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During April and May, 2021 four meetings were held between Maui Island 'Aha Moku Council representatives, Councilmember Shane Sinenci, and staff members. The intent was to receive comments on Appendix 10 strategies as they relate to cultural and traditional practices. Equally important, the meetings provided expert information on the plan's strategies from a Kanaka Maoli perspective.

For background purposes:

Legislation passed between 2007-2012 recognized the value and connectivity of traditional Hawaiian knowledge in resource management. Passed in 2007, Act 212 recognized that "Native Hawaiian culture has knowledge that has been passed on for generations, and still living for the purposes of perpetuating traditional protocols, caring for and protecting the environment, and strengthening cultural and spiritual connections. It is through the 'Aha Moku Council that Kanaka Maoli protect their environment and sustain the abundance of resources that they depended upon for thousands of years."

Today's 'Aha Moku Council system was created in 2012 under Act 288. Section 1 states "that over the past 200 years, Hawaii has suffered through extensive changes to the Native Hawaiian culture, language, values, and land tenure system, resulting in the following:

- Over-development of coastlines;
- Alterations of fresh water streams;
- Destruction of watersheds;
- Decimation of coral reefs;
- The decline of endemic marine and terrestrial species."

The 'Aha Moku system is a land, water, air and ocean system of best practices that is based upon indigenous resource management practices of ahupua'a and moku (regional) boundaries. The 'Aha Moku Councils are comprised of experts able to provide empirical knowledge. They are made up of Hawaiian cultural and traditional practitioners versed in ahupua'a management practices, traditional best management practices of sustainability, and indigenous resource management.

Through the revivification of the 'Aha Moku system and its island councils, they seek:

- to integrate western management practices with indigenous generational, cultural and traditional resource knowledge,
- to identify a comprehensive set of indigenous practices for natural resource management,
- to foster understanding and practical use of Kanaka Maoli resource knowledge, methodology, and expertise,
- to sustain the State's marine, land, cultural, agricultural, and natural resources, and
- to provide community education and foster cultural awareness.

Below are the general comments given by Council members grouped by strategy topic.

Watershed Management and Water Quality

1. Resource management actions in the plan need to be more robust.
2. There is a lack of understanding that through resource management additional water can be created.
3. Each moku must be seen as its own eco system and that all aspects of the environment are connected. Streams must have connectivity for a healthy eco system. Stream flow creates estuaries and fisheries
4. With the loss of stream flow comes the loss of sustainability and ability to feed families. Limu and opihi can not survive and fishery declines. Kalo can not be grown.
5. Recharge is essential. Transporting water out of the region affects that system's ability to produce water for future generations; allows unsustainable development; and leads to future problems. A clear example of failure to look at the bigger picture. Need to consider how water flows to feed the earth and the importance of connectivity from mauka to makai.
6. Lack of understanding the big picture, the entire eco system's health and connectivity to culture and spirit of the Kanaka Maoli.
7. There is no mitigation for the near shore effects of reduced fresh water mixing with ocean water. Once this mixing is stopped, there are immediate effects: fisheries die off. Algae rich runoff brings important nutrients and keeps the muliwai cool temperatures which are needed for juvenile growth.
8. Wetlands must be considered in the document. One example is Wailuku Rivermouth to Waiehu (Maluhia).
9. Need a law to prohibit the "cementing over" of wetlands. Stream life ceases. The streamflow mauka to makai becomes non-existent.
10. Keep storm water drainage in the same area.
11. Native dry forests also need protection
12. Resource management is a very important aspect of Hawaiian culture. Cite and implement Kanawai policies. One example is to penalize those who waste water. Waste isn't allowed under the Kanawai. Death and being put in the hole where waste occurred was the punishment for waste. This shows how seriously Kanaka Maoli took water management.
13. Usage of retention basins but not in culturally sensitive areas. Requirements should be to capture all drainage, not just to facilitate recharge.
14. Lined reservoirs prevent recharge and stop connectivity.
15. The plan does not take traditional knowledge into consideration.
16. Plan relies on science, but not observation is just as important and needs to be incorporated.

17. Generational knowledge can be more accurate than scientific data.

18. Kaniwai rules also addressed hoarding. There was no commercial use of water. People took what they could use. No waste and no hording.Based upon this, we need more conservation policies and ordinances to address water conservation. We need to mandate better resource management.

19. For consultation with Native Hawaiians, not all have cultural knowledge. Displacement of people from their lands causes a disconnect and loss of cultural knowledge. The focus of consultation should be on protecting rights and public trust doctrine. It I important to actively seek out those people who are practicing their culture and also those with historical knowledge.

20. When looking at cultural use, the plan must address the mo'o, the spiritual aspect of water and the effects of the loss of water, loss of cultural practices and as a result loss of spiritual nourishment. The loss of the flow of water is also a loss of spiritual nourishing energy provided by that water. KA WAI OLA!

21. No mechanism for protecting underground water. Need a blasting permit process and better oversight. Blasting permit is issued by fire Chief. Need consult w/County archaeologist for Historical/Cultural sites and iwi kupuna prior to issuance.

22. Kuleana and neighboring residents need to be notified when a well permit is applied for. Cultural uses include kalo cultivation, limu and opihi picking, and fishing. These activities require mauka to makai stream connectivity. The definition of cultural use needs to be much broader to apply to the Hawaiian sustainable way of life. Water is spiritual and cultural practices that strengthen this connection to spirit need protection.
23. Disagree with well strategies. The aquifer is for all and not to be commercialized or water privatized.
24. Wells should not remove resources outside the area.
25. Disagree with concept that entire island is one ahupua'a and one eco-system. Apuaha'a land and water management are based upon mokus (boundaries) and resource protection. Current system is unsustainable.
26. Strongly disagree with strategy 14: When IFS adopted protecting kuleana and instream uses, then support water transport for ("sustainable") agriculture. Do not support commercial agriculture. Only sustainable agriculture is that which sustain ohana, not which prioritizes and commoditizes it. Diversified sustainable ag is not commercial. Kalo cultivation is a spiritual and traditional custom and agriculture in that it feeds people. Kuleana uses include any nourishing food used to feed family. This practice allows for the stream water to be returned to the aquifer. It adheres to ahupua'a management practices, where as transporting water for commercial agriculture reduces eco system health and the cultural and agricultural practices of kuleana stream users. Historically the more kalo that you grew, the more land and water you were given. Look to Wahi Kupuna stewardship instead of 'diversified agriculture."

<u>Conservation: supply and demand sides, agricultural uses and energy</u>

27. Look at other jurisdictions for resort water usage such as Oahu. Our numbers allow much more.

28. Prohibit water features and pool usage.

29. Penalize largest water uses, but first create categories of water use such as public so Maui Memorial medical Center and Baldwin High School not affected.

30. Don't build where there is insufficient water – this is unsustainable development.

Regulatory Framework and governance:

31. The plan lacks enforcement mechanisms and penalties.

32. The strategies are not legally binding.

33. Previous government actions contrary to the state constitution mandated public trust doctrine and a long history of private interests prevailing over public interests. This is not balanced.

34. Legally binding consent decrees must be adopted into the plan and the numbers agreed to by the decree parties must be provided as plan data. The decrees hold the legal force of law and the County of Maui and State policies can not override them. To plan responsibly is to accept their validity and incorporate the adopted water usage numbers, polices and restrictions into the plan.

35. The plan should not be implemented until restoration of all streams is complete.

36. The Na Wai Eha case needs to be documented as it will affect water usage amounts and availability for cultural uses, domestic uses, and agriculture.

37. The state is not managing the diversions. How can well permits be given out when verification of the diversions is not being done?

38. Small landowners should receive priority over large corporations. In Kihei the largest water user is the Grand Wailea. This system creates unsustainable development. Under the kaniwai system water has a purpose. Recreation is not part of that purpose. Recreational swimming pools are not a part of the purpose.

39. Wailuku Water System Purchase: Do extensive research on the title and history of the individual lots. When Claude Spreckels left the island he lost his status a subject of the Hawaiian kingdom. As such, he legally lost what the legislature gave to him. It reverted back to the Kingdom. Specifically research the grant of 24,000 acres.

40. No compensation has been made to kuleana/land commission award claims for its water accessibility and use. Compensation needs to be made.

41. The document fails to address matters relevant to kuleana/land commission award claims on water, and fails any worthy consultation process. Correct misinformation in the Ka Pa'akai analysis stating that the Island Council supported the WUDP.

42. Need to consult with kuleana landowners.

43. The state has no authority over water rights as it does not own the water. A transfer never occurred.

44. Include concepts from the Annexation bill in regulatory framework section.

45. Cite the Horner v Kumuli'ili'I court case and other relevant Hawaiian Kingdom documents and court cases regarding kanaka maoli and kuleana rights.

46. Taking water from the streams and aquifers disenfranchises Hawaiians. Only kanaka maoli have vested rights.

47. The public trust doctrine is based upon a fallacy of state ownership of water resources. Only kanaka maoli have rights.

48. Add definitions of and distinctions between kanaka maoli, native Hawaiian and Native Hawaiian.

49. Concerns that by participating in this process, it diminished rights. Do not want to participate in an illegal system. Recognition that past injustices are still unaddressed. No confidence in the process that any change for the betterment of kanaka maoli or the eco-system will occur.

50. Diversified ag does not have rights to the wai. Only kuleana users have rights. Fully document kuleana water rights and usage before making decision. Kuleana landowners have superior rights to water. It is not only for cultural practice but more for sustainability. Cooking, cleaning, bathing, washing dishes.

51. Consult kanaka maoli and kuleana landowners in well development permits, diversions, and any actions that affect stream users, and the local aquifer. It's all one body of water to be shared. Kuleana landowners have rights. It's a practical thing to do as well as those in the area live the conditions and monitor through observation. It is necessary that Kanaka Maoli and kuleana landowners be included throughout the entire Water Use Development Plan.

52. All decisions be made according to the Kanawai of which all Hawai'i Revised Statutes and Hawai'i Administrative Rules are based. Integrate the knowledge gained from these meetings into the body of the document. It was asked several time why are the indigenous peoples of this 'aina being treated as second class citizens and placed at the end of the Water Use Development Plan in Appendix 10?

Conventional water source

53. Better data collection is needed. To manage a resource, you must collect data and monitor the area.

54. Well permits are given based upon inaccurate data because the state is not enforcing stream flow standards. How can well permits be given out when verification of the diversions is not being done?

55. Stream monitors needed to understand flow.

56. Stream monitors needed to enforce stream flow standards. No enforcement now of diversions and returning water.

57. Disagree with all well strategies. Everyone shares the same aquifers. Kuleana and all local residents need to be consulted. No data on private wells or diversions. Need a kuleana water user survey for all areas. All kuleana users must be consulted for each well permit in the area. All areas need to be special management areas that oversight for the good of all.

Appendix 10: Generalized Assessment of Impacts of Preliminary Measures and Strategies on Traditional and Customary Practices of Native Hawaiians

See tracked changes, however to make it easier:

Blue highlight is an addition

Preliminary Measures and Strategies	Extent to which traditional and customary native Hawaiian rights are exercised in the area which may be affected	Extent to which those resources and rights will be affected or impaired by the proposed measure	Feasible action to be taken to reasonably protect native Hawaiian cultural resources if they are found to exist.
WATERSHED AND AQUIFER PROTECTION			
1. Invasive alien plant control, ungulate (pigs, deer, etc.) control (fencing, etc.), reforestation. Implement via watershed partnership programs (DWS supports and funds programs. Leveraging state and private funding. Invasive plants and animals and ungulates disturb watershed resources and functions by displacing or removing native plants and animals, disturbing the soil, increasing runoff and sediment, and decreasing aquifer recharge potential)	Native Hawaiian rights include gathering (PASH): 1) invasive Polynesian canoe plants and other invasive non-native plant species used by cultural practitioners including trees, ferns, flowers, bark, branches, vines and fruit; 2) introduced and native animals used for food and cultural practices; and 3) native Hawaiian trees, ferns, flowers, bark, branches, vines and fruit.	1) Native Hawaiian gathering rights (PASH) are impacted by: 1) Eradicating or reducing invasive Polynesian canoe plants (kukui nut tree for example) and other invasive non-native plant species used by cultural practitioners including trees, ferns, flowers, bark, branches, vines and fruit; 2) Eradicating or reducing introduced animals used for food and cultural practices; and 3) fencing, which limits or prohibits native Hawaiian cultural practitioners from accessing areas to hunt and gather cultural resources, including stones (pohaku), and native and introduced plants and animals used for food and cultural practices. 2) Native plant and tree reforestation enhances natural ecosystem health	1) Per PASH court decision, native Hawaiians should be allowed gathering and access rights in areas where cultural resources exist. Incorporate gathering access points into watershed fencing. 2) Fencing should be installed in remote areas inaccessible to hunters. This typically applies to higher elevation fencing above 3,000 feet but is not as easy to accomplish in the lower elevations. 3) Obtain input from individuals and groups familiar with the areas fences are to be constructed.

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		and increases underground fog drip flows, which helps support thriving native Hawaiian ecosystems from forests to reefs, thereby providing more abundant resources for native Hawaiian cultural practitioners. Based on discussions with East Maui residents in the EIS planning phase of the East Maui Watershed Fenceline, fences above the 3,000 foot elevation are unlikely to be encountered due to the fact animals are caught well before anyone needs to traverse higher up the mountain. Efforts to create a healthier eco-system through invasive species eradication benefit all water users.	4) Fences and access points need to have signs posted that warn hunters that active feral ungulate animal control is in progress and that the area may be hazardous to dogs due to the control methods being employed, i.e. the use of tools and methods that may be fatal to pets and hunting dogs. 5) State land above constructed fences in the forest reserves should have signage that indicates it remains classified as "public hunting," and hunters should still be permitted to enter the areas for subsistence purposes. 6) Watershed programs and watershed plan development should incorporate advisors with expertise in native Hawaiian cultural practices. 7) Support conservation land trusts, nonprofit organizations that undertake or assist in land or conservation easement

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			acquisition or stewardship of land or easements. 8) Strategy 2, expanding watershed protection to lower elevations could foster productive environments to produce more cultural resources at lower elevations. 9) Strategy 3, ahupua`a management, if it creates more connectivity and includes native Hawaiian access rights. Strategy 5, native Hawaiian consultations, are an opportunity to address gathering and use access.
2. Expand watershed protection to lower elevations (Programs now focus on higher elevations (3000+)	1) Native Hawaiian rights include gathering (PASH) - See Footnote 1. 2) Increased access to hunters may help control feral ungulate damage in the lowland native forests.	1) Expanding watershed protection to lower elevations could foster productive environments to produce more of the resources available at higher elevations. 2) Expands invasive alien plant and ungulate control conflicts stated in Strategy 1 to lower elevations. 3) Expands reforestation benefits and potential conflicts in Strategy 1 to lower elevations.	Same as Strategy 1 mitigations, applied to lower elevations.

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3. Ahupua'a watershed-based planning and management approach (Ridge to ocean approach focused on stream systems)	Native Hawaiian rights include gathering (PASH) - See Footnote 1. Public Trust doctrine protections State Water Code protections Native Hawaiian cultural rights also include protection under Hawaii State Constitution Article X1 Section 1: 'For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty, and all natural resources, including land, water, air, minerals, and energy sources, and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the state. All public natural resources are held in trust by the State for the benefit of the people." (Cite recent Na Wai Eha case as most recent application of this principle)	No adverse impacts. Ahupua`a management creates more connectivity and eco system health. Strategy supports PASH court decision and public trust doctrine.	No mitigation necessary. Indigenous resource management practices should be integrated with western management practices in each moku. Strategy can be strengthened by: 1) Support conservation land trusts, nonprofit organizations that undertake or assist in land or conservation easement acquisition or stewardship of land or easements. 2) Consult Native Hawaiian Groups, including 'Aha Moku Councils, to better understand traditional land management practices and assist with integration of those policies and techniques into current western management. ~~1)~~3) Prioritize Ahupua'a management practices of eco system health and mauka to makai connectivity, water for

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			cultural uses, including taro cultivation, conservation, and regional use of water to achieve sustainability.
4. Consultation with Native Hawaiian community and local experts on resource management (Water representative of each moku, advisory role and partnership)	Native Hawaiian rights include gathering (PASH) - See Footnote 1. Public Trust doctrine State Water Code	1) Due diligence consultation with native Hawaiian communities and expertise should include adopting recommended strategies and actions and have a positive impact upon the access to and management of natural resources used by cultural practitioners. 2) –Competing resource utilization could occur as a result of expanding access to more practitioners, as a result of actions resulting from consultation.	No mitigation necessary. The consultation process should ensure diverse, holistic, and comprehensive consultation with the larger native Hawaiian community in addition to the aha mokus. Policies and strategies recommended by those being consulted should take priority when implementation is done.
5. Scientific studies to support decision making in tandem with local traditional Native Hawaiian empirical data and observations. (Study hydrogeologic and ecological conditions; increased monitoring)	Native Hawaiian rights impacted by ground or surface water use. Traditional generational Hawaiian knowledge of the area must be taken into consideration.	Improved understanding of ground and water resource benefits resource management and potentially improves understanding of impacts on native uses. Only relying upon scientific data and not historical traditional knowledge can lead to incorrect data capture.	No mitigation necessary Adopt policies to incorporate traditional Native Hawaiian knowledge of an area and combine with scientific studies.
6. Use drought conditions as baseline to evaluate water supply and effects of water use	1) Auwai systems that travel great distances from the stream and do not return water to the stream.	No adverse impacts. 1) Using drought conditions as a baseline would be more protective over use of average conditions as presently occurs. Long-	No mitigation necessary.

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(Determine projections to use; may vary geographically.)	2) Native Hawaiian rights impacted by ground or surface water use during drought conditions.	term hydrologic drought could impact sustainable yield of groundwater which is interconnected with surface water resources. 2) If drought conditions were used as a baseline for IIFS or sustainable yield, if drought conditions do not supply sufficient flow to auwai's, if restrictions limit auwai use, or if certain auwai systems are deemed "non- instream uses," kalo growers and other native Hawaiian cultural crops could be impacted.	
7. Quantify the impact of watershed management on groundwater recharge and distribute funding proportionally (Prioritize efforts by impact, expand funding from private purveyors, state and other beneficiaries.)	Native Hawaiian rights include gathering (PASH) - See Footnote 1.	No adverse impacts. Quantifying the impact of groundwater recharge, which relates to base streamflow, can assist in monitoring whether programs that support healthy watershed conditions and accordingly cultural practices are beneficial.	No mitigation necessary.
8. Improved ground and surface water resources and diversion monitoring by CWRM.		No adverse impacts. Improved monitoring supports effective protection of resources.	No mitigation necessary. Permit conditions to require system owner to install stream monitors, and allow access to the property to facilitate monitoring and enforcement.
9. Restrict land uses with high risk of well contamination near drinking water wells	Traditional animal husbandry such as keeping pigs and goats.	Locations with traditional animal husbandry could be impacted by their proximity to groundwater resources	1) Ensure regulations do not prohibit non-commercial operations consistent with

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(Proposed Wellhead Protection ordinance based on the capture zone of well)		and restrictions implemented to protect drinking water wells. http://co.maui.hi.us/222/Wellhead-Protection	traditional and customary native Hawaiian rights. Allow limited numbers of animals in close proximity to wells.[1]
10. Protect and recharge ground water during non-drought periods to stabilize supply (Reduce pumping- increased surface water use after public trust uses are met, aggressive conservation and alternative sources)	Kuleana farmers dependent on auwai's and diversions grow kalo and other plants used by cultural practitioners.	Protection of groundwater resources which contributes to base streamflow is beneficial. Potential secondary impacts may occur relating to increased surface water use after public trust uses are met (Strategy 13).	1) Strategy 8, improved CWRM monitoring.
11. No new stream diversions for non-instream uses until interim flow standards are adopted. (Could extend to no new diversion or increased diversion)	Kuleana farmers dependent on auwai's and diversions grow kalo and other plants used by cultural practitioners. Auwai systems that travel great distances from the stream and do not return water to the stream.	No adverse impacts. Areas and resources used to gather will be expanded and return of base streamflow will facilitate native Hawaiian cultural practitioners by supporting a thriving native ecosystem that supports cultural practices with its abundance of resources produced.	No mitigation necessary.
12. Stream restoration- municipal and agricultural water returned to stream	1) Native Hawaiian gathering rights (PASH) - See Footnote 1. ~~1)~~2) Public Trust Doctrine	No adverse impacts. The intent of this strategy is to reduce diversion by large ag users and municipal users during low flow conditions.	No mitigation necessary.

[1] Within the proposed regulated areas, the proposed Wellhead Protection Ordinance would allow the following located more than 50 feet from wells or well fields that supply public water systems: a lot or facility (other than an aquatic animal production facility) where animals will be stabled or confined and fed or maintained for a total of 45 days or more in any 12 month period, and where crops, vegetation forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility (excludes pasture).

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(Decrease municipal and agricultural use of streams)	~~2)~~3) Agricultural water users who receive surface water and grow crops such as Polynesian canoe plants, non-native plant species, and native plants used by cultural practitioners. ~~3)~~4) Increased streamflow facilitates N~~n~~ative Hawaiian cultural practitioners by supporting a thriving native ecosystem that supports cultural practices with its abundance of resources produced.	1) Native Hawaiian gathering rights (PASH) are positively impacted by increased stream flows due to enhancing instream growth of: 1) invasive Polynesian canoe plants and other invasive non-native plant species used by cultural practitioners including trees, ferns, flowers, bark, branches, vines and fruit; 2) introduced animals used for food and cultural practices; and 3) native and introduced plants and animals used for food and cultural practices. 2) Return of base streamflow generally facilitates native and non-native plant and animal life within the stream, thereby providing more abundant resources for native Hawaiian cultural practitioners. 3) Cultural practioners and resources along long-diverted streams may be affected by potential flooding associated with removal of diversions 4) If base flows are returned to the streams and restrictions are placed upon lo`i kalo waters that are	

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		returned to the stream after use (i.e. not geographically removed due to auwai systems separated by distances from the stream); cultural practitioners may be affected. Alternatively, water pipes can be used to return water to the streams for those practitioners whose auwai systems move water significant distances from the stream. 5) As the strategy is intended, cultural practitioners located in areas such as the Kula Agricultural Park that receive untreated agricultural water would not be negatively impacted.	
CONVENTIONAL WATER SOURCE DEVELOPMENT			
13. Increase use of surface water for municipal needs during wet season when all public trust uses are satisfied, including kuleana and traditional and cultural users. (Expand treatment facilities and obtain reservoirs. Permitting and dam liability issues.)	Agricultural water users who receive treated water through surface water sources and grow crops such as Polynesian canoe plants, native plants and non-native plant species used by cultural practitioners.	1) The measure proposes to use surface water *in excess* of the base flow necessary for kuleana and public trust uses and should therefore *not* impact native Hawaiian agricultural and traditional and customary uses. 2) The measure may reduce water flowing to the ocean during the wet season, thereby affecting nearshore	1) Consider potential effects to nearshore ecosystems for areas potentially affected by reduced stream water prior to increased diversion. 2) Strategy 8, improved CWRM monitoring.

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		ecosystems and cultural resources.	
14. When IFS adopted protecting kuleana and instream uses, then support water transport for diversified ("sustainable") agriculture (Support diversified ag economy with low cost untreated source)	Native Hawaiian rights include gathering (PASH) State Water Code Public Trust Doctrine Diversified sustainable agriculture farming is non-commercial cultural agriculture, kalo and other nourishing foods cultivation, limu picking, fishing, and related activities. Other uses of water remove it from the eco-system and result in less water for protected rights. ~~Diversified agriculture farming.~~	~~No adverse impacts.~~ This is a policy statement indicating a priority for water transport for diversified ag over other nonpublic trust uses. Supports availability of water for Native Hawaiian diversified farming; provide low cost untreated source reducing dependence on potable water in some areas. Kanaka maoli rights are negatively affected when water is used for activities other than stream restoration and eco system recharge. Cultural practices and responsibility require an adundant stream connectivity and ocean near shore water environments. ~~No adverse impacts. This is a policy statement indicating a priority for water transport for diversified ag over other nonpublic trust uses. Supports availability of water for Native Hawaiian diversified farming; provide low cost untreated source reducing dependence on potable water in some areas.~~	~~No mitigation necessary.~~ Require full stream restoration prior to any new permits or uses allowed. Monitor water uses: survey kuleana users, require stream monitors and system upgrades, access for enforcement, and other policies. Kuleana input: establish a system for kuleana and local resident notification of well or diversion permits. ~~No mitigation necessary.~~
15. Increase county oversight of well drilling in non-designated groundwater management areas	Kuleana and cultural uses in East Maui, Na Wai `Eha and West Maui.	The intent of this strategy is to increase the meaningful evaluation of and opportunity for input on wells in non-	This strategy should be redefined. Encourage CWRM to increase analysis of well permits, including

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(Holistic review including water quality, quantity and land use impact addressed before well construction permit issued)		designated areas. It was suggested at community meetings that an early process led by the County could assist in addressing the problem. CWRM well and pump permits are required for all wells, with notice provided on the CWRM website; any party may request to be placed on the notification list. 1) Wells may adversely affect spring and other well water availability and quality. 2) Kuleana and cultural users reliant upon streams could be negatively affected by reduced base flows feeding streams and springs due to nearby wells with hydrogeological connections.	spatial distribution and evaluation of well impacts on quantity and quality of nearby water resources. Amendment to state law may be required to grant the County authority to undertake a large role in the well permit process. Require consultation with local Native Hawaiians as part of the oversight process.
16. Manage well development and operations to reduce seawater intrusion and chlorides	Native Hawaiian stream users.	No adverse impacts. Increased reliance on well water could translate into decreased reliance on surface water, positively impacting Native Hawaiian rights and resources.	No mitigation necessary.
17. Ha`iku aquifer well development (Potential resource/medium-term; within sustainable yield. For regional use and transport to growth areas.)	Kuleana and cultural uses in East Maui. Native Hawaiian rights include gathering (PASH) State Water Code Public trust doctrine	Increased ground water withdrawal potentially negatively affecting streams and near shore ecosystems which decrease ability for Native Hawaiians to have adequate water for living and cultural practices.	Ha`iku aquifer: Maintain buffer to sustainable yield pending IFS and Require USGS studies of the interaction between ground and surface water and potential impact from pumpage on stream

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		Reduction of transport from water abundant to dryer areas would maintain more water in the streams of wet areas which supports Native Hawaiian cultural and kuleana users who depend on surface water.	flows prior to funding well development. All well development: 1) Strategy 15, increase oversight of well distribution in non-designated groundwater management areas. 2) Strategy 5, scientific studies and traditional historical knowledge. 3) Strategy 8, improved CWRM monitoring. 4) Strategy 10, protect and recharge ground water during non-drought periods to stabilize supply. 5) Strategy 16, manage well development and operations to reduce seawater intrusion and chlorides. 6) Strategies 38-60, alternative water sources, conservation to reduce source development needs.
18. Makawao aquifer basal well development at 1500 ft + elevation for growth and backup regionally	No perennial streams west of Maliko; no known kuleana uses. Potential gathering and cultural uses.	1) Regional use of basal groundwater. 2) Reduction of transport from water abundant to dryer areas would maintain more water in the	Same as all well development mitigation for Measure 17.

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(Aquifer not well studied. High elevation pumping costs)		streams of wet areas which supports Native Hawaiian cultural and kuleana users who depend on surface water.	
19. Waikapu Aquifer basal well development (Private wells drilled for available sustainable yield)	Kuleana and cultural uses in Na Wai `Eha. CWRM Na Wai Eha D&O prioritizes stream restoration and cultural uses over private domestic water uses.	1) Increased ground water withdrawal potentially affecting streams and near shore ecosystems. 2) Reduction of transport from water abundant to dryer areas would maintain more water in the streams of wet areas which supports Native Hawaiian cultural and kuleana users who depend on surface water.	Same as all well development mitigation for Measure 17.
20. Waihe`e Aquifer basal well development  (High capital cost, smaller wells for limited yield of N Waihe`e per USGS study)	Kuleana and cultural uses in Na Wai `Eha.	1) Increased ground water withdrawal potentially affecting streams and near shore ecosystems. 2) Reduction of transport from water abundant to dryer areas would maintain more water in the streams of wet areas which supports Native Hawaiian cultural and kuleana users who depend on surface water.	Same as all well development mitigation for Measure 17.
21. High level well development (within sustainable yield)	Kuleana and cultural uses in East Maui and Na Wai `Eha.	Kuleana and cultural users of streams could be affected by reduced base flows primarily fed by high level water.	Same as all well development mitigation for Measure 17.

Preliminary Measures and Strategies	Extent to which traditional and customary native Hawaiian rights are exercised in the area which may be affected	Extent to which those resources and rights will be affected or impaired by the proposed measure	Feasible action to be taken to reasonably protect native Hawaiian cultural resources if they are found to exist.
(Avoid transport between aquifer units)			
22. Honopou, Waikamoi, Ke`anae basal well development (Extend transmission for medium elevation well development. Aquifers not studied, sustainable yield likely to be adjusted down)	Kuleana and Native Hawaiian cultural uses in East Maui.	Increased ground water withdrawal potentially affecting streams and nearshore ecosystems.	Same as all well development mitigation for Measure 17.
23. Kamaole Aquifer, basal well development (Brackish wells for non-potable uses for new development. Dual or private systems Brackish quality appropriate for irrigation, desal and other nonpotable uses. Reported pumpage incomplete to assess available sustainable yield)	Nearshore native Hawaiian cultural practitioners' resources.	Nearshore ecosystem could be affected by a potential reduction in freshwater mixing with seawater.	Same as all well development mitigation for Measure 17.
24. Honokowai aquifer well development (within sustainable yield) (Avoid transport between aquifer units; Honokowai may be close to sustainable yield)	Kuleana and cultural uses in West Maui.	1) Increased ground water withdrawal potentially affecting streams and nearshore ecosystems. 2) Reduction of transport from water abundant to dryer areas would maintain more water in the streams of wet areas which supports Native Hawaiian cultural and kuleana users who depend on surface water.	Same as all well development mitigation for Measure 17.

Preliminary Measures and Strategies	Extent to which traditional and customary native Hawaiian rights are exercised in the area which may be affected	Extent to which those resources and rights will be affected or impaired by the proposed measure	Feasible action to be taken to reasonably protect native Hawaiian cultural resources if they are found to exist.
25. Honolua aquifer well development (within sustainable yield) (Transmission to growth area within aquifer sector; optimize well/aquifer management)	Kuleana and cultural uses in West Maui.	1) Increased groundwater withdrawal potentially affecting streams and nearshore ecosystems. 2) Reduction of transport from water abundant to dryer areas would maintain more water in the streams of wet areas which supports Native Hawaiian cultural and kuleana users who depend on surface water.	Same as all well development mitigation for Measure 17.
26. Launiupoko aquifer wells development (within sustainable yield) (Reduce demand on Honokowai aquifer- optimize well/aquifer management)	Kuleana and cultural uses in West Maui.	Increased ground water withdrawal potentially affecting streams and nearshore ecosystems.	Same as all well development mitigation for Measure 17.
27. Add raw surface water storage at Kamole, Olinda or Pi'iholo Water Treatment Facilities (IFS, EMI diversion permits, EMI contract, land and critical watershed issues)	1) Kuleana and native Hawaiian cultural uses due to continued diversions. 2) Native Hawaiian rights including gathering (PASH) - See Footnote 1.	1) Kuleana and native Hawaiian cultural uses could be enhanced by reducing diversion and enhancing continuous streamflow due to increased storage capabilities. 2) Native Hawaiian gathering rights (PASH) are impacted by reduced instream abundance of cultural resources: 1) Polynesian canoe plants and other invasive non-native plant species used by cultural	1) Strategy 10, protect and recharge ground water during non-drought periods to stabilize supply. 2) Strategy 11, no new or increased stream diversions on East Maui streams for non-instream uses until interim flow standards are adopted. 3) Strategy 14, when IFS adopted, protecting kuleana and

Preliminary Measures and Strategies	Extent to which traditional and customary native Hawaiian rights are exercised in the area which may be affected	Extent to which those resources and rights will be affected or impaired by the proposed measure	Feasible action to be taken to reasonably protect native Hawaiian cultural resources if they are found to exist.
		practitioners including trees, ferns, flowers, bark, branches, vines and fruit; and 2) native and introduced plants and animals used for food and cultural practices.	instream uses, support water transport for diversified ("sustainable") agriculture.
28. Increase capacity at 'Iao Water Treatment Facility for wet season use (Appurtenant rights, water use permits)	1) Kuleana and native Hawaiian cultural uses due to continued diversion. 2) Native Hawaiian rights including gathering (PASH) - See Footnote 1.	Native Hawaiian gathering rights (PASH) are impacted by reduced instream abundance of cultural resources: 1) Polynesian canoe plants and other invasive non-native plant species used by cultural practitioners including trees, ferns, flowers, bark, branches, vines and fruit; and 2) native and introduced plants and animals used for food and cultural practices.	Same as mitigation for Measure 28.
29. Increase capacity at Kamole Water Treatment Facility for wet season use (Flow characteristics of Wailoa Ditch and intake structure configuration, IFS, EMI diversion permits, EMI contract)	1) Kuleana and native Hawaiian cultural uses due to continued diversion. 2) Native Hawaiian rights including gathering (PASH) - See Footnote 1.	Native Hawaiian gathering rights (PASH) are impacted by reduced instream abundance of cultural resources: 1) Polynesian canoe plants and other invasive non-native plant species used by cultural practitioners including trees, ferns, flowers, bark, branches, vines and fruit; and 2) native and introduced plants and animals used for food and cultural practices.	Same as mitigation for Measure 28.
30. Connect Kamole WTF to Central Maui System	1) Kuleana and native Hawaiian cultural uses due to continued diversion.	Native Hawaiian gathering rights (PASH) are impacted by reduced instream abundance of cultural resources: 1) Polynesian canoe plants and other invasive non-native plant	Same as mitigation for Measure 28.

Preliminary Measures and Strategies	Extent to which traditional and customary native Hawaiian rights are exercised in the area which may be affected	Extent to which those resources and rights will be affected or impaired by the proposed measure	Feasible action to be taken to reasonably protect native Hawaiian cultural resources if they are found to exist.
	2) Native Hawaiian rights including gathering (PASH) - See Footnote 1.	species used by cultural practitioners including trees, ferns, flowers, bark, branches, vines and fruit; and 2) native and introduced plants and animals used for food and cultural practices.	
31. Expand Mahinahina WTF (Obtain MLP reservoirs; upfront costs)	1) Kuleana and native Hawaiian cultural uses due to continued diversion. 2) Native Hawaiian rights including gathering (PASH) - See Footnote 1.	Native Hawaiian gathering rights (PASH) are impacted by reduced instream abundance of cultural resources: 1) Polynesian canoe plants and other invasive non-native plant species used by cultural practitioners including trees, ferns, flowers, bark, branches, vines and fruit; and 2) native and introduced plants and animals used for food and cultural practices.	Same as mitigation for Measure 28.
INCREASE WATER SYSTEM RELIABILITY & FLEXIBILITY			
32. Develop and maintain back-up wells even if more expensive (Drought, equipment failure, chlorides or other source or supply problems. Avoid use restrictions)	Kuleana and cultural uses in East Maui and Na Wai `Eha.	No adverse impacts. Kuleana and cultural uses in East Maui and Na Wai `Eha could be enhanced by others' reduction in dependence on surface water use.	Same as mitigation for Measure 17.
33. Develop wells for increased reliable source Upcountry (reduce surface water transport) (Drought, equipment failure, chlorides or other source or supply problems.	East Maui Native Hawaiian cultural practitioners' resources.	Potential decreased use of surface water resulting in less transport.	Same as mitigation for Measure 17.

Preliminary Measures and Strategies	Extent to which traditional and customary native Hawaiian rights are exercised in the area which may be affected	Extent to which those resources and rights will be affected or impaired by the proposed measure	Feasible action to be taken to reasonably protect native Hawaiian cultural resources if they are found to exist.
Avoid use restrictions and mitigate stream use in dry season)			
34. Diversify to the most cost-effective combination of groundwater, surface water, and aggressive conservation (Policy statement. Some temporary cutbacks acceptable in situations of drought/equipment failure)	Kuleana and cultural uses in East Maui and Na Wai `Eha.	Kuleana and cultural uses in East Maui and Na Wai `Eha could be affected if surface water is deemed more cost-effective and is not returned to the streams.	Same as mitigation for Measure 17.
35. Require private public systems to develop in a manner facilitating potential interconnection with Maui DWS systems or integrated management (Amend County Code; increase costs of private systems)	---	No adverse impacts. Policy statement.	No mitigation necessary.
36. Increase connection between Maui DWS subdistricts	Kuleana and cultural uses in East and West Maui and Na Wai `Eha.	1) Increased connection which facilitates development may result in increased use of water resources, including surface water, affecting kuleana and cultural uses. 2) Increased connection which improves efficiency of use may result in decreased use of water resources.	1) Strategy 11, no new or increased stream diversions for non-instream uses until interim flow standards are adopted. 2) Strategy 13, increase use of surface water for municipal needs during wet season when all public trust uses are satisfied, including kuleana and traditional and cultural users.

Preliminary Measures and Strategies	Extent to which traditional and customary native Hawaiian rights are exercised in the area which may be affected	Extent to which those resources and rights will be affected or impaired by the proposed measure	Feasible action to be taken to reasonably protect native Hawaiian cultural resources if they are found to exist.
37. Expand capacity of Water Treatment Plants for seasonal use	Kuleana and cultural uses in East and West Maui and Na Wai `Eha.	Kuleana and cultural uses could be affected if surface water use increases.	1) Strategy 11, no new or increased stream diversions for non-instream uses until interim flow standards are adopted. 2) Strategy 13, increase use of surface water for municipal needs during wet season when all public trust uses are satisfied, including kuleana and traditional and cultural users.
INCREASE ALTERNATIVE RESOURCES			
38. Maximize R-1 reclaimed wastewater system capacity and use (Limited supply, relatively high cost, less reliable. Minimize underground injection)	Nearshore native Hawaiian cultural practitioners' resources.	More R-1 production could decrease use of surface water, but use of injection wells may potentially increase pollution impacts to nearshore water resources of native Hawaiian cultural practitioners. Increasing the use of R-1 water, rather than injection, should reduce impacts.	1) Obtain and conform to NPDES permit requirements addressing discharges (injection). 2) Offset injection by maximizing beneficial use of excess recycled water (e.g., expand use requirements, land application, potential to treat to drinking water standards, etc.).
39. Expand requirement for commercial properties within 100 feet of reclaimed water system to connect and use R-1 water for landscape irrigation	Nearshore native Hawaiian cultural practitioners' resources.	More R-1 production and use could decrease use of surface water, but use of injection wells may potentially increase pollution impacts to nearshore water resources of native Hawaiian cultural practitioners. Expanding	1) Obtain and conform to NPDES permit requirements addressing discharges (related to injection). 2) In addition to increasing use requirements, offset injection

Preliminary Measures and Strategies	Extent to which traditional and customary native Hawaiian rights are exercised in the area which may be affected	Extent to which those resources and rights will be affected or impaired by the proposed measure	Feasible action to be taken to reasonably protect native Hawaiian cultural resources if they are found to exist.
(Amend Maui County Code, Chapter 20.30- requires connection within 100 feet)		requirements for use of R-1 water will reduce injection.	by maximizing beneficial use of excess recycled water (e.g., land application, potential to treat to drinking water standards, etc.).
40. Expand R-2 Kahului Wastewater Treatment Facility distribution and/or upgrade to R-1 (Upgrade to R-1 needed, limited service areas)	Nearshore native Hawaiian cultural practitioners' resources.	More recycled water production and use could decrease use of surface water on Central isthmus, but use of injection wells may potentially increase pollution impacts to nearshore water resources of native Hawaiian cultural practitioners.	Same as mitigation for Strategy 38.
41. Expand R-1 system from Kihei Wastewater Treatment Facility (Committed service connections in dry season use leaves 0.7 mgd unused capacity. Restricted nonpotable uses)	Nearshore native Hawaiian cultural practitioners' resources.	More R-1 production and use could decrease use of surface water, but use of injection wells may potentially increase pollution impacts to nearshore water resources of native Hawaiian cultural practitioners.	Same as mitigation for Strategy 38.
42. Implement R-1 expansion from Mahinahina Wastewater Treatment Facility (Offset potable water use)	Nearshore native Hawaiian cultural practitioners' resources.	More R-1 production and use could decrease use of surface water, but use of injection wells may potentially increase pollution impacts to nearshore water resources of native Hawaiian cultural practitioners.	Same as mitigation for Strategy 38.
43. Program to use small greywater systems for small residential/commercial	--	No adverse impacts. Positive impacts may occur if resulting in reduced ground and surface water use and transport.	No mitigation necessary.

Preliminary Measures and Strategies	Extent to which traditional and customary native Hawaiian rights are exercised in the area which may be affected	Extent to which those resources and rights will be affected or impaired by the proposed measure	Feasible action to be taken to reasonably protect native Hawaiian cultural resources if they are found to exist.
(Amend State and possibly County regulations)			
44. Incentives for residential/small commercial catchment systems (Roof, tank, underground storage systems can be used for landscape water use. Water quality issues)	--	No adverse impacts. Positive impacts may occur if resulting in reduced ground and surface water use and transport.	No mitigation necessary.
45. Low impact project design for onsite water retention (Permeable surfaces, etc. Amend County code. Cost effective)	--	No adverse impacts. Positive impacts may occur if resulting in reduced ground and surface water use and transport.	No mitigation necessary.
46. Desalination of brackish or sea water for agricultural irrigation (Energy costs. Disposal of brine)	Kuleana and cultural uses in East and West Maui and Na Wai `Eha.	1) Potential pollution impacts from brine disposal to nearshore water resources of native Hawaiian cultural practitioners. 2) Positive impacts may occur if kuleana and cultural uses have access to more water due to decreased surface water use and reduced transport of surface water.	Obtain and conform to NPDES permit requirements addressing discharges (brine).
47. Maintain/manage plantation ditch systems for continued potable and non-potable water conveyance (Invest in existing systems, resolve ownership, management issues)	Kuleana and cultural uses in East and West Maui and Na Wai `Eha.	1) Continued use of ditch systems perpetuates transport of surface water (and limited groundwater). 2) Continued use of ditch systems facilitates conveyance to some to kuleana and cultural uses.	1) Strategy 11, no new or increased stream diversions for non-instream uses until interim flow standards are adopted. 2) Strategy 13, increase use of surface water for municipal needs during wet season when

Preliminary Measures and Strategies	Extent to which traditional and customary native Hawaiian rights are exercised in the area which may be affected	Extent to which those resources and rights will be affected or impaired by the proposed measure	Feasible action to be taken to reasonably protect native Hawaiian cultural resources if they are found to exist.
			all public trust uses are satisfied, including kuleana and traditional and cultural users.
48. Stormwater reuse (Capture flash supply as raw water storage for treatment or utilize reservoirs to store irrigation supply for diverse ag)	Kuleana and cultural uses in East and West Maui and Na Wai `Eha.	1) Positive impacts may occur if kuleana and cultural uses have access to more water due to decreased surface water use and reduced transport of surface water. 2) Reductions in nonpoint flow to the ocean serving nearshore resources would be mitigated by capturing only 'flash' stormwater.	Ensure capture limited to flash supply without impacts to streamflow or nearshore resources.
INCREASE CONSERVATION			
49. WaterSense (water efficiency) standard for new development and existing retrofits (Amend County code. 20%-30% more water efficient than standard)	Kuleana and cultural uses in East Maui and Na Wai `Eha, and West Maui.	No adverse impacts. Kuleana and cultural uses could be enhanced by a reduction in dependence on surface water use through conservation.	No mitigation necessary.
50. Retrofit programs for existing development (Rebate, retrofit, give-away programs for residential and small commercial uses)	Kuleana and cultural uses in East Maui and Na Wai `Eha, and West Maui.	No adverse impacts. Kuleana and cultural uses could be enhanced by a reduction in dependence on surface water use through conservation.	No mitigation necessary.
51. Outdoor water wasting and use controls	Kuleana and cultural uses in East Maui and Na Wai Eha, and West Maui.	No adverse impacts. Kuleana and cultural uses could be enhanced by a reduction in dependence on surface water use through conservation.	No mitigation necessary.

Preliminary Measures and Strategies	Extent to which traditional and customary native Hawaiian rights are exercised in the area which may be affected	Extent to which those resources and rights will be affected or impaired by the proposed measure	Feasible action to be taken to reasonably protect native Hawaiian cultural resources if they are found to exist.
(Amend County code, disallow overspray, washing without hose nozzle, etc.)			
52. Water conserving landscape requirements for resorts, golf courses, public facilities (Amend County code and adjust rates and fees~~to set standard~~)	Kuleana and cultural uses in East Maui and Na Wai Eha, and West Maui. Current allocation of water to resorts is much higher those for cultural and residential use and reduce water available for all other uses.	No adverse impacts. 1) Kuleana and cultural uses in could be enhanced by a reduction in dependence on surface water use through conservation. 2) Nearshore water cultural resources may benefit from better water/nutrient management practices.	No mitigation necessary.
53. Incentive programs to convert existing landscape to water conserving (Turf removal programs for example)	Kuleana and cultural uses in East Maui and Na Wai Eha, and West Maui.	No adverse impacts. Beneficial impacts same as Measure 52.	No mitigation necessary.
54. Require climate adapted plants for large new developments	Kuleana and cultural uses in East Maui and Na Wai Eha, and West Maui.	No adverse impacts. Beneficial impacts same as Measure 52.	No mitigation necessary.
55. Require aggressive conservation in new development in all areas (Craft program to carry out policy)	Kuleana and cultural uses in East Maui and Na Wai Eha, and West Maui.	No adverse impacts. Beneficial impacts same as Measure 52.	No mitigation necessary.
56. More aggressive landscape water conservation measures in dry areas than wet areas	Kuleana and cultural uses in East Maui and Na Wai Eha, and West Maui.	No adverse impacts. Beneficial impacts same as Measure 52.	No mitigation necessary.

Preliminary Measures and Strategies	Extent to which traditional and customary native Hawaiian rights are exercised in the area which may be affected	Extent to which those resources and rights will be affected or impaired by the proposed measure	Feasible action to be taken to reasonably protect native Hawaiian cultural resources if they are found to exist.
(Some standards or programs vary geographically)			
57. Pursue a policy of aggressive water conservation at all times (not just during drought) (Craft program to carry out policy)	Kuleana and cultural uses in East Maui and Na Wai Eha, and West Maui.	No adverse impacts. Beneficial impacts same as Measure 52.	No mitigation necessary.
58. Use water rates as means to encourage conservation (Tiered pricing can have this effect; equity is an issue)	Kuleana and cultural uses in East Maui and Na Wai Eha, and West Maui.	No adverse impacts. Beneficial impacts same as Measure 52.	No mitigation necessary.
59. Surface water efficiency programs (Improvements to diversions, conveyances, storage, meters to reduce loss)	Kuleana and cultural uses in East Maui and Na Wai Eha, and West Maui.	No adverse impacts. Beneficial impacts same as Measure 52.	No mitigation necessary.
60. Reduce water loss of potable and nonpotable systems	Kuleana and cultural uses in East Maui and Na Wai Eha, and West Maui.	No adverse impacts. Beneficial impacts same as Measure 52.	No mitigation necessary.

Notes:
1. Native Hawaiian rights include gathering (PASH): A) invasive Polynesian canoe plants (e.g. kukui nut tree) and other invasive non-native plant species used by cultural practitioners including trees, ferns, flowers, bark, branches, vines and fruit; B) introduced and native animals used for food and cultural practices; and
C) native Hawaiian trees, ferns, flowers, bark, branches, vines and fruit.
2. Existing tools and processes to protect water resources and Native Hawaiian rights and resources are not stated here such as monitoring permit applications and proceedings, public access preservation, conservation land trusts, and other actions. For example, CWRM provides information on its website regarding permitting and notification of public notices, and its staff can be apprised of well use and diversion issues,

and the Hawai'i State Ombudsman may be consulted on actions that may potentially affect or harm Native Hawaiian traditional and customary rights or practices.

3. Increased conservation, use of alternative sources (Strategies 39-61) reduce impacts to ground and surface water resources and are therefore generally applicable to a number of strategies. However these strategies are not always referenced as mitigation.

Prepared by County of Maui Department of Water Supply, Water Resources and Planning Division

Table 13-1 Summary of Recommended Strategies

	STRATEGY	PLANNING OBJECTIVES	ESTIMATED COST	IMPLEMENTATION 1: Short-term 1 – 5 years 2: Long-term 5 – 20 years	
				AGENCY *	TIME-FRAME**
RESOURCE MANAGEMENT					
Watershed Management					
1.	Continue Maui County financial support for watershed management partnerships' fencing and weed eradication efforts.	Maintain sustainable resources Protect water resources Protect and restore streams	$2 million per year/$8 per watershed acre (249,362 ac)	MDWS Maui County	1
2.	Promote increased distribution of funding for watershed protection and active reforestation to reflect multiple values and ecosystem services.	Maintain sustainable resources Protect water resources Protect and restore streams	N/A	Private water purveyors Land owners DLNR	1
3.	Expand watershed protection to incorporate the ahupua`a as a whole and utilize ahupua`a resource management practices.	Maintain sustainable resources Protect water resources Protect and restore streams Protect cultural resources	N/A	Public-private partnerships Aha Moku DLNR Maui County	1
4.	Support stream restoration **in all county testimony to state agencies and court briefs** and increased use of *kalo* lands. (Aha Moku)	Maintain sustainable resources Protect water resources Protect and restore streams Protect cultural resources Minimize adverse environmental impact	N/A Lo`i restoration projects can start from $50,000. Site specific	CWRM Aha Moku Community grassroots Maui County	1
5.	Enable and assist in providing for Native Hawaiian water rights and cultural and traditional uses through active consultation and participation. **Add per Aha Moku:** Require county to advocate for public water trust uses, including kuleana use, cultural usage, stream restoration when providing testimony to state	Protect and restore streams Protect cultural resources	N/A	CWRM Mayor's office Maui County Corporation Counsel	1

	agencies or court briefs in addition to supporting domestic uses.				
A10 #2	Expand watershed protection to lower elevations	Maintain sustainable resources Protect water resources Minimize adverse environmental impacts	Need data on costs	MDWS	1
A10 #6	Use drought conditions as baseline to evaluate water supply and effects of water use	Maintain sustainable resources Protect water resources Minimize adverse environmental impacts	N/A	MDWS	1
A10 #7	Quantify the impact of watershed management on groundwater recharge and distribute funding proportionately (Prioritize efforts by impact, expand funding from private purveyors, state and other beneficiaries)	Maintain sustainable resources Protect water resources	Need data on costs	MDWS	1
A10 #8	Improve ground water and surface water resources and diversion monitoring by CWRM **Add**: Encourage CWRM to enforce. Provide stream monitoring gauges for streams. Act as ombudsman for stream users who report non-compliance.	Maintain sustainable resources Protect water resources	N/A	MDWS Maui County	
A10 #9	Restrict land uses with high risk of well contamination near drinking wells. **Note:** Within the proposed regulated areas, the proposed Wellhead Protection Ordinance would allow the following located more than 50 feet from wells or well fields that supply public water systems: a lot or facility (other than an aquatic animal production facility) where animals will be stabled or confined and fed or maintained for a total of 45 days or more in any 12 month period, and where crops, vegetation forage growth, or post-harvest residues are not	Protect water resources Minimize adverse environmental impacts	N/A Develop and adopt well head protection ordinance	Council	1

	sustained in the normal growing season over any portion of the lot or facility (excludes pasture).				
A10 #10	Protect and recharge ground water during non-drought periods to stabilize supply (Reduce pumping- increased surface water use after public trust uses are met, aggressive conservation and alternative sources)	Maintain sustainable resources Protect water resources Minimize adverse environmental impacts	N/A	MDWS	1
A10 #11	No new stream diversions for non-instream uses until interim flow standards are adopted. (Could extend to no new diversion or increased diversion)	Maintain sustainable resources Protect water resources Minimize adverse environmental impacts	N/A	MDWS CWRM BLNR	1
A10 #12	Stream restoration- municipal and agricultural water returned to stream **as much as is practical.** (Decrease municipal and agricultural use of streams)	Maintain sustainable resources Protect water resources Minimize adverse environmental impacts	N/A	MDWS CWRM	1
A10 #13	Increase use of surface water for municipal **affordable housing** needs during wet season when all public trust uses are satisfied, including kuleana and traditional and cultural users. (Expand treatment facilities and obtain reservoirs. Permitting and dam liability issues.)	Manage water equitably Reflect Mayor's policy and upcoming codification in Na Wai Eha case	N/A	Maui County	1
A10 #15	Increase county oversight of well drilling in non-designated groundwater management areas	Maintain sustainable resources Protect water resources Protect and restore streams Minimize adverse environmental impacts	Adopt ordinance Provide funding for oversight and well surveys Add stream monitors to non designated streams – need data on costs	MDWS	1,2
Aha Moku	**Add:** Protect dry native forests and wetlands.	Maintain sustainable resources	Provide funding for management	MDWS Council	1

		Minimize adverse environmental impacts	Develop and adopt ordinances to protect these areas		
Aha Moku	**Add:** Provide training for all MDWS employees on traditional Hawaiian resource management, including ahupuaha'a resource management strategies, importance of eco system health, ability to create additional water through resource management, near shore and stream eco systems, public trust responsibilities, kanawai policies, and connection between water and Hawaiian culture and spirituality (mo'o). .	Maintain sustainable resources Protect water resources Protect and restore streams	Need data on program costs	MDWS	1
Aha Moku	**Add:** Keep storm water drainage in same area for aquifer recharge	Maintain sustainable resources Protect water resources Minimize adverse environmental impacts	Develop and adopt an ordinance	MDWS Council	1
Aha Moku	**Add:** Prohibit cementing of wetland areas	Maintain sustainable resources Protect water resources Protect and restore streams Minimize adverse environmental impacts	Develop and adopt an ordinance	MDWS Council	1
Aha Moku	**Add:** establish and maintain regular communication with Aha Moku Councils to assess the effect of water development and water development policies on kanaka maoli rights and Hawaiian culture and practices. Actively seek input from those practicing their culture and those with historical knowledge. Create an advisory group to address these policies and provide accountability.	Maintain sustainable resources Protect water resources Protect and restore streams Protect cultural resources Minimize adverse environmental impacts	N/A	MDWS	1
Aha Moku	**Add:** Seek generational knowledge along with scientific data.	Maintain sustainable resources Protect water resources	N/A	MDWS	1

		Protect and restore streams Protect cultural resources Minimize adverse environmental impacts			
Aha Moku	**Add:** Protect underground water by: 1. Establishing a blasting permit process 2. Surveying private well users to find out water being taken from aquifers 3. 3. Provide more oversight over private well users.	Maintain sustainable resources Protect water resources Minimize adverse environmental impacts	Need data on survey costs	MDWS Council	1
Aha Moku	**Add**: Notify kuleana water users and neighboring property owners when well permits are applied for.	Maintain sustainable resources Protect water resources Protect cultural resources Minimize adverse environmental impacts	N/A	CWRM	1
Aha Moku	**Add:** Limit or prohibit development in areas with insufficient water resources in their own area to prevent unsustainable development.	Maintain sustainable resources Minimize adverse environmental impacts	N/A Develop ordinances	MDWS MDPW Council	1
Aha Moku	**Add:** Encourage and assist CWRM with enforcement IIfs and IFS. (If policies are being set based upon unenforced standards then not enough water will be available.)	Maintain sustainable resources Protect water resources Protect and restore streams Protect cultural resources Minimize adverse environmental impacts	N/A	MDWS Mayor's Office	
Aha Moku	**Add:** Provide stream monitors for all streams to ensure accurate data is being used in decision making and as an enforcement mechanism.	Maintain sustainable resources Protect water resources Protect and restore streams Minimize adverse environmental impacts	Need data on costs	MDWS USGS	
Aha Moku	**Add:** Use a buffer with all sustainable yields to account for future IFS and climate change.	Maintain sustainable resources Protect water resources	N/A Develop buffer percentage formula	MDWS	1
Water Quality Management					
6.	Implement well siting criteria to avoid contaminated groundwater supplies and unnecessary risks to public health.	Maximize water quality	Potentially increased pumping costs for higher	MDWS Public Water Systems	1

			elevation wells, site specific		
7.	Adopt wellhead protection measures for potable wells.	Protect water resources Maximize water quality	DOH grant funded public outreach and research completed	MDWS Maui County	1
8.	Educate the farming community in sustainable farming practices to reduce impact from agricultural practices on water resources.	Protect water resources Maximize water quality	Outreach within multiple agency budgets. From $5,000 annually	DOA DOH MDWS HRWA SWCD	1
9.	Update assessment of potential contaminating activities around drinking water supply and support increased monitoring of potable wells as needed.	Maximize water quality	$10,000 - $20,000, five year updates	Maui County MDWS	1
	Conservation – Demand Side				
10.	Retrofits/direct installation and sub-metering programs, distribution of water-efficient fixtures and retrofits for existing users and facilities	Maintain sustainable resources Maximize efficiency of water use Minimize cost of water supply	MDWS ongoing and pilot programs $108,000 year 1 - 3	MDWS	1
11.	Smart meters retrofits	Maintain sustainable resources Maximize efficiency of water use Minimize cost of water supply	Depends on existing meters and model, conversion from $150/meter	Private water purveyors MDWS	2
12.	Landscaping and irrigation system incentives, targeting dry areas.	Maintain sustainable resources Maximize efficiency of water use Minimize cost of water supply Manage water equitably	$245,000 annually (xeriscaping improvements rebate, irrigation controllers, residential greywater program)	Maui County Parks Dept. MDWS	2
13.	Public information and education: sustainability working group; technology/innovation transfer programs; recognition program; public events; participation in recognized federal and industry programs (WaterSense); advertising	Maintain sustainable resources Maximize efficiency of water use Minimize cost of water supply	MDWS ongoing programs $50,000 annually	MDWS HRWA Public Water Systems	1

14.	Landscaping guidelines, audit and retrofit, landscape ordinance.	Maintain sustainable resources Maximize efficiency of water use Minimize cost of water supply	Staff time. Retrofit depends on audit	MDWS	1
15.	Market/customer surveys followed by rebates and incentives: high efficiency fixtures, washing machines, toilets and urinals; hotel awards program	Maintain sustainable resources Maximize efficiency of water use Minimize cost of water supply	$70,000 annually (excl. outdoor incentives)	MDWS	1
16.	Revise county code to require high efficiency fixtures in all new construction. Develop a comprehensive water conservation ordinance to include xeriscaping regulations.	Maintain sustainable resources Maximize efficiency of water use Minimize cost of water supply Manage water equitably	Water efficient home, est. added construction cost $25K (6% increase in property value) LEED certified home, est. added construction cost $86K (18% increase in property value)	Maui County	2
17.	Aggressive tiered rate structure based on audit and rate study. **Amendment:** **Add:** 1. Create large resort water user tier and tax at high rate to encourage conservation. Study Honolulu rates for guidance. **(Aha Moku)** 2. Meet with other high water users to determine if high use is due to need or system repairs are needed. Develop strategies for encouraging the repair of water leaks for high water users.	Maintain sustainable resources Maximize efficiency of water use Minimize cost of water supply Manage water equitably	N/A	Maui County MDWS	1
18.	Agricultural programs: Irrigation efficiency audits, technical assistance and rebates. Ag technical working groups.	Maintain sustainable resources Maximize efficiency of water use Minimize cost of water supply Provide for agricultural needs	Outreach within multiple agency budgets. From $10,000 annually	DOA DOH MDWS HRWA SWCD	1

19.	Greywater incentives	Maintain sustainable resources Maximize efficiency of water use	MDWS 2 year pilot program $80,000	Maui County MDWS	1
20.	Rainwater catchment for irrigation – educational.	Maintain sustainable resources Maximize efficiency of water use	N/A	DOH Private water purveyors Maui County	2
21.	Revise County Code and/or incentives: water conserving design and landscaping in new development (xeriscaping targets dry areas), water efficient irrigation systems	Maintain sustainable resources Maximize efficiency of water use Minimize cost of water supply Manage water equitably	N/A	Maui County	1
22.	Revise County Code and/or incentives: Water-efficient building design integrating alternative sources (grey water, catchment).	Maintain sustainable resources Maximize efficiency of water use Minimize cost of water supply Manage water equitably	N/A	Maui County	2
23.	Restrict outdoor water waste (no runoff, water wasting, and hose nozzles). **Add:** Charge higher rates for daytime irrigation.	Maintain sustainable resources Maximize efficiency of water use Minimize cost of water supply	N/A	Maui County MDWS drought rules	2
24.	Targeted conservation programs in dry areas and drought conditions. **Replace above with:** Create aggressive conservation policies for all areas. **A10 #55**	Maintain sustainable resources Maximize efficiency of water use Minimize cost of water supply Manage water equitably	N/A	Maui County MDWS water shortage rules	
25.	"Lead by Example" conservation and efficiency projects.	Maintain sustainable resources Maximize efficiency of water use Minimize cost of water supply Manage water equitably	N/A	MDWS Maui County Parks Dept.	2
A10 #	Require climate adapted plants for new developments	Maximize efficiency of water use	N/A Adopt ordinances	MDWS Council	1
Aha Moku	Prohibit water features	Maximize efficiency of water use	N/A Adopt ordinance	MDWS MDPW Council	1
Aha Moku	Prohibit new pools	Maximize efficiency of water use	N/A Adopt ordinance	MDWS MDPW Council	1
Conservation – Supply Side					

26.	Perform annual comprehensive water audits.	Maximize efficiency of water use Minimize cost of water supply	Staff costs only, free software and training	MDWS Public Water Systems	
27.	Fund and implement a continuous leak detection program.	Maximize efficiency of water use Minimize cost of water supply	From $100,000 annually	MDWS Large Public Water Systems	
28.	Maintain and operate the water system to minimize the sources of water loss.	Maximize efficiency of water use Minimize cost of water supply	N/A	MDSWS Private water purveyors	
Aha Moku	**Add:** Upgrade existing surface water infrastructure. Line or reline leaking reservoirs and ditches.	Maximize efficiency of water use	Need data on costs	MDWS	1, 2
Conservation – Agricultural Uses					
29.	Research, support and use of less water consumptive crops and climate adapted crops.	Maintain sustainable resources Maximize efficiency of water use Manage water equitably	N/A	DOA	
30.	Improve irrigation management and efficiency.	Maintain sustainable resources Maximize efficiency of water use Manage water equitably	N/A	UH CTAHR USDA SWCD Hawai`i Farm Bureau Hawai`i Organic Farmers Association	
31.	Maintain the integrity of plantation irrigation systems including reservoirs.	Maximize efficiency of water use Provide for agricultural needs	N/A	Public-private partnerships (EMI, MLP, WWC, West Maui Land) Maui County DLNR DOA	
32.	Augment agricultural water supplies with alternative resources.	Maintain sustainable resources Manage water equitably Provide for agricultural needs		Maui Dept. of Public Works DLNR	
Aha Moku	Require non potable and R-1 water to be used for agriculture where available (such as north Kihei Bayer fields)	Maintain sustainable resources	N/A Adopt ordinance	MDWS Council	1
Conservation – Energy					
33.	Pursue comprehensive energy management.	Minimize adverse environmental impacts Minimize cost of water supply	N/A	MDSWS Public Water Systems	

				Maui County Energy Management Program	
34.	Increase energy efficiency and improve load management.	Minimize adverse environmental impacts Minimize cost of water supply	Being assessed	MDSWS Public Water Systems Maui County Energy Management Program	2
35.	Increase alternative energy generation and use.	Minimize adverse environmental impacts	N/A	MDSWS Public Water Systems Maui County Energy Management Program	2
CONVENTIONAL WATER SOURCE					
36.	Support collaborative hydrogeological studies to inform impact from climate change and future well development on groundwater health.	Maintain sustainable resources Protect water resources	From $600,000, joint funding. Site and resource specific	CWRM MDWS Public Water Systems USGS	1
37.	Develop groundwater within sustainable yield to provide sufficient supply for growth, maintaining a buffer to account for potential future drought impact and prospective adjustments in aquifers lacking hydrologic studies.	Maintain sustainable resources Maximize reliability of water service	Site specific, see regional sectors	CWRM MDWS Private water purveyors	1
38.	Promote the highest quality water for the highest end use	Manage water equitably	N/A	CWRM MDWS Private water purveyors	1
39.	Protect and prioritize public trust uses in allocating groundwater in regions of limited resources and conflicting needs.	Manage water equitably Provide for Department of Hawaiian Homelands needs	N/A	CWRM MDWS DHHL	1
40.	Increase monitoring of groundwater sources to assess water, **reduce seawater intrusion (A 10 #16),** and chloride levels in potable and non-potable wells throughout developed aquifers.	Maintain sustainable resources Add: **Minimize adverse environmental impacts**	From $50,000 annually monitoring, site specific	CWRM USGS	2
41.	Promote well siting and distribution strategies for all public water systems to ensure	Maintain sustainable resources Manage water equitably	N/A	CWRM Maui County MDWS	2

	optimal spacing and withdrawals for aquifer health and equitable use.			Private water purveyors	
42.	Formalize demand response plans for water purveyors that address water shortage and aquifer changes.	Maintain sustainable resources Maximize reliability of water service	None	CWRM MDWS Private water purveyors	2
43.	Develop a water availability rule to provide certainty in land use planning and ensure that reliable source and infrastructure capacity is provided within reasonable time for planned growth.	Maximize reliability of water service Maintain consistency with General and Community Plans	None	Maui County MDWS	2
44.	Increase system flexibility so that regional sources can be moved to support areas of need, both within the municipal systems and between regional public water systems.	Maximize reliability of water service Maximize efficiency of water use	See regional sectors	MDWS	2
45.	Ensure that public/private groundwater development agreements reflect the public trust needs and are in keeping with the water allocation priorities of the MIP.	Maximize reliability of water service Manage water equitably Maintain consistency with General and Community Plans	N/A	Maui County MDWS Public Water Systems	2
46.	Develop groundwater to maximize reliability of potable supply and as contingency in areas currently dependent on surface water.	Maximize reliability of water service	See regional sectors	MDWS Public Water Systems	2
47.	Diversify supply for agricultural use to increase reliability	Provide for agricultural needs Maximize reliability of water service	See regional sectors	DOA Maui County Private water purveyors	2
48.	Encourage CWRM to prioritize establishing IFS for diverted streams with potential conflicting uses.	Protect and restore streams Minimize adverse environmental impacts Manage water equitably Protect cultural resources	N/A	CWRM	2
49.	Defer any new surface water diversions to meet new projected demand.	Protect and restore streams Protect cultural resources	N/A	CWRM Maui County	1
50.	Balance existing diversions with alternative sources for agriculture to mitigate low-flow stream conditions.	Provide for agricultural needs Maximize reliability of water service	N/A	DOA Maui County Private water purveyors	2

51.	Maximize efficiencies in surface water transmission, distribution and storage.	Maximize efficiency of water use	N/A	Private water purveyors (EMI, MLP, WWC, West Maui Land)	2
52.	Add raw water storage to increase reliable supply once instream flow standards are established.	Maximize reliability of water service	See regional sectors	MDWS	2
53.	Increase treatment plan capacity at water treatment plant facilities to accommodate additional treatment in wet season.	Maximize reliability of water service Minimize cost of water supply	See regional sectors	MDWS	2
54.	Support plans and programs to develop additional sources of water for irrigation purposes.	Provide for agricultural needs Maximize reliability of water service	See regional sectors	DOA Maui County Private water purveyors	1
55.	Prioritize delivery and use of agricultural water within County agricultural parks to cultivation of food crops for local consumption.	Provide for agricultural needs Maximize reliability of water service	N/A	Maui County EMI MDWS	2
A10 14 w/ Amend ment	When IFS adopted protecting kuleana and instream uses, then support water transport for diversified ("sustainable") agriculture **Amendment:** **Replace above with:** When IFS adopted protecting kuleana and instream uses, then support affordable housing. Reason: adopts Mayor's new policy for Na Wai Eha waters islandwide when applicable	Maximize efficiency of water use Manage water equitably	N/A	Maui County	1
A10 #17-31	**Amendment:** **Add**: **Regional basal well development** 1. Require studies to show adequate capacity to meet cultural uses, kuleana uses, stream restoration, resident and ag needs within the district for prior to transport. 2. Outreach to cultural users to survey their water needs and establish their water usage based upon needs, not actual usage. (Many streams are dry due to diversions which hamper	Maintain sustainable resources Manage water equitably Protect cultural resources Minimize adverse environmental impacts	Need data on study costs	MDWS	1

	cultural usage. With additional water cultural usage will increase.) 3. Assess well capacity and number of wells needed and perform cost benefit analysis. 4. Require surveys of private wells to increase accuracy of aquifer withdrawal rates. 5. Maintain a buffer to sustainable yield. 6. Require USGS studies of the interaction between ground and surface water and potential impacts from pumpage prior to funding well development.				
Aha Moku	Research land title when acquiring property for water system use or development to ensure lands were legally transferred to current owner.	Manage water equitably Protect cultural resources	N/A	MDWS Maui Corporation Counsel	1
Amend ment	Conduct study of obtaining state water lease for East Maui water and county management of system in lieu of purchasing water from existing private commercial agriculture lease holder.	Manage water equitably	$50,000 - $100,000	MDWS	
Amend ment	Conduct study of water system ownership and management models, such as water authority and public company. Use Wailuku water system and East Maui water system	Manage water equitably	$50,000 - $100,000	MDWS	
ALTERNATIVE WATER SOURCE					
56.	Expand requirement for new development to connect to recycled water infrastructure if practical.	Protect water resources Maintain consistency with General and Community Plans	N/A	Maui County	2
57.	Promote closer collaboration between MDWS and MDEM to master plan and utilize DWSRF funding to maximize recycled water use.	Maximize efficiency of water use, Maintain consistency with General and Community Plans	N/A	Maui County MDEM MDWS	2
58.	Explore expansion of “scalping plants” (small-scale membrane filter systems that put effluent closer to reuse locations) in designated growth areas.	Maximize efficiency of water use, Maintain consistency with General and Community Plans	N/A	MDEM	2

59.	Inform and educate the residential and commercial community of easy, affordable rainfall catchment for recharge and garden use	Protect water resources Maintain consistency with General and Community Plans	Outreach within multiple agency budgets. From $5,000 annually	DOH MDWS	2
60.	Provide incentives for residential rainwater catchment systems.	Protect water resources Maintain consistency with General and Community Plans	MDWS pilot program $45,000 over 2 years	MDWS	2
61.	Explore and promote opportunities for large volume stormwater runoff for agricultural irrigation.	Provide for agricultural needs	N/A	DLNR DOA MDPW	2
	AREA SPECIFIC STRATEGIES				
Haiku **A10** **#17**	Ha'iku aquifer well development (Potential: resource/medium term; within sustainable yield. For regional use and transport to growth areas) **Amendment: F** **Replace above with:** Regional domestic and agricultural uses to be satisfied prior to transporting water to growth areas. **Add:** Reevaluate data accuracy for area and confidence rating for Haiku aquifer prior to decision making.	Maintain sustainable resources Protect water resources Protect and restore streams Minimize adverse environmental impacts	Need data on costs	MDWS	2
Makawao **A10** **#18**	Makawao aquifer basal well development at 1500 ft + elevation for growth and back-up regionally **Amendment:** **Add:** Assess impacts to Kailua stream prior to decision making. It is a major cultural feature of the area and should be protected.	Maintain sustainable resources Protect water resources Protect and restore streams Minimize adverse environmental impacts	Need data on costs	MDWS	2
Waikapu **A10** **#19**	Waikapu Aquifer basal well development (private wells drilled for available sustainable use) **Need to add Na Wai Eha decision into document**	Maintain sustainable resources Protect water resources Protect and restore streams Minimize adverse environmental impacts	Need data on costs	MDWS	2

Waihe'e A10 #20	Waihe'e Aquifer basal well development (High capital cost, smaller wells for limited yield of N Waihe'e per USGS study) Add: 1. Require USGS aquifer studies prior to decision making.	Maintain sustainable resources Protect water resources Protect and restore streams Minimize adverse environmental impacts	Need data on costs	MDWS	2
East Maui A10 #22	Honopua, Waikamoi, Ke'anae basal well development (Extend transmission for medium elevation well development. Aquifers not studied, sustainable yield likely to be adjusted down) Add this strategy	Maintain sustainable resources Protect water resources Protect and restore streams Minimize adverse environmental impacts	Need data on costs	MDWS	2
Kamaole A10 #23	Kamaole Aquifer basal well development (Brackish wells for non-potable uses for new development. Dual or private systems. Brackish water quality appropriate for irrigation, desal and other non potable uses) Reported pumpage incomplete to assess available sustainable yield.) **Add:** 1. Require survey of private well pumpage prior to decision making 2. Explore mixing brackish water with R-1 to increase non-potable water availability. R-1 reduces salinity.	Maintain sustainable resources Protect water resources Protect and restore streams Minimize adverse environmental impacts	Need data on costs	MDWS	2
Honokowai A10 #24	Honokowai aquifer well development (within sustainable yield) (Avoid transport between aquifer units; Honokowai may be close to sustainable yield)	Maintain sustainable resources Protect water resources Protect and restore streams Minimize adverse environmental impacts	Need data on costs	MDWS	2

	Add: Require USGS studies of aquifer capacity prior to funding well development.				
Honolua A10 #25	Honolua aquifer well development (within sustainable yield **with buffer**) (Transmission to growth area within aquifer sector; optimize well/aquifer management)	Maintain sustainable resources Protect water resources Protect and restore streams Minimize adverse environmental impacts	Need data on costs	MDWS	2
Launiupoko A10 #26	Launiupoko aquifer well development (within sustainable yield **with buffer**) (Reduce demand on Honokowai aquifer- optimize well/aquifer management)	Maintain sustainable resources Protect water resources Protect and restore streams Minimize adverse environmental impacts	Need data on costs	MDWS	2
A10 #27	Add raw surface water storage at Kamole, Olinda or Pi'iholo Water Treatment Facilities (IFS, EMI diversion permits, EMI contract, land and critical watershed issues)	Maximize reliability of water service	Need data on costs	MDWS	2
A10 #28	Increase capacity at 'Iao Water Treatment Facility for wet season use (Appurtenant rights, water use permits)	Maximize reliability of water service	Need data on costs	MDWS	2
A10 #29	Increase capacity at Kamole Water Treatment Facility for wet season use (Flow characteristics of Wailoa Ditch and intake structure configuration, IFS, EMI diversion permits, EMI contract)	Maximize reliability of water service	Need data on costs	MDWS	2
A10 #31	Expand Mahinahina WTF (Obtain MLP reservoirs; upfront costs) **Amendment:** **Add:** Confirm DHHL needs and discuss strategy with them,	Maximize reliability of water service	Need data on costs	MDWS	2
A10 #40	Expand R-2 Kahului Wastewater Treatment facility distribution and/or upgrade to R-1	Maximize reliability of water service			

A10 #41	Expand R-1 system from Kihei Wastewater facility (Committed service connections in dry season use leaves 0.7 mgd unused capacity. Restricted nonpotable uses.	Maximize reliability of water service			
A10 #42	Implement R-1 expansion from Mahinahina Wastewater Treatment facility	Maximize reliability of water service			