

Appendix B. Detailed Evaluation Tables

CMP - Native Hawaiian Cultural Resources

Measures					
Desired Outcomes (1)	Metric (TBD in Future) (2)	Need (3)	Impact of Action on Outcome (4)	Summary of Actions Undertaken (5)	Management Actions (6)
7.1 Understanding and Protecting Mauna Kea's Resources					
7.1.1 Native Hawaiian Cultural Resources Increase understanding and appreciation of Native Hawaiian history and cultural practices related to Mauna Kea to ensure that these practices are protected and respected. Identify, document the condition of, and protect cultural resources and historic properties in the UH Management Areas.	Outcome - level of awareness and understanding of Hawaiian history and cultural practices for each segment.	Culturally sensitive and appropriate educational information is the most effective and efficient method of protecting cultural and natural resources.	High with OMKM staff and people who work on MK. Medium with students and volunteers (no measure of impact.) Low with visitors because no requirement to view the video. Unclear if briefing is effective & efficient. Unclear how culturally sensitive & appropriate information is integrated into education. Being a TCP would remind visitors of the importance of the site. Unclear what is delaying action by SHPD.	OMKM Mauna Kea User/ Resource Orientation program started in 2013. Must be renewed every three years. Staff & employee training started in 2016. School activities & community events undertaken. Volunteer program. E-newsletters sent out. "Brief" public/visitor orientation program available.	CR-3 Conduct educational efforts to generate public awareness about the importance of preserving the cultural landscape.
				Waiting for SHPD to prepare application.	CR-2: Support application for designation of the summit region of Mauna Kea as a Traditional Cultural Property per the NHPA of 1966... In consultation with the larger community.
				Rangers through public interactions help to educate and raise awareness about Mauna Kea	CR-3 continued.
	Output - Frequency of KKM cultural policies outreach meetings - KKM had 6 meetings with OHA or Royal Order of Kamehameha.*	Protect right to access for the exercise of traditional & customary practices.	The HAR rules state "Native Hawaiian traditional & customary rights as recognized and protected under Article XIII, section 7, of the HSC shall not be abridged. Score: High on documentation, establishing rules. Low on timing. TBD on how this has been implemented.	Process undertaken to identify "several individuals as cultural descendants of Ka'ōhe Ahupua'a. Consulted for burial treatment plans CR-13. Hawai'i Island Burial Council officially recognized several individuals as cultural descendants of Kaōhe Ahupua'a	CR-1: Kahu Kū Mauna shall work with families with lineal and historical connections to Mauna Kea, kūpuna, cultural practitioners, the Office of Hawaiian Affairs and other Native Hawaiian groups, including the Mauna Kea Management Board's Hawaiian Culture Committee, toward the development of appropriate procedures and protocols regarding cultural issues.
				Process drafted, reviewed in public meeting and incorporated into Chapter 2-26 HAR in January 2020	CR-5: Develop and adopt guidelines for the culturally appropriate placement and removal of offerings
				Process drafted, reviewed in public meeting and incorporated into Chapter 2-26 HAR in January 2020	CR-6: Develop and adopt guidelines for the visitation and use of ancient shrines.

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	Outcome - Cultural practitioners believe that NH practices are protected & respected.	Protection & preservation of human burials and cultural resources.	High on documentation, burial treatment plan. Low on timing. TBD on enforcement	Process drafted, reviewed in public meeting and incorporated into Chapter 2-26 HAR in January 2020	CR-8: Develop and adopt a management policy for the UH Management Areas on the scattering of cremated human remains.
Process drafted, reviewed in public meeting and incorporated into Chapter 2-26 HAR in January 2020				CR-9: A management policy for the cultural appropriateness of building ahu or "stacking of rocks" will need to be developed by Kahu Kū Mauna who may consider similar policies adopted by Hawai'i Volcanoes National Park.	
SHPD reviewed and approved the Burial Treatment Plan for Mauna Kea in 2014				CR-13: Develop and implement a burial treatment plan for the UH Management Areas in consultation with Kahu Kū Mauna Council, MKMB's Hawaiian Culture Committee, the Hawai'i Island Burial Council, the Office of Hawaiian Affairs, recognized lineal or cultural descendants, and SHPD.	
Output - Number of additions to the archival & oral history collection. Outcome - Number of people who request to access documents.	Recognize & document traditional & customary cultural practices.		Medium - many studies have been conducted. Unclear how they were prioritized, how it's being maintained or used.	Cultural Resources Management plan implemented. Archival and oral history, various cultural analyses completed as part of Chapter 343 mandates. Mauna Kea topics included by related agencies.	CR-4: Establish a process for ongoing collection of information on traditional, contemporary, and customary cultural practices.
Output - Number of new Hawaiian cultural features.	Baseline documentation of known historic properties		High - process drafted, reviewed and has been approved. Low on timing.	KKM reviewed a draft in 2012, KKM re-evaluated the policy and held a consultation session with OHA in 2016. Process approved by MKMB in 2018.	CR-7: Kahu Kū Mauna shall take the lead in determining the appropriateness of constructing new Hawaiian cultural features.
Outcome - Results from the monitoring program	Monitoring program for historic properties		High - monitoring program has been developed. Process is ongoing.	SHPD approved OMKM's long term historic properties monitoring plan; monitoring is ongoing.	CR-10: Develop and implement a historic property monitoring program to systematically monitor the condition of the historic district and all historic properties, including cultural sites and burials.
Output - Documentation when policies & procedures are reviewed.	Continual reevaluation of policies & procedures.		High - completed the plan, identified burials.	An archaeological survey of the Mauna Kea Science Reserve & summit access road completed in 2009.	CR-11: Complete an archaeological survey of the portions of the Summit Access Road corridor that are under UH management.

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	Output - Number of policies reviewed.	Work closely with DLNR to develop policies & procedures. Consult with KKM on all cultural issues.	High - KKM appears to be involved in issues related to buffer zones. Low - Unclear documentation of cultural consultation process.	KKM determined this should be considered on a case-by-case basis. They identified criteria for when to consult for routine project proposals as well as future developments. KKM revised policy in 2016. MKMB approved the policy	CR-12: Consult with Kahu Kū Mauna about establishing buffers (preservation zones) around known historic sites in the Astronomy Precinct, to protect them from potential future development
	Output - Document disturbances reported. How each were followed up. Outcome - current status.	Rangers deter actions that may damage cultural resources.	High efforts on behalf of Rangers. - documentation low - unclear how many reports are made by Rangers. Unclear method of enforcement.	Procedures have been put into place that requires Rangers to report disturbance to OMKM and OMKM to notify other parties.	CR-14: Immediately report any disturbance of a shrine or burial site to the rangers, DOCARE, Kahu Kū Mauna Council, and SHPD.

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7.1 Understanding and Protecting Mauna Kea's Resources					
<p>7.1.2. Natural Resources. Increase understanding of the status of natural resources (biotic and abiotic), and identify threats to these resources in order to better protect and preserve unique geological features, ecosystem functions, subalpine and alpine habitats, and biological communities through adaptive management of stressors and threats.</p>	Outcome: Trend line in annual survey - what are the trends in the annual survey of invasive arthropod species? Output: Number of rapid response strategies developed & implemented?	Preservation of sensitive habitats & unique high-elevation ecosystems in the UH Management Area.	High - developed OMMP, maintenance plan developed. HAR approved. <i>Unclear how well implementation is proceeding.</i>	Preservation. OMMP (Operations, Monitoring & Maintenance plan developed & being implemented. HAR approved January 2020.	NR-1* Limit threats to natural resources through management of permitted activities and uses.
	Output - # of potential threats identified. Outcome - % being addressed		High on plan developed and annual survey. <i>Unclear what the results of the survey are? Are invasive species being kept out?</i>	Preservation. MK Invasive Species Management Plan approved and implemented. Volunteer program to pull invasive weeds. Conduct annual survey of invasive arthropod species.	NR-2* Limit damage caused by invasive species through creation of an invasive species prevention and control program.
	Output - # of issues identified, # of plans developed for response. Outcome - impact of plans developed.		High on monitoring program. <i>Unclear how many non-native plants and arthropods within the area?</i>	Monitoring number of non-native plants and arthropods. Forestry Division completing Mauna Kea fence and ungulate removal. OMKM staff investigate issues in coordination with UH scientist.	NR-3* Maintain native plant and animal populations and biological diversity.
	Output - # of visitors educated? # of participants in orientations? Outcome - increase in awareness of natural resources and the need to protect them.		High on collaboration. <i>Unclear if process has identified issues and addressed them.</i>	Collaborate with others to ID issues, appropriate responses and investigate concerns.	NR-4* Minimize barriers to species migration, to help maintain populations and protect ecosystem processes and development.
	Outcome - trends from surveys regarding biodiversity, etc.		Medium - Plan being developed	Research being conducted. Collaborating and developing a climate monitoring sea level to summit network plan.	NR-5* Manage ecosystems to allow for response to climate change.
	Output - Percent of seedlings flourishing. Outcomes - # of diverse native plants	Unclear how successful education efforts are on protecting natural resources.	Rangers help to educate visitors. Resource orientation for those working on MK. Online orientation. "Brief" visitor orientation complete and provided for scheduled visits.	NR-6 Reduce threats to natural resources by educating stakeholders and the public about Mauna Kea's unique natural resources. Ecosystem Protection, Enhancement, and Restoration.	
		Enhancement of existing native communities and unique habitats. Program Management	Ecosystem protection, High - botanical survey completed. <i>Unclear what results of annual survey shows.</i>	Botanical survey completed. Ongoing surveys for biodiversity, wekiu bug, and erosion & surficial geology surveys.	NR-7* Delineate areas of high native diversity, unique communities, or unique geological features within the Astronomy Precinct and at Hale Pōhaku and consider protection from development.
			Ecosystem protection, High - completed fencing as required.	Assisted DLNR with fencing to protect Silversword. Other areas will be fenced as needed.	NR-8 Consider fencing areas of high native biodiversity or populations of endangered species to keep out feral ungulates (applies to areas below 12,800 ft elevation).
			Ecosystem enhancement & restoration. High - multiple efforts underway. <i>Unclear if efforts have been successful.</i>	At Halepohaku Mamane & Silversword seedlings planted.	NR-9* Increase native plant density and diversity through an outplanting program.

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	Output - How are studies integrated into plan evaluation and future actions?	the	<i>Unclear how well collaboration efforts are going. For example with OHA.</i>	OMKM has working relationships with the community & DLNR through groups - <u>Environment and Big Island Invasive Species Committee, OHA</u>	NR-13* Increase communication, networking, and collaborative opportunities, to support management and protection of natural resources.
	Output - Frequency of plan updates.		Program Management Low - CMP not updated timely , <i>Unclear what revisions to CMP were identified.</i>	Potential CMP revisions identified in annual program documentation. Completion of Envision Mauna Kea project. CMP not updated in 2015 as required.	NR-14 Use the principles of adaptive management when developing programs and methodologies. Review programs annually and revise any component plans every five years, based on the results of the program review.
			<i>Unclear what has been done</i>	Will develop mitigation & best practices plans as required.	NR-10* Incorporate mitigation plans into project planning and conduct mitigation following new development.
	Output - # of high priority resources. % for which a baseline study has been conducted. Outcome - current status of high priority resources.	Inventory, Monitoring & Research	Inventory, Monitoring & Research High - baseline inventories completed . <i>Unclear # of high priority resources</i>	Several baseline surveys conducted or underway. Inventory, monitoring & research plan?	NR-15 Conduct baseline inventories of high-priority resources, as outlined in an inventory, monitoring, and research plan.
	Output - % of baseline surveys that receive follow up annual surveys? Outcome - Trends of annual surveys.		Inventory, Monitoring & Research High - surveys being conducted . <i>Unclear how results reviewed and plans updated</i>	Annual wekiu bug, alien and invasive species surveys. Botanical & arthropod surveys conducted as part of the annual Archaeological survey.	NR-16* Conduct regular long-term monitoring, as outlined in an inventory, monitoring, and research plan .
	Outcome - Awareness & use of studies by others		High - many studies conducted . <i>Unclear how these studies have been integrated into plans and priorities.</i>	Many studies conducted to increase knowledge.	NR-17 Conduct research to fill knowledge gaps that cannot be addressed through inventory and monitoring.
			High - baseline database developed and new data added as available .	Wekiu bug and botanical data, infrastructure & signs mapped. GIS database of resources surveyed.	NR-18 Develop geo-spatial database of all known natural resources and their locations in the UH Management Areas that can serve as baseline documentation against change and provide information essential for decision-making.
	Output - # of disturbances Outcome - results of rehabilitation.	Rehabilitation of damaged ecosystems.	<i>Unclear how many cases have been identified and actions taken.</i>	Damage assessments and rehabilitation are conducted on a case-by-base basis as needed.	NR-11* Conduct habitat rehabilitation projects following unplanned disturbances.
	Output - # of restoration plans developed and restoration activities completed. Outcome - status of ecosystems.	Restoration of damaged ecosystems.	<i>Unclear status of restoration plan</i>	Study of wekiu bug habitat restoration initiated in 2015. Restoration plans and greenhouse for long-term program are part of improvements at the VIS.	NR-12* Create restoration plans and conduct habitat restoration activities, as needed.

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7.1 Understanding and Protecting Mauna Kea's Resources					
<p>7.1.3 Education & Outreach Build & maintain a constituency* to engage in active and meaningful stewardship of Mauna Kea through education and involvement of the public to support, enhance conservation, and sustain the natural, cultural, and astronomical resources of Mauna Kea.</p>	Output - # of programs developed. Outcome - impact of activities on building constituency.	Build & maintain a constituency to engage in stewardship of MK.	Medium - some programs have been developed and implemented. <i>Unclear if this has led to a constituency.</i>	Volunteers, Orientation, Brochures, School visits. Community organizations and members help support OMKM's volunteer programs. In school programs	EO-1* Develop and implement education and outreach program.
	Output - Approximately 1,500 individuals have a current, valid orientation certificate.** Outcome - summary of feedback solicited from KKM and attendees. Add quantitative measures and report.	Education to build awareness & appreciation of MK. Culturally sensitize visitors to cultural, historical and natural resources. Education on personal safety & potential hazards - protect the well being of visitors and reduce incidences requiring follow up by staff and calls for medical assistance.	High - orientation required for all those working on MK. Low - no visitor orientation required. <i>Unclear if the orientation is leading to the desired outcome.</i>	Resource orientation of those working on MK commenced in 2013. HAR Section 20-26-5. HAR rules do not require orientation for visitors.	EO-2* Require orientation of users, with periodic updates and a certificate of completion, including but not limited to visitors, employees, observatory staff, contractors, and commercial and recreational users.
	Output - 124 community updates conducted over 12 years, 63 community outreach events conducted over 9 years, and 19 symposiums, conferences and special events conducted over 8 years. 30 presentations in the Maunakea Speakers Series. One hundred ten OMKM Enewsletters issued over 9 years and 102 Astronomy Enewsletters issued over 6 years. Two brochures developed and updated, social media presence, YouTube video, and young-people oriented materials.** Outcome - impact of activities on creating awareness of Mauna Kea's cultural significance. Reduction in the number of calls for assistance.		High - materials developed and being distributed. Low - No evaluation of quality and content of materials?	Materials on the cultural and natural resources, visiting safely and responsibly distributed at VIS	EO-3* Continue to develop, update, and distribute materials explaining important aspects of Mauna Kea.
	Outcome - have workers, and visitors to MK increased their awareness and appreciation of MK's cultural, historical and natural resources?		High - task completed. <i>Unclear if number of calls for assistance has gone down.</i>	Sign plan approved and implemented.	EO-4* Develop and implement a signage plan to improve signage throughout the UH Management Areas (interpretive, safety, rules and regulations).
			<i>Unclear what action will or will not be undertaken.</i>	HAR - ongoing CIP funded project.	EO-5 Develop interpretive features such as self-guided cultural walks and volunteer-maintained native plant gardens.
	Output - 4 Science Fair/Project mentoring support projects, 3 Class Projects, 11 graduate student studies and 18 interns.**** Outcome - students have a higher level of awareness and understanding of the culture, history and natural resources on MK.	Educate students to build awareness and appreciation of MK.	<i>Unclear about the level of visits, topics and reception by students.</i>	Outreach by researchers, school visits	EO-6* Engage in outreach and partnerships with schools, by collaborating with local experts, teachers, and university researchers, and by working with the 'Imiloa Astronomy Center of Hawai'i.
	Outcome - Measure how well the community perception of transparency and involvement have changed.	Community Consultation to address concerns that the decision-making process is not transparent and that the community has not been involved.	Medium - outreach opportunities offered to community. <i>Unclear how many members of the community are aware of these options and take part. Unclear if this has increased community belief that the decision making process is more transparent.</i>	OMKM through the MKMB, KKM and Environment Committee provides opportunity for members of the community to participate in management activities. Bi-monthly volunteer activities. Public meetings conducted to review and provide feedback on proposed administrative rules.	EO-7* Continue and increase opportunities for community members to provide input to cultural and natural resources management activities on Mauna Kea, to ensure systematic input regarding planning, management, and operational decisions that affect natural resources, sacred materials or places, or other ethnographic resources with which they are associated.

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	<p>Output -58 projects with 1,493 volunteers conducted over 9 years.***** Outcome - are these activities raising awareness & appreciation of MK.</p>	<p>Community involvement - encourage & coordinate community participation through protection & conservation of MK cultural and natural resources.</p>	<p>Medium - on average 6 projects conducted per year between 2012 to 2020.</p>	<p>OMKM through the MKMB, KKM and Environment Committee provides opportunity for members of the community to participate in management activities. Bi-monthly volunteer activities. Student projects.</p>	<p>EO-8* Provide opportunities for community members to participate in stewardship activities.</p>
<p>*Definition of Constituency. If you're an elected official, your constituency is the group of people whose interests you were elected to represent. ... Your "main constituency" usually refers to the people whose needs you feel most</p>					
<p>** OMKM 2020 Annual Report (Page 44) lists the dates of orientation sessions conducted since 2012.</p>					
<p>*** OMKM 2020 Annual Report (pages 29- 34) lists 124 community updates given from 10/9/2008 to 03/11/2020 - approximately 10 presentations a year. Report also lists 63 Community Outreach Events conducted from 9/1/12 to 5/6/20.</p>					
<p>**** OMKM 2020 Annual Report (pages 46-48) lists specific participants and topics</p>					
<p>***** OMKM 2020 Annual Report (pages 42- 43) shows 58 weed pulling projects were conducted with 1,493 volunteers from 2012 to 2020.</p>					

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7.1 Understanding and Protecting Mauna Kea's Resources					
7.1.4 Astronomy Resources Maintain Mauna Kea's unique environment that makes it a premiere location for astronomical observation. Operate the scientific reserve as a buffer zone to prevent the intrusion of activities incompatible with the use of land as a scientific complex or observatory.	Outcome - feedback from Observatories. Desire for new telescopes.	Protect astronomical resources, through planned protections.	High - rules approved. Low - timing	Rules approved in HAR Chapter 20-26 in January 2020	AR-1* Operate the UH Management Areas to prohibit activities resulting in negative impacts to astronomical resources.
		Measures to protect natural and cultural resources in the area will also protect astronomical resources.	High - rules approved. Low - timing	HAR Chapter 20-26 Section 20-26-23 approved in January 2020. Ongoing	AR-2* Prevent light pollution, radio frequency interference (RFI) and dust.

Measures								
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7.2 Managing Access, Activities and Uses								
<p>7.2.1 Activities and Use: Retain and enhance recreational and cultural activities, ensure regulation of commercial activities, and support scientific studies while maintaining adequate protection of resources, educating users regarding resource sensitivity, and ensuring the health and safety of those visiting or working at Mauna Kea.</p>	<p>Output: Since 2000, OMKM, Kahu Kū Mauna and MKMB have reviewed over 300 community projects intended for Mauna Kea.</p>	# of projects approved/declined	<p>The increase in public use since the construction of the Summit Access Road generated a need for a managed access policy to help protect resources, enhance visitor safety and maintain the unique qualities of Mauna Kea.</p>	<p>High - The public access plan and approval of the Administrative rules in January 2020 have a positive impact on the Outcome Low: timing of the Administrative rules.</p>	<p>BLNR approved the Public Access Plan for the UH Management areas on Mauna Kea. Administrative rules have been developed and rules implemented in January 2020.</p>	<p>ACT-1* Continue and update managed access policy of 1995 Management Plan.</p>		
	<p>Output: Vehicle counters installed in 2015 to track access by vehicle type and road condition sensors installed in 2013.</p>	# of vehicles and visitors by user type annually			<p>CDUP issued to implement the ingress/egress project commenced in 2018. Rangers assist VIS with their interim parking plan to maintain order, accommodate as many vehicles as possible to ensure the safety of visitors to the VIS.</p>	<p>ACT-2* Develop parking and visitor traffic plan.</p>		
	<p>Output: Mauna Kea Rangers are present year round from 7:15 am to 10:15 pm daily</p>				<p>MK Rangers present year-round 15 hours a day. DOCARE officers and Hawaii County Police called for assistance as needed.</p>	<p>ACT-3* Maintain a presence of interpretive and enforcement personnel on the mountain at all times to educate users, deter violations, and encourage adherence to restrictions. While the CMP does not extend to lands outside the UH Management Areas, there is a need to coordinate with adjacent land managers to clearly identify, for the public, management boundaries and any similarities or differences in management policies.</p>		
	<p>Output: Capital improvement funds are being used to implement an Ingress/egress, and parking plan to address concerns of traffic flow and pedestrian safety.</p>				<p>OMKM prohibits the use of off-road vehicles. Included in HAR 20-26, section 20-26-28 Vehicles and Transportation</p>	<p>ACT-4* Develop and enforce a policy that maintains current prohibitions on off-road vehicle use in the UH Management Areas and that strengthens measures to prevent or deter vehicles from leaving established roads and designated parking areas.</p>		
						<p>Included in HAR 20-26, section 20-26-21 Preservation of Resources</p>	<p>ACT-5* Implement policies to reduce impacts of recreational hiking</p>	
	<p>Output: To regulate snow recreational activities, a map of areas where snow play generally occurs has been developed.</p>				<p>The increase in public use since the construction of the Summit Access Road generated a need for a managed access policy to help protect resources, enhance visitor safety and maintain the unique qualities of Mauna Kea.</p>	<p>High - The Administrative rules in January 2020 have a positive impact on the Outcome Low: timing of the Administrative rules.</p>	<p>Included in HAR 20-26, section 20-26-39 Snow Play</p>	<p>ACT-6* Define and maintain areas where snow-related activities can occur and confine activities to slopes that have a protective layer of snow.</p>
	<p>Output: Star gazing activities on UH's lands are limited to parking lots, or in areas in close proximity to the VIS</p>						<p>Star gazing activities on UH managed lands are limited to parking lots, or in areas in close proximity to the VIS.</p>	<p>ACT-7 Confine University or other sponsored tours and star-gazing activities to previously disturbed ground surfaces and established parking areas.</p>
	<p>Output: DLNR's hunting rules apply to UH's managed lands.</p>						<p>Included in HAR 20-26, sections 20-26-3 Applicability and implementation generally and 20-26-32 Animals</p>	<p>ACT-8* Coordinate with DLNR in the development of a policy regarding hunting in the UH Management Areas.</p>

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	Output: OMKM initiated a study in 2019 to assess the capacity for commercial tour operations	12 permitted commercial tours as of 2014, currently 8 listed on Mauna Kea website	The increase in public use since the construction of the Summit Access Road generated a need for a managed access policy to help protect resources, enhance visitor safety and maintain the unique qualities of Mauna Kea.	High - The Administrative rules in January 2020 have a positive impact on the Outcome Low: timing of the Administrative rules.	UH oversees commercial tour permits, a responsibility transferred from DLNR to UH. Included in HAR 20-26, section 20-26-64 Commercial tour activity permits	ACT-9* Maintain commercial tour permitting process; evaluate and issue permits annually.
	Output: All film permits require OMKM's approval before they are issued.	# of film permits issued			Included in HAR 20-26, section 20-26-63 Special use permits	ACT-10* Ensure OMKM input on permits for filming activities
	Output: The function of commercial tour permitting was transferred by BLNR to UH. OMKM oversees commercial tour operations and film activities.				The function of commercial tour permitting was transferred to by BLNR to UH. OMKM oversees commercial tour operations and film activities. Statutory authority to promulgate administrative rules was granted by the Legislature in 2009. Administrative rules were effective beginning in January 2020.	ACT-11* Seek statutory authority for the University to regulate commercial activities in the UH Management Areas.
					All research proposals must be approved by OMKM. Proposals requiring ground disturbing activities or potential impact to the cultural and/or natural landscape are reviewed by KKM and MKMB,	ACT-12* Ensure input by OMKM, MKMB, and Kahu Kū Mauna on all scientific research permits and establish system of reporting results of research to OMKM.

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7.2 Managing Access, Activities and Uses					
7.2.2 Permitting & Enforcement: Achieve compliance with existing and any new policies and regulations designed to manage and minimize human impacts to preserve and protect Mauna Kea's resources.		Permitting and enforcement are essential tools for regulating activities.	High for rule making. LOW on timing.	Condition of UH lease with DLNR. Rangers monitor activities. Ongoing communications DLNR. Since 2006, OMKM has been conducting biannual inspections of all facilities for compliance with DLNR's permits.	P-1* Comply with all applicable federal, state, and local laws, regulations, and permit conditions related to activities in the UH Management Areas.
				Relevant CMP management actions were incorporated into the CDUA for the Thirty Meter Telescope project. The MKMB requires proposals for projects for Maunakea include a review and comments on how the proposer will comply with CMP action items relevant to the project.	P-2* Strengthen CMP implementation by recommending to the BLNR that the CMP conditions be included in any Conservation District Use Permit or other permit.
	Output: Since 2000, there were 103 community engagement and outreach actions taken related to the development of the administrative rules, including updates, consultations, briefings, open houses, and public hearings.			The Legislature granted UH authority to promulgate administrative rules in 20019, Act 132. The Administrative Rules (HAR 20-26) were approved in January 2020. The process including community engagement and outreach started in October 2000.*	P-3* Obtain statutory rule-making authority from the legislature, authorizing the University of Hawai'i to adopt administrative rules pursuant to Chapter 91 to implement and enforce the management actions.
	Output: Since 2012, OMKM has completed 3,954 orientation sessions and as of 2020 there were approximately 1,500 individuals with current, valid orientation certificates.			Included in HAR Section 20-26.5 Orientation. Administrative rule, effective January 2020.	P-4 Educate management staff and users of the mountain about all applicable rules and permit requirements.
	Output:		High for enforcement.	Ranger observations are sent to DLNR, NAR, DOFAW, and US Fish & Wildlife Service.	P-5* Continue coordinating with other agencies on enforcement needs.
	Output: Ranger program established.			Rangers coordinate with DOCARE, unclear if they have authority unto themselves.	P-6* Obtain legal authority for establishing, and then establish, a law enforcement presence on the mountain that can enforce rules for the UH Management Areas on Mauna Kea.
	Output: Since 2006, OMKM rangers have been conducting biannual inspections of all facilities on UH's managed lands for compliance with their CDUPs.			OMKM Rangers conduct twice yearly inspections of all observatories for CDUP compliance.	P-7* Develop and implement protocol for oversight and compliance with Conservation District Use Permits.
	# of enforcement actions not available			Rangers' responsibilities includes oversight of commercial tour activities and special use permits issued by OMKM.	P-8* Enforce conditions contained in commercial and Special Use permits.

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7.3 Managing the Built Environment					
7.3.1 Infrastructure and Maintenance: Manage the built environment by implementing an Operations, Monitoring and Maintenance Plan (OMMP) containing specific maintenance strategies and protocols that will result in minimal disruptions to activities and uses, minimize impacts to the resources, and ensure that permittees remain compliant with their CDUP requirements.		There is a need to minimize the impacts of facilities and the maintenance actions required to keep them operating in compliance with their CDUP.	High - OMMP was completed. Annual outlook plans required of observatories.	The OMMP was approved in February 2017. Beginning in 2016 all observatories must submit an annual 5-year outlook plan.	IM-1* Develop and implement an OMMP.
			High - program developed. Unclear about the effectiveness of the training content.	HAR Section 20-26-5 requires ongoing orientation attended by personnel. Cultural and Natural Resources orientation program developed.	IM-2 Reduce impacts from operations and maintenance activities by educating personnel about Mauna Kea's unique resources.
			High - procedures in place.	OMKM submits detailed proposals to DLNR for activities conducted infrequently. In consultation process with SHPD. An MOU may not be necessary because any activity that involves a major ground disturbance already requires a permit from DLNR and SHPD review.	IM-3* Conduct historic preservation review for maintenance activities that will have an adverse effect on historic properties.
			High - study undertaken. Unclear - the recommendations from the study is unclear.	OMKM funded a study to evaluate the efficacy measures to prevent the introduction of invasive species, including vehicle and equipment wash practices.	IM-4* Evaluate need for and feasibility of a vehicle wash station near Hale Pōhaku, and requiring that vehicles be cleaned.
			High - process in place. Unclear if a formal plan was developed and approved.	Described process, unclear if a formal plan was completed or finalized.	IM-5* Develop and implement a Debris Removal, Monitoring and Prevention Plan.
			In progress	Expected to be completed in 2020.	IM-6* Develop and implement an erosion inventory and assessment plan.
			High - Inventory submitted. Plans for inventory being considered.	Inventory submitted to the DOD for review and updating. OMKM working with DOD, OCCL and SHPD to determine appropriate plans for removal or preservation in place.	IM-7 Prepare a plan, in collaboration with the Department of Defense, to remove military wreckage from a remote area of the UH Management Areas, while ensuring protection of natural and cultural resources.
		Identify strategies and protocols that reduce impacts to resources associated with infrastructure.	High - Study details repairs and cost. Unclear if these have been budgeted or implemented.	Engineering study updated in 2017. Report assessed repairs needed and potential cost.	IM-8* Assess feasibility of paving the Summit Access Road.
			Unclear when CIP project will be completed. Unclear when Visitor study expected to be completed.	Parking added as part of the CIP ingress/egress project. Ongoing - Visitor study started in 2019.	IM-9* Evaluate need for additional parking lots and vehicle pullouts and install if necessary.
			Unclear when CIP project will be completed. Unclear when Visitor study expected to be completed.	Upgrade on facility put on hold until completions of the ingress/egress project. MKSS considering options for handling overcrowding at VIS.	IM-10 Evaluate need for additional public restroom facilities in the summit region and at Hale Pōhaku, and install close-contained zero waste systems if necessary.

Measures					
Desired Outcomes (1)	Metric (TBD in Future) (2)	Need (3)	Impact of Action on Outcome (4)	Summary of Actions Undertaken (5)	Management Actions (6)
		Sustainable Technologies	High - progress being made.	Energy efficiency (PV systems) being incorporated into operations at current operations and plans for the future. Total of three completed or underway.	IM-11* Encourage existing facilities and new development to incorporate sustainable technologies, energy efficient technologies, and LEED standards, whenever possible, into facility design and operations.
			High - progress being made.	Energy audits part of PV system design process.	IM-12* Conduct energy audits to identify energy use and system inefficiencies, and develop solutions to reduce energy usage.
			High - progress being made.	MKSS installed a PV system at Halepohaku. Additional energy conservation and sustainable generation possibilities being discussed.	IM-13* Conduct feasibility assessment, in consultation with Hawaii Electric Light Company, on developing locally-based alternative energy sources.
			High - progress being made.	Ongoing - new technology will reduce hazardous materials.	IM-14* Encourage observatories to investigate options to reduce the use of hazardous materials in telescope operations.

Measures					
Desired Outcomes (1)	Metric (TBD in Future) (2)	Need (3)	Impact of Action on Outcome (4)	Summary of Actions Undertaken (5)	Management Actions (6)
7.3 Managing the Built Environment					
7.3.2. Construction Guidelines: Minimize adverse impacts to resources during all phases of construction, through use of innovative best management practices.		General Requirements		TMT first construction of a new facility. Included in TMT management plan in its CDUA.	C-1* Require an independent construction monitor who has oversight and authority to insure that all aspects of ground based work comply with protocols and permit requirements.
		Best Management Practices		TMT first construction of a new facility. Included in TMT management plan in its CDUA.	C-2* Require use of Best Management Practices Plan for Construction Practices.
				TMT first construction of a new facility. Included in TMT management plan in its CDUA.	C-3* Develop, prior to construction, a rock movement plan.
				TMT first construction of a new facility. Included in TMT management plan in its CDUA.	C-4* Require contractors to provide information from construction activities to OMKM for input into OMKM information databases.
				TMT first construction of a new facility. Included in TMT management plan in its CDUA.	C-5* Require on-site monitors (e.g., archaeologist, cultural resources specialist, entomologist) during construction, as determined by the appropriate agency.
				TMT first construction of a new facility. Included in TMT management plan in its CDUA.	C-6* Conduct required archaeological monitoring during construction projects per SHPD approved plan.
				TMT first construction of a new facility. Included in TMT management plan in its CDUA.	C-7* Education regarding historical and cultural significance
				TMT first construction of a new facility. Included in TMT management plan in its CDUA.	C-8* Education regarding environment, ecology and natural resources
				TMT first construction of a new facility. Included in TMT management plan in its CDUA.	C-9* Inspection of construction materials

Measures					
Desired Outcomes (1)	Metric (TBD in Future) (2)	Need (3)	Impact of Action on Outcome (4)	Summary of Actions Undertaken (5)	Management Actions (6)
7.3 Managing the Built Environment					
7.3.3. Site Recycling, Decommissioning, Demolition and Restoration: To the extent possible, reduce the area disturbed by physical structures within the UH Management Areas by upgrading and reusing buildings and equipment at existing locations, removing obsolete facilities and restoring impacted sites to pre-disturbed condition.				TMT first construction of a new facility. Included in TMT management plan in its CDUA.	SR-1* Require observatories to develop plans to recycle or demolish facilities once their useful life has ended, in accordance with their sublease requirements, identifying all proposed actions.
				TMT first construction of a new facility. Included in TMT management plan in its CDUA.	SR-2* Require observatories to develop a restoration plan in association with decommissioning, to include an environmental cost-benefit analysis and a cultural assessment.
				TMT first construction of a new facility. Included in TMT management plan in its CDUA.	SR-3* Require any future observatories to consider site restoration during project planning and include provisions in subleases for funding of full restoration.

Measures					
Desired Outcomes (1)	Metric (TBD in Future) (2)	Need (3)	Impact of Action on Outcome (4)	Summary of Actions Undertaken (5)	Management Actions (6)
7.3 Managing the Built Environment					
7.3.3. Considering Future Land Use: To protect cultural and natural resources in the assessment of future projects.				The Design Review process, which incorporated the 2000 Master Plan's design guidelines were used in the review of the TMT project.	FLU-1* Follow design guidelines presented in the 2000 Master Plan.
				TMT will be the last telescope to be built on undisturbed land. HAR 13-5 allows for different types of land use each with its own requirements for preparing a land use application. Single pre-prepared map cannot address all scenarios.	FLU-2* Develop a map with land-use zones in the Astronomy Precinct based on updated inventories of cultural and natural resources, to delineate areas where future land use will not be allowed and areas where future land use will be allowed but will require compliance with prerequisite studies or analysis prior to approval of Conservation District Use Permit.
				TMT completed photo documentation of its site.	FLU-3* Require cataloguing of initial site conditions for use when conducting site restoration.
				TMT completed photo documentation..	FLU-4* Require project specific visual rendering of both pre- and post-project settings to facilitate analysis of potential impacts to view planes.
				Incorporated into TMT project	FLU-5 Require an airflow analysis on the design of proposed structures to assess potential impacts to aeolian ecosystems.
				Incorporated into TMT project	FLU-6 Incorporate habitat mitigation plans into project planning process.
				Incorporated into TMT project	FLU-7* Require use of close-contained zero-discharge waste systems for any future development in the summit region, from portable toilets to observatory restrooms, if feasible.

Measures						
Desired Outcomes (1)	Metric (TBD in Future) (2)	Need (3)	Impact of Action on Outcome (4)	Summary of Actions Undertaken (5)	Management Actions (6)	
7.4 Managing Operations						
7.4.1 Operations and Implementation: Conduct effective operations to support management that is focused on resource protection, education and public safety.			High - Ongoing roles continuing.	MKMB meets regularly, holding public meetings which includes consultation with KKM. OMKM, KKM and MKMB is responsible for the review of projects proposed for UH's managed lands, in particular compliance with DLNR conservation district rules and the CMP.	OI-1* Maintain OMKM, MKMB, and Kahu Kū Mauna in current roles, with OMKM providing local management of the UH Management Areas, and MKSS providing operational and maintenance services.	
			High - training implemented. Unclear if the training is meeting needs.	HAR Section 20-26-5 requires ongoing orientation attended by personnel. Training plan submitted and approved by MKMB. Bi-monthly trainings being conducted.	OI-2* Develop training plan for staff and volunteers.	
	Documentation of outreach with stakeholders and subjects discussed.			High - ongoing relationship with DLNR and DOCARE.	Ongoing frequent contact with DLNR and DOCARE. OMKM Rangers report unusual or suspicious behavior observed on DLNR lands to DLNR including DOCARE.	OI-3* Maintain and expand regular interaction and dialogue with stakeholders, community members, surrounding landowners, and overseeing agencies to provide a coordinated approach to resource management.
	Documentation of public attendance at MKMB meetings.			High - included in HAR rules	The public can address grievances at the MKMB publicly held meetings. Addressed in Administrative rules passed on January 2020.	OI-4* Establish grievance procedures for OMKM, to address issues as they arise.
				High -	Reviewed annually.	OI-5* Update and implement emergency response plan.

CMP - Monitoring, Evaluation, and Updates

Measures					
Desired Outcomes (1)	Metric (TBD in Future) (2)	Need (3)	Impact of Action on Outcome (4)	Summary of Actions Undertaken (5)	Management Actions (6)
7.4 Managing Operations					
7.4.2 Monitoring, Evaluation, and Updates: Determine whether management actions are achieving the goals of the CMP and provide a process for improving and updating management strategies through evaluation and revisions of the CMP.	Documentation of public attendance at meetings. Hits to webpage.		High - a reporting system is in place. Unclear if the public feels informed about management actions.	Reports provided at the publicly held MKMB meetings.	MEU-1* Establish a reporting system to ensure that the MKMB, DLNR, and the public are informed of results of management activities in a timely manner.
	Clear evaluation measures related to outcomes. Data collected for those measures.	ID evaluation measures and data collected on achievement of performance measures	Initial review should have happened in 2015. Unclear what evaluation process has been developed.	Five-year revision interval initiated in 2014, requiring update in 2019.	MEU-2* Conduct regular updates of the CMP that reflect outcomes of the evaluation process, and that incorporate new information about resources.
		Major review and revision every five years.	OMKM has provided- annual status reports provided to DLNR. The most detailed report was the 2020 Annual Report. That level of detail should have been in each of the prior reports. Unclear if actions for the future have been revised based on the outputs and their impact on outcomes.	In progress	MEU-3* Revise and update planning documents, including the master plan, leases, and subleases, so that they will clearly assign roles and responsibilities for managing Mauna Kea and reflect stewardship matters resolved with DLNR.

Outreach Feedback Summary Table

Management Section	Topic	Feedback
Native Hawaiian Cultural Resources	Attention to Cultural Value	OMKM has never stopped any Hawaiian cultural practitioner from accessing MK
Native Hawaiian Cultural Resources	Attention to Cultural Value	Lack of cultural presence on MK because you see observatories but no evidence of culture
Native Hawaiian Cultural Resources	Cultural Access	Advocate the establishment of a cultural preserve on MK managed by Hawaiians
Native Hawaiian Cultural Resources	Cultural Access	Cultural orientation video is instructive. However, the respondent acknowledges that there are members of the Hawaiian community that say the video is not credible because it wasn't developed by cultural practitioners
Native Hawaiian Cultural Resources	Cultural Orientation	In 2019, UH President, thru executive policy, directed Imiloa to be responsible for implementing the cultural orientation because it is so critical
Native Hawaiian Cultural Resources	Cultural Orientation	The cultural orientation is "horrible"
Native Hawaiian Cultural Resources	Cultural Orientation	The OMKM cultural video is ok, but it is clear that the person providing the cultural information is uncomfortable because of his Christian beliefs
Native Hawaiian Cultural Resources	Cultural Orientation	Guides go through the OMKM orientation but the video doesn't really address cultural issues. His visitors go through his guided tours and get better information. [video is less informative than guided tour]
Native Hawaiian Cultural Resources	Cultural Orientation	UH has shown a lack of cultural sensitivity
Native Hawaiian Cultural Resources	Cultural Orientation	CMP attempts to delineate between traditional and contemporary NH practices, which is offensive
Native Hawaiian Cultural Resources	Cultural Sensitivity	Criticized the CMP for promoting false historical information about MK's sacredness. They specifically found the cultural anchor to be offensive
Native Hawaiian Cultural Resources	Cultural Sensitivity	When asked how they implemented specific areas of the Management plan, such as the cultural resource management and outreach, KKM said they are volunteers and don't have the resources to do that work
Native Hawaiian Cultural Resources	Cultural Sensitivity	KKM are only volunteers so they can't really address the culturally sensitive issues, and the cultural orientation video is not intended to convert the viewer to the Hawaiian culture
Native Hawaiian Cultural Resources	Funding	The plan lacks any analysis of the impact proposed projects will have on current and future traditional cultural practices
Native Hawaiian Cultural Resources	Funding	KKM is not required to consult with wide range of NHs on management actions pertaining to shrines, access to burials, stacking of rocks, etc.
Native Hawaiian Cultural Resources	Impacts	OMKM does a good job preserving and protecting the cultural and natural resources with arch monitoring, biological studies, etc.
Native Hawaiian Cultural Resources	NH Consultation	OMKM needed to spend a lot of the early years doing the baseline studies on the natural and cultural resources in order to develop programs to manage them
Native Hawaiian Cultural Resources	OMKM Management	Management of MK has greatly improved under UH because they have incentive to address as many of the cultural concerns as possible
Native Hawaiian Cultural Resources	OMKM Management	KKM provides the advice as cultural advisors
Native Hawaiian Cultural Resources	OMKM Management	Done a good job with orientation video and anyone viewing the video would walk away being more culturally sensitive
Native Hawaiian Cultural Resources	OMKM Management	UH has created unlimited and unobstructed access to unlimited people from around the world by creating an industrial complex on MK. UH focuses on taking care of outsiders, i.e. tourist, commercial operators, even big investors from countries that are the enemy of US (i.e. China) and provides them unlimited and unregulated access but yet restricts access for Hawaiians who want to practice their cultural traditions or religious beliefs.
Native Hawaiian Cultural Resources	Roles and Responsibilities	CR-2 regarding nominating MK as a traditional cultural property. The TCP nomination has been prepared for over 10 years but no action has been taken to avoid triggering federal section 106 or other regulations.
Natural Resources	Funding	DLNR could never manage the resources to the extent that UH has been able to do so because UH has access to funding.
Natural Resources	Improvement	Before OMKM started managing MK, the Mauna was full of litter, debris and no one was taking care of the natural resources
Natural Resources	Invasive Species	OMKM has done a good job with invasive species
Natural Resources	Invasive Species	OMKM has been managing the invasive species
Natural Resources	Monitoring	OMKM has been doing the arch monitoring
Natural Resources	Monitoring	DOFAW works very closely with OMKM to monitor the natural resources.
Natural Resources	OMKM Management	OMKM does a good job preserving and protecting the cultural and natural resources with arch monitoring, biological studies, etc.
Natural Resources	OMKM Management	OMKM needed to spend a lot of the early years doing the baseline studies on the natural and cultural resources in order to develop programs to manage them

Outreach Feedback Summary Table

Management Section	Topic	Feedback
Natural Resources	OMKM Management	OMKM has done an excellent job when it comes to land management
Natural Resources	OMKM Management	OMKM is doing a good job managing the resources on MK;
Natural Resources	OMKM Management	They believe that MK is one of the best run government operations based upon environmental protection, safety and the amount of attention that OMKM gives to managing MK
Natural Resources	OMKM Management	The Rangers provide a valuable service to DLNR and the public with respect to protection of the resources and public safety.
Natural Resources	Rangers	There are no impacts to watershed by observatories
Natural Resources	Watershed	UH has been trying to take the Wekiu bug off the endangered list by showing that population has grown. It has increased only because they are doing more surveys, they just do not want to protect it anymore.
Activities and Uses	Permitting	Before OMKM, the commercial tour operators were permitted under DLNR, and commercial fees generated went back into general fund, but under OMKM, the commercial operation fees help to steward MK
Astronomical Resources	Communications	OMKM has a very good relationship with the astronomers
Astronomical Resources	OMKM Management	NSF feels the stewardship of MK by UH as well managed and they haven't received any major concerns from their staff at the two telescopes except for the recent protests along the access road in regards to TMT
Astronomical Resources	Roles and Responsibilities	UH views their responsibility is to support continued astronomy on MK
Astronomical Resources	Roles and Responsibilities	UH's preference is not to manage all the 11,000 acres only the astronomy precinct but DLNR doesn't have the resources to do it, so if UH wants to continue the lease they need to take it all
Education and Outreach	Communications	UH doesn't have good public relations
Education and Outreach	Communications	UH has not been getting information out to the community as to what they are doing.
Education and Outreach	Communications	The respondent expressed that although they are a stakeholder, the UH has not included them in any process regarding MK including the work that Greg Chun is doing now on behalf of BOR. They are all frustrated with UH Manoa for not communicating with them
Education and Outreach	Communications	Communication is a big problem that needs to be improved
Education and Outreach	Communications	OMKM needs to improve communication and public relations because the public doesn't know about all the good things that are going on with MK
Education and Outreach	Community Engagement	Lack of community engagement and education
Education and Outreach	Community Engagement	Not been much on community outreach and education
Education and Outreach	Community Engagement	There has been no engagement between UH and the community on MK and specifically the CMP
Education and Outreach	Community Engagement	UH needs to do a better job to build a relationship with the broader community, not only supporters
Education and Outreach	Community Engagement	UH haven't done a good job engaging the community as they've relied on Kahu Ku Mauna. But KKM wants to work behind the scene therefore either no outreach or it's been through MKMB public board meetings. [No direct community consultation]
Education and Outreach	Community Engagement	There is community engagement prior to the development of a plan, but once the plan is developed, you don't get the same level of engagement with the community except when a crisis arises like TMT. Then there is an insurgence of engagement
Education and Outreach	Community Engagement	Community engagement is really not OMKM's forte. That's why UH is bringing in Imiloa to bring in the cultural perspective
Education and Outreach	Community Engagement	Community engagement needs to be improved
Education and Outreach	Cultural Orientation	With regards to cultural orientation, the respondent has reviewed the video for Haleakala (sense of place), which explains the cultural significance, but they have not been required to watch the MK video
Education and Outreach	Education Efforts	Guides go through the OMKM orientation but the video doesn't really address cultural issues. His visitors go through his guided tours and get better information. [video is less informative than guided tour]
Education and Outreach	NH Consultation	No consultation with the NH community in regards to MK
Education and Outreach	NH Consultation	The respondent was told that the CMP left consultation with the lineal descendants up to OHA who never did anything
Education and Outreach	NH Consultation	Many NH didn't provide comments to the CMP subplans or the implementation of the CMP because they were told that OMKM had to wait until the rules were adopted
Education and Outreach	NH Consultation	OMKM doesn't get enough credit for the things that they've done but they have not done enough to engage the Hawaiian community
Education and Outreach	NH Consultation	The respondent stated that he and OMKM Director have been meeting with members of the Hawaiian community prior to 2015 (first protest against TMT) and continues to meet with those protesting on MK

Outreach Feedback Summary Table

Management Section	Topic	Feedback
Education and Outreach	NH Consultation	BOR has personally gone out into the public to engage the community through BOR meetings as well as other small talk story meetings with stakeholders
Education and Outreach	Outreach Efforts	MKMB provides the community input through their open public board meetings
Education and Outreach	Outreach Efforts	With respect to community outreach, UH has held more than 150 gatherings but the Hawaiian community doesn't engage
Education and Outreach	Outreach Efforts	MKMB believes that public outreach is through their monthly board meetings that is open to the public. They do not believe they it is their responsibility as volunteer board to do more outreach. They note that with all the responsibilities of OMKM with the limited resources, that OMKM, KKM and MKMB are doing the best they can; there is not enough money for the community outreach.
Education and Outreach	Outreach Efforts	The Rangers provides better education than DLNR ever could.
Education and Outreach	Rangers	Rangers program was established in 2000 to do additional education with visitors.
Education and Outreach	Rangers	UH has relied upon KKM who was hand-picked by OMKM to engage the Hawaiian community and that has obviously not happened
Education and Outreach	Roles and Responsibilities	UH has instituted changes, i.e. Imiloa is going to do a lot more of the cultural and educational outreach
Education and Outreach	Roles and Responsibilities	OMKM totally deferred to KKM to advise on cultural issues and to engage the Hawaiian community
Education and Outreach	Roles and Responsibilities	No consultation with NH practitioners.
Facility Planning Guidelines	Roles and Responsibilities	CMP doesn't recognize BLNR as final authority for future projects
Facility Planning Guidelines	Roles and Responsibilities	The BLNR can renew the lease
Infrastructure and Maintenance	Cesspools	No process for replacing cesspools
Monitoring, Evaluation and Updates	Arch Monitoring	OMKM was meant to submit archaeological monitoring reports annually since 2012 and did not submit until 2018 when Senator Kahele asked for them
Monitoring, Evaluation and Updates	Arch Monitoring	OMKM has been doing the arch monitoring
Monitoring, Evaluation and Updates	Arch Monitoring	OMKM does a good job with arch monitoring, biological studies, etc.
Monitoring, Evaluation and Updates	OMKM Management	UH views OMKM and MKMB as just checking off the CMP box but not genuinely engaging
Monitoring, Evaluation and Updates	OMKM Management	OMKM is good at filing required reports but they don't really tell what they've accomplished; more like checking off the box
Monitoring, Evaluation and Updates	OMKM Management	OMKM has generally submitted their report to DLNR on time
Monitoring, Evaluation and Updates	Reporting	UH is currently updating the Master Plan for the astronomy precinct. Under the ML[?] they are looking at managing non-astronomy uses within the astronomy precinct. ML is approved by UH BOR; Schedule to go to BOR for approval August 2021
Monitoring, Evaluation and Updates	Updates	5 year CMP update (MEU-1, CMP Sec. 7); They are proposing to clean up the sub plans, delete those management actions that they have completed; Land Board will approve CMP update schedule to go to BLNR 6 months after Master Plan approved;
Monitoring, Evaluation and Updates	Updates	UH was supposed to do 5 year updates to the CMP, and never did it.
Native Hawaiian Cultural Resources	Cultural Advocacy	Believes OMKM does a good job of telling the cultural connection
Operations and Implementation	Communications	Lack of communication between OMKM, telescopes, and State
Operations and Implementation	Communications	KKM is meant to be an advisory board to OMKM but they do not have open communication on a regular basis, stay in lane
Operations and Implementation	Communications	KKM did not feel UH consulted with them regarding governance models
Operations and Implementation	Communications	SHPD did not feel they were consulted with by OMKM
Operations and Implementation	Funding	OHA asserts that the State, DLNR, and UH failed to estimate cost of implementing the plan, and doesn't charge fair rent
Operations and Implementation	Governance	Governance structure is ineffective under UH in regards to strategy and policy
Operations and Implementation	Governance	Respondent suggests new entity to manage MK, i.e. Bishop Museum
Operations and Implementation	Governance	UH governance structure (UH Manoa v. Hilo) has been problematic
Operations and Implementation	Governance	Pursuant to BOR Resolution in 2019. This governance restructuring will be a chapter within the proposed new Maser lease.
Operations and Implementation	Governance	UH has failed in the process to give the Hawaiians decision making authority
Operations and Implementation	Governance	The current governance structure is not effective because the community based board (MKMB) is really being managed by OMKM
Operations and Implementation	Governance	UH's preference is not to manage all the 11,000 acres--only the astronomy precinct--but DLNR doesn't have the resources to do it, so if UH wants to continue the lease they need to take it all
Operations and Implementation	Governance	UHH believes they are suited to manage MK from Hilo rather than Manoa because they are part of the community; they have the ability to establish the natural partnerships to better manage the resources on MK
Operations and Implementation	Governance	UHH disagrees with BOR's direction in governance b/c they are really not listening to the local community; again all the decisions are being made in Honolulu and not involving the Hilo local community
Operations and Implementation	Governance	Need more clear designation between long term policy issues vs. daily management
Operations and Implementation	Governance	OMKM doesn't understand why the BOR wants a new governance structure, the existing one is working; in fact OMKM was never consulted by BOR on the new governance structures

Outreach Feedback Summary Table

Management Section	Topic	Feedback
Operations and Implementation	Governance	The current governance structure is working, MKMB provides through their open public meetings opportunities for community input, it is the BOR that are not allowing this community engagement process to continue. The BOR didn't consult with MKMB or KKM on the new governance structure. Where is the opportunity for community input? BOR is doing this new governance process so they can get the lease renewed;
Operations and Implementation	Governance	Respondent doesn't understand why BOR wants to take away governance from OMKM as they are doing a really good job; he doesn't know what's broken; he believes OMKM is the sacrificial lamb
Operations and Implementation	Governance	Management authority of CMP between UH and DLNR is muddled
Operations and Implementation	Governance	Respondent believes that BOR are considering changing governance structure more to appease the opposition
Operations and Implementation	OMKM Management	Not sure if UH is appropriate entity to manage 10,000 acres on MK but DLNR doesn't have the resources, but MK is probably better managed than any other state land.
Operations and Implementation	OMKM Management	Overall management of state lands on MK, in comparison to other agencies (i.e. OHA, DHHL), are better than others
Operations and Implementation	OMKM Management	Under the 2000 Master Lease, they recommended a community based management process for MK, that's why MKMB, OMKM, and KKM were established
Operations and Implementation	OMKM Management	UHH views their responsibility as managing day to day operations
Operations and Implementation	Roles and Responsibilities	DHHL is not interested in managing MK because they don't have the capacity
Operations and Implementation	Roles and Responsibilities	LMD role is to manage the state lease but there has really been little oversight by LMD over MK because they leave that up to UH
Operations and Implementation	Roles and Responsibilities	UH has an inherent conflict of interest in that they get \$ or free viewing time from all the telescopes so they encourage more telescope development. The value of the viewing time is about \$80,000 per hour but because they don't monetize the value of the viewing time, no \$ goes to OHA or the community.
Operations and Implementation	Roles and Responsibilities	There is an inherent conflict of interest with KKM who are selected by the UH and most have made it known that they support TMT and telescope development. KKM has never consulted with individual practitioners. Members of KKM are more supportive of TMT than of protecting the cultural resources. The cultural practitioners that are on KKM are not well respected in the Hawaii community. The KKM members who are respected and who have raised concerns about management of MK get frustrated with UH and end of leaving; only the ones who support telescope and TMT remain on KKM. KKM needs to have a different selection process and be housed outside of UH, i.e. OHA.
Operations and Implementation	Roles and Responsibilities	There is an inherent conflict of interest having UH as the applicant for the TMT because it means that UH is spending time and \$ to advocate for TMT, pay for litigation, rather than protecting the resources on MK.
Operations and Implementation	Roles and Responsibilities	The CMP implementation plan had short term, immediate, long term. Because OMKM did not implement many of the immediate action, they changed the time periods to on-going. In other words, OMKM kept on changing the definitions, schedules, or actions to suit their needs
Permitting and Enforcement	Rangers	DOCARE works closely with OMKM Rangers, who the respondent considers to be the experts on MK; they provide security and safety for visitors and the public
Permitting and Enforcement	Rangers	The Rangers provides better coordination of permits and access than DLNR ever could.
Permitting and Enforcement	Rangers	Rangers feel they lack official enforcement authority, under new rules
Permitting and Enforcement	Roles and Responsibilities	OMKM's primary role is to enforce DLNR rules
Permitting and Enforcement	Roles and Responsibilities	DOCARE's role is primarily enforcing rules on state lands. Because DLNR has a lot of lands on MK (in addition to UH leased lands)
Site Recycling, Decommissioning, Demolition, and Restoration	Decommissioning	Disconnect between Manoa leadership that is reactive, i.e. pushing for decommissioning which is not consistent with the CMP because they fear community engagement vs. Hilo leadership which is open and genuine
Site Recycling, Decommissioning, Demolition, and Restoration	Decommissioning	They were going to decommission telescopes, but nothing has been started to date, decommissioning could have been a win win if they would have done it in a timely manner
Site Recycling, Decommissioning, Demolition, and Restoration	Decommissioning	Initiating decommissioning of several telescopes, including Sub millimeter and Hokukea
Site Recycling, Decommissioning, Demolition, and Restoration	Decommissioning	Should have decommissioned some telescopes sooner
Site Recycling, Decommissioning, Demolition, and Restoration	Decommissioning	Decommissioning is left to the sub-lessees
Site Recycling, Decommissioning, Demolition, and Restoration	Decommissioning	With regard to decommissioning, they agree that those telescopes that are obsolete should be decommissioned and come down; however it shouldn't be quid pro quo. Take down some telescopes if you want to build TMT, in fact more telescopes should be built
Site Recycling, Decommissioning, Demolition, and Restoration	Decommissioning	Respondent's primary complaint about UH, was that UH unilaterally decided to decommission the VLBA without any involvement or knowledge from NSF. The VLBA is still viable and in fact the Navy is paying 50% of operating the telescope because it provides essential information to the Navy for GPS. Even though NSF has repeatedly told UH that VLBA is still viable and there is no desire to decommission it, UH continues to include it on the BOR list for decommissioning
Site Recycling, Decommissioning, Demolition, and Restoration	Decommissioning	Hawaiians don't trust the UH because of failure to keep to their promises, i.e. decommissioning telescopes.