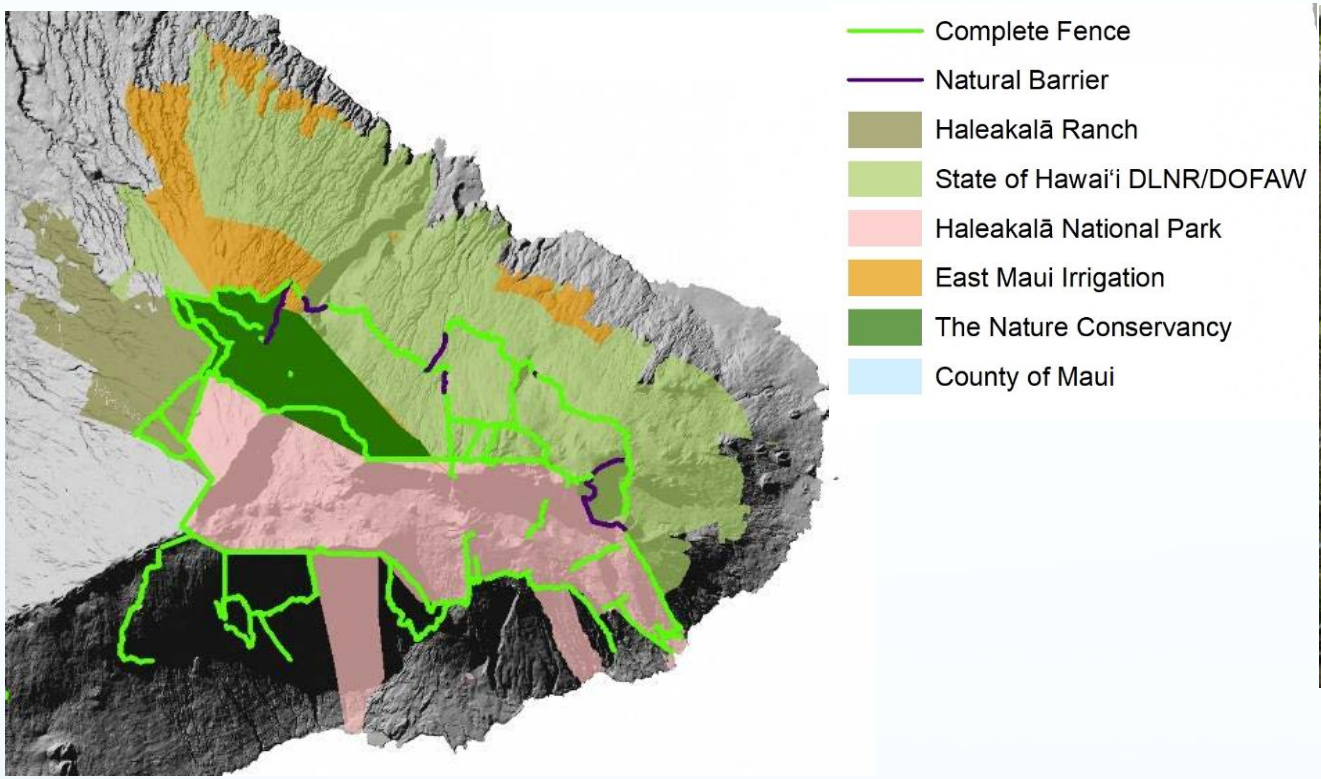
Hāna Projected Growth & Demand





2035 DEMAND (GPD)	
MDWS Potable	542,047
Municipal Private Potable	190,608
DHHL Potable	117,700
Domestic Potable	183,828
Total Potable:	916,483
Irrigation Non-Potable	1,578
Agriculture, Non-Potable	1,464,073
DHHL, Non-Potable	255,000
Total Non-Potable	1,720,651
TOTAL DEMAND	**2,637,134**
2035 SUPPLY (GPD)	
Potable Groundwater	916,483
Non Potable Groundwater	1,578
Non potable surface water	1,464,073
Ambient rainfall	255,000
TOTAL SUPPLY	**2,382,134**

Hāna Strategies: Resource Management & Conservation



Source: EMWP

1. Seek dedicated, long term and broad based core funding for maintaining and expanding watershed protection areas and providing for watershed maintenance in East Maui watersheds for habitat protection and water security.

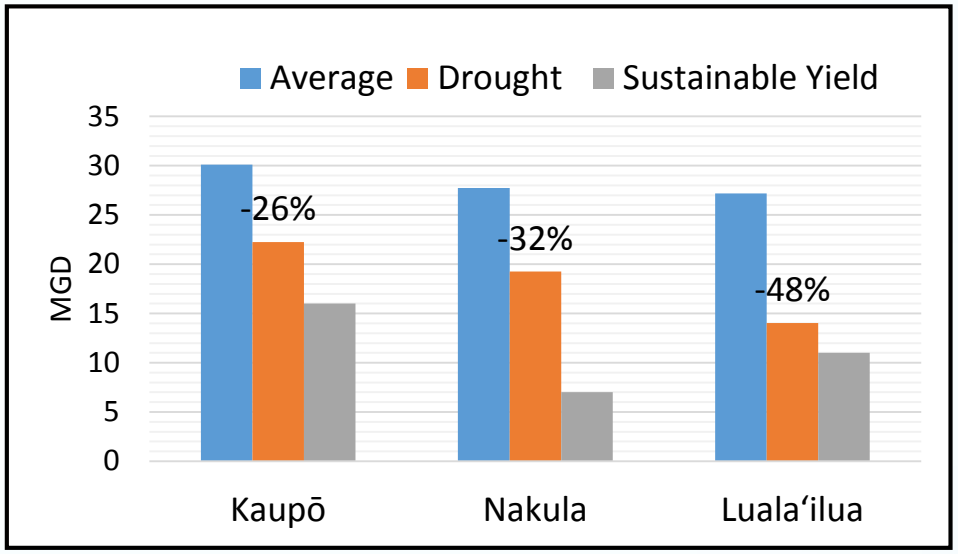
2. Support and promote community grassroots initiatives to collaborate with state and land owner partnerships to increase participation in natural resource management and to ensure adequate access and opportunities for traditional uses of the region's natural resources. Use established moku process to consult on resource management.

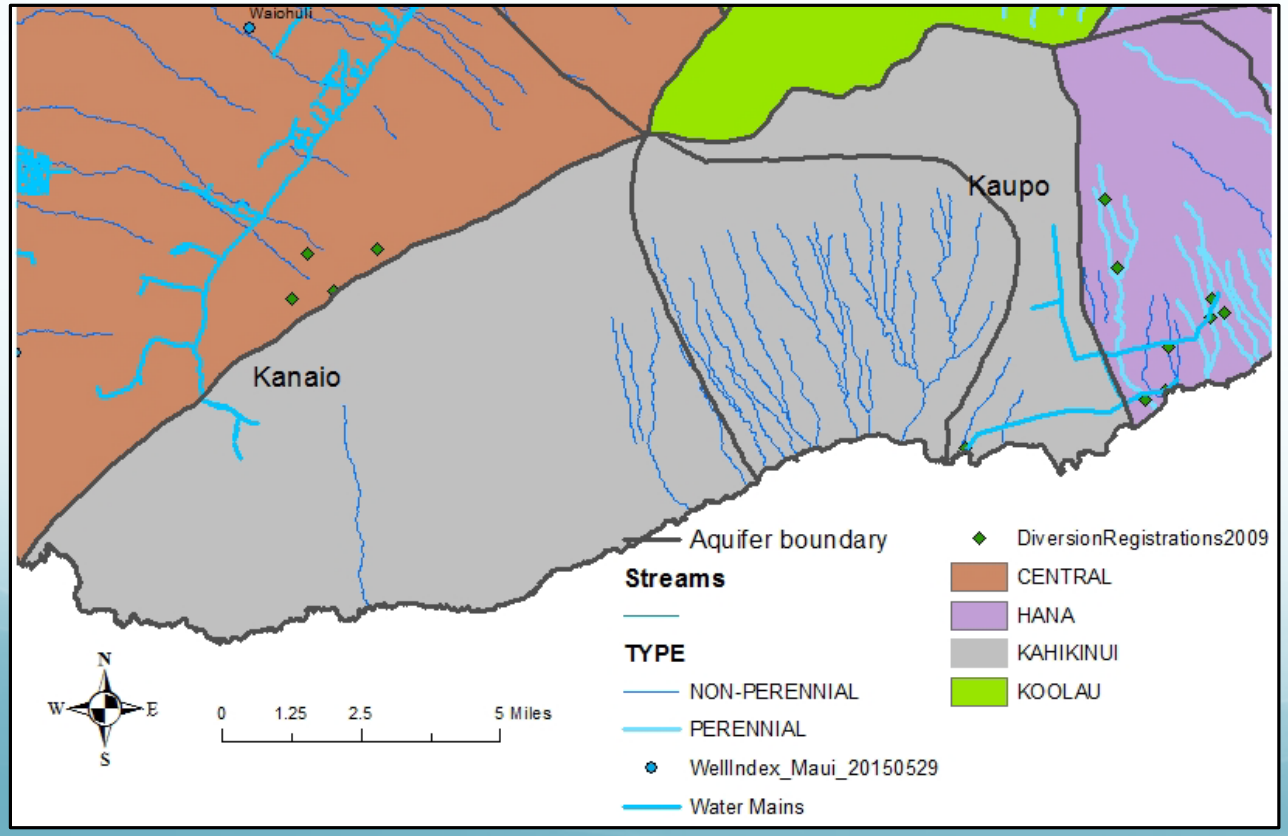
Hāna Conventional Water Source Strategies

Strategy	Estimated Cost	Lead Agency
3. Complete optimization studies/source development analysis for the MDWS Hāna subsystem in order to assess basal well development needs by 2025.	$3.55 per 1,000 gallons	MDWS DHHL
4. The Commission on Water Resource Management to establish Instream Flow Standards on a stream-by-stream basis to protect the public interests of the Hāna aquifer sector. Recognizing that other regions with competing off-stream needs must be prioritized, this strategy is proposed as a medium to long-term implementation time frame	N/A	CWRM USGS
5. Convene sector-based drought workshops to assist stakeholders in developing or improving their individual drought/water conservation plans. Focus in the Hāna sector should be on catchment systems and contingency supply to supplement or substitute catchment when necessary.	$50,000	MDWS CWRM

Kahikinui Water Resources

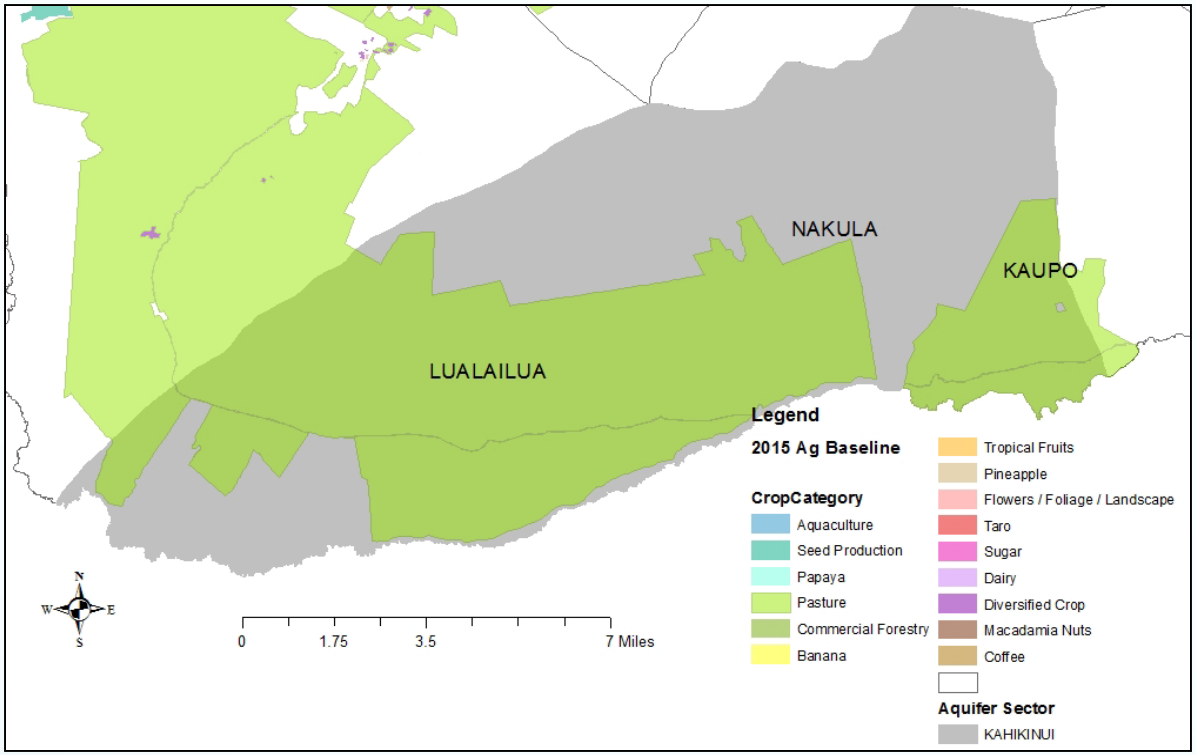
- ✓ No perennial streams
- ✓ Groundwater Sustainable Yield = 34 MGD, revised to 31 mgd 2019
- ✓ Climate change impacts: decreased rainfall and groundwater recharge (upper regions)

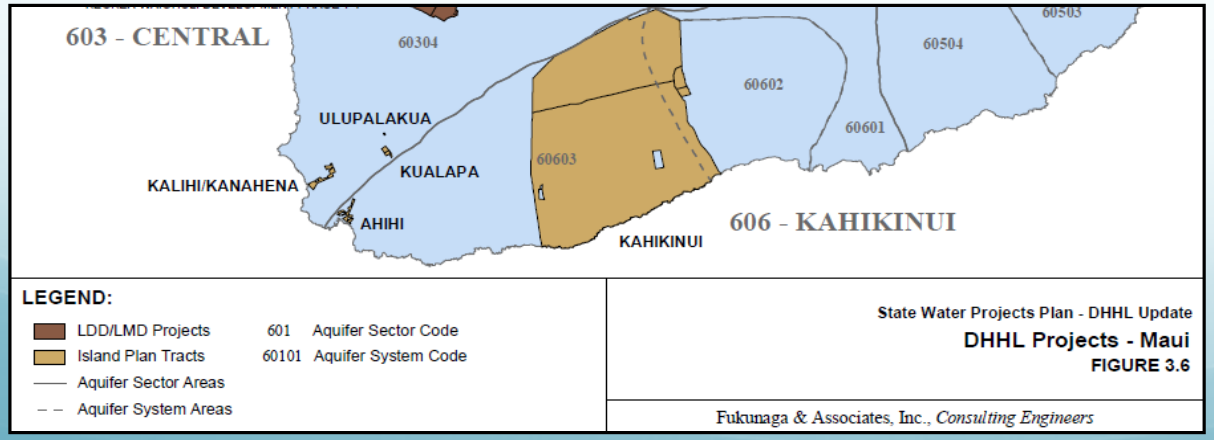




Sustainable Yield Revisions 2019 do **not** affect strategies

Kahikinui Projected Growth & Demand

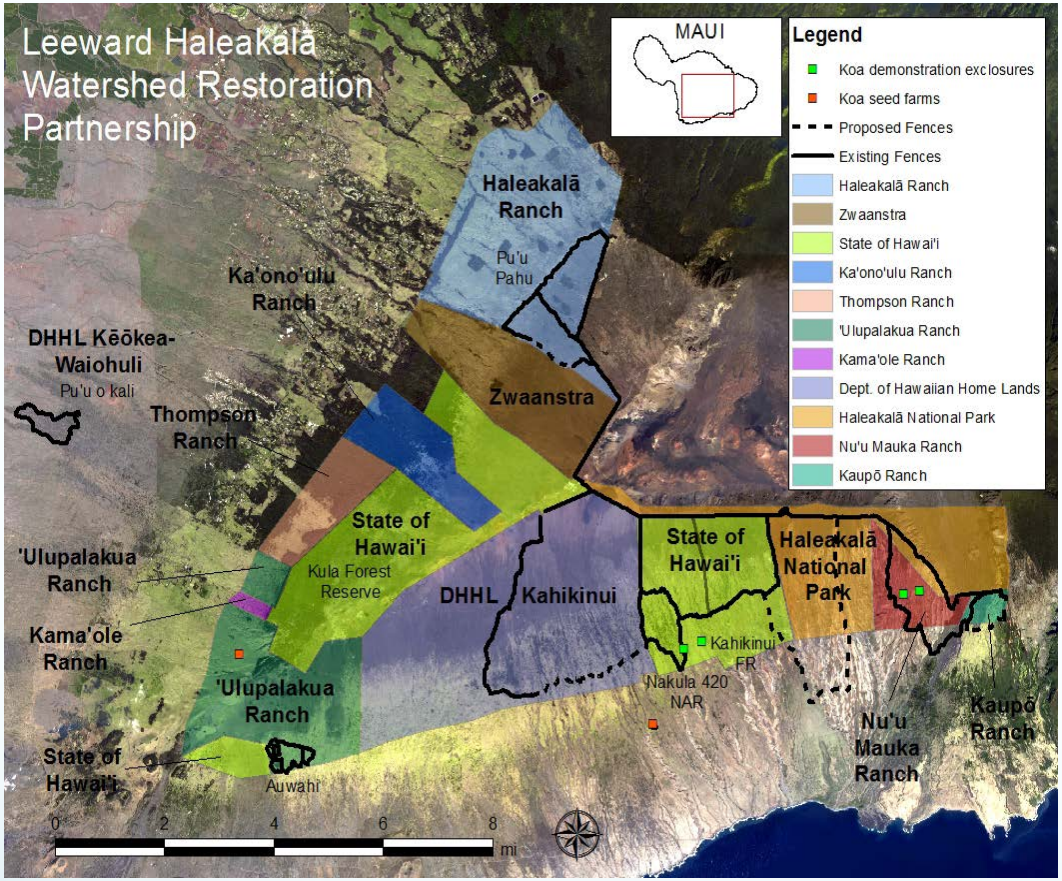




2035 DEMAND (GPD)	
MDWS Potable*	43,405
DHHL Potable	63,000
Total Potable:	106,405
MDWS Non-Potable**	6,435
DHHL Non-Potable	13,500
Agriculture, Non-Potable	180,000
Total Non-Potable	199,935
TOTAL DEMAND	**306,340**
2035 SUPPLY (GPD)	
DHHL Fog Drip Catchment and Truck Haul	76,500
Potable surface water transport from Central/Ko`olau ASEAs*	43,405
Non-Potable Groundwater Kaupō ASYA	180.000
Non-Potable Surface Water Kaupō ASYA	6,435
TOTAL SUPPLY	**306,340**

*Kahalo
**Kaupō. Surface water supplemented with groundwater

Kahikinui Strategies: Resource Management & Conservation



Source: LHWRP

1. Support and provide broad based funding to sustain and expand watershed protection and restoration on a landscape level on leeward Haleakalā for long term habitat augmentation and water security.

2. Support and promote regional grassroots, homestead community and moku initiatives to collaborate with state and land owner partnerships to ensure participation and adequate access and opportunities for traditional uses of the region's natural resources.

Kahikinui Conventional Water Source Strategies

Strategy	Estimated Cost	Lead Agency
3. A combination of fog drip catchment system and groundwater development to supply build-out of DHHL Kahikinui homesteads. Depending on groundwater quality, desalination of brackish groundwater should be considered.	$1.8M capital cost	DHHL
4. It is assumed existing meter priority list applications accommodated by DWS Upper Kula system. Any additional population growth based increase require development of regional groundwater sources. Non potable demand potentially be supplemented by catchment systems, including fog drip.	N/A	DWS
5. DWS and Kaupo Ranch collaboratively explore alternatives #2 (improve non potable system) and #3 (groundwater source potable system) to provide adequate service to the Kaupō community. Explore technical and financial assistance and grant opportunities	#2: $750K, $35.8K/ meter #3: $2.6M, $123.9K/meter	DWS Kaupō Ranch DOH SDWB RCAC
6. Convene sector-based drought workshops to assist stakeholders in developing or improving their individual drought/water conservation plans. Focus in Kahikinui region is on ranching and may include retaining experts in respective sectors.	$50,000	CWRM, DLNR DOFAW, NRCS, DOA, DHHL,DWS, USDA Farm Services Agency