WIT.Committee

From: Eva Blumenstein <Eva.Blumenstein@co.maui.hi.us>
Sent: Wednesday, June 10, 2020 4:51 PM
To: WIT.Committee
Cc: Jeff Pearson; Lesley J. Milner
Subject: Re: WIT
Attachments: WIT WUDP Lahaina 061520.pdf

Aloha,

Please find the Department of Water Supply June 15 presentation of the Water Use and Development Plan Chapter 19.

Mahalo,

Eva

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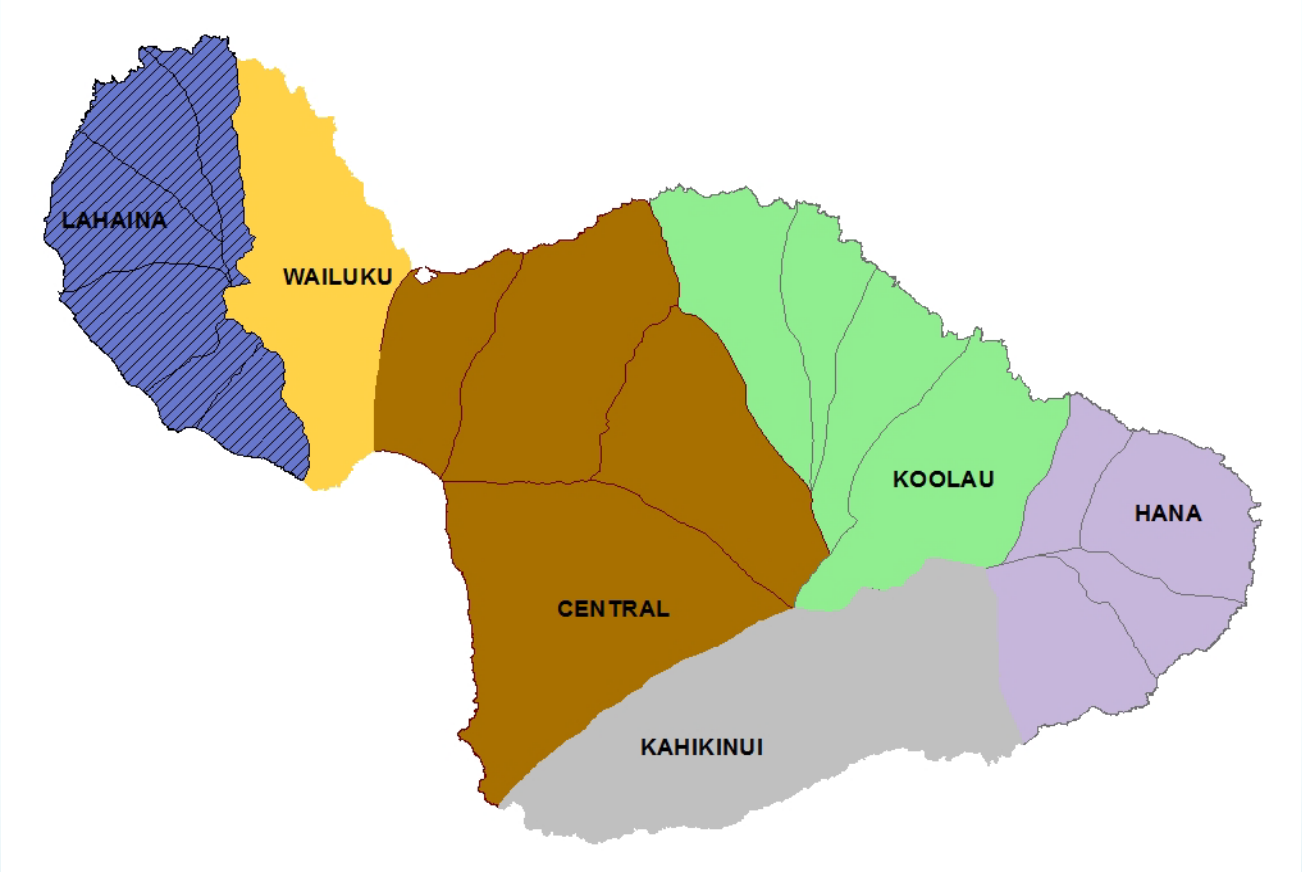
MAUI ISLAND WATER USE & DEVELOPMENT PLAN UPDATE

PART III: Lahaina Aquifer Sector



Council of the County of Maui
Water, Infrastructure and Transportation Committee

June 15, 2020

County of Maui Department of Water Supply

Key Issues

- ✓ Restoration and protection of streamflow to support native Hawaiian rights and traditional and customary practices. Streamflow measurement and development of Instream Flow Standards
- ✓ Watershed protection, reducing the adverse effects of runoff and sedimentation on streams and the near shore environment, maintaining access to lands for gathering, hunting and other native Hawaiian traditional and customary practices
- ✓ Improved understanding of ground and surface water resources and the effects of water use on resource availability long term, improved transparency and controls on water withdrawals
- ✓ Precautionary planning to reduce and adapt to the effects of drought and climate change on water resource availability and quality
- ✓ Adapt economic and population growth and the built environment to local water resource conditions, integrating conservation and the use of alternative resources

Major Changes and Constraints

March 2019 Draft: incorporated events that occurred until submittal to Board of Water Supply August 10, 2018

- No numerical Interim Instream Flow Standards (IIFS) established. Available stream assessments incorporated
- WUDP process - consult with community on approach & scenarios
- Affect strategies

CWRM Water Resources Protection Plan Update – revisions to sustainable yield

- Anticipated revisions

Addendum: to incorporate changes to supply and demand due to events occurring September 2018 - March 2020.

- Incorporate IIFS for Ukumehame, Olowalu, Launiupoko, Kaua`ula, Kahoma and Kanahā streams
- Consider stream assessment for Honokōwai, Honolua, and Honokōhau streams
- Affect strategies

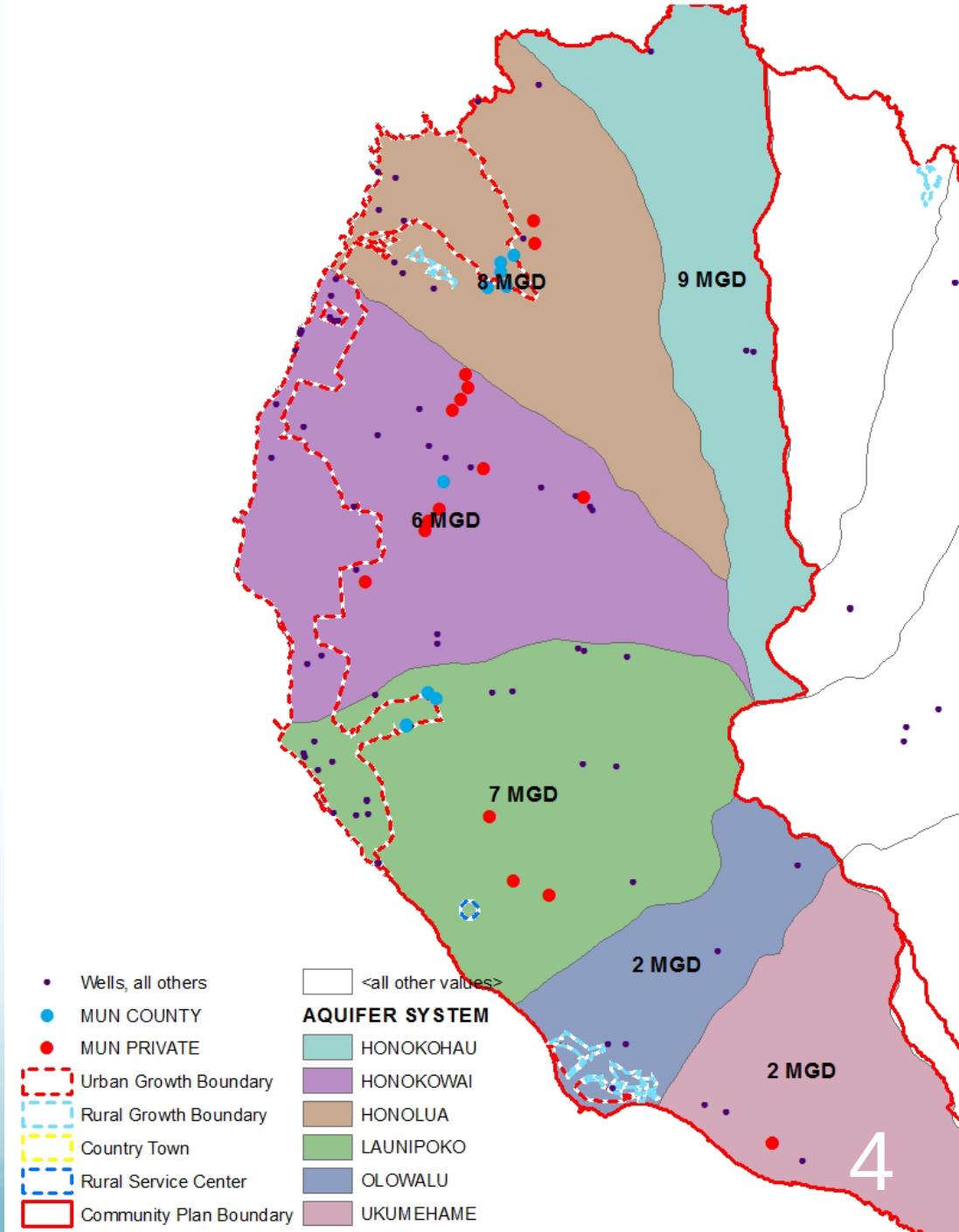
CWRM Water Resources Protection Plan Update – revisions to sustainable yield

- Adopted revisions do not affect strategies

Groundwater Resources

- ✓ Sustainable Yield = 34 MGD
- ✓ Groundwater withdrawals =18% of sustainable yield
- ✓ Climate change impacts: reduced rainfall, decreased groundwater recharge
- ✓ Recycled water disposal needs

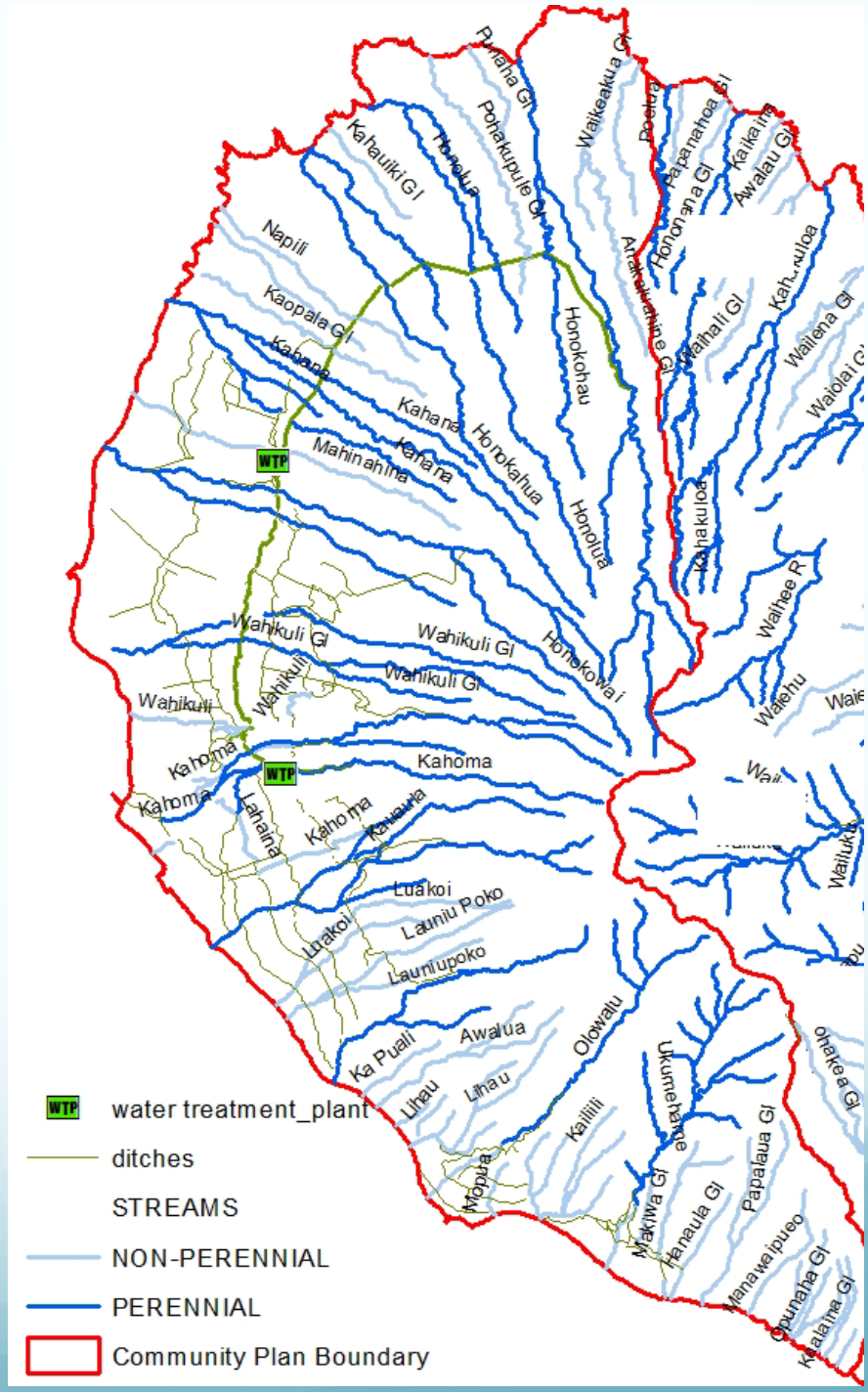
Aquifer System	Total Pumpage	SY	Pumpage as % of SY
Honokōhau	0	9	0%
Honolua	2.601	8	33%
Honokōwai	3.052	6	51%
Launiupoko	0.479	7	7%
Olowalu	0.069	2	3%
Ukumehame	0.007	2	0%
Total	6.208	34	18%



Surface Water Resources

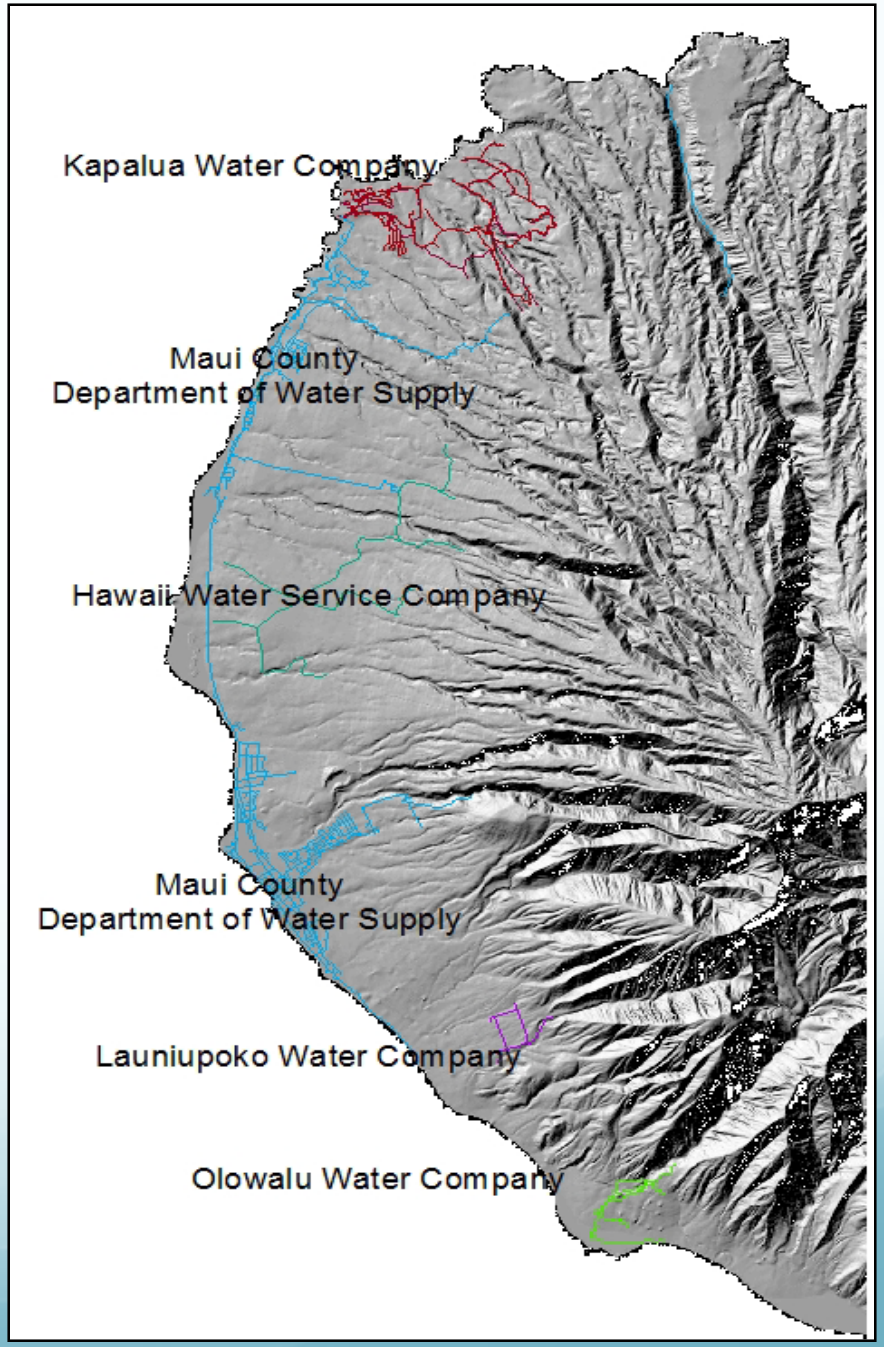
- ✓ Median base flow ~ 38.9 mgd
- ✓ Drought base flow ~ 20.7 mgd
- ✓ Interim Instream Flow Standards underway restore stream flow and reduce some diversions
- ✓ Climate change impacts: reduced rainfall, diminishing stream flow but also variable and unstable
- ✓ Resort non potable uses are concentrated in the dry coastal zone

Diversion	MGD
19 Launiupoko Irrigation	0.405
20 Kahoma Irrigation	0.416
21 Kaua`ula Irrigation	2.610
22 Olowalu Irrigation	1.622
39 Kapalua Water Irrigation	*1.094
40 MLP Troon (Golf Irrigation)	*0.914
41 MLP Agricultural Irrigation	*0.425
42 MDWS Māhinahina (Municipal)	*1.718
43 Kā`anapali Development Co. Irrigation	*5.450
82 MLP #1 Intake Honokōhau	13.540
MDWS Kanahā Intake (Municipal)	1.6216
Total	20.214



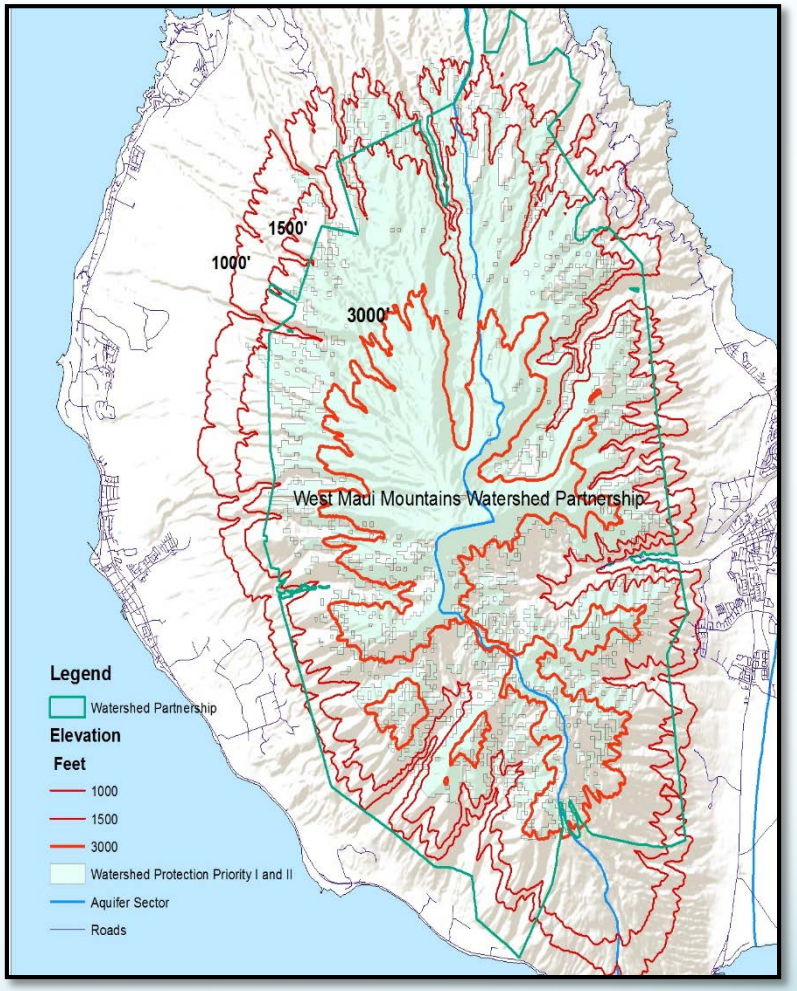
Projected Growth and Demand

2035 DEMAND (MGD)	2035
Domestic Potable	0.060
MDWS Potable	9.191
Municipal Private Potable	6.303
Total Potable:	15.554
Irrigation Non-Potable	14.876
Agriculture Non-Potable	4.000
Total Non-Potable	18.876
TOTAL DEMAND	**34.430**
2035 SUPPLY (MGD)	
Potable Surface Water	2.500
Potable Groundwater	13.054
Honokohau Aquifer	0.000
Honolua Aquifer	4.300
Honokowai Aquifer	4.000
Launiupoko Aquifer	4.300
Olowalu Aquifer	0.370
Ukumehame Aquifer	0.110
Total Potable	15.554
Recycled R-1	5.230
Conservation 8% per capita	1.639
Non-Potable Supply (Brackish GW/Surface water subject to IIFS	12.007
TOTAL SUPPLY	**34.430**



Strategies: Resource Management & Conservation

Strategy	Estimated Cost	Lead Agency
1. Continue Maui County financial support for watershed management partnerships' fencing and weed eradication efforts.	$0.7M - $0.8M - per yr/$14 per watershed acre (47,321 ac)	MDWS Maui County
2. Support local initiatives that seek mauka to makai/traditional ahupua`a management. Educate and raise public awareness of ahupua`a management to foster partnerships for use and management of stream waters	N/A	Public-private partnerships Aha Moku DLNR
3. Undertake comprehensive study of Maui Land & Pine, former Pioneer Mill and Lahainaluna ditches in AWUDP update	N/A	DOA Private purveyors



Source: Pu`u Kukui Watershed Preserve

Conventional Water Source Strategies

Strategy	Estimated Cost	Lead Agency
4. Develop basal groundwater wells to provide adequate water supply for planned population growth, maintaining a buffer to sustainable yield	3.50/1,000 gallons	MDWS Private purveyors
5. Ensure "smart source development" guided by available data and modeling results to optimize pumpage, mitigate salt water intrusion and preserve regional resources with adequate distribution to Launiupoko and Honolua aquifers	N/A	MDWS Private purveyors DHHL
6. Install a gage at Kanahā stream above existing intakes to collect stream flow data in order to initiate assessment of Instream Flow Standards. Prioritize IFS for diverted streams.	$25K - $35K installation. Annual monitoring $15K/year	MDWS CWRM USGS
7. Seasonal use of surface water to take advantage of affordable supply in wet season and shift non-instream needs to groundwater and alternative supply when available in dry season to promote stream restoration	Surface water use: $1.90 - $2.15/1000 gal Basal well from $3.50/1000 gal	MDWS Private purveyors
8. Interconnect MDWS subsystems and develop contingency agreements between purveyors in the region	$12.3M	MDWS Private purveyors DHHL

Alternative Water Source Strategies

Strategy	Estimated Cost	Lead Agency
9. Support capital improvement funding for recycled water projects and needed infrastructure expansion in the Lahaina region to offset potable water to the maximum extent feasible.	$25.9M	DEM MDWS Private purveyors DHHL
10. Explore Kahoma Stream flood control project to collect and convey storm-water for agricultural use.	$12.9M	DPW

Implementation and Funding

- Recommendations provide guidance for land use and capital improvement program budgeting
- Implementing actions should be developed over the planning period for near term (1 – 5 years) and long-term (5 – 20 years) timeframes
- Conservation programs defer but don't replace costly investments
- Funding shared between state and county agencies, with greatest burden on DWS (water service fees, water system development fees, bond financing and State Revolving Fund loans)