



**TESTIMONY OF
THE DEPARTMENT OF THE ATTORNEY GENERAL
TWENTY-NINTH LEGISLATURE, 2018**

ON THE FOLLOWING MEASURE:

S.B. NO. 3090, S.D. 1, RELATING TO GOVERNMENT.

BEFORE THE:

SENATE COMMITTEE ON WAYS AND MEANS

DATE: Friday, February 23, 2018

TIME: 10:30 a.m.

LOCATION: State Capitol, Room 211

TESTIFIER(S): WRITTEN TESTIMONY ONLY. For more information, call Julie China, Deputy Attorney General, at 587-2987.

Chair Dela Cruz and Members of the Committee:

The Department of the Attorney General has the following comments on S.B. No. 3090, S.D. 1.

This bill transfers authority over land on Mauna Kea to the newly established Mauna Kea Management Authority and establishes various requirements and powers for management of the land.

§ -36. Article VII, section 5, of the Hawaii Constitution states that “No public money shall be expended except pursuant to appropriations made by law.” Part III, sections 7 and 8, contain appropriate language for the expenditure of funds by the Mauna Kea Management Authority. Section -36, however, is not consistent with the Constitution or part III, and should be deleted.

§ -37: If the telescope subleases are transferred to the Mauna Kea Management Authority, the authority will have all of the obligations that the University of Hawaii has under the subleases. The subleases should be reviewed to determine whether any of them impose a duty on the sublessor that is onerous or one that only the University can perform. Failure to comply with the sublessor’s duties under the leases could expose the Authority to liability, including and not limited to breach of contract.

Also, the reference to “section 171-17” in § -37 should be to “§ -7” of the new chapter added by section 1 of the bill.

§ -39: This section grants police powers to the authority, and allows it to appoint and commission law enforcement officers. The bill provides that the officers "may enforce all state laws and rules and county ordinances and rules within all Mauna Kea lands; provided that those powers shall remain in force and effect only while in actual performance of their duties, which shall include off-duty employment when that employment is for other state departments or agencies." The Department has some concern that while the jurisdiction and responsibility of the authority is limited to Mauna Kea, its commissioned officers appear to have statewide police authority. The Department is also concerned that an entity of such limited jurisdiction would have its own police force. With the grant of police authority there comes tremendous responsibility. The police force must be properly established, managed, and adequately funded. The police force must have adequate training, equipment, vehicles, facilities, and administrative resources.

The bill provides that an enforcement officer, upon arresting a person, may immediately take the person to a police station. But this would be a state arrest and investigation. It would not be a county matter. It cannot be assumed that the county police will allow the use of its facilities and resources to process and hold a state arrestee.

§§ -44 and -45: OHA has its own request for additional ceded land revenues in S.B. No. 2136 and H.B. No. 1747. Consideration should be given as to how these sections relate to other OHA revenue and the issue clarified in the bill.

Portions of this bill have been taken from chapter 171, HRS. We recommend that the following changes be made so that the bill is internally consistent:

1. In § -2, "Holder of record having a security interest" should refer not to "section 171-10" but to "§ -10" of the new chapter.
2. § -3(f)(5) refers to "subleases." The correct reference is to "leases."
3. In § -9, the reference to "section 171-10" should be to "§ -10" of the new chapter.

4. In § -21, all references to “section 171-10” should be to “§ -10” of the new chapter.

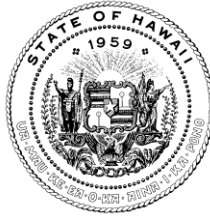
5. The bill does not give the Mauna Kea Management Authority to dispose of Mauna Kea lands, so § -29(a)(3) should be deleted.

6. In § -29(c), paragraph (2) of the definition of “renewable energy producer” should be deleted because the bill does not anticipate crops or ranching on Mauna Kea. That change makes superfluous the “(1)” in the definition so “(1)” can be deleted.

And finally, there are two references to the “department” where it appears that the “authority” is meant instead: § -21(b)(1) and § -43(b).

We respectfully ask the Committee to consider revisions to this bill.

DAVID Y. IGE
GOVERNOR OF
HAWAII



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Testimony of
SUZANNE D. CASE
Chairperson

Before the Senate Committee on
WAYS AND MEANS

Friday, February 23, 2018
10:30 am
State Capitol, Room 211

In consideration of
SENATE BILL 3090, SENATE DRAFT 1
RELATING TO GOVERNMENT

Senate Bill 3090, Senate Draft 1, proposes to establish the Mauna Kea Management Authority (Authority), provide for the conveyance of the University of Hawaii (UH) lease lands on Mauna Kea to the Authority, amend Chapter 171, Hawaii Revised Statutes (HRS), to remove the lands so conveyed from the definition of public lands managed by the Board of Land and Natural Resources (BLNR), and repeal portions of Chapter 304A, HRS, regarding Mauna Kea Lands. The current version of the bill makes a number of revisions to proposed Senate Draft 1 that was heard by the Committees on Higher Education and Water and Land on February 12, 2018, including deleting references to the ability of the Authority to sell Mauna Kea lands, deleting language that provided for the Authority's rules to supersede the conservation district rules, deleting provisions relating to consent to mortgage, providing an appropriation in an unspecified amount, and making other changes. **The Department of Land and Natural Resources (Department) appreciates the intent of the measure, and while the current version addresses a number of concerns the Department raised with the prior version, the Department remains compelled to oppose the bill as the current steward of the mountain.**

The Department's mission is to "Enhance, protect, conserve and manage Hawaii's unique and limited natural, cultural and historic resources held in public trust for current and future generations of the people of Hawaii nei, and its visitors, in partnership with others from the public and private sectors." In its oversight of Mauna Kea and the astronomy center established over fifty years ago, the Department and its BLNR act as landlord, conservation district regulator, steward of natural, cultural, historic and recreational resources, as well as enforcer of the Department's laws and regulations.

The bill references perceived shortcomings with the current management of the mountain. The Department and UH have made great strides in improving the management of Mauna Kea since 1998, when an unfavorable audit was published. Attached for reference is a copy of the Office of Conservation and Coastal Lands' annual report to the BLNR on January 26, 2018, regarding Mauna Kea and recapping the management history of the mountain and improvements made over the years.

Even if some members of the public disagree with the way the mountain is managed, at least the current management process is transparent, allowing for open debate in public meetings of the BLNR. At the January 26, 2018 BLNR meeting, which was dedicated entirely to Mauna Kea and UH's annual report on its management, the public participated earnestly. The Department notes a marked lack of these types of transparent procedures in the decision-making process of the proposed Authority. The bill includes no requirement for the Authority to conduct public meetings or hearings.

PART I of the measure imports many provisions of Chapter 171, HRS, on Public Lands, which is the statute the BLNR operates under with respect to State lands. The current Senate Draft 1 of the bill deletes most of the references to sales of Mauna Kea lands, but there is still a reference in the measure regarding eligibility to purchase Mauna Kea lands.¹ To be consistent with other edits made to the bill, the Department suggests that reference to "purchase" be deleted.

Regarding funding of the Authority, the Department notes an inconsistency in the measure between the preamble and PART III of the bill. The preamble states: "it is the legislature's intent that the authority shall be self-funded and not require appropriations from the State's general fund."² PART III proceeds to make a general fund appropriation to the Authority for fiscal year 2018-2019 for start-up costs. The Department believes that the Authority would need continued general fund support to allow it to function effectively. Current management by the Department provides enforcement, monitoring, and security that minimize human impact to the area, as well as the overarching obligation to protect our public trust natural and cultural resources. The new Authority would similarly need to address the natural and cultural resource needs and public use demands. This includes the need for rules to regulate the public use of the area. It is unrealistic in expecting an organization as large as the proposed Authority to be self-funded (apart from start-up costs) without increasing commercial operations on the mountain. Increasing operations would inevitably have an adverse impact on the mountain's natural and cultural resources.

In other concerns, the Department notes that the composition of the Authority's board does not even include a representative from the Department, which is the one agency whose mission is to protect our public trust natural and cultural resources. The Department believes that it should be represented on the Authority's board, that a representative of the Office of Hawaiian Affairs (OHA) should also be made a member of the board, and that the Authority's board members should be unpaid. As presently drafted, the measure limits OHA's role to providing a list to the Governor of practitioners or lineal descendants of practitioners of Native Hawaiian traditional

1 See Section -4(21)(b)(2) of the measure (page 15, line 20).

2 SB3090, SD1, at page 3, lines 9-11.

and customary practices associated with Mauna Kea. The Governor would then select an individual from the list who would serve as one of the Authority's board members.

The Department agrees that lessees and sublessees on the mountain should pay significant rent so that OHA receives its share and the remaining revenue can be used in support of the management of the mountain. However, that must be a policy going forward because the terms and conditions of the existing leases and subleases, which require only nominal rent payments, are binding on the parties until the expiration or renegotiation of the contractual lease terms.

If the concern underlying the bill is UH's oversight of the mountain, then one option is to make the existing Mauna Kea Management Board (MKMB) independent with direct oversight of the Office Mauna Kea Management. MKMB would then no longer have to report to the UH Board of Regents. Rather, MKMB would operate independently in the best interests of the mountain without being beholden to UH.

Finally, the Department is concerned about the transfer of the portion of the access road located in TMK (3) 4-4-015:001. This portion of the road is essential for accessing the Mauna Kea Ice Age Natural Area Reserve and Mauna Kea Forest Reserve, which is also part of Hunting Unit A. The Department requests that public and management access via this road to these area be maintained.

In summary, the Department cautions against the extensive powers the bill proposes to give to the Authority. The BLNR's broad mission allows it to take into consideration issues relating to protection of endangered species and natural habitat, cultural significance, archeological sites, historic features, trail access and other natural and cultural resources on the mountain. The BLNR should be allowed to continue managing the mountain to best protect the public trust and public engagement.

Thank you for the opportunity to comment on this measure.

STATE OF HAWAI`I
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
Honolulu, Hawai`i

January 26, 2018

**Board of Land and
Natural Resources
State of Hawai`i
Honolulu, Hawai`i**

REGARDING: Board Briefing on Maunakea Management

1. 2017 Annual Report on the Status of the Implementation of the Maunakea Comprehensive Management Plan (CMP)
2. Update on decommissioning plans for Maunakea observatories
3. Update on the status of proposed revisions to the Maunakea CMP
4. Update on the status of proposed administrative rules for Maunakea
5. Update on the status of the EIS for new land authorizations on Maunakea
6. Review of the July 2017 report from the State Office of the Auditor

PERMITTEE: University of Hawai`i at Hilo

LANDOWNER: State of Hawai`i

**UNIVERSITY
LEASES:** General Lease S-4191 for the Maunakea Science Reserve
General Lease S-5529 for Halepōhaku
Grant of Easement S-4697 for the Maunakea Access Road

LOCATION: Ka`ohe, Hāmākua District, Hawai`i

TMK: (3) 4-4-015:009 (Maunakea Science Reserve)
(3) 4-4-015:012 (Halepōhaku)

**AREA OF
PARCELS:** approximately 11,288 acres (Maunakea Science Reserve)
19.3 acres (Halepōhaku)

SUBZONE: Resource

I. EXECUTIVE SUMMARY

The Office of Conservation and Coastal Lands is presenting this report on Maunakea Management as a “non-action” briefing. In particular it will focus on the status of the development of the Maunakea Comprehensive Management Plan and its associated subplans. We have included a map of the University-managed lands on Maunakea as **Exhibit 1**, and a map of the observatories on the summit as **Exhibit 2**.

On April 9, 2009, the Board of Land and Natural Resources approved the Maunakea Comprehensive Management Plan (CMP) for the Maunakea Science Reserve, including Halepōhaku and the Summit Access Road, Ka`ohe, Hāmakua District, Hawai`i

On March 25, 2010, the Board approved four associated resource subplans which elaborated on the management actions contained in the CMP. The four plans were the Natural Resource Plan, Cultural Resources Management Plan, Public Access Plan, and Decommissioning Plan.

Section V of this report contains more background on these subplans. It also provides brief updates on active issues involving public access, enforcement issues, commercial tours, and the decommissioning of observatories.

A condition of the CMP is that the permittee provide the Board with an annual written update on the status of the development of the management plan and subplans. The 2017 Annual Report is attached to this submittal as **Exhibit 3**. Related to this, we have included the University’s 2006 report to the legislature on the long-term development of Maunakea as **Exhibit 4**.

OCCL is taking this opportunity to present updates on three interrelated items:

- Updates to the Maunakea Comprehensive Management Plan (Section V -F)
- Proposed new Administrative Rules for Maunakea (Section VI)
- New land authorizations on Maunakea (Section VII).

In addition, this report will review current University actions on some of the special conditions attached to the Decision and Order for the Thirty Meter Telescope (Section VIII). A summary provided by the University on Thirty Meter Telescope’s THINK Fund & Workforce Pipeline Program is attached as **Exhibit 6**.

Finally, we will review the July 2017 Follow-up Report on Maunakea Management released by the State Office of the Auditor (Section IX). The report is attached to this submittal as **Exhibit 5**.

OCCL has created an online library for public documents relating to the management of lands on Maunakea at dlnr.hawaii.gov/occl/maunakea-management. The library contains Conservation District Use Permits and Applications, the Comprehensive Management Plan, sub-plans, and annual reports, and reports from the State Office of the Auditor. The current contents of the library are shown in **Exhibit 7**.

We have invited a representative from the Office of Maunakea Management to give a brief presentation to the Board on the 2017 Annual Report. Representatives from DOFAW, DOCARE, Land Division, SHPD, and OCCL will also be present following the briefing to answer any questions the Board might have.

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3. 2017 Annual Report on the Status of the Maunakea Management Plan
4. Report on long-term development of observatory sites on the summit of Mauna Kea
5. July 2017 Report from the State Office of the Auditor
6. Thirty Meter Telescope's THINK Fund & Workforce Pipeline Program
7. Online Maunakea Documents Library

II. BACKGROUND: THE MAUNAKEA SUMMIT

For the sake of clarity, OCCL will use the following terms for the summit region in this report:

The **summit plateau** is the alpine desert ecosystem 3900 meters above mean sea level. The slope shifts abruptly here, from approximately 27% downslope to less than 10% on the plateau. Geological evidence indicates that this broad, circular region was formed by remnant lava flows in the former caldera, and subsequently sculpted by glaciers. The plateau itself varies only approximately 100 meters in elevation, but it is dotted with scattered cinder cones that rise 30 to 180 meters above the surface of the plateau. Other significant geological features are the outcrops of hawaiite, an olivine basalt formed via the interaction of glacial ice and hot lava, and prized for adze making; the alpine Lake Waiau; and remanant glacial from previous episodes of glaciation in the summit region. The highest point is 4205 meters.

Pu`u o Kūkahau`ula is the traditional name for the cluster of cones and ridgelines that are above 4080 meters. The names of the individual cones, Pu`uwēkiu, Pu`ukea, and Pu`uhau`oki, are believed to be more recent cartographic designations.

The State Historic Preservation Division identifies Kūkahau`ula, as well as Lake Waiau and Pu`u Līlinoe on the summit plateau, as *traditional cultural properties*. This area has a strong association with Hawaiian folklore and mythology.

The **north plateau** is the portion of the summit plateau to the north of Kūkahau`ula, identified as the Great Rocky Table Summit in an 1891 government survey.

The **lower summit region** is the alpine shrub and grassland ecosystem above the tree line at 2900 meters. OCCL notes that the record indicates that the tree line has shifted down-slope since the introduction of cattle.

Maunakea's **lower slopes**, from approximately 2000 meters to the tree line, is composed of a māmane-naio forest.

This report will focus on land uses and management for areas above 2700 meters.

A note on spelling: The UH School of Hawaiian Language recommends spelling Maunakea and Halepōhaku as one word. The Office of Maunakea Management adopted the one-word spelling in 2013. This report will follow this format unless the two-word spelling (Mauna Kea) is part of a proper name or direct quote.

III. BACKGROUND: MAUNAKEA ADMINISTRATIVE UNITS

A. Administrative Units

The Department of Land and Natural Resources (DLNR) managed areas in the summit region and upper slopes of Maunakea are the Mauna Kea Natural Area Reserve and the Mauna Kea Forest Reserve. The University of Hawai'i managed areas are the Maunakea Science Reserve, the Halepōhaku Midlevel Facilities, and the Maunakea Access Road between Halepōhaku and the summit.

The lower slopes of Maunakea also contain lands managed by or under the jurisdiction of the Department of Hawaiian Homelands, the U.S. Army (Pōhakuloa Training Area), and the U.S. Fish and Wildlife Service (Hakalau Forest National Wildlife Refuge). The County of Hawai'i maintains the Access Road below Halepōhaku.

Mauna Kea Forest Reserve: The Forest Reserve encompasses 52,500 acres, and is under the jurisdiction of DLNR's Division of Forestry and Wildlife (DOFAW). The māmane forest here is critical habitat for the federally listed palila.

Mauna Kea Ice Age Natural Area Reserve: The 2033-acre reserve was created in 1981. It is managed by DOFAW's Natural Area Reserve System. Among its unique geological and cultural features are the Keanakakoi adze quarry, Lake Waiau, and Pu'u Pōhaku). The Mauna Kea NAR is bounded by the Science Reserve and the Mauna Kea Forest Reserve.

The Maunakea Science Reserve is an 11.288-acre State-owned leased by the University of Hawai'i under General Lease S-4191, with day-to-day management delegated by the Board of Regents to the Office of Maunakea Management (OMKM). It contains most land within a 2.5-mile radius of the site of the UH 2.2-m telescope – in effect, all land above 3700 meters in elevation except for a pie-shaped wedge set aside as the Mauna Kea Ice Age Natural Reserve. The Science Reserve also includes a section in the lower summit region where the Very Long Baseline Array is located.

Halepōhaku is a 19.3-acre State-owned parcel below the summit region leased to the University of Hawai'i through 2041 under General Lease No. S-5529, which describes the character of use as “premises leased to be used solely for permanent mid-level facilities, a construction camp, an information station as well as existing facilities purposes.” It is the site of the Onizuka Center for International Astronomy (Halepōhaku Mid-Level Facilities).

The portions of the **Summit Access Road** that extend from Halepōhaku to the boundary of the Science Reserve is also under UH management. This includes a 400-yard corridor on either side of the road, excluding those areas within the adjacent Mauna Kea Ice Age Natural Area Reserve.

The University's 2000 Master Plan proposed the creation of an astronomy precinct encompassing approximately 525 acres of the overall Science Reserve. Although the Master Plan was never formally adopted, the term 'astronomy precinct' continues to be used informally in planning documents.

B. DLNR Management Responsibilities

The **Division of Forestry and Wildlife** (DOFAW) manages the Mauna Kea Forest Reserve, as well as outdoor recreation programs, trail and access systems, and the hunting program.

Land Division is charged with the management and enforcement of leases, permits, executive orders, and other encumbrances.

The **Office of Conservation and Coastal Lands (OCCL)** is responsible for the permitting and regulating of land uses in the Conservation District. Conservation District Use Applications are processed by OCCL, although the Board of Land and Natural Resources has the final authority to modify, grant, or deny permits. OCCL is also responsible for investigating potential land use violations and permit violations.

The **State Historic Preservation Division (SHPD)** is charged with preserving and protecting historically and culturally significant properties as outlined in the National Historic Preservation Act, the Statewide Historic Preservation Plan, and Chapter 6E of the Hawai'i Revised Statutes. SHPD-managed programs include: Statewide Inventory of Historic Properties, Burial Sites Program, Certified Local Government Program, National Main Street Program, Historic Preserves Program, Information and Education Program, Interagency Archaeological Services, and maintenance of the Hawai'i and National Register of Historic Places. SHPD also reviews proposed development projects to ensure minimal effects of change on historic and cultural assets.

The **Hawai'i Island Burial Council (HBC)** falls under the jurisdiction of SHPD, and is responsible for the management of all human remains over fifty years old. Burial protection plans and burial treatment plans on Maunakea are required to be done in consultation with the HBC.

The **Division of Conservation and Resource Enforcement (DCOARE)** is responsible for enforcing all laws and rules that apply to lands that are managed by DLNR. Pursuant to Act 226 Session Laws of Hawai'i 1981, DCOARE's enforcement officers have full police powers to execute all state laws and rules within all state lands.

C. University Management Structure

The BLNR approved a Project Development Implementation Framework on February 18, 2010 that established a new management structure for the Science Reserve. The framework was based on the 2000 Mauna Kea Science Reserve Master Plan. The management structure now consists of:

- **The Office of Maunakea Management (OMKM):** The office is charged with the day-to-day management of the Maunakea Science Reserve as prescribed in the Master Plan, and reports directly to the UHH Chancellor.
- **Maunakea Management Board:** An advisory body comprised of seven members of the community who are nominated by the UH Hilo Chancellor and approved by the UH Board of Regents.
- **Kahu Kū Mauna Council:** A nine-member Native Hawaiian council appointed by the Board, and that advises the Board and Chancellor on cultural matters and issues

In addition, OMKM coordinates several advisory committees, including an Environment Committee and a Wēkiu Bug Scientific Committee.

The University's **Institute for Astronomy (IfA)** is responsible for conducting and coordinating astronomical research in the Science Reserve.

The **Maunakea Observatories Oversight Committee** is funded by the observatories, and contains representatives from each observatory as well as IfA. The funds are used to fund road maintenance, snow removal, facilities maintenance, management at the midlevel facilities, the Visitor Information Center, weather forecasting, and other common activities affecting the observatories.

The **Maunakea Observatories Support Services (MKSS)** oversees the Visitor Information Station, provides administrative support for the weather center and communication system, and operates the food and lodging at Halepōhaku. MKSS provides administrative support to OMKM for the Maunakea Ranger program.

The **Maunakea Ranger Program** was established in 2001 to provide daily oversight on University-managed lands. The rangers help educate the public about the natural and cultural resources of Maunakea, advise visitors of the hazards of high-elevation travel, safe driving information, and participate in search and rescue operations. In addition, they report potential violations of DLNR rules in the surrounding Forest Reserve and Mauna Kea Ice Age Natural Area Reserve. Other duties include conducting trail maintenance, invasive species removal, coordinating litter removal, and assisting with research on the summit. Rangers conduct daily patrols of Kūkahauʻula, and assist DLNR with monthly patrols and trash pick-up at Lake Waiʻau, and periodic patrols to the Keanakakoi adze quarry, both part of the NARS.

There are currently eight full-time and three part-time rangers.

IV. BACKGROUND: MAUNAKEA BUILT ENVIRONMENT

There are currently thirteen observatories in the Maunakea Science Reserve: nine optical/infrared observatories¹ and three radio observatories² on Kūkahauʻula, and one radio observatory³ in the lower summit region. A permit has been issued for one optical / infrared observatory⁴ for the northern plateau in the Maunakea Science Reserve.

Two these telescopes are non-operational. The Caltech Submillimeter Observatory (CSO) was no longer scientifically competitive once the Atacama Large Millimeter/Submillimeter Array came online in Chile in 2011. Caltech has filed a Notice of Intent to Decommission, and has begun pre-assessment consultation and scoping for the decommissioning of the observatory. The UHH 0.9-m telescope, Hōkū Keʻa, is also non-operational. The University has filed a Notice of Intent to Decommission this telescope. The remaining observatories remain scientifically competitive.

A. Observatories

University of Hawaiʻi 2.2-meter Telescope (UH2.2)



The University of Hawaiʻi 2.2-meter telescope (UH2.2) was built in 1968 and became operational in 1970, making it the first large telescope built on the summit of Maunakea. It is currently owned and operated by the University of Hawaiʻi.

UH2.2 is the primary telescope used by UH professors, postdocs, and graduate students. In 1991 scientists discovered the first Kuiper Belt object, and in 1992 a team discovered forty-five of the known moons of Jupiter and additional moons on the outer planets. Current science includes an integral field spectrograph devoted to the observation of supernovae.

BLNR approved CDUP HA-954, an ‘after-the-fact’ permit, for the telescope in September 1977.

¹ UHH 0.9m Telescope (Hōkū Keʻa), UH 2.2-m Telescope, NASA Infrared Telescope Facility (IRTF), Canada-France-Hawaiʻi Telescope (CFHT), United Kingdom Infrared Telescope (UKIRT), W.M. Keck Observatory (Keck I and II), Subaru Telescope, and Gemini North Telescope.

² Caltech Submillimeter Observatory (CSO), James Clerk Maxwell Telescope (JCMT), and the Submillimeter Array (SMA)

³ Very Long Baseline Array (VLBA)

⁴ Thirty Meter Telescope (TMT)

UH Hilo Hōkū Ke`a Educational Observatory

The original 0.6-meter telescope on this site was built by Air Force Cambridge Research Laboratories in 1968. Ownership was ceded to the UH Institute for Astronomy in June 1970, and transferred to the UH Hilo Department of Physics in 2003.

The original telescope was decommissioned in 2008, and a 0.9-meter telescope named Hōkū Ke`a was installed in its place. This telescope never achieved first light. A 0.7-meter replacement for Hōkū Ke`a was purchased in 2015, but before it was installed the University of Hawai`i at Hilo decided to decommission the site to comply with Governor David Ige's Ten Point plan for the Maunakea summit. UH Hilo is currently looking for a permanent site to locate the observatory.

BLNR approved CDUP HA-954, an 'after-the-fact' permit, for the telescope in September 1977. The University filed a Notice of Intent to decommission the site in February 2016.

Canada-France-Hawai`i Telescope (CFHT)



The CFHT is 3.6-meter optical telescope developed jointly by the University of Hawai`i, the Centre National de la Recherche Scientifique (France), and the National Research Council of Canada. The University of Hawai`i provides ten percent of the operating costs and one full-time staff person for CFHT as part of the telescope's tri-partite agreement.

Current science includes studies of the winds of Venus, detection of exoplanets, observations of interstellar dust, and the tracking of the interstellar asteroid 'Oumuamua.

Approximately 15% of the observing time is dedicated to the University of Hawai`i.

BLNR approved CDUP HA-527 for the telescope in 1974, and it began operations in 1979.

NASA InfraRed Telescope Facility (IRTF)



The IRTF is a 3-meter telescope that was initially built to support the Voyager missions to Jupiter, Saturn, Uranus, and Neptune. It is currently operated by the University of Hawai`i under a contract with NASA.

Current science includes research on the aurora on Saturn, observations of ozone on Mars, spectral monitoring, and observations of the moons of the outer solar system planets. The facility continues to provide support for NASA missions.

Approximately 15% of the observing time is dedicated to the University of Hawai`i.

BLNR approved CDUP HA-653 for the facility in 1975. It became operational in 1979.

United Kingdom Infrared Telescope (UKIRT)



BLNR approved CDUP HA-653 for the facility in 1975. It became operational in 1979. The University has discussed decommissioning UKIRT in accordance with Governor Ige's Ten Point Plan for Maunakea.

The 3.8-meter UKIRT is the second largest dedicated infrared telescope in the world. UKIRT was originally owned by the United Kingdom. Ownership was transferred to the University of Hawai'i in 2014. It was then funded by NASA until June 2017, and operated under a cooperation

agreement among Lockheed Martin Advanced Technology Center, the University of Arizona, and the University of Hawai'i. In June 2017 the UH Institute for Astronomy took over the operation of UKIRT.

The majority of UKIRT's current science is dedicated to the Infrared Deep Sky Survey, though it has also been used to study orbital debris and for research by planetary scientists at the University of Hawai'i.

The actual viewing time by the University of Hawai'i on UKIRT fluctuates between 15% and 50%, depending on funding and its partnership agreements.



Very Long Baseline Array (VLBA)

The Mauna Kea Very Long Baseline Array (VLBA) is one unit in an integrated system of ten identical radio telescopes stretching from the U.S. Virgin Islands to Hawai'i, which are operated remotely from Socorro, New Mexico. Each VLBA station consists of a 25m antenna and an adjacent control building. The ten stations work together as one single instrument. It is in the lower summit region at approximately 3700 meters elevation.

The VLBA has been operated by the Long Baseline Observatory (LBO) since October 2016, when it separated from the National Radio Astronomy Observatory. The LBO is a facility of the National Science

Foundation operated under a cooperative agreement by Associated Universities, Inc.

Current science includes a long-term project to map the complete 3D structure of the Milky Way; coordinated effort with NASA Fermi Gamma-ray Space Telescope to observe gamma-ray sources; long-term study of active galactic nuclei; tracking near-earth asteroids; and monitoring movements of the earth's crust by tracking the distance between the telescopes. Such measurements are an integral part of the earth-based control segment in the development and maintenance of the U.S. government's Global Positioning System (GPS).

BLNR approved the CDUP HA-2174 for the facility in 1989. The facility has been operational since 1992.

Caltech Submillimeter Observatory (CSO)



CSO is a 10.4 meter-diameter telescope located alongside the James Clark Maxwell telescope which is owned by the California Institute of Technology.

BLNR approved CDUP HA-1492 in December 1982. The facility was operational from 1986 through September 2015, with 15% of the viewing time dedicated to UH.

Caltech filed a Notice of Intent to Decommission with OCCL in February 2016. The public scoping period on the draft Environmental Assessment was completed on January 15, 2018.

James Clark Maxwell Telescope (JCMT)



The 15-meter JCMT is the largest submillimeter telescope in the world, and contains the second largest mirror on Maunakea

JCMT was originally funded by a partnership between the United Kingdom and Canada, and the Netherlands, and operated by the Joint Astronomy Centre. In March 2015 the operation of the JCMT was taken over by the East Asian Observatory.

Current science includes the study of the solar system, interstellar and circumstellar dust and gas. JCMT is also part of the Event Horizon Telescope, an array of global telescopes that coordinate observations and research on the Milky Way's supermassive black

hole Sagittarius A.

Between 12.5% and 15% of the observing time is dedicated to the University of Hawai'i.

BLNR approved CDUP HA-1515 for the telescope in 1983, and it began operations in 1987.

Submillimeter Array (SMA)



SMA consists of eight 6-meter radio telescopes that operate as one unit. The telescopes can be arranged in varying configurations using 24 concrete pads. SMA is located at the base of Pu'u Poli'ahu in an area informally known as "Submillimeter Valley."

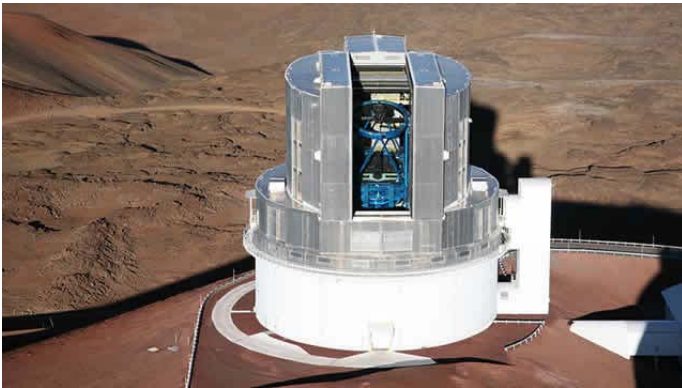
Current science includes the study of newly-formed planetary systems, asteroids, comets, both dying and new-born stars, and red-shifted radiation from the oldest objects in the universe.

The SMA is jointly operated by the Smithsonian Astrophysical Observatory and the Academia Sinica Institute of Astronomy and Astrophysics (Taiwan).

Between 12.5% and 15% of the observing time is dedicated to the University of Hawai'i.

BLNR approved CDUP HA-2728 for the array in 1994. The system became fully operational in 2003.

Subaru Telescope



Subaru Telescope is an 8.2-meter optical-infrared telescope operated by the National Astronomical Observatory of Japan (NAOJ), National Institutes of Natural Sciences.

Current science includes the recent identification of 11 dwarf galaxies and two star-containing halos, tracking the source of gravitational waves, and mapping the hydrogen gas in the early universe.

Fifty-two nights per year, approximately 15% of the observing time, are dedicated to the University of

Hawai'i.

The BLNR approved CDUP HA-3462 for Subaru in 1992. It achieved first light in 1999.

W. M. Keck Observatory (Keck I and Keck II)



The twin Keck Observatory telescopes primary mirrors are 10-meters, each composed of 36 hexagonal segments that work in concert as a single piece of reflective glass.

The W. M. Keck Foundation funded both the original Keck I telescope and Keck II. Today Keck Observatory is a 501(c)3 governed by the California Association for Research in Astronomy (CARA), whose Board of Directors includes representatives from the California Institute of Technology and the University of California, with liaisons from NASA and the Keck Foundation.

Keck currently produces over 150 papers per telescope per year, making it the most productive of any of the world's ground-based observatories. Current science includes the discovery of dozens of exoplanets, new studies on the rings and atmosphere of Uranus, high-resolution imaging of comets, and the study of protoplanetary accretion disks around fifteen young stars.

Approximately 10% of the observing time on Keck I and 15% on Keck II is dedicated to the University of Hawai'i.

BLNR approved CDUP HA-1646 for Keck I in 1984, and it saw first light in 1990. BLNR approved CDUP HA-2509 for Keck II in 1992, and it saw first light in 1993.

Gemini North Observatory



The Gemini Observatory consists of paired 8.1 meter optical/infrared telescopes, one in Chile and one in Hawai'i. It replaced the NASA-Lowell Observatory 24" telescope.

Gemini is operated by a partnership between the National Optical Astronomy Observatory (USA), National Research Council Canada, Comisión Nacional de Investigación Científica y Tecnológica de Chile, Institute for Astronomy University of Hawaii, Instituto de Astrofísica La Plata (Argentina), and the Laboratório Nacional de Astrofísica (Brazil).

The pairing of the telescope allows near complete coverage of both the northern and southern skies. Current research includes the imaging and analysis of exoplanets, star formation and evolution, quasars, and the large-scale structure of the universe.

Approximately 10% of the observing time is dedicated to the University of Hawai'i.

The BLNR approved CDUP HA-2691 for Gemini in 1994. The telescope saw first light in 2000.

Thirty Meter Telescope (TMT)



The core of the project is a 30-meter in diameter aperture telescope composed of 492 individual mirror segments, secondary and tertiary mirrors directing the gathered light, and a network of interchangeable sensors and instruments that will collect and process the light. TMT will be located on the north plateau, approximately ½ mile from the Kūkahau'ula Summit, at an approximate elevation between 4008 meters and 4015 meters.

The telescope will be operated by TMT International Observatory, LLC, an international partnership between the California Institute of Technology, the University of

California, the National Institutes of Natural Sciences of Japan, the National Astronomical Observatories of the Chinese Academy of Sciences, the Department of Science and Technology of India, and the National Research Council (Canada).

Approximately 7.5% of the observing time will be dedicated to the University of Hawai'i.

The BLNR approved CDUP HA-3568 for TMT in a Decision and Order in October 2017. Should TIO secure all the necessary authorizations, it is estimated that construction will take seven years.

Five appeals of the Decision were filed in the State Supreme Court. DLNR filed the Record on the Appeal with the Court on December 5, 2017. Appellate briefs are due on the appeal February 15th, 2018. Answering briefs, and then reply briefs, will be due after this. The Court will schedule oral arguments once all briefs have been filed.

Oral arguments before the Court have not been scheduled yet.

OCCL notes that the 2000 Master Plan foresaw the construction of the Keck Outrigger Project on Maunakea. This project did not proceed. The Comprehensive Management Plan and its associated Decommissioning Plan foresaw the replacement of the UH 2.2-meter observatory with Pan-STARRS. This project did not proceed either, although a reduced version of Pan-STARRS was built on Haleakala.

B. Midlevel Facilities at Halepōhaku (Onizuka Center for International Astronomy)

The 19.3 acre Halepōhaku parcel (TMK (3) 4-4-015:012) is situated at an elevation of about 9,200 feet on the south slope of Maunakea. The parcel is leased to the University of Hawai'i through 2041 by the State Board of Land and Natural Resources (BLNR) under General Lease No. S-5529, which describes the character of use as "premises leased to be used solely for permanent mid-level facilities, a construction camp, an information station as well as existing facilities purposes."

The first cabins were built at Halepōhaku by the Civilian Conservation Corps in the 1930s to provide shelter for hunters and hikers. Wooden dormitories were built in 1967, and were used to supply support facilities and housing for construction workers, University of Hawai'i telescope observers, and support staff throughout the 1970s.

In 1976 the Board approved [CDUP HA-781](#) for the construction of a 2600-square foot dormitory to house construction workers working on the United Kingdom Infrared Telescope (UKIRT).

In 1977 the Board approved [CDUP HA-895](#) to demolish and replace two of the existing buildings with a fourteen-bed and an eight-bed dormitory, and to retrofit two existing mess halls.

In 1982 the Board approved [CDUP HA-1430](#) for the construction of a 12,913-square foot support services and common area building, three dormitories totaling 13,938-square feet with a 59-bed capacity, a 2500-square foot maintenance building, an 800-square foot generator building, and an 1181-square foot Visitor Information Station (VIS).

In 1986 the Board approved [CDUP HA-1819](#) for the subdivision of the Halepōhaku parcel, the establishment of a construction camp site with four cabins and a parking area, and the designation of a one-acre staging area south of the camp site.

In December 2017 OCCL accepted for processing Conservation District Use Application (CDUA) [HA-3812](#) for parking and infrastructure improvements at the VIS. The application is currently out for public and agency comment. OCCL anticipates presenting the application to the Board for consideration in the second quarter of 2018.

The lower portion of Halepōhaku contains two unimproved gravel parking areas, one of which is used for overflow parking for the VIS and the other as a staging area for construction activities. The overflow parking is often used by commercial tour groups if the paved parking area adjacent to the VIS is full.

The section of the Maunakea Access Road above Halepōhaku is also under University management. In 1974 the Board approved CDUP HA-537 for the construction of a 4.6 mile one-lane road between Halepōhaku and the summit, and the filling and grading of an additional 1.9 miles of existing roadway. Fill material came from a seven-acre quarry near Pōhakuloa on the site of the 1843 lava flow.

V. MANAGEMENT OF THE MAUNAKEA SCIENCE RESERVE

A. Comprehensive Management Plan

The Board of Land and Natural Resources approved a Comprehensive Management Plan for Maunakea on April 9, 2009. The CMP included management actions of previous management documents, including the 1995 Management Plan for UH Management Areas and the 2000 Mauna Kea Master Plan.

A Comprehensive Management Plan (CMP) differs from the standard Management Plan referred to in Hawai'i Administrative Rules (HAR) §13-5 Exhibit 3, MANAGEMENT PLAN REQUIREMENTS. The Conservation District rules requires management plans discussed in Exhibit 3 which are intended for projects with a specific, limited use (e.g. astronomy projects, forestry, or aquaculture). A CMP, by contrast, is needed for larger parcels with multiple significant land uses. The CMP provides a framework and management guidelines ranging from cultural and natural resource preservation, to managing the built environment, construction activities, and access to outreach and education.

The Maunakea CMP contained 103 management actions and associated reporting requirements that would govern the future of Maunakea. A condition of BLNR approval was that the University develop a *Project Development and Management Framework* and four resource sub-plans *Natural Resources Management Plan*; *Cultural Resource Management Plan*; *Public Access Plan*; and *Decommissioning Plan*. The Resource subplans were approved by BLNR on March 25, 2010.

The University of Hawaii Board of Regents (BOR) is the entity ultimately responsible for the implementation of the Management Plan.

The Office of Maunakea Management submits annual reports to the BLNR discussing status of the implementation of each management section. The 2017 Annual Report is attached to this report as **Exhibit 3**.

OCCL has invited a representative from OMKM to give a presentation to the Board following this report.

In reviewing the plans OCCL finds that OMKM has had successes with its natural and cultural resources management programs and its ranger program. Challenges remain, including managing both permitted and unpermitted commercial tours, and managing public access in the absence of administrative rules.

B. Subplan: Natural Resource Management

Studies of the arthropods on the summit have been on-going since 2002. Studies including surveys provide baseline data for monitoring the status of resources and for habitat restoration for the wēkiu bug, a species of endemic arthropod found only on the summit region of Maunakea. In addition to establishing baseline information on arthropods, including the wēkiu bug, botanical resources, and geological conditions, a new multi-year study was recently started on the of survey sea bird, forest bird, and bat populations.

Preventing invasive species from becoming established on the summit is an on-going concern, with particular focus on controlling fireweed (*Senecio madagascarensis*) and on limiting the spread of two invasive ant species, *Cardiocondyla kagutschi* and *Ochetellus glaber*. Monthly surveys for invasive species have been conducted since 2007 and the interior of buildings including those on the summit and Halepōhaku since 2013. OMKM is currently studying the efficacy of current invasive species control measures the results of which may be used towards determining the feasibility of establishing a vehicle washing facility.

On October 24, 2008, the Board gave the Chair authority to negotiate and sign a cooperative agreement with the University of Hawai'i at Hilo's Office of Maunakea Management for cooperative management of the Mauna Kea Ice Age Natural Area Reserve. This would formalize an existing relationship between DOFAW and

OMKM, and provide for continued coordinated resource monitoring and management on the summit such as photo documentation of the Lake Waiau water level, trash pick-up and monitoring of activity in the NAR.

A cooperative agreement was signed by the president of the University in 2011; however, it was not forwarded to DLNR for signature as the contested case regarding the Thirty Meter Telescope was still active. Should DLNR and the University decide to move forward with the agreement it would need to be updated, as the signatories for both entities has changed since 2011.

Collaborative efforts between DOFAW/NAR/DOCARE and OMKM on resource protection including ranger assistance, invasive species control, research and monitoring of resources, and DLNR rules violations such as unpermitted commercial tours and harmful and destructive activities on natural resources.

C. Subplan: Cultural Resources Management

Historic properties, primarily archaeological sites in both the Science Reserve and the NAR, have been inventoried. A five-year monitoring program was developed and approved by SHPD in 2014. Pursuant to this, OMKM has assessed all the historic properties in its management areas. Sites located in the Astronomy Precinct and those close to human activity, including roads, are assessed every year. More remote sites are assessed on a three and five-year rotating basis.

The treatment of burials is described in a Burial Treatment Plan that was also approved by SHPD in 2014.

Kahu Kū Mauna is tasked with developing policies related to cultural activities, including the construction of new cultural features and the handling of offerings. They are currently consulting with cultural practitioners on potential policies that can be presented to the Maunakea Management Board for consideration.

D. Subplan: Public Access

The Public Access Plan for Maunakea identifies a number of principals and policies related to public access. The purpose of the plan was to provide guidance to UH in addressing public access and activities within the UH management areas in full cooperation with DLNR's authority over public access. public and commercial access.

There has been a significant increase in visitors to the summit in recent years, due in large part to improvements to the Saddle Road and the lifting of the prohibition by rental car agencies from driving on this road. The number of vehicles and visiting parties has increased both within the Science Reserve and in the Forest Reserve, particularly for sunset viewing. Some of the issues associated with this include an increase in light pollution during star-gazing events, an increase in off-road parking, the inadvertent introduction of potentially invasive species, and an increase in high-risk behavior such as filming stunts for social media videos.

MKSS has addressed off-road parking in the Forest Reserve by installing guard rails along the Access Road near Halepōhaku in March 2017. OMKM has submitted an application addressing traffic, pedestrian safety and parking improvements at the Visitors Information Center. OCCL is currently processing this application, and anticipates presenting it to the Board for consideration in the second quarter of 2018.

1. Commercial Tours

In 2000 BLNR transferred the authority to administer commercial tours to the University. Following an approval by DLNR's Attorney General, the University accepted the responsibility in 2005. The University currently allows a maximum of eight commercial tour permits, one less than the number permitted by BLNR. Each commercial tour operator is charged a fee of \$6.00/tour passenger which is submitted to the Office of Maunakea Management on a monthly basis. All fees are deposited into the Mauna Kea lands management

special fund and are used to cover expenses related to the management of the UH's managed lands include the ranger program, road maintenance, and expenses related to commercial tour activities on Maunakea. Twenty percent of the fees are included in UH's payment to the Office of Hawaiian Affairs.

There has been an increase in unauthorized commercial tours to the summit; these are the subject of an active investigation by DOFAW and DOCARE.

OMKM is planning to initiate a study of the carrying capacity of commercial tours to the summit.

2.. Enforcement Issues

Land uses on Maunakea are currently regulated pursuant to Hawai'i Administrative Rules (HAR) Chapter 13-5 governing the Conservation District. OCCL notes that these rules cover land uses, but do not address activities.

The Public Access Plan lays out principles and policies, but does not provide OMKM with any enforcement capabilities. DLNR's Division of Conservation and Resource Enforcement is tasked with providing enforcement in the Conservation District, while OCCL is tasked with regulating and potential land use and permit violations.

However, the increased commercial and public pressure on the mountain has led to an increase in enforcement needs. The OMKM rangers are active in reporting observed violations of conservation district rules to DLNR. However, OCCL feels that there is a need for improvement in this area, either through clear administrative rules that allow for enforcement by the University or a more formal arrangement between DLNR and the University.

E. Subplan: Decommissioning

The Maunakea Decommissioning Plan, a subplan of the Maunakea Comprehensive Management Plan, describes the process for decommissioning observatories on Maunakea. The plan defines decommissioning as a process that results in the partial or total removal of all structures associated with an observatory facility and the restoration of the site.

Provisions for financial planning for decommissioning are included to ensure that adequate funds are available to pay for the costs of deconstruction and site restoration at the end of the life of the observatory.

The Decommissioning Plan describes two options for removing the infrastructure:

- Complete infrastructure removal. This involves the removal of the entire facility, including underground utilities, pilings, and foundation to the extent practicable under normal engineering deconstruction practices;
- Infrastructure capping. Capping involves removal of above ground facilities with or without utilities and leaves all part of the underground portion of the facility in place.

The Plan describes three levels to which a site may be restored:

- Minimal restoration, meaning removing all man-made structures and grading the site;
- Moderate restoration, meaning removing all man-made structures, grading the site, and enhancing any native species habitat;
- Full restoration, meaning returning the site to its original topography and restoring any native-species habitat.

The decommissioning of an astronomy facility in the Science Reserve is a multi-step process involving

- Submitting a Notice of Intent.
- Completing an environmental due diligence review,
- Approval of the facility decommissioning plan by the University Board of Regents. Submitting a Conservation District Use Application which covers site deconstruction, observatory removal, and site restoration, and if necessary a remedial action plan;
- Securing a Conservation District Use Permit (CDUP) from the Department of Land and Natural Resources.

Governor David Ige, in his May 26, 2015 10-point action plan for the stewardship of Maunakea, called for the University of Hawai'i to *decommission—beginning this year—as many telescopes as possible with at least 25 percent of all telescopes gone by the time the Thirty Meter Telescope (TMT) is ready for operation.*

In addition, the Decision and Order for the Thirty Meter Telescope contains two conditions relating to decommissioning: 10) *The University will decommission three telescopes permanently, as soon as reasonably possible, and no new observatories will be constructed on those sites. This commitment will be legally binding on the University and shall be included in any lease renewal or extension proposed by the University for Mauna Kea;* and 11) *Notwithstanding any lease renewal or extension, consistent with the Decommissioning Plan, at least two additional facilities will be permanently decommissioned by December 31, 2033, including the Very Long Baseline Array antenna and at least one additional observatory.*

The California Institute of Technology submitted a Notice of Intent to Decommission the CSO to OMKM on November 18, 2015. The Institute has begun pre-assessment consultation and scoping for the environmental assessment. The scoping process will help determine how much of the infrastructure will be removed and the preferred level of site restoration.

The University of Hawai'i at Hilo submitted a Notice of Intent to Decommission Hōkū Ke'a to OMKM on September 16, 2015. The environmental review began in late 2017 with the public scoping process.

The University of Hawai'i has identified UKIRT as the potential third observatory to be decommissioned by the time TMT is operational. OCCL notes that, unless UKIRT voluntarily ceases operation before that time, this will be the first case of mandatory / involuntary decommissioning of a functioning astronomy facility on Maunakea.

Exhibit 4, Report on long-term development of observatory sites on the summit of Mauna Kea, contains a summary that the Director of the Institute for Astronomy prepared for the State legislature on the history of observatory development, decommissioning, and long-range plans for astronomy on Maunakea.

F. Comprehensive Management Plan Update

The University began the process of updating the CMP in 2014. OMKM is currently preparing a report on the status of the cultural and natural resources on Maunakea. Once this is completed it will be submitted to stakeholders and agencies for review. This report along with the feedback will form the basis for drafting proposed revisions to the CMP.

This process will help determine which of the resource subplans, including the public access plan, need to be updated.

The final plan will be presented to both the University Board of Regents and the BLNR for approval.

VI. OFFICE OF MAUNAKEA MANAGEMENT'S PROPOSED ADMINISTRATIVE RULES

With Act 132 of the Session Laws of Hawai'i, 2009, the State legislature authorizes the UH to adopt administrative rules to regulate public and commercial activities on University-managed lands. The stated purpose of the rules will be *to provide for the proper use, management, and protection of cultural, natural, and scientific resources of the UH management areas; to promote public safety and welfare by regulating public and commercial activity within the UH management area, and to ensure safe and appropriate access to the UH management areas for the public.*

The need for administrative rules for Maunakea has been recognized in the Comprehensive Management Plan, in Governor David Ige's 10-point action plan for the stewardship of Maunakea, and by the State Office of the Auditor.

Currently only Conservation District rules are in effect on the University-managed areas on the summit. While these regulate land uses, they don't address land use activities.

The CMP also notes that the lack of administrative control limits the University's ability to enforce rules and regulations within the University-managed areas. As such, the University is limited in its ability to manage public and commercial access and activities in its management areas.

The University has prepared a draft of proposed rules, incorporating public input and consultation with the Office of Hawaiian Affairs and DLNR. Kahu Kū Mauna and the Maunakea Management Board reviewed the draft rules, with the Maunakea Management Board approving the draft and recommending that the process move forward. The draft contains provisions for the preservation of natural and cultural resources, the management of public and commercial access and activities, measures for preventing the introduction of invasive species; addressing health and safety, and the administration and enforcement the rules.

The Board of Regents is required to approve the draft rules prior to forwarding them to the Governor's office. With the authorization from the office of the Governor the proposed rules will go out for formal public hearings.

The University estimates that the process can be completed and that new rules can be in place within 18 months.

VII. LAND AUTHORIZATIONS ON MAUNAKEA

A. General Leases

The Maunakea Science Reserve encompasses 11,288 acres of State land leased to the University of Hawai'i under General Lease S-4191. The lease commenced on January 1, 1968, and is set to expire on December 31, 2033.

The character of use for GL S-4191 reads: *For a scientific complex and as a scientific reserve being more specifically a buffer zone to prevent the intrusion of activities inimical to said scientific complex. Activities inimical to said scientific complex shall include light and dust interference to observatory operation and certain types of electric or electronic installation on the demised lands, but shall not necessarily be limited to the foregoing.*

The Halepōhaku parcel encompasses 19.261 acres of State land leased to the University under General Lease S-5529. The lease commenced on February 28, 1986, and is set to expire on February 28, 2041.

The character of use for GL S-5529 reads: *The lessee shall use or allow the premises leased to be used solely for permanent mid-level facilities, a construction camp, an information station as well as existing facilities purposes.*

Grant of Easement No. S-4697 covering the Maunakea Access Road was issued to the University as of September 8, 1981. The easement is coterminous with GL No. S-4191, ending on December 31, 2033.

B. EIS for New Land Authorizations

In 2013 the University sought the mutual cancellation of General Lease Nos. S-4191 and S-5529, and the issuance of a new 65-year direct lease. They also requested that the amendment of Grant of Easement No. S-4697 covering the Maunakea Observatory Access Road to be coterminous with the new general leases. The Board deferred action on the request until after an Environmental Impact Statement (EIS) was prepared for the proposed action.

The University is currently preparing an EIS preparation notice for new land authorization on Maunakea. UH anticipates publishing the notice in the Department of Health's *Environmental Notice* in the first quarter of 2018. The University will then compile public comments and prepare a draft EIS for review.

The Department anticipates that the University will be requesting a new land authorization. Other anticipated proposed terms will be that no telescope development will take place on a new site except for the TMT project, that named decommissioned sites will not be redeveloped, and that existing observatories will not expand beyond their existing sublease footprint.

The EIS will be exploring three alternatives: 1) new land authorization for the current areas under UH management, 2) let the leases and easement expire at the end of 2033 and the lands revert back to DLNR, or 3) issue a new land authorization for a reduced area including the astronomy precinct access road and Halepōhaku, effectively withdrawing 10,000 acres from the science reserve and returning them to DLNR management.

OCCL notes that the withdrawal of lands from the science reserve will present DLNR with several management challenges. Currently OMKM takes the lead regarding, among other issues, visitor safety; archaeological monitoring (at the approximate cost of \$60,000-\$65,000/annum, wēkiu bug monitoring, invasive species monitoring; resource research and management program development; photo documentation of the water level of Lake Waiau and trash clean-up; periodic monitoring of the adze quarry.

The withdrawal would necessitate that DLNR and the University formalize many of their working relationships with the development of collaborative management agreements and joint enforcement agreements. We would also note that the proposed Administrative Rules are for University-managed lands, and would not address DLNR managed lands on the summit.

OCCL notes that it is currently unclear whether the Maunakea Comprehensive Management Plan would continue to be in effect for and lands that are withdrawn from the Science Reserve.

C. Subleases

The University currently has subleases with seven organizations for the purposes of operating astronomical observatories. Institutions were to build and operate observatories at their own cost and risk, in exchange for providing UH with time on the telescopes. Each sublessee pays the University a nominal fee of \$1.00 per annum in addition to giving the University a percentage of observing time on their respective telescope. UH used its dedicated time on the telescopes to build its astronomy program.

The subleases are:

- 1974: National Aeronautics and Space Administration, 70,650 square feet (NASA IRTF)
- 1975: Canada-France-Hawai'i Telescope Corporation, 2 acres (Canada-France-Hawai'i Telescope)
- 1983: California Institute of Technology, 0.75 acres (Caltech Submillimeter Observatory)
- 1985: California Institute of Technology, 2 acres (Keck I and Keck II)
- 1997: National Astronomy Observatory of Japan, 5.4 acres (Subaru)
- 1997: Smithsonian Institution, 3 acres (Smithsonian Submillimeter Array)
- 1997: Associated Universities Inc., 87,500 square feet (Very Long Baseline Array)
- 1997: National Science Foundation, 2 acres (Gemini North)

All subleases are co-terminus with the University's General Lease.

In June 2014, the Board consented to a sublease between the University and TMT International Observatory. The consent is currently being challenged in the courts (ref. CAAP-17-0000059 Flores vs BLNR et al filed February 3, 2017). All briefs have been filed in the case. The Supreme Court has not yet scheduled oral arguments.

UH has notified the observatories that they will be paying rent under any new subleases.

VIII. THIRTY METER TELESCOPE (TMT) SPECIAL CONDITIONS

The operating agreements for telescopes prior to TMT focused on providing observing time for UH scientists, with the goal of developing the astronomy program in the UH system. TMT presents a new paradigm, wherein observatories pay sublease rent and a public benefits package. It is anticipated that this will be the model for the renegotiation of the subleases for other facilities on the mountain.

The Board's Decision and Order for TMT contained special conditions that need to be implemented by the University of Hawai'i at Hilo (UHH), Office of Maunakea Management (OMKM) and TMT International Observatory LLC (TIO), as applicable, as part of the permit. The full set of special conditions is copied below. OCCL notes that the permit is still under litigation, and that many of the conditions would only apply if all authorizations are approved and the telescope begins construction. As such, our discussion on the status of the conditions will be limited to those that are currently active:

1. Ensuring that employees attend mandatory cultural and natural resources training with a minimum of one days' training;

A draft orientation plan has been developed. OMKM is currently working with the 'Imiloa Astronomy Center on specific content.

2. Working with the 'Imiloa Astronomy Center, OMKM, and Kahu Kū Mauna to develop informational exhibits for visitors regarding the natural, cultural and archaeological resources of Mauna Kea that could be used at the Mauna Kea VIS, 'Imiloa, TMT facilities, and other appropriate locations;

OMKM has initiated planning meetings to develop the exhibits.

3. Funding the re-naturalization of the closed access road on Pu'u Poli'ahu, partial re-naturalization of the batch plant staging area after construction has been completed, and camouflaging of the utility pull boxes in certain locations to reduce the visual impact from the summit area;

The University received Site Plan Approval HA-10-04 to demolish the road and restore the natural grade.

4. Implementing an invasive species control program;

The invasive species control program is guided by an invasive species management plan that was approved by the Maunakea Management Board. It is a component of the Comprehensive Management Plan and is actively implemented.

5. Working with OMKM to develop and implement a wēkiu bug habitat restoration study;

A study of the first component of a wēkiu bug habitat restoration program is nearing completion; this will form the basis for habitat restoration plans.

6. Implementing the "Zero Waste Management" policy;

The TMT design includes a zero waste' management system.

7. Filling employment opportunities locally to the greatest extent possible;

TMT is committed to this condition when it begins operation.

8. Mandating that employees traveling beyond Hale Pōhaku take part in a ridesharing program using project vehicles;

TMT is committed to this condition when it begins operation.

9. Using energy savings devices such as solar hot water systems, photovoltaic power systems, energy efficient light fixtures, and Energy Star rated appliances;

The TMT project includes energy savings devices and systems.

10. The University will decommission three telescopes permanently, as soon as reasonably possible, and no new observatories will be constructed on those sites. This commitment will be legally binding on the University and shall be included in any lease renewal or extension proposed by the University for Mauna Kea;

Two telescopes have issued notices of intent to decommission and have begun the decommissioning planning process.

11. Notwithstanding any lease renewal or extension, consistent with the Decommissioning Plan, at least two additional facilities will be permanently decommissioned by December 31, 2033, including the Very Long Baseline Array antenna and at least one additional observatory.

The University will execute this condition prior to the end of 2033 in accordance with conditions set in the sublease agreements.

12. Providing \$1 million annually, adjusted for inflation, for "Community Benefits Package" which will commence with construction and continue through the term of the sublease. The package will be administered via The Hawai'i Island New Knowledge (THINK) Fund Board of Advisors. In addition to the types of programs described in the "Community Benefits Package" in the Findings of Fact, at least \$5,000 annually of the \$1 million shall support a program or programs to assist at risk youth, specifically focusing on the children of incarcerated parents;

*TIO has been contributing \$1 million to the fund each year since 2014. The next payment in mid-February will bring the total to \$4 million. TIO is currently looking into potential recipient agencies for the \$5000 earmarked for at-risk youth. A summary of Thirty Meter Telescope's THINK Fund & Workforce Pipeline Program is attached as **Exhibit 6**.*

13. The Board of advisors shall ensure that a reasonable amount of funding is directed at programs for the most vulnerable and underserved members of Hawai'i Island communities so that they can participate in our technological future;

TIO's funding of the THINK Fund includes funding for STEM related programs for Hawai'i Island public schools and after school programs, charter schools, and scholarships.

14. The funding shall be distributed with reasonable promptness and not be used to build a permanent endowment;

TIO and the Hawai'i Community Foundation have made arrangements to discontinue the endowment it set up and will begin spending the funds.

15. Partnering with other institutions to implement a Workforce Pipeline Program, headed by at least one full-time position through the Community Outreach office, to prepare local residents for jobs in science, engineering, and technical fields;

TMT is the major funder of the Akamai program, a workforce pipeline program for students who either live on-island and attend a Hawai'i Island college or university, or is an island resident who is attending a school outside Hawai'i. The program is expanding this year and will have ten additional interns funded by TIO.

16. UHH will ensure that the survey of the power line corridor easement complies with DLNR standards and is in accordance with the conditions contained in the grant of easement (including the Mauna Kea Ice Age Natural Area Reserve) that was approved by the BLNR in August 1985. The University will provide copies of the survey to DOFAW;

The survey has been completed and provided to DOFAW.

17. OMKM will consult with the U.S. Fish and Wildlife Service and experts who are advising OMKM, including representatives from the DLNR regarding surveys of the wēkiu bug and invertebrates along the utility corridor, including Pu‘u Hau Kea and the pu‘u west of the Parking Area 1;
The utility corridor work will not occur for approximately 5 years after on-site work begins. OMKM has brought this survey up for discussion at past wēkiu bug workgroup meetings, but formal consultation will occur after work has begun as there is ample time to conduct the survey and implement any mitigation or other associated action.
18. The construction contractor will be required to minimize the visual changes to land within the utility line right-of-way during utility upgrades. Any disturbance outside of the easement area of the construction corridor will be restored to the extent possible;
19. UH Hilo will present a plan for handling recreational parking during construction to the OCCL for review and approval, at least one month prior to beginning construction;
20. Following construction, TMT shall keep their area clean and free of trash or unattended tools and equipment, unless authorized in writing by OMKM and OCCL;
21. The Archaeological Monitoring Plan will be submitted to the State Historic Preservation Division for review and approval prior to the onset of construction;
The Archaeological Monitoring Plan was submitted and approved in 2014.
22. Sublease rent will be deposited into the Mauna Kea Lands Management Special Fund, and only used for management of Mauna Kea and related purposes as provided by law;
This is a requirement of Act 132, SLH 2009
23. UH Hilo/OMKM will notify OCCL of the date of the twice-annual inspections of the project site and allow Department staff to attend if available;
24. UH Hilo/OMKM will provide OCCL and BLNR a copy of TIO's annual report to OMKM, as required by Section 5.3 of the TMT Management Plan;
25. UH Hilo will allow BLNR to name a DLNR representative to participate in the CMP five-year management review process;
OMKM has requested that the BLNR name a representative at this meeting, if possible.
26. When provided or required, potable water supply and sanitation facilities shall have the approval of the Department of Health and the county Board of Water Supply;
27. UH Hilo understands and agrees that this permit does not convey any vested rights or exclusive privilege;
28. In issuing this permit, the Department and Board have relied on the information and data that UH Hilo has provided in connection with this permit application. If, subsequent to the issuance of this permit, such information and data prove to be false, incomplete or inaccurate, this permit may be modified, suspended or revoked, in whole or in part, and/or the Department may, in addition, institute appropriate legal proceedings;
29. Where any interference, nuisance, or harm may be caused, or hazard established by the use, UH Hilo shall be required to take the measures to minimize or eliminate the interference, nuisance, harm, or hazard;
30. Should historic remains such as artifacts, burials or concentration of charcoal be encountered during construction activities, work shall cease immediately in the vicinity of the find, and the find shall be protected from further damage. The contractor shall immediately contact the State Historic Preservation Division (692-8015), which will assess the significance of the find and recommend an appropriate

mitigation measure, if necessary; the Applicant will also notify the Office of Hawaiian Affairs at the same time;

31. During construction, appropriate mitigation measures shall be implemented to minimize impacts to off-site roadways, utilities, and public facilities;
32. No construction work shall be initiated until the Applicant demonstrates compliance with all preconstruction conditions and mitigation measures specifically required in this decision. Once this condition has been satisfied, the Department will issue notice to proceed with construction;
33. TIO shall set aside funds annually in a sufficient amount to allow for site observatory and access way site restoration;

The estimated cost of decommissioning the observatory and restoring the site is \$11.7 million (2013 dollars). TIO has developed an Initial Decommissioning Funding Plan (April 2014) which includes a Financial Assurance Statement of Intent.

34. Daytime activities at TMT will be minimized on up to four days per year, as identified by Kahu Kū Mauna;
35. UHH shall consult with the Kahu Kū Mauna Council and cultural practitioners to the extent feasible to plan for, and establish, an appropriate area on Mauna Kea, within the MKSR, to be used by native Hawaiians for religious and cultural purposes; provided that this condition shall not affect the timing of TMT construction or operation;

Kahu Kū Mauna will consult with native Hawaiians for feedback regarding the set aside of an area for use by native Hawaiian for religious and cultural purposes.

36. UHH shall allow reasonable access to the area established under Condition 35 for the exercise of any native Hawaiian traditional and customary practices to the extent feasible, reasonable, and safe. The allocation of this area shall be in addition to all other cultural and access rights of native Hawaiians to other areas of Mauna Kea as provided by law or by other conditions set forth herein;

Native Hawaiians, including cultural practitioners, have year-round access to University-managed lands, except when hazardous and unsafe conditions require the closing of the access road. While access does not require any permitting or registration, land use policies are still being developed.

37. In order to enhance the Hawaiian cultural presence on Mauna Kea, UHH shall include products and handicrafts with a native Hawaiian cultural theme among those sold at the Mauna Kea VIS, and explore whether an expanded area for specifically native Hawaiian crafts can be accommodated at or near the VIS;

UHH has begun discussions on how to provide culturally-themed products and handicrafts for sale at the Visitors' Center.

38. UHH shall implement a cooperative internship and mentorship program between personnel working at the astronomy facilities on Mauna Kea and Hawaiian communities;

The Canada France Hawaii Telescope, UH Institute for Astronomy (IfA) and the Hawai'i Department of Education entered into an agreement to provide opportunities for Hawai'i high school students. Students work with mentors, predominantly graduate students with IfA, in developing research proposals. The students with winning proposals are given time on one of the Maunakea telescopes to conduct their research. All students who participate in the program are also given the opportunity to visit Mauanakea and the telescopes. To date, high schools participating in this program are Waiakea, Honoka'a, and Kealakehe (Hawai'i); Kapolei, Nanakuli, Kalani, and Waipahu (O'ahu); Moloka'i High; and King Kekaulike (Maui). The program continues to expand annually.

39. UHH and TIO shall develop a plan to implement and extend early entry programs for at-risk children of Hawaiian ancestry and other at-risk youth in the community of UH Hilo. The early entry program shall provide educational opportunities in STEM-related and other curriculum such as the following:
- (a) Astronomy, math, science, engineering, environmental science and technical support careers at astronomy facilities;
 - (b) Hawaiian language and culture;
 - (c) Navigation;
 - (d) Geology;
 - (e) Biology and agriculture;
 - (f) Law Enforcement/criminal justice;
 - (g) New disciplines of learning dependent on career fields needed; and
 - (h) On-the-job training as necessary.

UHH/TIO shall report to BLNR on the progress of this condition prior to the completion of TMT construction; provided that progress on this condition or lack thereof shall not affect the construction or operation of the TMT Project and provided further that it requires no commitment for funding other than staff time for plan development;

40. UHH shall make reasonable accommodations for the use of facilities at Hale Pōhaku for the Hawaiian Language and Hawaiian Studies programs at UHH and HCC, along with their continued use by others;
Mauna Kea Support Services will be exploring ways to comply with this condition.
41. Kahu Kū Mauna shall review policies concerning the construction and retention of personal or group shrines such as ‘ahu, and recommend policies to OMKM and/or BLNR as appropriate, within 18 months;
Kahu Kū Mauna has prepared draft policies to be presented to the Maunakea Management Board.
42. UHH and OMKM are allowed to take reasonable measures consistent with law, including limitations on the use of the TMT Access Way, if necessary for the security of the TMT Observatory.

IX. REPORTS FROM THE STATE OFFICE OF THE AUDITOR

A. Background

In 1998 an audit by the State Office of the Auditor found significant deficiencies in the management of Maunakea by both DLNR and the University. Specifically, the audit found that the University appeared to place a higher value on developing observatories than on protecting Maunakea's natural and cultural resources, and that DLNR was not engaged in effective monitoring and enforcement of permitting requirements.

A 2005 follow-up audit found that the University's Master Plan and new management structure addressed many of the 1998 concerns, but found that the lack of administrative rule-making authority was limiting the University's ability to manage resources. The follow-up also noted that DLNR had tightened permit approval conditions, but that the terms of the leases and subleases remained dated. The follow-up also recommended that DLNR better monitor the University for permit compliance, and that the department's divisions better coordinate its efforts to protect Maunakea's natural resources.

A second follow-up audit, in 2014, found that the University's CMP and associated subplans addressed many of the previous concerns. The auditor also recognized that contractual terms had prevented DLNR and the University from updating existing lease and sublease terms, and that future leases would incorporate the auditor's earlier recommendations. The lack of administrative rules remained a significant concern.

B. July 2017 Follow-Up

In July of 2017 the Office of the Auditor submitted follow up report on the 2014 audit to the governor and the legislature. This is attached as **Exhibit 5**, Follow-Up on Recommendations from Report No. 14-07, *Follow-Up Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve*.

The Auditor found that four of their recommendations have been partially implemented, two not implemented, one not implemented with the agency disagreeing on the recommendation, and one no longer applicable.

The previous sections of this report have covered the issues raised by the Office of the Auditor; as such we will present a brief summary here.

Rec 1: UH should adopt administrative rules governing public and commercial activities as soon as possible, but no later than 2017. (partially implemented)

As discussed in Section VI of this report, the University has prepared an internal draft of proposed rules, and is awaiting Board of Regents review and approval.

Rec 2. UH should obtain the UH Board of Regents' approval for the conditions and fee schedule included in commercial tour use permits issued by UH-Hilo via a Board of Regents open public meeting pursuant to Chapter 92, HRS. (not implemented)

The University anticipates that this will be done concurrently with the approval of the final administrative rules. The rules will include a draft fee schedule. There have been discussions with DLNR about modeling the schedule after the Department's Civil Resource Violations system.

Rec. 3. UH should determine whether unauthorized fees collected since FY2007 should be returned to commercial tour operators. (not implemented/disagree)

The University maintains that the BLNR provided authorization to collect fees from commercial operators, as discussed in Section V-D of this report.

Rec. 4 UH should complete Comprehensive Management Plan (CMP) management actions, the implementation of which under the CMP implementation plan is scheduled as “immediate,” as soon as possible, but no later than the end of 2016. (partially implemented)

The auditor reported that the University had completed 20 of the 25 management actions called for in the CMP. The actions that remain open are:

1. Develop and adopt guidelines for the culturally appropriate placement and removal of offerings.
2. Kahu Kū Mauna shall take the lead in determining the appropriateness of constructing new Hawaiian cultural features.
3. Develop and adopt a management policy for the UH Management Areas on the scattering of cremated human remains.
4. A management policy for the culturally appropriate 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.
5. Develop and implement a signage plan to improve signage throughout the UH Management Areas.

Kahu Kū Mauna developed proposed policies on the first four items in 2012. However, the Maunakea Management Board deferred action on the policies after a lawsuit was filed in federal court against the Board members. Kahu Kū Mauna reinitiated consultation with cultural practitioners after that suit was dismissed without prejudice, and has prepared a revised proposed draft to be presented to the Board for consideration.

The University reports that the signage plan was completed in the second quarter of 2017.

Rec 5. UH should further its efforts to renew general leases for UH-managed lands on Mauna Kea by continuing to work with DLNR and proceeding with the Environmental Impact Statement (EIS) process under Chapter 343, HRS. (partially implemented)

Rec. 6. UH should renegotiate with existing sublessees to amend subleases to include provisions that address stewardship issues, as modeled by the provisions in the 2014 TMT sublease, following execution of the new general leases for UH-managed lands on Mauna Kea. (not implemented)

Rec. 7. DLNR should continue working with UH to renew the general leases for the UH-managed lands on Mauna Kea and ensure the leases are substantially in the form DLNR’s Land Division recommended for approval by the Board of Land and Natural Resources. (partially implemented)

As discussed in Section VII of this report, the University is currently preparing an EIS preparation notice for new land authorization on Maunakea. UH anticipates publishing the notice in the Department of Health’s *Environmental Notice* in the first quarter of 2018. The University will then compile public comments and prepare a draft EIS for review.

Rec. 8. DLNR should use additional stewardship-related conditions contained within the TMT observatory permit as a template in all new observatory permits issued for the summit of Mauna Kea. (not implemented / not applicable)

OCCL notes that there are no applications pending for new observatories on Maunakea.

X. POTENTIAL FUTURE BOARD ACTIONS

The following are potential items discussed in this briefing that would require approval from the Board of Land and Natural Resources:

- CDUA HA-3812 for proposed Maunakea Visitor Information Station (VIS) improvements. OCCL anticipates presenting this to the Board in the second quarter of 2018.
- Any new master lease between the University and DLNR for the Maunakea Science Reserve and Halepōhaku.
- The University's decommissioning plans for individual observatories, including CSO and Hōkū Ke'a.
- The revised Comprehensive Management Plan. BLNR to name representative to the CMP review process.
- Any potential collaborative management agreements with DOFAW and NARS, or of any Joint Enforcement Agreement between DOCARE and OMKM.

RECOMMENDATION

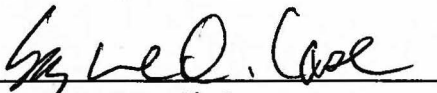
OCCL is presenting this report as a "non-action" item on the Board's Agenda.

Respectfully submitted,



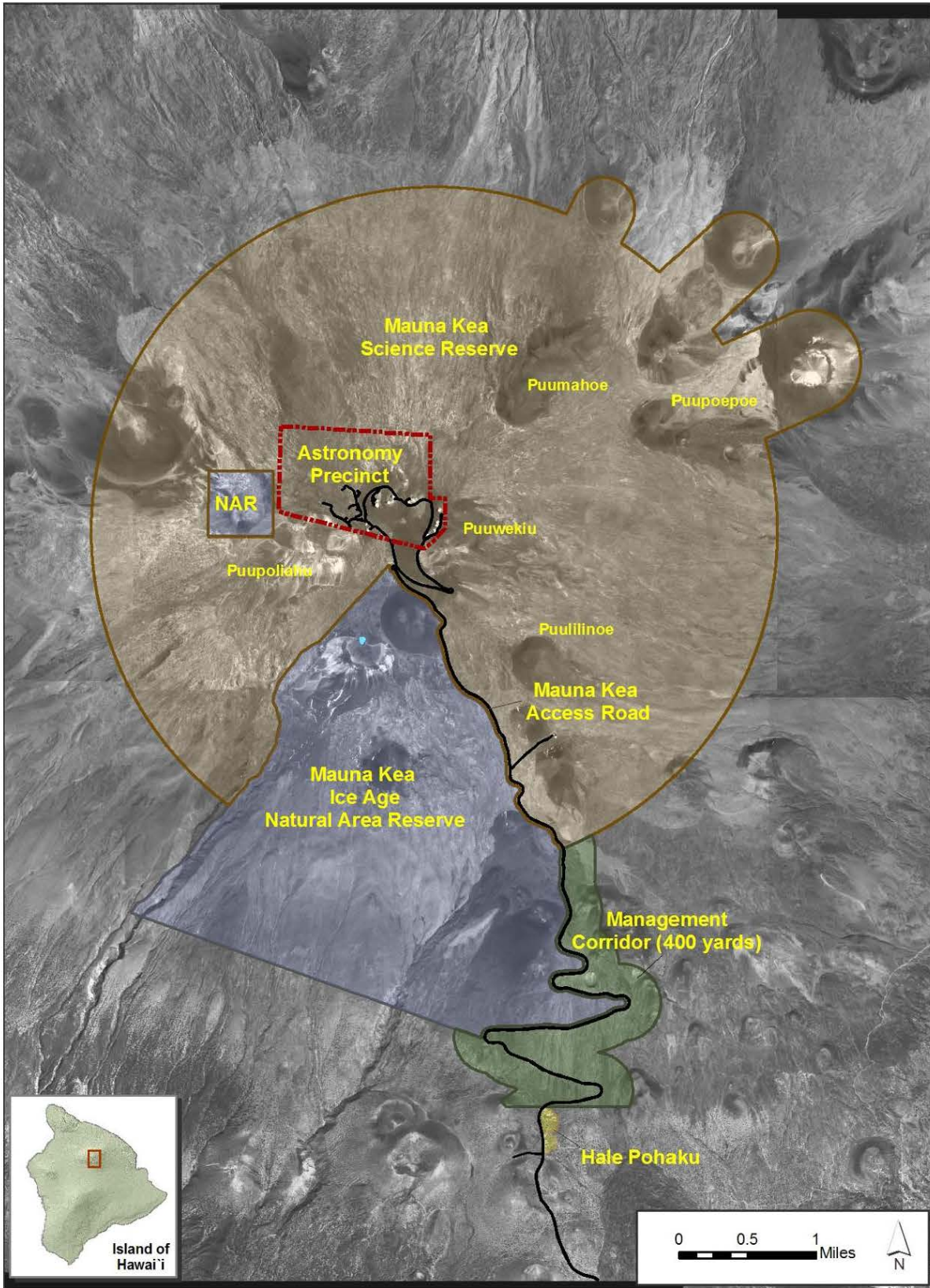
Michael Cain, Staff Planner
Office of Conservation and Coastal Lands

Approved for submittal:



Suzanne D. Case, Chairperson
Board of Land and Natural Resources

Figure 3-1. UH Management Areas





The Maunakea Observatories Locations of Summit Facilities

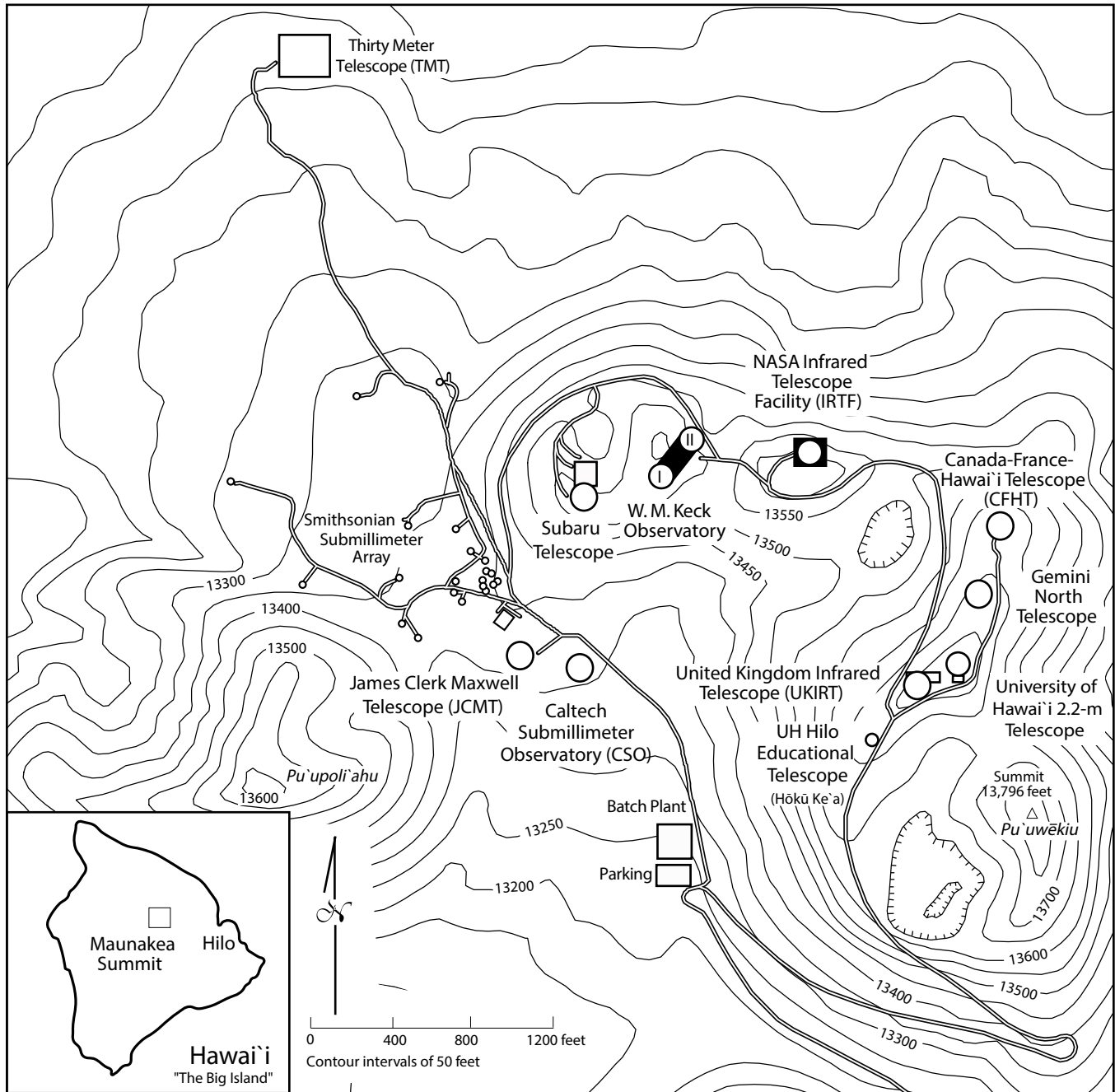


Exhibit 2
Maunakea Observatories

**2017 Annual Report
to the
Board of Land and Natural Resources**

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**Status of the Implementation of the
Mauna Kea Comprehensive Management Plan**

DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

Purpose

As identified in the 2009 Mauna Kea Comprehensive Management Plan, management action MEU-1 states: OMKM shall produce an annual progress report on the management goals, objectives, and actions for the year and what progress was made towards meeting them. "This Progress Report is not intended to be a status report on the resources in the UH Management Areas; rather, it is meant to inform management and stakeholders of the progress of the program and direction it is to take in the future."

Overview of CMP Management Actions

The CMP contains 103 management actions categorized into four component plans which are further subdivided into sub-components (Table 1).

Table 1. CMP component plans.

CMP Section	Component Plan
7.1	Understanding and Protecting Mauna Kea's Resources
7.1.1	Native Hawaiian Cultural Resources
7.1.2	Natural Resources
7.1.3	Education and Outreach
7.1.4	Astronomy Resources
7.2	Managing Access and Use
7.2.1	Activities and Uses
7.2.2	Permitting and Enforcement
7.3	Managing the Built Environment
7.3.1	Infrastructure and Maintenance
7.3.2	Construction Guidelines
7.3.3	Site Recycling, Decommissioning, Demolition and Restoration
7.3.4	Considering Future Land Use
7.4	Managing Operations
7.4.1	Operations and Implementation
7.4.2	Monitoring, Evaluation, and Updates

Assigning Categories and Priorities

All of the management actions were assigned into one of four categories. These categories represent time periods during which it was estimated the actions would be implemented.

Immediate	1 - 3 years
Short term	4 - 6 years
Mid-term	7 - 9 years
Long-term	10 + years

Reporting Definitions

2010 and 2011. Each management action was initially assigned one of four progress status designations: **As Needed**, **Short to Long Term**, **Ongoing**, or **Completed**.

2012. In 2012 the **Ongoing** category was further divided into two groups, **Ongoing** and **In Progress**, to distinguish management actions that are part of OMKM's regular responsibilities (ongoing) and those that require specialized implementation (in progress).

2014. Based on feedback from the Office of the Auditor, State of Hawaii, beginning with 2014, the definitions for Ongoing and In Progress were further refined. **Ongoing** refers to activities that have established processes in place and are performed as part of OMKM's daily responsibilities. For example, processes for reporting disturbances to historic properties are established while actual reporting is **Ongoing** as necessary. **In Progress** refers to actions that require specialized implementation such as the development of policies or hiring consultants and researchers, and while efforts are **In Progress** the action or process is not yet complete.

Evolution of the Definition of the Terms Ongoing and In-Progress (years 2010 through 2014)

2010 – 2011	2012 - 2013		2014
	Ongoing was divided into two groups		Auditor's recommendation
Ongoing are actions that are being implemented	Ongoing are activities that are performed as part of OMKM's daily responsibilities	In-Progress are actions that require specialized implementation, e.g., development of policies or hiring of consultants	Ongoing was further defined as activities that have established processes in place and are performed as part of OMKM's daily responsibilities. In-Progress are actions that requires specialized implementation and while efforts are in-progress, the action or process is not yet complete.

- Short to Long Term Management action still to be implemented during its scheduled time period.
- In Progress Management action that requires specialized implementation has been initiated, process is not yet complete.
- Ongoing Management action is implemented and processes are in place to fulfill this requirement, actions will continue indefinitely because they are part of OMKM's continuing management responsibilities.
- Completed Management action is completed.

Annual Reports are Cumulative

With the exception of the first annual report to the BLNR in 2010, each successive report builds upon the previous year's report, thereby the annual reports beginning with 2011 are cumulative.

2017 Summary of Implementation Status

Most management actions have either been implemented or are in progress. Many actions are considered 'ongoing' as they are long term, continuous land management responsibilities. Appendix A details the implementation status with explanations for individual CMP management actions. Appendix B details the cumulative annual progression of implementation status from 2010 to present.

CMP Implementation Activities

As reported in earlier reports OMKM identified five priority categories. Efforts have been initiated in all of the categories and are described below.

Priority Categories:

- Research
- Monitoring
- Resources Management Programs
- Education, Training and Outreach
- Printed Materials & Public Forums

A summary of implementation activities are described below.

Research (Table 1)

Data derived from research provides the basis for the development of resource protection programs. OMKM continues its efforts to conduct research including establishing baseline data of the various resources. In the case of the wēkiu bug studies also focused on the bug's life history, habitat and genetics. OMKM utilizes resources available within the UH system including faculty, graduate and undergraduate students, in its efforts to fulfill the CMP mandates.

Biological Research

The 2011 study of the biodiversity of arthropods in the summit region in the Halepōhaku area is anticipated to be completed in 2017. A study of the characterization and mapping of wēkiu bug habitat was completed in 2016 while a study on the restoration of wēkiu bug habitat was initiated in 2015. Research initiated in 2017 included: 1) a project to investigate diets and parasitoid loads for important native and invasive arthropods; and a multi-year sea and forest bird, and bat survey.

Invasive Species

In 2015, OMKM initiated a study to evaluate measures to prevent the introduction of invasive species, in particular the inspections of vehicles and equipment. This includes analysis of the feasibility of a vehicle washing facility as a means of helping to prevent the introduction of invasive species.

Geology and Erosion

A multi-year study of surface erosion processes on cinder cones that was initiated in 2014 is still in progress. This study will help to better understand natural erosion, and is being used to help characterize arthropod habitat. OMKM funded a four-year study to assess the presence of permafrost and whether conditions for formation of permafrost still exist.

Weather and Climate

A multi-year study developing climate change models to determine impacts to the summit ecosystem 50-years in the future is finalizing a public archive of data. A study to extend the long-term temperature records for the state by integrating other types of climate data for earlier years when temperature was not recorded was completed and a journal manuscript is in preparation. These studies in conjunction with a study to site a weather station on the summit as part of a sea level to summit network of weather stations will help to track changes in weather and climate over the long term and will provide data to evaluate altitudinal changes and impacts on ecosystems from sea level to the summit.

Other Studies

OMKM intends to initiate a study of commercial tour activities to determine, if possible, the capacity for commercial tour operations on UH's managed lands.

Monitoring (Table 2)

Following surveys to determine the baseline inventory of a resource, the next step is monitoring to assess the status of the resource over time.

Historic Properties

Following the completion of an archaeological inventory survey of the Maunakea Science and access road, annual monitoring of the historic properties began in 2012. In compliance with the Long Term Historic Property Monitoring Plan, approved by SHPD in 2014, annual monitoring of the Astronomy Precinct and access road is conducted annually while the more remote sites are monitored on a three and five year rotation basis.

While not part of UH's managed lands, in a cooperative effort with the Natural Area Reserve, OMKM rangers photo document monthly the level of Lake Waiau in the Mauna Kea Ice Age Natural Area Reserve, and periodically hike to the adze quarry to assess conditions.

Wēkiu Bug and Alien Species

Monitoring surveys of the wēkiu bug, which began in 2002, and alien arthropods, in 2007, continue to be conducted annually.

Invasive Species

Monitoring of invasive species has been ongoing since 2007. Beginning in 2013 monthly surveys are made in and around the surrounding areas of the facilities at the 9,200 foot elevation. In addition, quarterly surveys are conducted at facilities at the summit.

Botanical Resources

Monitoring of botanical resources is completed in conjunction with Historic Property monitoring. A more detailed monitoring plan for botanical resources will be developed in collaboration with recommendations for arthropod monitoring.

Resource Management Programs (Table 3).

Resource management programs may be policies, plans, or long-term action programs which purpose is to preserve or protect the resources, or to help ensure the health and safety of those visiting and working on the mountain.

Cultural Resources

It was reported previously that OMKM together with Kahu Kū Mauna developed preliminary policies for the construction of new cultural features, including the stacking of rocks, the scattering of human remains, buffers around historic properties and visitation and use of ancient shrines. The Maunakea Management Board (MKMB) approved the latter two policies. Kahu Kū Mauna also drafted policies related to the placement and removal of offerings. Kahu Kū Mauna is currently re-evaluating some of their earlier policies for alignment with State Law and DLNR rules. Community consultation and outreach efforts continue.

Invasive Species

As mentioned in previous reports, data from surveys and studies provide valuable information for developing management programs to protect the resources such as the endemic wēkiu bug. Invasive flora and fauna are a concern because of their potential impact not only on the wēkiu bug, but also on other native species, and on the "health" of Maunakea's unique ecosystem. OMKM's invasive species prevention, response and control plan is actively being implemented, especially regarding observatory related activities. As an adaptive-management plan, this is periodically reviewed and updated, with annual reports prepared and made publicly available.

OMKM continues its efforts to remove fireweed (*Senecio madagascarensis*). While on patrol, rangers remove fireweed found along the road and in the summit areas. OMKM's invasive weed pull program brings volunteers to the Halepōhaku area to pull fireweed, mullein and other invasive plants. It is OMKM's goal to control invasive weeds and to revegetate the area with native vegetation.

Preventing the introduction of predatory ants remains a high priority.

Operations Monitoring, and Maintenance Plan (OMMP)

An OMMP is implemented and identify maintenance needs, protocols and strategies that minimizes impacts to the resources and ensures that permittees comply with the conditions of their CDUPs,

CMP Compliance

Twice annually OMKM rangers conduct inspections of all summit facilities for compliance with their Conservation District Use Permits.

CMP Actions and Mitigation

Applicants of projects are required to review the CMP and submit measures to comply with relevant CMP actions as part of the project's proposal. When applicable, mitigation measures are also included in the proposals.

Infrastructure

Parking, vehicle and pedestrian flow and visitor capacity concerns are being addressed in design improvements to keep parking, drop off and pickup of visitors on the same side of the road as the VIS. It is currently being addressed with the proposed construction of a vehicular ingress/egress-parking system. Road repair and improvements are also being evaluated. Capital improvement project funds were provided for this study.

Vehicle Counter

An automated vehicle counter was installed to count the number of vehicles that drive above Halepōhaku.

Road Condition Sensor

A test road condition sensor installed in 2013 has shown the device accurately senses the presence of ice on the road. Additional sensors will be installed over the next two years along a steep incline, an area prone to development of ice, in particular black ice. When ice is detected the sensors automatically send email notifications to rangers who take action such as closing the road to protect the safety of the visiting public.

Education, Training and Outreach

OMKM recognizes the need to formally educate and train management staff, stakeholders and the general public about the resources and significance of Maunakea. One of the key tenets of the Public Access Plan is that "an informed public is best prepared to make good decisions and act responsibly." OMKM also recognizes the importance of establishing community relationships and keeping them informed of OMKM's activities.

Orientation

The OMKM Maunakea User/Resource Orientation program was launched in the Summer of 2013. It is a requirement that all observatory and support staff (both office and on-mountain), vendors, construction workers, mid-level support and VIS staff, UH employees, and commercial tour drivers attend the orientation. A plan for implementing the orientation has been adopted and circulated, identifying a renewal requirement every 3 years. Since the orientation began in 2013, nearly 1,800 people have attended the orientation. Beginning in 2016 those who took the orientation in 2013 have begun their renewal process. An online version with an assessment quiz is available as a more efficient means of delivery and an alternative to in-person sessions. A video orientation for visitors will also be developed to be shown in the Visitor Information Station (VIS).

Training

Beginning in 2016, a staff/employee training program was initiated. All OMKM and Maunakea Observatory Support Services employees are required to attend.

Volunteer Program

Since its inception in the Spring of 2012, OMKM's community volunteer weed pull program filled a total of 1,795 bags of weeds by 1,118 volunteers putting in 8,164 hours. Groups participating in 2016 include various UH Hilo student groups, local primary school students and families, Observatories, and local Rotary club and chambers of commerce members. OMKM is propagating plants for future restoration efforts in the Halepōhaku area.

Outreach

OMKM seeks opportunities to go into the community to share OMKM's activities. OMKM also participates in school and community events showcasing some interesting "critters" that are found on Maunakea, fun science and keiki activities.

As part of their educational efforts with young children, researchers working on OMKM projects have been going to schools to demonstrate the use of equipment that is used in their scientific studies, such as unmanned aerial vehicles (drones) or conducts experiments with the students. Others mentor students, including those who wish to conduct and enter the results of their studies in the State science fair.

Printed Materials & Public Forums.

Education and outreach efforts include the development of educational materials, such as brochures, signage and the dissemination of materials, OMKM recently updated its resource brochure. This brochure along with the safety brochure, "*Visiting Maunakea Safely and Responsibly,*" are distributed at the VIS at the 9,200 foot elevation and at the 'Imiloa Astronomy Center. OMKM also seeks opportunities to speak to groups, such as Rotary clubs, and community associations about OMKM's activities.

Daily Implementation of Ongoing Actions

The Maunakea rangers continue to monitor activities on UH's managed lands on a daily basis. They record pertinent data including the number of vehicles by type (4- vs. 2-wheel drive, observatory, commercial and motorcycles) and observations of visitor activities, including hikers, bikers, vehicle speeds, trash, etc. Through their interactions with the public they help to educate people about Maunakea. Many of the management actions relating to public and commercial activities, and trash pick-up and removal are carried out by the Rangers as part of their daily responsibilities.

The Maunakea ranger corps is composed of eight full-time and two part-time rangers. This allows OMKM to schedule three rangers for duty and ensures a minimum of two rangers on duty should one ranger be sick or on vacation.

Administrative Rules

Draft administrative rules were reviewed by Kahu Kū Mauna and the Mauna Kea Management Board and a recommendation was submitted to the Board of Regents for their review and a request to the Governor authorizing the University to conduct public hearings seeking community comments.

Table 1. Research Activities

<p>Surveys and studies on:</p> <ul style="list-style-type: none"> • Historic Properties • Arthropods • Geology and erosion • Climate and weather 		<ul style="list-style-type: none"> • 2005 – 2009. Archaeological inventory of historic properties of the Science Reserve, access road and Halepōhaku. • 2006. Climatological analysis of meteorological observations at the summit of Maunakea • 2007. Review Mauna Loa weather data dating back to 1958 to assess climate conditions on Maunakea to help with wēkiu bug research • 2012 –ongoing. Four year study to assess presence of • 2006. Climatological analysis of meteorological observations at the summit of Maunakea • 2007. Review Mauna Loa weather data dating back to 1958 to assess climate conditions on Maunakea to help with wēkiu bug research • 2012 –ongoing. Four year study to assess presence of permafrost and whether conditions for formation of permafrost still exist. • 2011- ongoing. A multiyear study on the development of a climate change modeling program to help forecast climate change on the summit to help determine impacts to the summit ecosystem. • 2012. High Altitude Climate of the Island of Hawai'i publication. • 2013 – ongoing. OMKM is working with the Department of Geography at UH Manoa on the development of a sea level to summit weather monitoring network to help track climate change. OMKM's participation is to help the location and installation on weather station on the summit. • 2014 –ongoing. Surficial study of the geology and erosion in cinder cone environments above 12,500'. High-resolution topographic maps, and imagery have been completed. • 2013 – 2016. Study to extend the long term temperature records for the State of Hawaii by integrating other climate data for earlier years when temperature was not recorded. • 2016. MS Thesis and Peer-Review Publication (Draft): Regional Temperature Trends in Hawai'i, A Century of Change. 1916-2015. • 2017 – ongoing. Study to investigate diet and parasite loads in alpine arthropods.
<ul style="list-style-type: none"> • Surveys on human activities and needs: 		<ul style="list-style-type: none"> • 2001 – ongoing. Rangers continue to submit daily reports on human activities; data are input in a database. • 2016 – ongoing. An automated vehicle counter keeps a real time count of all vehicles traversing above Halepōhaku. Rangers also conduct daily counts of vehicles identifying 2 wheel vs 4 wheel drive vehicles.
<p>Ongoing surveys and studies of the wēkiu bug and other arthropods</p>		<ul style="list-style-type: none"> • 2011. A study of how geology (pu'u and terrain), wind speeds and direction influence insect and snow pack deposits on the summit to help supplement wēkiu bug research. • 2011 – ongoing. Multi-year survey of the summit region and at the mid-level area at 9,200 ft elevation to assess the biodiversity of arthropods. Including a 2016 MS Thesis on biodiversity in the Halepōhaku area. • 2014 – 2016. A study evaluating the characterization and mapping of wēkiu bug habitat has been completed. • 2015 – ongoing. A multi-year wēkiu bug habitat restoration plan is being implemented. Originally it was part of the (now vacated) TMT CDUP requirement. OMKM is pursuing this management action. • 2016. Habitat mapping of wēkiu bugs using existing remote sensing and arthropod trap data. • 2017 – ongoing. Study to investigate diet and parasite loads in alpine arthropods.
<p>Alien and invasive species</p>		<ul style="list-style-type: none"> • 2012 – 2015. Development of an invasive species management plan. It is composed of modules addressing various aspects of the invasive species prevention, response, and control. Implementation is ongoing

	<ul style="list-style-type: none"> • 2015 – ongoing. A study to evaluate measures to prevent the introduction of invasive species, in particular the inspection of vehicles and equipment was initiated in 2015.
Other Studies	<ul style="list-style-type: none"> • 2004 - 2006. Archival study and compilation of native traditions, historical accounts, and oral history interviews for Mauna Kea. • 2005 – 2009. Archaeological inventory of historic properties of the Science Reserve, access road and Halepōhaku. • 2016. Initiate seabird, forest bird and bat inventory study

Table 2. Monitoring

<p>Historic Properties (archaeological sites)</p>	<ul style="list-style-type: none"> • 2012. Annual archaeological monitoring of historic properties (archaeological sites) began in 2012. The Long-Term Historic Monitoring Plan was approved by State of Hawaii Historic Preservation Division (SHPD) in 2014. • 2014. SHPD approved the Long Term Historic Properties Monitoring Plan for UH Managed lands on Maunakea. • On a monthly basis, OMKM Rangers photo document the level of Lake Waiau in DLNR's Mauankea Ice Age Natural Area Reserve (MKIANAR). Rangers also periodically hike to the adze quarry in the MKIANAR) to assess conditions. Rangers pick up and remove trash from their hikes into the MKIANAR.
<p>Wēkiu bug and alien species.</p>	<ul style="list-style-type: none"> • 2002 – ongoing. Annual surveys on wekiu bug have been conducted since 2002. • 2007 – ongoing. Annual surveys of alien species are conducted on UH Managed lands
<p>Invasive species</p>	<ul style="list-style-type: none"> • 2013 – ongoing. Monthly surveys for invasive species are conducted at the facilities at the mid-level, 9,200 ft elevation, including the VIS and the support facilities. • 2013 – ongoing. Quarterly surveys for invasive species are conducted at all the summit facilities for invasive species. • 2013 – ongoing. Natural resources personnel accompany archaeologists in their annual monitoring to assess sites and surrounding areas for native and invasive species

Table 3. Resource Management Programs

<p>Polices and plans related to cultural resources</p>	<ul style="list-style-type: none"> • 2012 – 2014. A burial treatment plan was reviewed by the Hawaii Island Burial Council and approved by the Division of Historic Preservation. It contains a schedule for monitoring. • 2012 – currently under re-evaluation. Policies relating to the placement and removal of offerings, the scattering of human remains, the construction of new cultural features including the stacking of rocks were developed by Kahu Kū Mauna. In 2016 following public consultation Kahu Kū Mauna approved the policies. The MKMB felt that more community consultation was required before finalizing the policy. Community consultation on these policies is on-going. • 2016 - The U.S. Department of Defense was contacted to begin the review process prior to any removal efforts of military aircraft.
<p>Invasive species control</p>	<ul style="list-style-type: none"> • 2012 – ongoing. An active volunteer program to remove fireweed (<i>Senecio madagascariensis</i>) and other invasive plants continues at the mid-level area. Rangers continue to remove fireweed in the upper elevations. • 2013 – ongoing. The Maunakea Invasive Species Management Plan was approved by the MKMB. It is composed of modules addressing various aspects of the invasive species prevention, response, and control. Implementation is ongoing. • 2013 – ongoing. The Hawaii Ant Lab and Big Island Invasive Species Committee continue to support implementation of the Invasive Species Management Plan by providing technical support, and assisting with inspections and monitoring work.
<p>Wēkiu bug management plan and habitat restoration plan.</p>	<ul style="list-style-type: none"> • Data from wēkiu bug, invasive/alien arthropod, biodiversity arthropod studies, topography and wēkiu bug food distribution, and climate studies will provide the basis for developing management and habitat restoration plans for the bug
<p>Public facilities</p>	<ul style="list-style-type: none"> • 2014 – ongoing. An automated vehicle counter was installed to count the number of vehicles (differentiating: public, commercial, tour, observatory, etc.) that drive above Halepōhaku. • 2014 – 2017. CIP funds are being used to study and design improvements to the ingress and egress at the VIS and to address parking and pedestrian flow. The study also included an assessment of road conditions, and recommendations for repair and estimated costs. An Environmental Assessment is currently being finalized and a CDUA will be submitted for DLNR consideration.
<p>Other Plans and activities</p>	<ul style="list-style-type: none"> • 2001. OMKM ranger program established. • 2007 – ongoing. Biannual inspection of facilities for compliance with their CDUPs • 2009. BLNR approved the Maunakea Comprehensive Management Plan (CMP) • 2010. BLNR approved the Cultural and Natural Resources Management Plans, Public Access Plan and the Decommissioning Plan, sub-plans to the CMP. • 2012 – ongoing. Beginning in 2012 applicants of projects are required to review the Comprehensive Management Plan (CMP) and submit measures to comply with relevant CMP actions as part of their project proposals. When applicable, mitigation measures are included in the project proposal. • 2016 – ongoing. An Operations, Monitoring, and Maintenance Plan has been developed. The plan recognizes the need to identify maintenance needs, protocols and strategies that minimizes impacts to the resources and ensures that permittees comply with the conditions of their CDUPs. It also serves as a reporting mechanism for CMP compliance activities calls for the coordination of maintenance activities and

	<p>schedules.</p> <ul style="list-style-type: none"> • 2016 – ongoing. A Sign Plan was approved by the MKMB. This plan helps ensure appropriate review and consistency in sign design and use.
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Table 4. Education, Training and Welfare

<p>Initiate programs to educate stakeholders, management staff, and the general public.</p>	<ul style="list-style-type: none"> • 2012 – ongoing. OMKM has been conducting orientations relating to the cultural and environmental significance to those who work on UH’s managed lands including observatory and UH personnel, contractors and vendors, and commercial tour operators. • 2016 - OMKM launched an online video version of the orientation as a more efficient means of reaching contractors, vendors, visiting staff, or other interested parties. Regular feedback is solicited from Kahu Kū Mauna and attendees. • A three-year refresher interval requirement has been adopted and original orientation attendees have begun the renewal process. • A video orientation for visitors will be developed and shown in the VIS. • A staff/employee training plan has been implemented. All OMKM and Maunakea Observatory Support Services are required to attend.
<p>Develop and maintain a GIS and database program.</p>	<ul style="list-style-type: none"> • 2013 – ongoing. A GIS-based data storage and reporting system has been developed. The system is continuously being expanded and enhanced. • 2001 – ongoing. Rangers have been and continue to submit daily reports summarizing their observations and their activities, including documenting number of vehicles, hikers, incidents, permitted and unpermitted commercial tour operators, etc. • 2015 – ongoing. An automated vehicle data collection system is operational recording individual observatory, permitted commercial tours, and OMKM vehicles using radio frequency identification tags (RFID) and general public vehicles.
<p>Develop an outreach program.</p>	<ul style="list-style-type: none"> • 2012 – ongoing. In 2016, 200 volunteers, working 1,500 hours, removed 299 bags of invasive weeds. This year’s program once again focused on removing invasive plants in the Halepōhaku parcel and along the access corridor. Since 2012, a total of 1,118 volunteers putting in 8,164 hours pulled and filled 1,795 bags of weeds. • Volunteer groups have included the Hawaii Island Chamber of Commerce, Circle K (Kiwaniis youth), Interact (Rotary Youth) Hawaii National Guard Youth Challenge Academy, UH Hilo student groups, school groups, and general community members. • Mentoring young students with science projects and participation in local science and State science fairs. Dr Jesse Eiben, wēkiu bug researcher for OMKM, continued his mentorships with local middle and high-school students. This year one of the mentored students investigating Maunakea’s lycosa spiders advanced to the State Science Fair competition on Oahu. • Dr. Norbert Schorghofer’s (principle investigator for OMKM’s sponsored permafrost study) colleague Dr. Kenji Yoshikawa continues work with Hilo Intermediate School 7th & 8th grade science classes to collect comparable data in their school yard for comparison with Maunakea and other sites across the globe. • Dr. Ryan Perroy visits a community based charter school and demonstrate the use of unmanned aerial vehicles and how they are used for scientific purposes. He also participates in OMKM outreach activities • 2015 –ongoing OMKM participated in Kealakehe Elementary School annual “Science Showcase” with interactive materials on ecosystems, arthropods, and art. • 2016. Participated in the Panaewa community Prince Kuhio Day keiki festivities with exhibits, coloring activities, trading cards and resource and safety brochures. • 2017. OMKM participated in the annual Astroday event in Hilo and Astrobash in Kona with exhibits of arthropods found on Mauankea, coloring activities, tattoos and natural science trading cards for the kids,

and resource brochures and safety for the adults.

Table 5. Printed Materials and Public Forums

Develop and print brochures.	<ul style="list-style-type: none"> • 2016. OMKM updated its resource brochure containing information about the resources and significance of Maunakea incorporating community and Kahu Kū Mauna input. • 2002- ongoing. Also available are Visiting Maunakea Safely and Responsibly and a brochure about the purpose of the Office.
Distribution of informational materials.	<ul style="list-style-type: none"> • Brochures are available for public distribution at the VIS, 'and other public venues, or distributed at public and outreach events.
Participate in public events, community gatherings and other opportunities to inform the community about Maunakea.	<ul style="list-style-type: none"> • Continue to seek opportunities to participate or speak at public forums, including community meetings, local organization membership meetings, etc.
Signs	<ul style="list-style-type: none"> • 2012 – An inventory and map of all the signs on UH's managed lands was completed. The inventory of the signs on UH managed lands is being updated. • 2016 – ongoing. A Sign Plan was approved by the MKMB. Installation of signs still requires DLNR approval, the plan helps ensure appropriate review and consistency in design and use. • With input from Rangers and Kahu Kū Mauna, signs were installed to highlight cultural awareness and safety issues.

Appendix A
Implementation Status of
Maunakea CMP Management Actions

MKMB = Maunakea Management Board; MKSS = Maunakea Observatories Support Services; OMKM = Office of Maunakea Management; VIS = Visitor Information Station

COMPONENT PLAN: UNDERSTANDING AND PROTECTING MAUNA KEA'S RESOURCES			
		Implementation Schedule	Comments
NATIVE HAWAIIAN CULTURAL RESOURCES			
Management			
CR-1	Kahu Kū Mauna shall work with families with lineal and historical connections to Maunakea, cultural practitioners, and other Native Hawaiian groups, including the Maunakea Management Board's Hawaiian Culture Committee, toward the development of appropriate procedures and protocols regarding cultural issues.	Ongoing	<p>Identification of lineal and historical connections was part of the development and State Historic Preservation division approval (2014) of the Burial Treatment Plan (see CR-13). Solicitations were made through announcements in the daily newspapers and the OHA newsletter.</p> <p>There were no responses to the solicitations but OMKM continues to seek out individuals as part of its interaction and relationship building with the community.</p> <p>Fall 2013 the Hawaii Island Burial Council officially recognized several individuals as cultural descendants of Kaohe Ahupua'a.</p>
CR-2	Support application for designation of the summit region of Mauna Kea as a Traditional Cultural Property, per the National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470 et seq. in consultation with the larger community.	Ongoing	An application for the designation of the summit region of Maunakea as a Traditional Cultural Property has not yet been prepared for filing by State Historic Preservation Division with the appropriate Federal agency.
CR-3	Conduct educational efforts to generate public awareness about the importance of preserving the cultural landscape.	Ongoing	<p>Rangers through their interactions with the visiting public help to educate and raise awareness about Mauna Kea.</p> <p>An informational brochure on cultural and natural resources was developed in 2014 and revised in 2016.</p> <p>OMKM sends out eNewsletters informing the public about OMKM and its activities.</p> <p>Resource orientation of those who work on the mountain including observatory personnel, VIS and MKSS staff, rangers, commercial tour operators and staff, and construction workers commenced in 2013. An online orientation is also available. A brief public / visitor orientation is complete and provided for scheduled group visits.</p>

2017 Annual Report on the Maunakea CMP
Exhibit 3

COMPONENT PLAN: UNDERSTANDING AND PROTECTING MAUNA KEA'S RESOURCES

		Implementation Schedule	Comments
Cultural Practices			
CR-4	Establish a process for ongoing collection of information on traditional, contemporary, and customary cultural practices.	Short-Term	OMKM staff met with State Historic Preservation Division staff in 2015 to discuss practices at various sites. Discussions with Kahu Kū Mauna Council to craft a culturally appropriate process continue.
CR-5	Develop and adopt guidelines for the culturally appropriate placement and removal of offerings.	In Progress	<p>In 2016, Kahu Kū Mauna reviewed and approved the wording of draft policy guidelines. Approval by MKMB was deferred. Kahu Kū Mauna is engaging in additional consultation. In addition, a law suit was filed in federal court and dismissed without prejudice; the plaintiff may still seek further judicial relief.</p> <p>The final outcome will likely be formally included in administrative rules for UH's managed lands.</p> <p>Note: CR-5 overlaps with CR-7 (constructing new Hawaiian cultural features) being that offerings are usually associated with the construction of new features.</p> <p>It is noted that the proposed policy acknowledges there are existing statutes and rules governing this type of activity.</p>
CR-6	Develop and adopt guidelines for the visitation and use of ancient shrines.	Ongoing	In 2016 Kahu Kū Mauna drafted and the MKMB approved the policy. Visitation is a public access issue and will likely be formally be included in administrative rules for UH's managed lands. State law also governs.
CR-7	Kahu Kū Mauna shall take the lead in determining the appropriateness of constructing new Hawaiian cultural features.	In progress	<p>In 2012, Kahu Kū Mauna reviewed a draft of a process. In 2016 Kahu Kū Mauna re-evaluated the policy, consulted with OHA and held a consultation session. Approval by MKMB was deferred. Kahu Kū Mauna is engaging in additional consultation. In addition, a lawsuit was filed in federal court which was dismissed without prejudice; the plaintiff may still seek further judicial relief.</p> <p>It is noted that the proposed policy acknowledges there are existing statutes and rules governing this type of activity. Community consultations are ongoing.</p>
CR-8	Develop and adopt a management policy for the UH Mgt. Areas on the scattering of cremated human remains.	In Progress	<p>In 2012 Kahu Kū Mauna developed and approved a draft policy. In 2016 Kahu Kū Mauna re-evaluated the policy and held a consultation session. Approval by MKMB was deferred. Kahu Kū Mauna is engaging in additional consultation. In addition, a law suit was filed in federal court which was dismissed without prejudice; the plaintiff may still seek further judicial relief.</p> <p>The final outcome will likely be formally included in administrative rules for UH's managed lands</p>

2017 Annual Report on the Maunakea CMP
Exhibit 3

<p>CR-9</p>	<p>A management policy for the culturally 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.</p>	<p>In Progress</p>	<p>In 2012 Kahu Kū Mauna approved a draft policy. In 2016 Kahu Kū Mauna re-evaluated the policy and held a consultation session. Approval by MKMB was deferred. Kahu Kū Mauna is engaging in additional consultation. In addition, a law suit was filed in federal court which was dismissed without prejudice; the plaintiff may still seek further judicial relief.</p> <p>CR-7 was combined with CR-9 under the guidance of Kahu Kū Mauna who pointed out that the “stacking of rocks” is no different from the creation of new cultural features. See CR-7 above.</p>
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COMPONENT PLAN: UNDERSTANDING AND PROTECTING MAUNA KEA'S RESOURCES

		Implementation Schedule	Comments
Historic Properties			
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.	Completed	SHPD approved OMKM's long term historic properties monitoring plan; monitoring is ongoing according to the plan's schedule.
CR-11	Complete an archaeological survey of the portions of the Summit Access Road corridor that are under UH management.	Completed	
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.	Ongoing	In 2012 Kahu Kū Mauna determined that this should be reviewed on a case-by-case basis. They identified criteria for when to consult for routine (minimal impact) project proposals, as well as with future development. In 2016, Kahu Kū Mauna revised their policy. MKMB approved their policy.
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, recognized lineal or cultural descendants, and SHPD.	Completed	SHPD reviewed and approved the Burial Treatment Plan for Mauna Kea in 2014.
CR-14	Immediately report any disturbance of a shrine or burial site to the rangers, DOCARE, Kahu Kū Mauna Council, and SHPD.	Ongoing	Rangers report disturbance to OMKM and OMKM in turn notifies other parties.

COMPONENT PLAN: UNDERSTANDING AND PROTECTING MAUNA KEA'S RESOURCES

Implementation
Schedule

Comments

NATURAL RESOURCES

Threat Prevention and Control

NR-1	Limit threats to natural resources through management of permitted activities and uses.	Ongoing	<p>OMKM consulted with agencies on a draft of administrative rules governing public and commercial activities.</p> <p>An Operations, Monitoring and Maintenance Plan (OMMP) relating to the coordination of maintenance plans, activities and schedules was developed and approved by the MKMB, and is being implemented.</p>
NR-2	Limit damage caused by invasive species through creation of an invasive species prevention and control program.	Ongoing	<p>The Maunakea Invasive Species Management Plan is approved and implemented. Additional topics are addressed as situations arise, and procedures are developed based on scientific, management board, and community feedback.</p> <p>A volunteer program was established to pull invasive weeds on UH's managed lands with emphasis in the Halepōhaku area. Long term goal is to re-vegetate the mid-level area with native plants.</p> <p>Beginning in 2007 OMKM conducted annual surveys of invasive arthropod species on UH's managed lands. This program was expanded to include monthly monitoring at the facilities at the 9,200 ft mid-level facilities, and quarterly monitoring of the summit facilities. Rapid response strategies were drafted as part of the Invasive Species Management Plan.</p> <p>Inspections of heavy equipment, construction material, and other items too large to be carried by an individual occur prior to coming on to UH's lands. Specific requirements are part of the Invasive Species Management Plan. A MS Student is evaluating program efficacy as part of his thesis, expected to be complete in 2017.</p>
NR-3	Maintain native plant and animal populations and biological diversity.	Ongoing	<p>Non-native plants and arthropods are monitored. The Division of Forestry and Wildlife is completing a circum-Maunakea fence and ungulate removal from Palila critical habitat. OMKM staff investigated māmane leaf curl frequency at Halepōhaku (plant disease response) in coordination with UHH scientists. Arthropod food webs and parasites are being investigated.</p>
NR-4	Minimize barriers to species migration to help maintain populations and protect ecosystem processes and development.	Ongoing	<p>OMKM coordinates with Forest Reserve, Natural Area Reserve, and Department of Land and Natural Resources technical staff to identify issues, craft appropriate responses, and investigate concerns regarding ecosystems and flora and fauna populations.</p>
NR-5	Manage ecosystems to allow for response to climate change.	Ongoing	<p>OMKM coordinates with Forest Reserve and Natural Area Reserve staff to ensure management activities do not inadvertently impede natural ecosystem response. Research into climate change forecast downscaling and climate monitoring helps inform potential future management action. OMKM participated in Pacific Islands Climate Change Cooperative workshops on climate change to help identify mitigation and adaptation strategies. A climate monitoring sea level to summit network plan is in preparation.</p>

NR-6	Reduce threats to natural resources by educating stakeholders and the public about Mauna Kea's unique natural resources.	Ongoing	<p>Rangers help to educate visitors about Maunakea as part of their daily activities.</p> <p>Resource orientation of those who work on the mountain including observatory personnel, VIS and MKSS staff, rangers, commercial tour operators and staff, and construction workers commenced in 2013. An online orientation is also available. A brief public / visitor orientation is complete and provided for scheduled group visits.</p> <p>See also CR-3 and EO-2</p>
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COMPONENT PLAN: UNDERSTANDING AND PROTECTING MAUNA KEA'S RESOURCES

		Implementation Schedule	Comments
Ecosystem Protection, Enhancement & Restoration			
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.	Ongoing	Botanical survey of UH managed lands is completed. Biodiversity, wēkiu bug, and erosion and surficial geology surveys are ongoing. A study and mapping of wēkiu bug habitat is completed..
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).	Ongoing	Assisted DLNR with fencing natural population of Silverswords. Other areas will be fenced when areas are identified and needed.
NR-9	Increase native plant density and diversity through an outplanting program.	Ongoing	Māmane seedlings germinated from seeds found in the Halepōhaku area were planted near the VIS Worked with DLNR and planted 200 Silversword seedlings in the Halepōhaku area. Collaborated with Kamehameha Schools to build plant propagation benches and start seedlings for eventual habitat restoration and enhancement at Halepōhaku. Germination of māmane seedlings continues. A small greenhouse at Halepōhaku is included in plans for improvements to visitor facilities.
NR-10	Incorporate mitigation plans into project planning and conduct mitigation following new development.	Ongoing	Mitigation and best management practices plans are required for projects as appropriate.
NR-11	Conduct habitat rehabilitation projects following unplanned disturbances.	Ongoing	Damage assessments and rehabilitation following unplanned disturbances are conducted on a case-by-case basis as needed. Generally, unplanned disturbances, such as vehicle oil leaks, occur on previously disturbed areas such as roadways, where humans frequent.
NR-12	Create restoration plans and conduct habitat restoration activities, as needed.	Ongoing	A study of wēkiu bug habitat restoration was initiated in 2015. A study and mapping of wēkiu bug habitat has been completed. Restoration plans and greenhouse for long-term program use are part of a project to improve the ingress/egress and parking at the VIS.
Program Management			
NR-13	Increase communication, networking, and collaborative opportunities to support management and protection of natural resources.	Ongoing	OMKM has established and continues to establish working relationships with the community and DLNR through working groups such as the Environment and Big Island Invasive Species committees, and OHA.
NR-14	Use the principles of adaptive management when developing programs and methodologies. Review programs annually and revise any component plan every five years, based on the results of the program review.	In Progress	Potential CMP revisions are identified in annual program documentation. Program plans, such as the Maunakea Invasive Species Management Plan, are updated and communicated at MKMB meetings as issues are identified.

COMPONENT PLAN: UNDERSTANDING AND PROTECTING MAUNA KEA'S RESOURCES

Implementation
Schedule

Comments

Inventory, Monitoring and Research			
NR-15	Conduct baseline inventories of high-priority resources, as outlined in an inventory, monitoring, and research plan.	Ongoing	<p>Baseline surveys of wēkiu bugs, other arthropods, including invasive species have been completed or are continuing. A botanical survey was completed in the Summer of 2011 and published in 2013.</p> <p>OMKM is funding a 4-year study on permafrost and working on designing a climate monitoring network. OMKM is also studying erosion to better understand surficial geology, cinder cone erosion, and characterize arthropod habitat. A bird and bat inventory commenced in 2017.</p>
NR-16	Conduct regular long-term monitoring, as outlined in an inventory, monitoring, and research plan.	Ongoing	OMKM conducts annual wēkiu bug, alien and invasive species surveys. Botanical and arthropod surveys are conducted as part of the annual archaeological monitoring. Other monitoring plans to be developed following baseline surveys.
NR-17	Conduct research to fill knowledge gaps that cannot be addressed through inventory and monitoring.	Ongoing	<p>OMKM funded a study to develop a long term model relating to climate change and potential impact to the summit ecosystem; a study of native arthropod habitats and vegetation association, arthropod food webs; analysis of historical weather climate conditions on the summit and meteorological and geological influences on insect and snowfall drops on the summit terrain to help inform wēkiu bug research; study to assess the presence and persistence of permafrost; surficial geology and erosion; and several studies related to the wēkiu bug including life history, genetics, habitat restoration, and habitat mapping.</p> <p>OMKM funded an international symposium on Tropical Alpine Ecosystems. Invited speakers are experts in research and management of alpine ecosystems. OMKM hopes to develop a network with other researchers and managers to gain knowledge to better manage Maunakea.</p>
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.	Ongoing	Wēkiu bug and botanical data, infrastructure and signs have been mapped. A GIS database of resources surveyed utilizing ArcGIS and distributed as GoogleEarth layers has been developed; new data as available is added to this database..
EDUCATION AND OUTREACH			
Program Development			
EO-1	Develop and implement education and outreach program	Ongoing	<p>Volunteer, Orientation, Brochures (Safety, Culture, Resources, What is OMKM) are available. In-school visits (Hilo Inter, Hawaii Academy of Arts and Sciences PCS, Ke Ana La'ahana, Waiakea High, Kealakehe Elementary) occur regularly. Community organizations and members help support OMKM's volunteer program.</p> <p>Work with Kealakehe Elementary School to support their annual Science Showcase at the school.</p> <p>Outreach activities by researchers are conducted at various schools; OMKM research affiliate also helps advise young scientists with their science fair projects</p> <p>Updates on OMKM activities are given to various community organizations. OMKM also participates in community events.</p>

COMPONENT PLAN: UNDERSTANDING AND PROTECTING MAUNA KEA'S RESOURCES

		Implementation Schedule	Comments
Education			
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.	Ongoing	Resource orientation of those who work on the mountain including observatory personnel, VIS and MKSS staff, rangers, commercial tour operators and staff, and construction workers commenced in 2013. Orientation is available to all interested parties in-person or online.
EO-3	Continue to develop, update, and distribute materials explaining important aspects of Mauna Kea.	Ongoing	Materials on the cultural and natural resources, visiting safely and responsibly and Mauna Kea hazards are distributed at the VIS. .
EO-4	Develop and implement a signage plan to improve signage throughout the UH Management Areas (interpretive, safety, rules and regulations).	Ongoing	A sign plan was approved by the MKMB in 2016. An inventory of sign locations on UH's managed lands has been completed. Cultural and safety related signs have been installed.
EO-5	Develop interpretive features such as self-guided cultural walks and volunteer-maintained native plant gardens.	In Progress	Included as part of ongoing CIP funded project.
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.	Ongoing	See EO-1
Outreach			
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.	Ongoing	OMKM through the MKMB, Kahu Kū Mauna, and Environment Committee provide opportunity for members of the community and other organizations to participate in the management activities of the mountain. Bi-monthly volunteer activities provide an opportunity for the community to participate and share knowledge. Meetings with community groups and open houses were conducted to give the public an opportunity to provide input and feedback on administrative rules being developed by OMKM.
EO-8	Provide opportunities for community members to participate in stewardship activities.	Ongoing	OMKM through the MKMB, Kahu Kū Mauna, and Environment provide opportunity for members of the community to participate in the management activities of the mountain. Bi-monthly volunteer activities provide an opportunity for the community to participate and share knowledge. Student projects and mentoring provides opportunities (science fair, legacy, etc.) for one-on-one interaction and more in-depth efforts.

COMPONENT PLAN: UNDERSTANDING AND PROTECTING MAUNA KEA'S RESOURCES

ASTRONOMICAL RESOURCES

AR-1	Operate the UH Management Areas to prohibit activities resulting in negative impacts to astronomical resources.	In Progress	These will likely be addressed in administrative rules. MKMB approved a draft of administrative rules governing public and commercial activities. UH is waiting for the Governor's approval to hold public hearings seeking community input.
AR-2	Prevent light pollution, radio frequency interference (RFI) and dust.	Ongoing	<p>Project proposals requesting the use of radio signals are reviewed by the Institute for Astronomy for potential interference with astronomical research activities.</p> <p>At the State level, the Starlight Reserve Advisory Committee was active from 2010 to 2015. Efforts by UH and DBEDT .to make the committee permanent were unsuccessful at the 2015 and 2016 Legislature were unsuccessful. They will try again in 2107.</p> <p>UH has been working closely with Hawaii County officials on outdoor lighting issues. This has resulted in the adoption of public-health, wildlife, and astronomy-friendly LED lights to replace the previous low-pressure sodium lights. UH and the County are now requesting the State to use similar lights at Hawaii Island airports and harbors. UH continues to provide advice on amendments to the Hawaii County lighting ordinance</p>

COMPONENT PLAN: MANAGING ACCESS AND USES

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ACTIVITIES AND USES

General Management

ACT-1	Continue and update managed access policy of 1995 Management Plan.	In Progress	This will likely be addressed in administrative rules. MKMB approved a draft of administrative rules governing public and commercial activities. UH is waiting for the Governor's approval to hold public hearings seeking community input.
ACT-2	Develop parking and visitor traffic plan.	In Progress	<p>Capital improvement funds are being used to implement an Ingress/egress, and parking plan to address concerns of traffic flow and pedestrian safety. An Environmental Assessment that identifies potential impacts of this project is being finalized.</p> <p>OMKM Rangers assist staff at the VIS with the implementation of their interim parking plan to maintain order, accommodate as many vehicles as possible and to ensure the safety of visitors to the VIS.</p> <p>An automated vehicle counter counts the number of vehicles (differentiating: public, commercial, tour, observatory, etc.) that drive above Halepōhaku.</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.	Ongoing	Mauna Kea Rangers are present year round from 7 am to 10 pm daily; DOCARE officers and Hawaii County Police are called for assistance on an as needed basis.

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.	Ongoing	<p>OMKM prohibits the use of off-road vehicles on UH's managed lands. Vehicle access to the top of Pu'u'upoli'ahu has been blocked since 2001 at the request of Kahu Kū Mauna.</p> <p>Commercial operators and film crews are required to stay on the road or within the footprint of existing facilities, unless granted permission by OMKM.</p> <p>This will likely be addressed in administrative rules. MKMB approved a draft of administrative rules governing public and commercial activities. UH is waiting for the Governor's approval to hold public hearings seeking community input.</p>
Recreational			
ACT-5	Implement policies to reduce impacts of recreational hiking	In Progress	This will likely be addressed in administrative rules. MKMB approved a draft of administrative rules governing public and commercial activities. UH is waiting for the Governor's approval to hold public hearings seeking community input.
ACT-6	Define and maintain areas where snow-related activities can occur and confine activities to slopes that have a protective layer of snow.	Ongoing	Generally, this is a self-regulated activity. People usually do not venture to areas where there is no snow. Administrative rules will also address this activity. A map of areas where snow play generally occurs has been developed, but areas change depending on the weather and snow deposition.
ACT-7	Confine University or other sponsored tours and stargazing activities to previously disturbed ground surfaces and established parking areas.	Ongoing	Star gazing activities on UH's lands are limited to parking lots, or in areas in close proximity to the VIS
ACT-8	Coordinate with DLNR in the development of a policy regarding hunting in the UH Management Areas.	In Progress	Hunting policy similar to DLNR's is being addressed in the UH's administrative rules.
COMPONENT PLAN: MANAGING ACCESS AND USES			
		Implementation Schedule	Comments
Commercial			
ACT-9	Maintain commercial tour permitting process; evaluate and issue permits annually.	Ongoing	UH oversees commercial tour permits, a responsibility transferred to UH from BLNR. This will likely be addressed in administrative rules. MKMB approved a draft of administrative rules governing public and commercial activities. UH is waiting for the Governor's approval to hold public hearings seeking community input.
ACT-10	Ensure OMKM input on permits for filming activities	Ongoing	<p>All film permits require OMKM's approval.</p> <p>This will likely be addressed in administrative rules. MKMB approved a draft of administrative rules governing public and commercial activities. UH is waiting for the Governor's approval to hold public hearings seeking community input.</p>
ACT-11	Seek statutory authority for the University to regulate commercial activities in the UH Management Areas.	Completed	<p>The function of commercial tour permitting was transferred by BLNR to UH. OMKM oversees commercial tour operations and film activities.</p> <p>Statutory authority to promulgate administrative rules was granted by the Legislature in 2009.</p> <p>This will likely be addressed in administrative rules. MKMB approved a draft of administrative rules governing public and commercial activities. UH is waiting for the Governor's approval to hold public hearings seeking community input.</p>

Scientific Research			
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.	Ongoing	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 Kahu Kū Mauna and MKMB. Permitted by DLNR as appropriate.
PERMITTING AND ENFORCEMENT			
Laws and Regulations			
P-1	Comply with all applicable federal, state, and local laws, regulations, and permit conditions related to activities in the UH Management Areas.	Ongoing	This is a condition of UH's leases with DLNR. Rangers monitor activities. Regular communication with DLNR's Division of Conservation and Resources Enforcement, County of Hawaii police, and Sheriff's department continues as demonstrated during TMT protests.
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.	Ongoing	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-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.	Completed	
P-4	Educate management staff and users of the mountain about all applicable rules and permit requirements.	Ongoing	Included as part of the orientation and with new project start-up meetings.

COMPONENT PLAN: MANAGING ACCESS AND USES			
		Implementation Schedule	Comments
Enforcement			
P-5	Continue coordinating with other agencies on enforcement needs.	Ongoing	OMKM coordinates with DOCARE on enforcement activities. Ranger observations are sent to DLNR, NAR, DOFAW, and US Fish & Wildlife Service.
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.	Completed	
P-7	Develop and implement protocol for oversight and compliance with Conservation District Use Permits.	Ongoing	OMKM rangers conduct twice yearly inspections of all observatories for CDUP compliance.
P-8	Enforce conditions contained in commercial and Special Use permits.	Ongoing	Rangers' responsibilities includes oversight of commercial tour activities and special use permits issued by OMKM.
COMPONENT PLAN: MANAGING THE BUILT ENVIRONMENT			
		Implementation Schedule	Comments
INFRASTRUCTURE AND MAINTENANCE			
Routine Maintenance			
IM-1	Develop and implement an OMMP.	Completed/ Ongoing	An Operations Monitoring and Maintenance Plan (OMMP) was reviewed by Kahu Kū Mauna and approved by the MKMB. Implementation is ongoing.
IM-2	Reduce impacts from operations and maintenance activities by educating personnel about Mauna Kea's unique resources.	Ongoing	A cultural and natural resources orientation program has been developed and is implemented. Training sessions on resources and safety are conducted for OMKM and Maunakea Observatory Support Staff.
IM-3	Conduct historic preservation review for maintenance activities that will have an adverse effect on historic properties.	In Progress	OMKM is currently developing a Programmatic Agreement/MOU relating to maintenance activities that will be submitted to State Historic Preservation Division.
IM-4	Evaluate need for and feasibility of a vehicle wash station near Hale Pōhaku, and requiring that vehicles be cleaned.	In Progress	OMKM is funding a study to evaluate the efficacy current measures to prevent the introduction of invasive species, including vehicle and equipment wash practices
IM-5	Develop and implement a Debris Removal, Monitoring and Prevention Plan.	Ongoing	Trash from the HP facilities and VIS are removed daily. Each observatory removes trash from their respective facilities. Rangers routinely check for and pick up trash and debris while on their daily patrols. Rangers pick up and map the location of trash at the parking lot near the trail head to Lake Waiau (NAR). The amount of trash decreased following the installation of a portable toilet. A draft plan is under review.
IM-6	Develop and implement an erosion inventory and assessment plan.	In Progress	OMKM partnered with UH Hilo geography department to study surficial geology and cinder cone erosion issues.
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.	Ongoing	An inventory of all known aircraft and military wreckage was submitted to the Department of Defense for review and updating. OMKM anticipates working with DOD and SHPD to determine appropriate plans for removal or preservation in place.

COMPONENT PLAN: MANAGING THE BUILT ENVIRONMENT

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Infrastructure			
IM-8	Assess feasibility of paving the Summit Access Road.	Completed/ Ongoing	An engineering study related to the paving of the access road from Halepōhaku to the summit was completed in 1984. This study was the basis for paving the road from the summit to about the boundary of the Science Reserve. Another study was prepared in 2017 of the damage caused by large storms over the past 10 years. The report assessed repairs needed and potential cost.
IM-9	Evaluate need for additional parking lots and vehicle pullouts and install if necessary.	In-Progress	As part of the CIP ingress/egress project at the VIS, additional parking was assessed. Because the cost to execute the entire project scope was much more than available funding, the parking lot had to be scaled back.
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.	Ongoing	OMKM is currently studying VIS renovation and expansion to meet safety needs and to educate the visiting public. Initial consideration of converting the presentation room building into a rest and eating stop for commercial tours as a means of reducing congestion at the VIS and providing greater access by the independent travelers, has been put on hold until completion of the ingress/egress project is completed, or if another solution presents itself. Additional portable toilets are available at the summit to address restroom facilities needs at the summit.
Sustainable Technologies			
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.	Ongoing	The proposed Thirty Meter Telescope is incorporating energy efficiency in its design. Maunakea Observatory Support Services installed a photovoltaic system at Halepōhaku; Gemini observatory installed, and Keck observatory is planning to install photovoltaic systems on their respective summit facilities.
IM-12	Conduct energy audits to identify energy use and system inefficiencies, and develop solutions to reduce energy usage.	Ongoing	Energy audits are part of the photovoltaic system design process, completed or in progress at Gemini, Keck, and Halepōhaku.
IM-13	Conduct feasibility assessment, in consultation with Hawaii Electric Light Company, on developing locally-based alternative energy sources.	Ongoing	MKSS installed a photovoltaic system at Halepōhaku. Additional energy conservation and sustainable generation possibilities are discussed by UHH, MKSS, and Observatories as opportunities arise.
IM-14	Encourage observatories to investigate options to reduce the use of hazardous materials in telescope operations.	Ongoing	With the development of new technology, observatories are beginning to reduce their need to use hazardous materials. An example, is the TMT observatory, which will not be using mercury.

COMPONENT PLAN: MANAGING THE BUILT ENVIRONMENT

COMPONENT PLAN: MANAGING THE BUILT ENVIRONMENT

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on Schedule

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CONSTRUCTION GUIDELINES

General Requirements

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.	Ongoing	Included as part of the proposed TMT Management Plan in its CDUA.
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Best Management Practices

C-2	Require use of Best Management Practices Plan for Construction Practices.	Ongoing	Included as part of the proposed TMT Management Plan in its CDUA. A template for adaptation and use by others is also available.
C-3	Develop, prior to construction, a rock movement plan.	Ongoing	Included as part of the proposed TMT Management Plan in its CDUA.
C-4	Require contractors to provide information from construction activities to OMKM for input into OMKM information databases.	Ongoing	Included as part of the proposed 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.	Ongoing	Included as part of the proposed TMT Management Plan in its CDUA.
C-6	Conduct required archaeological monitoring during construction projects per SHPD approved plan	Ongoing	Included as part of the proposed TMT Management Plan in its CDUA.
C-7	Education regarding historical and cultural significance	Ongoing	Included as part of the proposed TMT Management Plan in its CDUA.
C-8	Education regarding environment, ecology and natural resources	Ongoing	Included as part of the proposed TMT Management Plan in its CDUA.
C-9	Inspection of construction materials	Ongoing	Included as part of the proposed TMT Management Plan in its CDUA.

SITE RECYCLING, DECOMMISSIONING, DEMOLITION AND RESTORATION

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.	Ongoing	This will be part of the TMT decommissioning plan, with the TMT decommissioning funding plan approved by the MKMB in 2014.
SR-2	Require observatories to develop a restoration plan in association with decommissioning, to include an environmental cost-benefit analysis and a cultural assessment.	Ongoing	Included as part of the proposed 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.	Ongoing	Included as part of the proposed TMT Management Plan in its CDUA.

		Implementation Schedule	Comments
CONSIDERING FUTURE LAND USE			
Facility Planning Guidelines			
FLU-1	Follow design guidelines presented in the 2000 Master Plan.	Ongoing	The Design Review Process, which incorporated the 2000 Master Plan's design guidelines, were used in the review of the Thirty Meter Telescope project
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.	Ongoing	Areas previously mapped as off-limits for future land use through plans such as the Master Plan or CMP are used to limit any proposed activity. UH President Lassner confirmed that TMT was the last telescope to be built on undisturbed land. Resource data must be part of any proposal for major land use requests. HAR 13-5 allows for different types of land uses with each having its own requirements for preparing a land use application. Thus a single pre-prepared map cannot possibly address all potential scenarios.
FLU-3	Require cataloguing of initial site conditions for use when conducting site restoration.	Ongoing	TMT project was example (photo documentation received)
FLU-4	Require project specific visual rendering of both pre- and post-project settings to facilitate analysis of potential impacts to view planes.	Ongoing	TMT project was example (photo documentation received)
FLU-5	Require an airflow analysis on the design of proposed structures to assess potential impacts to aeolian ecosystems.	Ongoing	TMT project was example
FLU-6	Incorporate habitat mitigation plans into project planning process.	Ongoing	TMT project was example
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.	Ongoing	TMT project was example

COMPONENT PLAN: MANAGING OPERATIONS			
		Implementation Schedule	Comments
OPERATION AND IMPLEMENTATION			
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.	Ongoing	The MKMB meets regularly, holding numerous public meetings; which includes consultation with Kahu Kū Mauna Council. OMKM continues to submit CMP management actions (such as the OMMP) to MKMB. MKSS continues to maintain the road and public services, financially supported by the Maunakea Observatories.
OI-2	Develop training plan for staff and volunteers.	Completed	OMKM requires all staff and volunteers to attend the Maunakea orientation. A training plan was submitted and approved by the MKMB; bi-monthly trainings of all staff is being conducted.
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.	Ongoing	OMKM has frequent contact in particularity with its neighbor, DLNR on resource management issues. OMKM rangers report unusual or suspicious behavior observed on DLNR lands to DLNR including DOCARE.
OI-4	Establish grievance procedures for OMKM, to address issues as they arise.	In Progress	OMKM is currently designing a grievance process.
OI-5	Update and implement emergency response plan.	Ongoing	Emergency response plan is reviewed annually.
MONITORING, EVALUATION AND UPDATES			
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.	Ongoing	Reports are provided at the publicly held MKMB Meetings.
MEU-2	Conduct regular updates of the CMP that reflect outcomes of the evaluation process, and that incorporate new information about the resources.	In Progress	Five-year CMP revision interval was initiated in 2014 and is now pending the "Envision Maunakea" community input process and execution and resolution of the Governor's 10-point plan, including the return of a substantial portion of land to DLNR.
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.	In Progress	Updates to the Master lease has been initiated, but requires the preparation of an EIS.

Appendix B

Cumulative Annual Progression of CMP Implementation Status

Management		CMP		Annual Implementation Status							
Action	Description	Implementation Timeframe	2010	2011	2012*	2013	2014	2015	2016	2017	Comment
Native Hawaiian Cultural Resources											
Management											
CR-1	Kahu Kū Mauna shall work with families with lineal and historical connections to Maunakea, cultural practitioners, and other Native Hawaiian groups, including the Maunakea Management Board's Hawaiian Culture Committee, toward the development of appropriate procedures and protocols regarding cultural issues.	Immediate		Ongoing	In Progress	In Progress	Ongoing				
CR-2	Support application for designation of the summit region of Maunakea as a Traditional Cultural Property, per the National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470 et seq. in consultation with the larger community.	Short-term							Ongoing		
CR-3	Conduct educational efforts to generate public awareness about the importance of preserving the cultural landscape.	Immediate		Ongoing	In Progress	In Progress	Ongoing				
Cultural Practices											
CR-4	Establish a process for ongoing collection of information on traditional, contemporary, and customary cultural practices.	Short-term									
CR-5	Develop and adopt guidelines for the culturally appropriate placement and removal of offerings.	Immediate			In Progress*						
CR-6	Develop and adopt guidelines for the visitation and use of ancient shrines.	Immediate			In Progress				Ongoing		
CR-7	Kahu Kū Mauna shall take the lead in determining the appropriateness of constructing new Hawaiian cultural features.	Immediate			In Progress*						
CR-8	Develop and adopt a management policy for the UH Management Areas on the scattering of cremated human remains.	Immediate		Ongoing	In Progress*						
CR-9	A management policy for the culturally 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.	Immediate		Ongoing	In Progress*						
Historic Properties											
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.	Immediate		Ongoing	In Progress	In Progress	Completed	Completed	Completed	Completed	
CR-11	Complete an archaeological survey of the portions of the Summit Access Road corridor that are under UH management	Completed									

Management		CMP Implementation		Annual Implementation Status							
Action	Description	Timeframe	2010	2011	2012*	2013	2014	2015	2016	2017	Comment
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	Immediate		As needed	As needed	As needed	Ongoing				
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, recognized lineal or cultural descendants, and SHPD.	Immediate		Ongoing	In Progress	In Progress	Completed				A burial treatment plan was approved by SHPD in July 2014. This was incorrectly reported as 'In Progress' in the previously submitted 2014 and 2015 narrative reports.
CR-14	Immediately report any disturbance of a shrine or burial site to the rangers, DOCARE, Kahu Kū Mauna Council, and SHPD	Ongoing									
Natural Resources											
Threat Prevention and Control											
NR-1	Limit threats to natural resources through management of permitted activities and uses	Short-term			In Progress	In Progress	In Progress	In Progress	Ongoing		
NR-2	Limit damage caused by invasive species through creation of an invasive species prevention and control program	Immediate		Ongoing	In Progress		Ongoing				
NR-3	Maintain native plant and animal populations and biological diversity	Mid and Long-term								Ongoing	
NR-4	Minimize barriers to species migration, to help maintain populations and protect ecosystem processes and development.	Mid and Long-term								Ongoing	
NR-5	Manage ecosystems to allow for response to climate change	Long-term								Ongoing	
NR-6	Reduce threats to natural resources by educating stakeholders and the public about Maunakea's unique natural resources.	Immediate		Ongoing							
Ecosystem Protection, Enhancement & Restoration											
NR-7	Delineate areas of high native diversity, unique communities, or unique geological features within the Astronomy Precinct and at Halepōhaku and consider protection from development.	Short and Mid-term					In Progress		Ongoing		
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).	Mid-term					Ongoing		Ongoing	Ongoing	
NR-9	Increase native plant density and diversity through an outplanting program.	Long-term							Ongoing		

Management		CMP		Annual Implementation Status							
Action	Description	Implementation Timeframe	2010	2011	2012*	2013	2014	2015	2016	2017	Comment
NR-10	Incorporate mitigation plans into project planning and conduct mitigation following new development.	As needed					Ongoing				
NR-11	Conduct habitat rehabilitation projects following unplanned disturbances.	As needed					Ongoing				
NR-12	Create restoration plans and conduct habitat restoration activities, as needed.	As needed							In Progress	Ongoing	
Program Management											
NR-13	Increase communication, networking, and collaborative opportunities, to support management and protection of natural resources.	Immediate		Ongoing	In Progress	Ongoing					
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.	Short-term / As needed					In Progress				'In Progress' designation reflects Envision Maunakea process and is dependent upon exact scope of Governor Ige's directive to return 10,000 acres.
Inventory, Monitoring and Research											
NR-15	Conduct baseline inventories of high-priority resources, as outlined in an inventory, monitoring, and research plan.	Immediate		Ongoing							
NR-16	Conduct regular long-term monitoring, as outlined in an inventory, monitoring, and research plan	Ongoing			In Progress	Ongoing					
NR-17	Conduct research to fill knowledge gaps that cannot be addressed through inventory and monitoring.	Immediate		Ongoing							
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.	Ongoing			In Progress		Ongoing				
Education and Outreach											
Program Development											
EO-1	Develop and implement education and outreach program	Immediate and Short-term				Ongoing					
Education											
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.	Long-term			In Progress	Ongoing					

Management		CMP	Annual Implementation Status								
Action	Description	Implementation Timeframe	2010	2011	2012*	2013	2014	2015	2016	2017	Comment
EO-3	Continue to develop, update, and distribute materials explaining important aspects of Maunakea.	Ongoing			In Progress	Ongoing					
EO-4	Develop and implement a signage plan to improve signage throughout the UH Management Areas (interpretive, safety, rules and regulations).	Immediate							In Progress	Ongoing	
EO-5	Develop interpretive features such as self-guided cultural walks and volunteer-maintained native plant gardens.	Mid-term							In Progress		
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.	Mid-term					Ongoing				
Outreach											
EO-7	Continue and increase opportunities for community members to provide input to cultural and natural resources management activities on Maunakea, 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.	Ongoing									
EO-8	Provide opportunities for community members to participate in stewardship activities.	Ongoing									
Astronomy Resources											
Protection of Astronomical Resources											
AR-1	Operate the UH Management Areas to prohibit activities resulting in negative impacts to astronomical resources.	Ongoing			In Progress						
AR-2	Prevent light pollution, radio frequency interference (RFI) and dust.	Ongoing									
Activities and Uses											
General Management											
ACT-1	Continue and update managed access policy of 1995 Management Plan.	Short-term			In Progress						
ACT-2	Develop parking and visitor traffic plan.	Immediate		Ongoing	In Progress						
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.	Ongoing									
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.	Ongoing									
Recreational											

Management		CMP		Annual Implementation Status							
Action	Description	Implementation Timeframe	2010	2011	2012*	2013	2014	2015	2016	2017	Comment
ACT-5	Implement policies to reduce impacts of recreational hiking	Short-term			In Progress						
ACT-6	Define and maintain areas where snow-related activities can occur and confine activities to slopes that have a protective layer of snow	Ongoing									
ACT-7	Confine University or other sponsored tours and star-gazing activities to previously disturbed ground surfaces and established parking areas.	Ongoing									
ACT-8	Coordinate with DLNR in the development of a policy regarding hunting in the UH Management Areas.	Immediate		Ongoing	In Progress						
Commercial											
ACT-9	Maintain commercial tour permitting process; evaluate and issue permits annually.	Ongoing									
ACT-10	Ensure OMKM input on permits for filming activities	Ongoing									
ACT-11	Seek statutory authority for the University to regulate commercial activities in the UH Management Areas.	Completed									
Scientific Research											
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.	Ongoing									
Permitting and Enforcement											
Laws and Regulations											
P-1	Comply with all applicable federal, state, and local laws, regulations, and permit conditions related to activities in the UH Management Areas.	Ongoing									
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.	As needed			Ongoing						
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.	Completed									
P-4	Educate management staff and users of the mountain about all applicable rules and permit requirements.	Immediate		Ongoing							
Enforcement											
P-5	Continue coordinating with other agencies on enforcement needs.	Ongoing									
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 Maunakea.	Completed / As needed		Completed							

Management		CMP Implementation			Annual Implementation Status						
Action	Description	Timeframe	2010	2011	2012*	2013	2014	2015	2016	2017	Comment
P-7	Develop and implement protocol for oversight and compliance with Conservation District Use Permits.	Ongoing									
P-8	Enforce conditions contained in commercial and Special Use permits.	Ongoing									
Infrastructure and Maintenance											
Routine Maintenance											
IM-1	Develop and implement an OMMP.	Ongoing			In Progress				Completed/Ongoing		
IM-2	Reduce impacts from operations and maintenance activities by educating personnel about Maunakea's unique resources.	Immediate		Ongoing	In Progress	Ongoing					
IM-3	Conduct historic preservation review for maintenance activities that will have an adverse effect on historic properties.	Short-term			In Progress						
IM-4	Evaluate need for and feasibility of a vehicle wash station near Halepōhaku, and requiring that vehicles be cleaned.	Short-term					In Progress				
IM-5	Develop and implement a Debris Removal, Monitoring and Prevention Plan.	Immediate		Ongoing							
IM-6	Develop and implement an erosion inventory and assessment plan.	Long-term					In Progress				
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.	Mid-term							Ongoing		
Infrastructure											
IM-8	Assess feasibility of paving the Summit Access Road.	Long-term			In Progress				Completed/Ongoing		
IM-9	Evaluate need for additional parking lots and vehicle pullouts and install if necessary.	Mid-term								In Progress	
IM-10	Evaluate need for additional public restroom facilities in the summit region and at Halepōhaku, and install close-contained zero waste systems if necessary.	Immediate			In Progress				Ongoing		
Sustainable Technologies											
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.	As needed					Ongoing				
IM-12	Conduct energy audits to identify energy use and system inefficiencies, and develop solutions to reduce energy usage.	Immediate							Ongoing		
IM-13	Conduct feasibility assessment, in consultation with Hawaii Electric Light Company, on developing locally-based alternative energy sources.	Mid-term							In Progress	Ongoing	

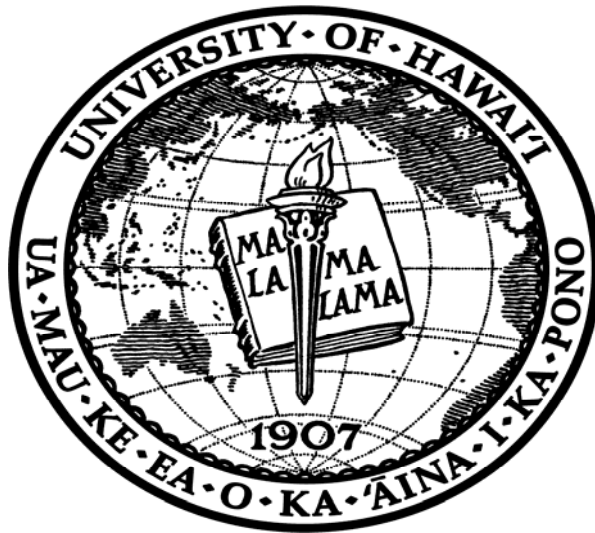
Management		CMP	Annual Implementation Status								
Action	Description	Implementation Timeframe	2010	2011	2012	2013	2014	2015	2016	2017	Comment
IM-14	Encourage observatories to investigate options to reduce the use of hazardous materials in telescope operations.	Short-term							Ongoing		
Construction Guidelines											
General Requirements											
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.	As needed					Ongoing				
Best Management Practices											
C-2	Require use of Best Management Practices Plan for Construction Practices.	As needed					Ongoing				
C-3	Develop, prior to construction, a rock movement plan.	As needed					Ongoing				
C-4	Require contractors to provide information from construction activities to OMKM for input into OMKM information databases.	As needed					Ongoing				
C-5	Require on-site monitors (e.g., archaeologist, cultural resources specialist, entomologist) during construction, as determined by the appropriate agency.	As needed					Ongoing				
C-6	Conduct required archaeological monitoring during construction projects per SHPD approved plan.	As needed					Ongoing				
C-7	Education regarding historical and cultural significance.	As needed					Ongoing				
C-8	Education regarding environment, ecology and natural resources.	As needed					Ongoing				
C-9	Inspection of construction materials.	As needed					Ongoing				
Site Recycling, Decommissioning, Demolition and Restoration											
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.	As needed					Ongoing				
SR-2	Require observatories to develop a restoration plan in association with decommissioning, to include an environmental cost-benefit analysis and a cultural assessment.	As needed					Ongoing				
SR-3	Require any future observatories to consider site restoration during project planning and include provisions in subleases for funding of full restoration.	As needed					Ongoing				
Considering Future Land Use											
Facility Planning Guidelines											
FLU-1	Follow design guidelines presented in the 2000 Master Plan	As needed			Ongoing						

Management		CMP		Annual Implementation Status							
Action	Description	Timeframe	2010	2011	2012*	2013	2014	2015	2016	2017	Comment
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	Short-term								Ongoing	
FLU-3	Require cataloguing of initial site conditions for use when conducting site restoration.	As needed					Ongoing				
FLU-4	Require project specific visual rendering of both pre- and post-project settings to facilitate analysis of potential impacts to view planes.	As needed					Ongoing				
FLU-5	Require an airflow analysis on the design of proposed structures to assess potential impacts to aeolian ecosystems.	As needed					Ongoing				
FLU-6	Incorporate habitat mitigation plans into project planning process.	As needed					Ongoing				
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	As needed					Ongoing				
Operations and Implementation Management											
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.	Ongoing									
OI-2	Develop training plan for staff and volunteers	Ongoing			In Progress				Completed		
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.	Ongoing									
OI-4	Establish grievance procedures for OMKM, to address issues as they arise.	Short-term							In Progress		
OI-5	Update and implement emergency response plan.	Ongoing									
Monitoring, Evaluation, and Updates Management											
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.	Immediate		Ongoing							

Management		CMP	Annual Implementation Status								
Action	Description	Implementation Timeframe	2010	2011	2012*	2013	2014	2015	2016	2017	Comment
MEU-2	Conduct regular updates of the CMP that reflect outcomes of the evaluation process, and that incorporate new information about the resources.	Short-term / As needed					In Progress		In Progress		'In Progress' designation reflects Envision Maunakea process and is dependent upon exact scope of Governor Ige's directive to return 10,000 acres.
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 Maunakea and reflect stewardship matters resolved with DLNR.	As needed					In Progress				

*In 2012 the **Ongoing** category was divided into two groups, **Ongoing** and **In Progress**.

* A lawsuit was filed in federal court which was dismissed without prejudice; the plaintiff may still seek further judicial relief



UNIVERSITY OF HAWAI'I SYSTEM

ANNUAL REPORT

REPORT TO THE 2007 LEGISLATURE

Annual Report on
Long-term development of observatory sites on the summit of Mauna Kea

HCR 314 HD1, 2006

December 2006

Response to

HCR 314, Regular Session of 2006

Report on long-term development of observatory sites on the summit of Mauna Kea

by

**Rolf-Peter Kudritzki
Director, Institute for Astronomy
University of Hawaii**

December 1, 2006

Summary. A report on the long-term future development of observatory sites on the Summit of Mauna Kea is given. A conceptual plan is presented that proposes a much smaller number of future projects than foreseen in the University of Hawaii Master Plan of 2000. The long-range goal is to have eventually fewer observatories than now, but still the very best in the world in this way securing continued world leadership in astronomical research and education in Hawaii for the next decades.

1. Introduction.

This report is submitted in response to the request by the House of Representatives of the Twenty-third Legislature of the State of Hawaii, Regular Session of 2006, the Senate concurring, "that the University of Hawaii Institute for Astronomy prepares a report on the long-term development of observatory sites on the summit of Mauna Kea, including a conceptual plan that consolidates the number of observatory sites, to enhance the quality of astronomy research and limit the size of the geographical area on which to situate new observatories."

The report is structured as follows. We first describe the present situation of astronomical research and education in Hawaii and its important role for the State and the University. Then, we discuss the concept for long-term astronomical development, as it is described in the comprehensive and detailed "Mauna Kea Science Reserve Master Plan", which was approved by the Board of Regents in June 2000. Since the development of the Master Plan, the scientific priorities of astronomy for the new century have become much clearer, and a new more concise concept for future astronomical development has emerged that will guarantee Hawaii's continued world leadership in astronomical research and education, while at the same time being well balanced with the needs for cultural and environmental protection of Mauna Kea. This concept will be introduced in section three of this report.

1. The role of astronomy in Hawaii.

To appreciate the role of astronomy in our state, one first needs to understand the history of astronomy development in Hawaii; the basic philosophy behind that development; the essential role played by the Institute for Astronomy; and the educational, scientific and economic benefits that accrue from astronomy.

The Institute for Astronomy (IfA) is 38 years old and is by far the youngest among top-ranked astronomy programs in the U.S. In this short time, the Institute has grown to become one of the most visible of UH's scientific research programs and one of the most respected astronomy institutes in the world. The IfA plays in the same league as Caltech, Harvard, Princeton, Berkeley, and Cambridge. It attracts the best faculty and the best students from around the world. It has become a pillar of academic excellence and certainly an engine of economic growth in the State. Where once school kids in the world learned that the center of astronomy was Mount Palomar in California, now they learn it is in Hawaii. How has this story of scientific success been possible in such a short time?

The answer to this question is the superior quality of Mauna Kea and Haleakala as the world's best observatory sites and the concept developed by the IfA, the University and the State to build up the most capable observatory in the world. The astronomers of the IfA were the first in the world to dare to build a technologically very challenging and complex observatory with small, but very efficient, telescopes at the extreme elevation and thin air of 13,796 ft. With their exciting astronomical detections they were able to demonstrate to the world that Mauna Kea is unique as an astronomical site.

Scientifically, the logical consequence for UH would have been to use this enormous advantage to build the next generation of most powerful telescopes on its own, as the universities in California, Texas, Arizona and on the East Coast did before. However, UH was (and is) a medium size State University with a very limited budget, and Hawaii is a small state with limited resources. Thus, a different concept was developed—the concept of scientific partnerships.

Within this concept the national and international partners contribute the capital funding for the facility, carry most or all of the operational costs, and contribute to the infrastructure development. The University, through the IfA, provides the leadership and know-how to operate an observatory at extreme altitude, the management of the physical and operational infrastructure (roads, power, fiber-optics communications, food, lodging) and ongoing protection from adverse intrusions such as light pollution and radio frequency interference. The University also provides the land for the observatory site from its lease from the State, along with assistance in planning and permitting. The University and its partners collaborate in the scientific use of the telescopes including development of technologically advanced instrumentation. Most importantly, they share the scientific observing time on the facilities with no cost to the University.

In this way, the University and the State did not have to contribute the enormous capital costs to design and build the extremely powerful new telescopes, but were still able to provide researchers with access to these unique facilities and give them the opportunity to build up one of the best research and education programs in the world. The benefits, both economic and otherwise, are substantial as indicated below.

1. Astronomy facilities on Mauna Kea and Haleakala represent a capital investment of close to \$1 billion. The economic impact of astronomy to the State amounts to \$150 million per year. New projects for Haleakala and Mauna Kea have the potential to double these numbers.
2. The observatories and other astronomy-related activities on Mauna Kea and Haleakala provide 600 quality jobs in a clean high-tech industry on the neighbor islands. It is important to note that only a small fraction of these jobs are for astronomers. Most of them are for technical, administrative and logistic services. This number will increase if we continue to follow the sound policies that have been in place for nearly 30 years. Beyond the simple numbers, there is the fact that astronomy as a high-tech science diversifies the Hawaii economy and gives local young people with scientific and technical talents a wealth of opportunities to realize their potential without having to leave their family and friends in Hawaii to pursue employment elsewhere. Unlike some high-tech industries, astronomy is fundamentally rooted in Hawaii. Once established, an astronomy facility cannot be easily relocated to the mainland or overseas.
3. The IfA has developed into one of the world's preeminent centers for astronomical research. The Institute receives extramural awards totaling between \$20 to \$25 million annually for astronomical research, for development of new astronomical instrumentation, for improving its own old telescopes and for operating telescopes, such as the NASA Infrared Telescope Facility on Mauna Kea and the Mees Solar Observatory on Haleakala. Its graduate program belongs to the best in the world and about 1,000 undergraduate students per year participate in astronomy courses in Manoa. In addition, UH Hilo has recently developed a very successful astronomy undergraduate program. Astronomy is one of UH's most successful programs.
4. The Mauna Kea Observatories are the world's largest observatory complex, and will remain so for the foreseeable future. Hawaii and its State University are recognized around the world for this outstanding achievement—a source of tremendous prestige for the State. Approximately 1,500 scientists come to work at the Observatories each year; most add some vacation time to their trip. Hundreds of others come to Hawaii each year to participate in astronomy-related conferences. Several small companies make a business of providing quality tours to Mauna Kea. The observatories' base facilities in Hilo, Waimea and on Maui are a major addition to those communities and contribute in many ways.

5. Over the years, the observatories have made significant monetary contributions to the infrastructure, much of which is of benefit to the general community. This includes \$2 million for road improvements on Mauna Kea and another \$2 million to assist GTE Hawaiian Tel to install a fiber optics cable across the Saddle from Waimea to Hilo. This cable provides state-of-the-art service for both the Big Island telephone system and the observatories.
6. The observatories operate the Visitor Information Station at Hale Pohaku, which provides free public star gazing seven nights a week and welcomes about 100,000 visitors each year.
7. The observatories pay the entire cost of maintenance and snow removal for the road and they pay for emergency services. The public can use the road all the time. The costs for this service and the Visitor Station amount to \$700,000 a year.

Although the economic benefits are substantial, it is important to keep in mind that the primary mission of astronomy is not to generate revenue. Astronomy is basic science and concentrates on the scientific exploration of the universe. Astronomy is the mother of all sciences and has changed our understanding of the world and our thinking as humans like no other science. The telescopes on Mauna Kea and Haleakala have contributed fundamentally to the advancement of modern astronomy. They are world-class research facilities, and the best window our planet provides on the strange and wonderful universe we live in.

2. Long-term astronomical development in the 2000 Master Plan.

The 2000 Master Plan is a comprehensive document, which was approved by the Board of Regents in June 2000 after an arduous, two-year process with input from all sectors of the community, and supervised by a community-based advisory committee chaired by two faculty members at UH Hilo's College of Hawaiian Language, Dr. Pila Wilson and Mr. Larry Kimura. It was accompanied by a State Environmental Impact Statement signed by the Governor of the State. The Master Plan has been submitted to the Legislature on many occasions and is available on the Institute for Astronomy's website. The scope of the Master Plan is much broader than future development of astronomy. It addresses the cultural and environmental aspects of the University's use and responsibility for the Mauna Kea Science Reserve and proposes a new organizational structure, which has been implemented by establishing the Office of Mauna Kea Management, based at the University of Hawaii at Hilo, and two important community-based advisory bodies, the Mauna Kea Management Board, and Kahu Ku Mauna, the Office's and Board's cultural advisory council. Within the new organizational structure the Institute for Astronomy's responsibility on Mauna Kea is limited to astronomical operation, research and education, whereas the Office has the responsibility for the cultural and environmental protection and all other aspects of land management. In this report we will not discuss these latter aspects. It is our understanding from the 2006 hearings that the objective of HCR 314 is to obtain information on the prospects and

plans for future astronomical development on Mauna Kea, and we have restricted the report accordingly.

The scientific progress in modern astronomy is intimately related to the development of new technologies, new instrumentation, and new and more powerful telescopes. Without such development it is impossible to stay at the forefront of astronomical research. It is therefore natural that the Master Plan also contains a section about very ambitious future astronomical development. However, this development together with all but one of the existing facilities is confined to the "Astronomy Precinct", a very small fraction of less than five percent (4.65% or 525 acres) of the existing Mauna Kea Science Reserve of 11,288 acres in order to maintain a close grouping of astronomy facilities, roads and support infrastructure. This approach minimizes the potential impact to the natural and cultural resources of the summit region. The criteria to be followed for new facilities proposed in the Astronomy Precinct include:

- Emphasize recycling of existing sites when possible so as not to disturb existing habitat areas, archeology and landforms;
- Limit visual impact and scattering of facilities by clustering within the existing development areas;
- Utilize the natural forms in the summit area to shield views of built facilities;
- Implement design measures to allow facilities to blend better with the existing landscape;
- Minimize infrastructure development by locating near the existing roadway and utility network;
- Minimal impact on existing facilities;
- Minimum impact of Wekiu bug habitat;
- Avoidance of archeological sites;
- Suitability for observations.

A vigorous UH approval process for new project has been introduced, which includes reviews by the Office of Mauna Kea Management, the Kahu Ku Mauna Council, the Mauna Kea Management Board, the Chancellor of UH Hilo, the UH President and finally the Board of Regents. In addition, new projects have to carry out an environmental analysis in the form of either an Environmental Assessment or an Environmental Impact Statement and they have to go through the State process with the Department of Land and Natural Resources to obtain a Conservation District Use Permit. In the whole process each new facility will be required to present a detailed justification addressing the following questions

- (1) Why is the facility needed?
- (2) Why is Mauna Kea the best site for the facility?
- (3) What other location options are available?
- (4) What are the expected benefits with regard to research and education, employment and economy
- (5) What is the expected facility lifetime and term of sublease agreement?

There are currently 12 observatories on Mauna Kea. The Master Plan identifies five of those (the UH 0.6m, the UH 2.2m, the Canada-France-Hawaii Telescope, the United Kingdom Infrared Telescope, and the NASA Infrared Telescope Facility) as older facilities, several of which could be upgraded or replaced within the next 20 years. The expectation is that the new or upgraded telescopes would come in a range of sizes from 2 to 15 meter mirror sizes (note that the 10m-class mirrors of the existing Keck, Gemini and Subaru Telescopes represent the current state-of-the art observatory facilities), however there are clear restrictions in terms of the height and volume for these facility redevelopments. The Master Plan also assumes that the other seven existing facilities would remain as is over the next 20 years.

In addition, the Master Plan envisages the expansion of two existing facilities. For the Keck Observatory it proposes the addition of four to six 1.8m outrigger telescopes to create a very powerful infrared interferometer, which would study cosmic objects for spatially resolved fine details, for instance the motion of stars caused by the presence of Jupiter-like planets orbiting around them. For the existing Harvard-Smithsonian Submillimeter Array (SMA) – an array of 12 movable radio telescope antennas distributed over 24 fixed concrete pads – the plan foresees an extension by 12 more antennas and 24 additional pads to increase the sensitivity and efficiency.

Three new projects at three new sites are proposed in the Master Plan. The first is the UH Hilo instructional telescope, a relatively small (1m mirror) telescope planned for a site adjacent to the existing UH 0.6m telescope. This facility is planned to be used for the education and training of undergraduate students in UH Hilo's Department of Physics and Astronomy program. The second is a new optical/infrared telescope comparable in size and capability to the existing Keck or Gemini telescopes. For environmental and cultural reasons a site below the summit ridge on the north shield is proposed.

The third new facility proposed is a revolutionary new telescope with a very large mirror of 25m to 50m diameter. This would be the largest telescope in the world. The site foreseen for this telescope is on the north-west lava plateau below the summit. This location minimizes visibility of the new facility from Hilo and Honokaa and would not affect Wekiu bug habitat.

The future astronomical development on Mauna Kea as foreseen in the University's Master Plan gives very high priority to the protection of natural and cultural resources, but at the same it also proposes a considerable expansion of future astronomical activity on Mauna Kea. If all facilities discussed in the Master Plan were built, the number of observatories would increase from 12 to 15 and two of the existing ones would be expanded.

In the next section we will introduce a modified plan, which proposes significantly less future development.

3. A modified plan for long-term astronomical development on Mauna Kea.

When future development for the next 20 years was discussed in the Master Plan of the year 2000, the goal was to be as comprehensive as possible in order not to exclude potentially important scientific options for the future. However, now six years later and after detailed scientific discussion within the Institute for Astronomy it has become clear that the number of future projects envisaged for the next 20 years is much smaller than anticipated in the Master Plan. The long-range goal is to have eventually fewer observatories than now, but certainly still the very best in the world.

After six years of successful operation under the Master Plan in coordination and collaboration with the Office of Mauna Kea Management and its community-based advisory boards it is well recognized that future plans for Mauna Kea require balanced management to preserve, protect and enhance the cultural and natural resources as well as providing a world-class center for education and research in astronomy. As laid out in the Master Plan and also described in the previous section, all major future development will be subject to stringent review by the Office of Mauna Kea Management, Mauna Kea Management Board, and Kahu Ku Mauna Council, as well as the community-based Hawaiian Culture and Environment committees, which report to the Board. In addition, as also already described in the section before, all major developments require a Conservation District Use Permit from the State Board of Land and Natural Resources. As the leaseholder for the Science Reserve, UH is responsible for submitting the use application. In conjunction with this process, UH must satisfy State and Federal environmental impact requirements (Chapter 343 and NEPA). The Institute for Astronomy is committed to sponsor only projects that are considered the best in the world, and not simply to add projects for the sake of adding another telescope to the mountain.

The goal of our new plan is to keep Hawaii's world leadership in ground-based astronomy. This achievement and recognition as a world leader will benefit not only UH as an educational and research institution but the entire state. The advancing and leading edge technologies associated with astronomy research and development will aid Hawaii's efforts to boost its technology industry, including software and instrument development.

In the following, we will discuss the new modified plan in detail. We will also compare it with the development as proposed in the Master Plan. We will start with the two observatories, for which significant expansion was proposed, the Keck Observatory and the Submillimeter Array (SMA). For the Keck Observatory the addition of six Outrigger telescopes was planned. In our new plan we do not foresee adding any more telescopes to the Keck Observatory.

For the SMA, the Master Plan proposed 12 more antennas and 24 new concrete pads for the array; however in our new plan, we consider only the very moderate expansion of two

more antennas and two pads. UH is also working on the relocation of two existing antenna pads located at the base of Pu'u Poliahu, a culturally significant site.

In the Master Plan a new observatory site on the summit ridge was proposed for the UH Hilo instructional telescope. In order not to increase the number of observatory sites on the summit ridge, the Institute for Astronomy has agreed to give its UH 0.6m telescope and the site to UH Hilo so that the instructional telescope can be built there with only little if any modification of the existing site. This minimizes cultural and environmental impact for this important educational project, which was described in the previous section. An Environmental Assessment of the project by UH Hilo has been completed.

Another redevelopment of an existing site in our new plan is the use of the UH 2.2m site for the Institute for Astronomy's new Pan-STARRS observatory. Pan-STARRS uses completely new technology being developed by the Institute to detect killer asteroids which threaten to impact the Earth. It will detect the majority of the most dangerous objects about 30 years before their potential impact giving some time to develop protection for mankind in case of a serious threat. This project is federally funded. The Institute for Astronomy is preparing a federal EIS in collaboration with the federal funding agency. In addition, UH will submit a comprehensive Mauna Kea management plan to the State Board of Land and Natural Resources for review and approval, before applying for a Conservation District Use Permit for this project.

In addition to the UH Hilo instructional telescope the Master Plan proposes two new telescopes at two new sites, as described in the previous section. One of them, the optical/infrared telescope of Keck or Gemini size, is not pursued any further in our new plan. With the enormously increased efficiencies of Keck, Gemini, and Subaru we do not believe that there is a scientific need anymore for another telescope of this size. It is worth mentioning at this point that the observatories on Mauna Kea are experimenting with the use of new fiber optics technology to combine the light from the already existing telescopes, the so-called Ohana Project. This is a challenging project, which will probably take decades to be successful, but it will greatly expand the capability and utility of the existing observatories.

The only project at a new site proposed in our new plan is the Thirty Meter Telescope (TMT). With its mirror of 30m diameter it will be the largest telescope in the world, and will be ten times more powerful than the Keck telescopes. It will be able to image planets orbiting around other stars and to analyze the light coming from these planets and, thus, to ascertain whether the conditions exist for the formation of life in planetary systems around other stars. It will also be able to detect the most distant galaxies in the universe and will see them in stage when the universe was still very young after its birth in the Big Bang.

As described in the previous section a site is foreseen for this observatory on the northern plateau below the summit ridge. This new site is preferable to a replacement of one of the existing telescopes, because the facility would be less visible and the environmental

and cultural impact would be smaller. The Institute for Astronomy is currently carrying out site testing and atmospheric characterization measurements at this site.

The TMT is a \$1 billion project and the most ambitious project of modern astronomy. It is the dedicated goal of the Institute for Astronomy and UH to attract this unique project to Hawaii. It will have an enormous scientific, educational and economic impact and it will secure leadership of Hawaii in astronomical science for the next decades. This is the key project for the future of astronomy in Hawaii.

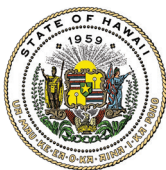
In summary, our new plan does not propose any further extension of the Keck Observatory with Outrigger telescopes and only a very small expansion of the SMA. It proposes two new projects, the UH Hilo instructional telescope and Pan-STARRS, which will use existing sites and will stay within the footprints of the existing facilities. As the most important project it proposes the TMT on a new site on the northern plateau below the summit ridge.

While the Master Plan of the year 2000 assumed that all existing facilities, which would not be replaced by new ones would continue to exist for the next 20 years, we do not make this assumption for the new plan. It is clear that newer facilities such as Keck, Gemini, Subaru, Pan-STARRS, the UH Hilo telescope and the SMA will certainly continue to operate over the next 20 years. However, some of the others will not continue with their operation, because other aspects of astronomical observations will become more important. In such cases our plan is not to refurbish all of them but only a few and only in cases where an extremely important scientific case can be made. Otherwise, our new plan is to demolish the old facility, to clean the site and to recreate the site in a stage as it was, before the facility had been built. (It is important to note that Operating and Site Development Agreements – the contracts between UH and the telescope partners on Mauna Kea – require that the costs for such reestablishment of the site in its original status have to be paid by the telescope partners.) We are confident that in this way the number of observatories on Mauna Kea in 20 years from now will be smaller than now. But with all the new facilities, in particular the TMT, Hawaii will still have the very best in the world.

Follow-Up on Recommendations from Report No. 14-07, *Follow-Up Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve*

A Report to the Governor
and the Legislature of
the State of Hawai'i

Report No. 17-06
July 2017



OFFICE OF THE AUDITOR
STATE OF HAWAII

Exhibit 5

July 2017 Report from the State Office of the Auditor



OFFICE OF THE AUDITOR STATE OF HAWAII

Constitutional Mandate

Pursuant to Article VII, Section 10 of the Hawai'i State Constitution, the Office of the Auditor shall conduct post-audits of the transactions, accounts, programs and performance of all departments, offices and agencies of the State and its political subdivisions.

The Auditor's position was established to help eliminate waste and inefficiency in government, provide the Legislature with a check against the powers of the executive branch, and ensure that public funds are expended according to legislative intent.

Hawai'i Revised Statutes, Chapter 23, gives the Auditor broad powers to examine all books, records, files, papers and documents, and financial affairs of every agency. The Auditor also has the authority to summon people to produce records and answer questions under oath.

Our Mission

To improve government through independent and objective analyses.

We provide independent, objective and meaningful answers to questions about government performance. Our aim is to hold agencies accountable for their policy implementation, program management and expenditure of public funds.

Our Work

We conduct performance audits (also called management or operations audits), which examine the efficiency and effectiveness of government programs or agencies, as well as financial audits, which attest to the fairness of financial statements of the State and its agencies.

Additionally, we perform procurement audits, sunrise analyses and sunset evaluations of proposed regulatory programs, analyses of proposals to mandate health insurance benefits, analyses of proposed special and revolving funds, analyses of existing special, revolving and trust funds, and special studies requested by the Legislature.

We report our findings and recommendations to the Governor and the Legislature to help them make informed decisions.

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<http://auditor.hawaii.gov>



Follow-Up on Recommendations from Report No. 14-07, *Follow- Up Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve*

Section 23-7.5, Hawai‘i Revised Statutes, requires the Auditor to report to the Legislature annually on each audit recommendation more than one year old that has not been implemented by the audited department or agency. This report presents the results of our review of eight recommendations made to the University of Hawai‘i and the Department of Land and Natural Resources in Report No. 14-07, Follow-Up Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve, which was published in August 2014.

Why we did the 2014 audit

In the past, the Legislature expressed concerns about the State of Hawai‘i’s management of Mauna Kea and the Mauna Kea Science Reserve. Individuals as well as community and Hawaiian organizations

also voiced concerns regarding transparency, accountability, and equity by the University of Hawai‘i (UH) and the Department of Land and Natural Resources (DLNR). In 1998 and again in 2005, the Legislature requested that this office conduct an audit of the management of Mauna Kea and the Mauna Kea Science Reserve. In response to those requests, we issued a 1998 *Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve* (Report No. 98-6) and a 2005 *Follow-up Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve* (Report No. 05-13). In 2014, this office initiated another follow-up audit to assess UH’s and DLNR’s efforts to address our previous findings and recommendations during FY2006 to FY2014. That audit was conducted pursuant to Section 23-4, Hawai‘i Revised Statutes, which requires the Auditor to conduct postaudits of the transactions, accounts, programs, and performance of all departments, offices, and agencies of the State and its political subdivisions.

The Mauna Kea Summit and Science Reserve

The Mauna Kea summit area consists of conservation district lands managed by UH and DLNR. Mauna Kea lands leased to and managed by UH encompass three areas: the Mauna Kea Science Reserve at the summit, the mid-level facilities at Hale Pōhaku, and the Summit Access Road that runs from Hale Pōhaku to the summit. In 1998, 2,033 acres of the 13,321 acres originally leased to UH were withdrawn from the Mauna Kea Science Reserve and are now part of the Mauna Kea Ice Age Natural Area Reserve. Lands adjacent to the Mauna Kea lands managed by UH, such as the Mauna Kea Ice Age Natural Area Reserve and the Mauna Kea Forest Reserve, are managed by DLNR.



PHOTO: THIRTY METER TELESCOPE (TMT)

An Eye to the Sky

PLANS TO BUILD the massive Thirty Meter Telescope (TMT) atop Mauna Kea have become a source of bitter controversy. In October 2014, Native Hawaiian protesters blocked crews from the construction site. The Hawai‘i Supreme Court later rescinded the TMT’s construction permit, and the \$1.4 billion project is

currently in the re-permitting process. If it is completed, the TMT will be the most advanced and powerful optical telescope on Earth. There is an ongoing contested case proceeding regarding the TMT’s application for a permit to build on the Mauna Kea summit.

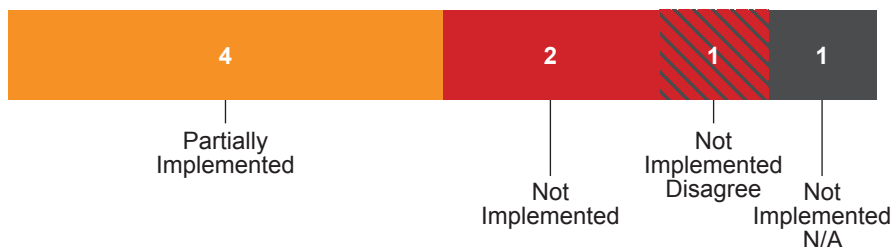
What we found in 2014

In Report No. 14-07, *Follow-Up Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve*, we found that UH did not expect to adopt administrative rules until 2017, due in part to delays in the rulemaking process. In the absence of rules, UH was managing and assessing fees on commercial tour activities with permits and informal agreements unauthorized by the UH Board of Regents. We also found that contractual terms and other requirements precluded UH and DLNR from updating general leases, subleases, and permits.

What we found this year

Our follow-up on the implementation of recommendations made in Report No. 14-07, conducted between October 2016 and January 2017, included interviews with selected personnel, examining relevant documents and records, and evaluating whether UH and DLNR's actions appeared to fulfill our recommendations. We found that UH and DLNR have partially implemented four of the recommendations. Three recommendations remain open, and one is inapplicable at this time.

Exhibit 1: Audit Recommendations by Status



Source: Office of the Auditor

Our follow-up efforts were limited to reviewing and reporting on the implementation of our audit recommendations. We did not explore new issues or revisit old ones that did not relate to the original recommendations. The following details the audit recommendations made and the current status of each recommendation based on our review of information and documents provided by UH and DLNR.



DEFINITION OF TERMS

WE DEEM recommendations:

- **Implemented** where the department or agency provided sufficient and appropriate evidence to support all elements of the recommendation;
- **Partially Implemented** where some evidence was provided but not all elements of the recommendation were addressed;
- **Not Implemented** where evidence did not support meaningful movement towards implementation, and/or where no evidence was provided;
- **Not Implemented – N/A** where circumstances changed to make a recommendation not applicable; and
- **Not Implemented – Disagree** where the department or agency disagreed with the recommendation, did not intend to implement, and no further action will be reported.



ADMINISTRATIVE RULES

ADMINISTRATIVE rulemaking is one of the methods by which state agencies carry out their tasks. The purpose of rules is to implement laws, such as those relating to Mauna Kea lands, and to establish operating procedures for state agencies. Generally, statutes provide a skeleton, or superstructure, for state programs; agencies are then required to “fill in the details” and implement those programs on a day-to-day basis. Agencies have considerable discretion in applying the law, particularly where a controlling statute is expressed in general terms.

Recommendation 1

UH should adopt administrative rules governing public and commercial activities as soon as possible, but no later than 2017.

Partially Implemented

Comments

UH completed the drafting of administrative rules and was prepared to begin the necessary public hearing process. However, at the request of the governor, who must authorize the initiation of public hearings for the draft rules, UH has temporarily halted the process of finalizing such rules.

Target Date

Per UH, the estimated date of completion cannot be determined at this time.

Recommendation 2

UH should obtain the UH Board of Regents’ approval for the conditions and fee schedule included in commercial tour use permits issued by UH–Hilo via a Board of Regents open public meeting pursuant to Chapter 92, HRS.

Not Implemented

Comments

UH anticipates that a proposed schedule will be prepared and approved concurrently with the approval of the final administrative rules. A draft schedule has not been prepared yet as UH wants to take into consideration feedback received during the administrative rules process.

Target Date

Per UH, the estimated date of completion cannot be determined at this time.

Recommendation 3

UH should determine whether unauthorized fees collected since FY2007 should be returned to commercial tour operators.

Not Implemented - Disagree

Comments

UH continues to assert that the issuance of commercial tour permits was authorized by the Board of Land and Natural Resources and allows enforcement of permit conditions and the ability to set and assess fines for permit violations and non-compliance.

Recommendation 4

UH should complete Comprehensive Management Plan (CMP) management actions, the implementation of which under the CMP implementation plan is scheduled as “immediate,” as soon as possible, but no later than the end of 2016.

Partially Implemented

Comments

UH has implemented 20 of the 25 total CMP management actions. *(See appendix on pages 10-11 for the list of actions.)*

Target Date

Per UH, the estimated date of completion is December 2017. Feasibility of that date could not be determined based on the scope of our review.

Recommendation 5

UH should further its efforts to renew general leases for UH-managed lands on Mauna Kea by continuing to work with DLNR and proceeding with the Environmental Impact Statement (EIS) process under Chapter 343, HRS.

Partially Implemented

Comments

UH and DLNR assert that securing a new master lease would require an EIS. Such efforts were restarted at the request of the governor following protests against the TMT project, and work is ongoing.

Target Date

Per UH, the estimated date of completion cannot be determined at this time.

Recommendation 6

UH should renegotiate with existing sublessees to amend subleases to include provisions that address stewardship issues, as modeled by the provisions in the 2014 TMT sublease, following execution of the new general leases for UH-managed lands on Mauna Kea.

Not Implemented

Comments

UH asserts that a new general lease needs to be established before sublease agreements can be renegotiated.

Target Date

Per UH, the estimated date of completion cannot be determined at this time.

Recommendation 7

DLNR should continue working with UH to renew the general leases for the UH-managed lands on Mauna Kea and ensure the leases are substantially in the form DLNR's Land Division recommended for approval by the Board of Land and Natural Resources.

Partially Implemented

Comments

UH and DLNR assert that the preparation for seeking a new master lease includes preparation of an EIS. Such efforts were restarted at the request of the governor following protests against the TMT project, and work is ongoing.

Target Date

Per DLNR, the estimated date of completion cannot be determined at this time.

Recommendation 8

DLNR should use additional stewardship-related conditions contained within the TMT observatory permit as a template in all new observatory permits issued for the summit of Mauna Kea.

Not Implemented - N/A

Comments

The TMT observatory permit has been voided. As a result, this recommendation cannot be addressed until the ongoing contested TMT case is fully resolved.

Appendix

Comprehensive Management Plan (CMP) Management Actions Still Open

1. Develop and adopt guidelines for the culturally appropriate placement and removal of offerings.
2. Kahu Kū Mauna shall take the lead in determining the appropriateness of constructing new Hawaiian cultural features.
3. Develop and adopt a management policy for the UH Management Areas on the scattering of cremated human remains.
4. A management policy for the culturally appropriate 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.
5. Develop and implement a signage plan to improve signage throughout the UH Management Areas (interpretive, safety, rules and regulations).

Implemented CMP Management Actions

1. Kahu Kū Mauna shall work with families with lineal and historical connections to Mauna Kea¹, cultural practitioners, and other Native Hawaiian groups, including the Mauna Kea Management Board’s (MKMB) Hawaiian Culture Committee, toward the development of appropriate procedures and protocols regarding cultural issues.
2. Conduct educational efforts to generate public awareness about the importance of preserving the cultural landscape.
3. Develop and adopt guidelines for the visitation and use of ancient shrines.
4. 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.
5. 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.

¹ The spelling of the mountain changed to one word in 2014. However, “Mauna Kea” is still used for legal and historical documents, *University of Hawai‘i Style Guide*.

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6. Develop and implement a burial treatment plan for the UH Management Areas in consultation with Kahu Kū Mauna, MKMB's Hawaiian Culture Committee, the Hawai'i Island Burial Council, recognized lineal or cultural descendants, and State of Hawai'i Historic Preservation Division.
 7. Limit damage caused by invasive species through creation of an invasive species prevention and control program.
 8. Reduce threats to natural resources by educating stakeholders and the public about Mauna Kea's unique natural resources.
 9. Increase communication, networking, and collaborative opportunities to support management and protection of natural resources.
 10. Conduct baseline inventories of high-priority resources, as outlined in an inventory, monitoring, and research plan.
 11. Conduct research to fill knowledge gaps that cannot be addressed through inventory and monitoring.
 12. Develop and implement education and outreach program.
 13. Develop parking and visitor traffic plan.
 14. Coordinate with DLNR in the development of a policy regarding hunting in the UH Management Areas.
 15. Educate management staff and users of the mountain about all applicable rules and permit requirements.
 16. Reduce impacts from operations and maintenance activities by educating personnel about Mauna Kea's unique resources.
 17. Develop and implement a debris removal, monitoring and prevention plan.
 18. Evaluate need for additional public restroom facilities in the summit region and at Hale Pōhaku, and install close-contained zero waste systems if necessary.
 19. Conduct energy audits to identify energy use and system inefficiencies, and develop solutions to reduce energy usage.
 20. Establish a reporting system to ensure that the MKMB, DLNR, and the public are informed of results of management activities in a timely manner.

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THIRTY METER TELESCOPE'S THINK FUND & WORKFORCE PIPELINE PROGRAM

The Hawaii Island New Knowledge (THINK) Fund was initiated in 2014 prior to the initial start of construction with a commitment of \$1 million per year for Hawaii Island STEM endeavors. The Hawaii Community Foundation (HCF) and the Pauahi Foundation administer the Fund with scholarship, classroom, student and STEM programming initiatives with Pauahi focusing on Native Hawaiians recipients. Within the next few weeks TMT will have funded \$4 million to the THINK Fund initiative.

THINK Fund at HCF has benefitted 26,000 students and 1,000 teachers on Hawai'i Island. Grants and scholarships seek to provide high-quality, career-connected STEM education and experiences to Hawai'i Island's most underserved youth.

Scholarships

- College scholarships totaling over \$325,000 have been awarded to 54 Hawai'i Island students with financial need.
- Scholarships support students pursuing careers in STEM and future STEM educators who intend to teach in Hawai'i Island schools.

STEM Learning Grants

- THINK Fund at HCF provided more than \$685,000 in grants that leveraged an additional \$1,500,000 from other funders to support innovative STEM programs and activities.
- \$300,000 is committed to the applications currently in process.
- Programs receiving support must demonstrate success recruiting and addressing the needs of groups underrepresented in STEM fields, which includes students in rural communities, Native Hawaiians, and those disengaged in school.

Classroom Grants through DonorsChoose.org

- \$250,000 has been committed to providing immediate funding for high-quality, ready-to-go STEM projects in Hawai'i Island classrooms.
- High need schools received 78% of the funding.
- 39 out of 55 public and public charter schools on Hawai'i Island have received grants, schools with high need students received 78% of the funding.

Program for Children of Incarcerated Parents

- Hawaii Community Foundation will solicit proposals to fund programs serving this target group for at least \$5,000 per year, beginning this year.

Applications are open for all HCF scholarships, including THINK Fund at HCF. The deadline is January 31st.

www.hawaiicommunityfoundation.org/scholarships/scholarshipfaqs

Exhibit 6

Thirty Meter Telescope's THINK Fund & Workforce Pipeline Program

Applications are also open for Career Connected Learning – this is the new name for the redesigned STEM Learning Partnership. HCF is encouraging all previous STEM Learning Partnership grantees to review the request for proposals and apply if they have great programs that fit the parameters. The parameters are very similar to the previous parameters, with a stronger emphasis on how the STEM education activities help participants explore and move into local STEM careers. The deadline is February 15th. www.hawaiicommunityfoundation.org/career-connected-learning

THINK Fund at Pauahi Foundation

- The TMT THINK Fund at Pauahi has funded thirty-three scholarships to date, with all students funded for their entire academic career. Total of \$568,000. Fifteen scholarships planned for 2018.
- Twenty-three students had full scholarships to Science Camps; total of \$55,000. Fourteen more Science Camp scholarships will be awarded in 2018.
- All students were Native Hawaiian.

TMT's Workforce Pipeline Program

Through the TMT-funded and managed Workforce Pipeline Program, more than \$2,500,000 has been disbursed to Hawaii Island. Among the key programs that have been supported are:

- Akamai Workforce Initiative – TMT is the cornerstone funder of internship program that has provided internships to 356 students from Hawaii. 24% have been Native Hawaiian and 47% underrepresented minorities. To date TMT has provided over \$700,000.
- TMT has also funded a Mentor Training Program for three years.
- TMT has increased Akamai funding to \$300,000 for 2018 and support ten additional college interns from Hawaii Island.
- TMT has funded high school, middle school, and elementary school robotics for seven years, with a total funding in excess of \$250,000. The funding has made it possible for schools and communities throughout Hawaii Island, including many with underserved/underrepresented students to participate in robotics.
- TMT has also been a major sponsor of the Girls Engaged in Math and Science Program, Hawaii County and State Science Fairs, Journey through the Universe, and other similar programs, including several at the 'Imiloa Astronomy Center.
- TMT is funding a new TMT UH Hilo Physics and Astronomy computer laboratory, and will be the major funder of the UH Hilo 2018 Science Olympiad.

Documents referred to in this report can be found at dlnr.hawaii.gov/occl/maunakea-management

TABLE 1: MANAGEMENT PLANS AND ANNUAL REPORTS

Comprehensive Management Plan Annual Reports, 2010-2017
Decommissioning Plan for the Mauna Kea Observatories
Public Access Plan for the UH Management Areas on Mauna Kea
A Cultural Resources Management Plan for the University of Hawaii Management Areas on Mauna Kea
Natural Resources Management Plan for the UH Management Areas on Mauna Kea
Board of Land and Natural Resources approval of Mauna Kea Comprehensive Management Plan
Mauna Kea Comprehensive Management Plan

TABLE 2: REPORTS FROM THE STATE OFFICE OF THE AUDITOR

Report No. 17-06 Follow-Up on Recommendations from Report No. 14-07, *Follow-Up Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve* (2017)
Report No. 14-07 Follow-Up Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve (2014)
Report No. 05-13 Follow-Up Audit of the Management of the Mauna Kea Science Reserve (2005)
Report No. 98-6 Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve (1998)

TABLE 3: CONSERVATION DISTRICT USE PERMITS AND APPLICATIONS

CDUA 3812 Infrastructure improvements at the Maunakea Visitor Center (application) (2018)
CDUP 3568 Thirty Meter Telescope (Decision and Order) (2017)
HA-16-118 Notice of Intent to Decommission the Hoku Kea Telescope (2016)
HA-16-118 Notice of Intent to Decommission the Caltech Submillimeter Observatory (2016)
CDUP 2728 Smithsonian Submillimeter Array (1994)
CDUP 2691 Gemini North (1994)
CDUP 2509 Keck II (1992)
CDUP 2462 Subaru Telescope (1991)
CDUP 2174 Very Long Baseline Array (1989)
CDUP 1819 Hale Pohaku subdivision and construction workers camp (1986)
CDUP 1646 Keck I (1984)
CDUP 1515 James Clark Maxwell Telescope (1983)
CDUP 1492 Cal Tech Submillimeter Observatory (1982)
CDUP 1430 Hale Pohaku Midlevel Facilities and Visitor Center
CDUP 0954 Air Force Telescope, Planetary Patrol Telescope, 2.2 Meter Telescope (1977)
CDUP 0895 Hale Pohaku dormitories (1977)
CDUP 0781 UKIRT dormitory at Hale Pohaku (1976)
CDUP 0653 United Kingdom Infrared Telescope; NASA InfraRed Telescope Facility (1975)
CDUP 0537 Mauna Kea Access Road (1974)
CDUP 0527 Canada-France-Hawaii Telescope (1974)



SB3090 SD1
RELATING TO GOVERNMENT
Senate Committee on Ways and Means

February 23, 2018

10:30 a.m.

Room 211

The Office of Hawaiian Affairs (OHA) Beneficiary Advocacy and Empowerment Committee will recommend that the Board of Trustees **SUPPORT WITH AMENDMENTS** SB3090 SD1, which would establish an alternative management framework for the singularly significant and long-neglected lands, resources, and sites of Maunakea. OHA appreciates this bill's intent, to address decades-long concerns over the inability of the University of Hawai'i (UH) and the Board of Land and Natural Resources (BLNR) to properly steward Maunakea, and to balance natural and cultural resource management and protection with industrial-scale development on the mauna's summit. **OHA further appreciates the substantial amendments made to this measure, to address concerns and incorporate the input of beneficiaries and other stakeholders who have long raised concerns regarding the mismanagement of Maunakea.** OHA does believe that certain amendments, discussed below, may help realize this measure's purposes; OHA also understands that this bill anticipates further discussion involving various stakeholders, including Native Hawaiian practitioners, educators, and other members of the Native Hawaiian community, and encourages the Committee and the legislature to continue addressing any additional issues that may be raised.

As a preliminary matter, OHA re-emphasizes the litany of historical and ongoing failures of UH and BLNR in their management of Maunakea. These include, but are not limited to: the failure to budget and fund proper management of UH's Maunakea lands; the failure to prudently negotiate sublease terms, allowing for gratis or nominal rents for multi-million dollar development projects; the failure to adequately implement a decade-old Comprehensive Management Plan, including 32 of its 54 management actions specifically affecting Native Hawaiians; the failure to meaningfully consult with OHA, Kahu Kū Mauna, and other cultural stakeholders on management policies and rules; the failure to maintain an environment that appropriately respects Maunakea's cultural landscape and singular cultural significance, including through the protection of Native Hawaiian traditional and customary rights and practices; the failure to manage public access and highly inappropriate and/or unsafe activities, which have led to numerous vehicular accidents and fires, deaths and bodily injuries, and spills of highly hazardous waste; and the failure to enforce lease and sublease terms and otherwise manage observatory development and decommissioning. **Insofar as these failings, and others, have persisted for over a generation, including through four state audits and multiple lawsuits spanning two decades, OHA and much of the general public have lost all confidence in the ability of UH to and the BLNR to fulfill their full range of**

responsibilities as lessee, lessor, and trustees of the lands, natural and cultural resources, and cultural sites of Maunakea.

Accordingly, OHA appreciates the intent of SB3090 SD1, to address the root cause of Maunakea's mismanagement and misuse through the establishment of the Mauna Kea Management Authority (MKMA), an alternative management authority for the Maunakea lands currently controlled by UH. OHA offers the following comments, noting our appreciation and understanding of various provisions of this bill, and further suggestions for amendments that may help achieve its intended purposes:

1. Ensuring that the composition of the MKMA includes members with relevant backgrounds and expertise necessary for the proper and balanced stewardship of Maunakea.

As the Committee understands, an area of critical importance and concern is the composition of the MKMA, and whether its members will adequately reflect the range of values and beliefs that must be considered in the proper management of Maunakea. As previously noted, the current "managers" of Maunakea have grossly neglected their responsibilities to protect and uphold the ecological, cultural, and spiritual integrity of the mauna, in favor of industrial-scale observatory development on its summit.

Accordingly, OHA appreciates the amendments made to the MKMA's composition, which now requires two members – chosen from nominees provided by OHA – to have Native Hawaiian cultural expertise, including one member with specific cultural or ancestral ties to Maunakea; one additional member to have expertise in environmental sciences relevant to the highly unique natural resources and ecological attributes of Maunakea; another member to have land management expertise; another two members to have business expertise directly relevant to maximizing any appropriate revenue-generating opportunities, as may be necessary to fund stewardship programs; and one member with an expertise in astronomy, who is not currently employed at UH or an astronomy facility. Additionally, four of the seven MKMA members must also be residents of Hawai'i island. **Accordingly, all members of the MKMA will be required to have backgrounds and expertise directly relevant to the proper management and stewardship of Maunakea's lands, resources, and sites;** such requirements will significantly help to ensure that the MKMA makes decisions that are much more fully cognizant of the cultural, environmental, and spiritual significance of Maunakea, and the need to manage Maunakea's lands, resources, and sites accordingly.

In contrast, OHA notes that the BLNR, which currently holds title to Maunakea, is required to have only one member out of seven with cultural expertise, and one member with a conservation background; only one BLNR member must be from Hawai'i island. **In other words, unlike the MKMA, the BLNR does not require the majority of its membership to reside on the island where Maunakea is located, or to have any background in Native Hawaiian culture, environmental sciences, or land management.**

Similarly, the UH Board of Regents, which currently has direct decisionmaking authority over the Maunakea lands leased by UH, does not have any membership requirements that would be specifically relevant to the appropriate management of Maunakea's lands, resources, and sites.

OHA does note that, while OHA appreciates the measure's intent to not include members with inherent conflicts of interest, OHA's own statutory responsibilities – **which include serving as the principle public agency responsible for assessing and advocating on agency policies impacting Native Hawaiians** – counsel its inclusion as a member of the MKMA, notwithstanding OHA's current litigation against UH. Notably, OHA's substantive expertise and institutional memory regarding Maunakea may also provide a level of continuity in the transition of management authority to the MKMA. Accordingly, OHA respectfully urges the Committee to consider amending this measure to include an additional seat for an OHA representative, to be described in proposed subsection -3(b) beginning on page 5, line 17, to read as follows:

“The administrator of the office of Hawaiian affairs,
or the administrator's designee;”

In addition, OHA respectfully submits that, given the immense cultural significance of Maunakea to the Native Hawaiian community, the committee may want to consider requiring MKMA's business representative(s) be selected from a list of nominees submitted from a Native Hawaiian business organization, such as the Native Hawaiian Chamber of Commerce.

2. Establishing enforceable, statutory limitations on future telescope development.

OHA is greatly appreciative of the statutory “caps” this measure would place on the number of telescopes and the total development footprint allowed on Maunakea lands, the first time such caps have been established in an enforceable, statutory manner. **As these caps recognize, the overdevelopment of Maunakea for telescope purposes, with little regard of environmental and cultural impacts or the larger management needs of the mauna, constitutes one of the most significant failings of UH and BLNR.** OHA notes that prior “limits” on telescope construction on Mauna Kea have been repeatedly reconsidered by UH to accommodate additional telescope development. **Accordingly, the statutory caps placed on the number and total footprint of development on Maunakea – including the footprint of infrastructure improvements and decommissioned telescope structures – would provide a much stronger and legally enforceable assurance that development on Maunakea's summit will actually be curtailed, absent a future change to the law.**

OHA does note that the footprint limitation found in section -32 would set the allowable footprint of all development, including infrastructure and any remaining decommissioned telescope structures, to that footprint existing as of **December 31, 2031**. OHA understands that there may be concerns that such a distant date could potentially encourage the construction of extremely large new telescopes (upon the removal of a

sufficient number of existing telescopes, pursuant to the aforementioned numerical cap) and other structures, and potentially discourage the removal of decommissioned telescope structures and abandoned infrastructure, in order to maximize the development footprint existing at that time. **While such concerns are somewhat alleviated by the composition of the MKMA and the cap on the number of telescopes, OHA respectfully requests the consideration of a stronger statutory limitation to reduce the likelihood of a substantial increase in the developed area on Maunakea.** Accordingly, OHA reoffers the following language for the committee's consideration for proposed section -32, beginning on page 55, line 5, to read as follows:

"§ -32 Footprint; limitations. At no time shall the total combined footprint of all improvements, including buildings, roads, telescopes, decommissioned telescope structures, and all infrastructure, on Mauna Kea lands exceed the total developed footprint of improvements, including buildings, roads, telescopes, and all infrastructure present on Mauna Kea as of July 1, 2018."

3. Adding and maintaining express provisions and mechanisms to protect and perpetuating Native Hawaiian cultural practices, including the natural resources and environmental integrity essential to such practices.

In addition to the revised composition of the MKMA and concrete "caps" on future development, OHA further appreciates this measure's inclusion of numerous provisions that directly support the cultural and spiritual integrity of Maunakea, including through the maintenance of Native Hawaiian traditional and customary practices and their underlying resources and sites. These include:

- Rulemaking requirements for natural and cultural resource management, that include mandatory consultation with OHA, to ensure the protection of Native Hawaiian traditional and customary practices;
- Statutory waivers of all entrance fees for Native Hawaiian traditional and customary practitioners;
- Explicit statutory assurances for 24-hour access by cultural practitioners;
- Establishing a division specifically tasked with working with community members with ancestral, cultural, and environmental ties to Maunakea through research, planning, and stewardship programs;
- Expressly maintaining the applicability of conservation district rules and contested case hearing procedures for land uses on Maunakea;
- Requiring heightened requirements for any telescope leases, which must consider and account for any potential impacts to Native Hawaiian

traditional and customary practices, natural and cultural resources, and cultural sites, including the costs of remediating such impacts;

- Authorizing the development, implementation, and revision of a comprehensive management plan, with annual reporting requirements and clear benchmarks for implementation; and
- Addressing various longstanding concerns regarding unmanaged public access and resulting impacts to Maunakea's environmental, cultural, and spiritual integrity, including through the provision of actual enforcement authority and procedures; rules establishing conditions on access including visitor fees and a mandatory orientation program for all visitors; restrictions on vehicular access; and others.

OHA strongly believes that these requirements, conditions, and authorities will ensure that the MKMA's decisions and activities are much more consistent with and appropriate for the highly sacred character of Maunakea, and may represent a critical first step to reversing the decades of cultural and environmental neglect that has and continues to occur under UH's and the BLNR's management authority.

4. Clarifying MKMA's authority regarding alienation and disposition of MKMA lands.

Furthermore, OHA greatly appreciates SB3090 SD1's inclusion of all applicable procedural mechanisms and safeguards found in Chapter 171, that can assure Native Hawaiians, the general public, and the State a level of transparency and accountability in the MKMA's disposition of Maunakea's lands. OHA notes that the administration of Maunakea lands, which are "ceded" lands as well as public land trust lands, must be held to a high fiduciary standard, heightened even further by the cultural and environmental significance of Maunakea. Accordingly, the continued applicability of transparency and accountability safeguards and procedures, currently established in chapter 171, to the MKMA may be integral to guiding the MKMA in its disposition of lands.

In addition, OHA appreciates this measure's inclusion of additional safeguards and requirements that will further protect and ensure the appropriate use of Maunakea's lands specifically. For example, the MKMA's lack of sale or exchange authority, along with the exclusion of Maunakea's lands from the BLNR's jurisdiction, will ensure that no agency has the authority to permanently dispose of or alienate any Maunakea lands covered by this bill. This measure also requires any renegotiated leases, subleases, or other land agreements to include "at a minimum, a stewardship component, community benefits package, and conversion of the applicable facility to a self-contained, zero-discharge waste system," and, as previously mentioned, requires all telescope leases to specifically consider and account for the value of the proposed land use, telescope viewing time, and impacts to natural and cultural resources and associated cultural practices – including the cost of remediating potential impacts to natural and cultural resources and sites. **Such provisions would establish a much higher statutory standard of care for Maunakea's lands, than that provided for under current law.**

5. Ensuring sufficient resources for the fulfillment of the MKMA's responsibilities.

OHA does recognize that the meaningful fulfillment of the MKMA's functions and responsibilities would be a substantial undertaking requiring significant financial and other resources, particularly at the outset of its establishment. This need for sufficient funding, along with preamble language describing the vision of MKMA as being "self-funded," may raise concerns regarding the potential for revenue-generating proposals that may monetize Maunakea's lands and resources in an inappropriate manner. **Accordingly, OHA greatly appreciates the current draft's contemplation of general fund appropriations, to assist the MKMA with the considerable startup costs it is likely to encounter.**

OHA does note that, should this measure pass, UH would likely continue to receive the extremely valuable telescope time and other nonmonetary benefits provided to it under current telescope subleases. OHA further notes that certain functions of the MKMA, such as its contemplated law enforcement activities, may also be substantially supplemented or executed by existing programs and divisions within the Department of Land and Natural Resources, including its Division of Conservation and Resources Enforcement. **Accordingly, insofar as UH and the BLNR have held primary responsibility for the mismanagement and neglect necessitating this measure, would be otherwise relieved from their respective responsibilities to properly manage and care for Maunakea, and would continue to have financial and programmatic resources of great value to Maunakea's management needs, OHA respectfully suggests that the Committee consider requiring BLNR and UH to also provide financial and in-kind support to the MKMA, out of fairness and to better ensure the MKMA's ultimate success.** In so doing, the Committee may also wish to remove or amend language in the preamble, to reflect that the MKMA is not expected to be completely "self-funded," and to recognize shared the responsibility of UH, the BLNR, and the state as a whole to ensure the proper management of one of our islands' most significant places.

5. Concluding remarks

As a final note, OHA recognizes and appreciates the bold step that this measure seeks to take, to begin to address the mismanagement concerns that have plagued Maunakea for over a generation. **OHA understands that this measure would, for the first time in the history of telescope development on Maunakea, finally and decisively remove UH's and BLNR's authority over the use of these much-neglected lands of immense ecological, cultural, and spiritual significance—placing these lands in the hands of a body specifically tailored, to ensure the better and more appropriate management of Maunakea.** OHA further understands that this measure would explicitly require and empower the newly-formed MKMA to address additional outstanding issues that have been identified by Native Hawaiian practitioners, environmental interests, researchers, and even astronomy personnel over the decades of UH control over Maunakea, including: meaningful natural and cultural resource protection and management; cultural access and traditional and customary practices; managed access including through vehicular restrictions and mandatory orientation requirements; public

safety and health protections; statutory limitations on telescope and infrastructure development on Maunakea's summit; the maintenance of existing land disposition requirements, with heightened standards of care for telescope development; and the provision of actual enforcement authorities and procedures necessary to meaningfully manage and protect Maunakea.

In addition to the above recommendations, OHA urges the Committee and the legislature to continue carefully considering and addressing any additional issues and concerns identified by Native Hawaiian cultural practitioners, 'ohana with ancestral and cultural ties to Maunakea, researchers, educators, and other members of the Native Hawaiian community, in its discussion and deliberation regarding this bill.

Accordingly, OHA urges the Committee to **PASS WITH AMENDMENTS** SB3090 SD1. Mahalo nui loa for the opportunity to testify on this measure.



UNIVERSITY OF HAWAII SYSTEM

Legislative Testimony

Testimony Presented Before the
Senate Committee on Ways and Means
February 23, 2018 at 10:30 a.m.

by
David Lassner
President
University of Hawai'i

SB 3090 SD1 – RELATING TO GOVERNMENT

Chair Dela Cruz, Vice Chair Keith-Agaran, and members of the committee:

Thank you for the opportunity to provide official University of Hawai'i testimony regarding SB 3090 SD1. Respectfully, the University of Hawai'i (UH) cannot support this bill as written.

Fundamentally, we believe this bill is based on a premise that is not correct, that the current management structure has failed and must be completely replaced. In fact, the 2014 State Audit reported that “We found that UH has developed several management plans that provide a comprehensive framework for managing and protecting Mauna Kea while balancing the competing interests of culture, conservation, scientific research, and recreation.”

More specifically, UH has developed plans and subplans with deep community consultation that have been approved by the Board of Regents and Board of Land and Natural Resources in full sunshine. As a result of this work, UH stewardship of Maunakea was honored externally on two occasions in 2017. This included the highest recognition of preservation, rehabilitation, restoration and interpretation of the state's architectural, archaeological and cultural heritage from the Hawai'i Historic Foundation, and the Pūalu Award for Culture and Heritage from the Kona-Kohala Chamber of Commerce.

The extremely critical 1998 Audit was based on an assessment of roughly the first 30 years of stewardship from the beginnings of astronomy on Maunakea. Since that time, UH has created open, transparent and effective processes and we are proud of the dedicated work of our rangers, the volunteer Maunakea Management Board, the volunteer Native Hawaiian advisors of Kahu Ku Mauna, the Office of Maunakea Management and the 'Imiloa Astronomy Center. All of these are part of our work to manage and preserve, to educate and discover.

There is of course more to be done and we are actively working every day to continue to improve. In particular, we have restarted work to implement Administrative Rules, which will involve full public input. We have worked with DLNR on enforcement actions

against illegal commercial tour operators. And we are beginning work to envision and then create a new educational experience that integrates culture, history, environment and science for visitors as well as those who work on the mountain.

UH has also consistently and publicly expressed our willingness to consider alternate models of management. UH agreed to support the Governor's 10-point plan, which represents a significant change with the return to DLNR of 10,000 acres as requested. UH is in regular conversation with Mayor Kim and we are inspired by his vision to make Maunakea a global exemplar of peace and harmony where indigenous culture and the best science in the world coexist synergistically in a truly awesome environment. And when legislators became interested in crafting a completely new approach, we expressed a willingness to consider their proposals. This is all consistent with the formal public position of the Board of Regents to move to a more collaborative model of management that engages more than just the University.

With the foregoing in mind, here are just a handful of key high-level concerns about this bill as written:

- 1) The bill does not establish a clear vision and commitment that astronomy and culture must coexist and thrive on Maunakea. Without that fundamental underpinning, whoever is responsible for stewardship will be accused of failure by those who do not accept both.
- 2) Significantly, the bill would result in a dramatic increase in the cost of management, beginning with the paid members of the new Authority, all the new executive positions, and all the new staff to work with the Authority members and executives. The bill does not explain the questionable premise that all these new costs can be covered by extracting more dollars from a smaller number of observatories and from commercial tourism. Indeed, the level of commercialization that would be needed to fund the proposed operation would probably be unachievable, and even if achievable, it would be at a level that would be unacceptable to the local community and could also have a substantial negative impact on natural and cultural resources, and the continuation of world-leading astronomy.
- 3) The complete exclusion of the University from direct involvement with management decisions concerning the education and research mission associated with Maunakea would likely result over the long-term in the loss of inspiring astronomical science and engineering in Hawai'i, and an associated decrease in economic investment and vitality. Notably, the bill lacks any requirement that the Authority ensure telescope viewing time is made available for the University astronomy students and faculty at both the Hilo and Mānoa campuses, and for the public. Without the commitment of local viewing time, the State's interests in astronomy will be reduced to a monetary-based financial landlord relationship.

4) The monetization of Maunakea that would result from the bill as currently written would be antithetical to the vision that has provided the basis for the development of world-class astronomy on Maunakea. From the outset, pursuant to the vision of Governor Burns and the Hawai'i Island community, the State adopted the policy that if astronomy was to come to Hawai'i, then the people of Hawai'i, through their University, would be full participants in the scientific endeavor and not simply landlords and bystanders. This basic philosophy led to the creation of the Institute for Astronomy and of the Mauna Kea Science Reserve, with its specified purpose as a UH-managed asset for scientific research, in particular astronomy. Accordingly, the relationship between the University and the other observatory organizations was deliberately developed as that of a scientific partnership and only secondarily as a landlord-tenant relationship. Under the bill, the Authority would be a landlord, expected to extract all necessary financial support for its operations from revenues assessed to a declining number of observatories and some unspecified level commercial tour operations.

5) Although we appreciate the requirement in this SD1 that one Authority member be an expert in astronomy, we would prefer that expert to have experience with operating an observatory on Maunakea. The current language requires that the astronomy representative must not be currently employed "at an astronomy facility". "Astronomy facility" is undefined; this could potentially disqualify any working astronomer from membership on the Authority. Similarly, although we appreciate that advisory committees are to be created to advise the Authority on science, education and astronomy, as well as other areas, the roles of such committees is not clear, thereby accentuating concerns that the seven-person Authority may lack relevant experience or commitment.

6) The Maunakea observatories have expressed strong concerns about this bill in prior testimony to other committees. They have advised that to maintain funding support for their endeavors they need strong commitment and clear stability regarding the future of Maunakea astronomy. This bill creates substantial uncertainty regarding the State's commitment and creates the expectation of unknown but significantly rising costs to them. Loss of investment in astronomy would have tremendous negative economic impact on Hawai'i Island with impacts statewide, as astronomy is a significant employment, education, and economic driver for both. The Maunakea observatories and the University's activities on Maunakea directly provide approximately 500 clean high-tech industry jobs, only a small fraction of which are for astronomers; most are for technical, administrative, and logistic services. According to UHERO's 2014 report on the Economic Impact of Astronomy in Hawai'i, documenting the direct and indirect impacts of astronomy to the State's economy, the "astronomy sector is a significant contributor to Hawaii's economy," and astronomy's output statewide was "roughly equal to half of the output estimated for the agriculture, forestry, fishing, and hunting sector."

Regarding the specific wording of the bill, we note that Section ___-45 (Revenue to be shared with the office of Hawaiian affairs) provides in part that UH shall transfer to OHA

twenty percent “of all receipts collected by the ... university as a result of lease rent, fees, penalties, commercial activities, technology transfer, monetization of intellectual properties or discoveries, and other revenue sources...” As currently written, this provision would apply to all University receipts from all activities everywhere, whether or not ceded lands are involved. It should be corrected to apply only to appropriate receipts from UH activities on Maunakea.

In sum, for the reasons indicated, UH is unable to support this bill as written. However, the University is committed to working collaboratively to advance effective, efficient, clear and accountable management of Maunakea in partnership with others. We will continue to willingly engage in discussions regarding possible future governance structures. And in the meantime, we will continue to exercise our stewardship responsibilities and strengthen our collaborations across the public and private sectors and with the community.

Thank you for this opportunity to submit testimony.



**Department of Land and Natural Resources
Aha Moku Advisory Committee
State of Hawaii
Post Office Box 621
Honolulu, Hawaii 96809**

LATE

Testimony of
Piilani Kaawaloa, Po’o
Aha Moku Advisory Committee

Before the Senate Committee of Ways and Means

Thursday, February 22, 2018
10:10 am.
State Capitol, Room 211

**In Opposition of the INTENTION of
Senate Bill 3090, Senate Draft 1
Relating to Government**

Senate Bill 3090 SD 1 establishes the Mauna Kea Management Authority. It limits the number of telescopes that may be authorized on Mauna Kea; and authorizes the renegotiation of leases, subleases, easements, permits, and licenses pertaining to Mauna Kea. It requires that revenue derived from activities on Mauna Kea be shared with the Office of Hawaiian Affairs. It excludes Mauna Kea lands from the definition of “public lands”. It provides for free access to Mauna Kea for traditional cultural purposes. And it establishes police powers and provides for enforcement of laws on land under the jurisdiction of the Mauna Kea Management Authority as well as appropriate funds.

On behalf of the Aha Moku Advisory Committee, Moku O Keawe and the Moku O Hāmākua, Kohala, Kona, Ka’ū, Puna and Hilo. In order to do what is right for Mauna-a-Wākea (Mauna Kea), the State must look in other directions to restore the trust of the Native Hawaiian people, the indigenous people who look to Mauna-a-Wākea (Mauna Kea) as a sacred place in which our Akua (Wākea, Papa, Kūkauhau’ula, Poli’ahu, Lilinoe, Kalauakole, Kaoakaokalani, Ka’anapu, Keaomelemele, Keanuenu, Mo’oinanea, just to name a few) dwell. We must also honor and recognize the many ‘iwi kupuna that are buried/hidden upon the mauna as their final resting place, for now their spirits wander or return on occasion when visited by a mo’opuna. We the next generation get to witness these appearances in the form of the lightning, thunder, snow, rainbow. I know that every time I traverse the Mauna and say my pule, I not only feel their presence but see their transformations in the wind and the clouds.

There are many who support this Senate Bill 3090 SD1 however there is a greater number who oppose Senate Bill 3090 SD1 on my Moku Puni O Hawai’i (Ka Moku O Keawe).

The Aha Moku System encompasses the eight main Hawaiian Islands and supports the traditional and generational knowledge of the people who are connected to each of the moku, ahupua’a, ‘ili, ‘apana ‘āina. John Kaimikaua, a noted Moloka’i historian shared his ‘ike through translations of ancient oral chants from the 9th century, a time where sustainability and protection of resources ensured existence. Mālama ‘āina, aloha ‘āina ensured survival. Those resource practices were handed down through the generations and many are still



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practiced and taught today. Aha Moku focuses on natural and cultural resource sustainability that is site-specific. Communities mālama their own resources within their unique communities.

The purpose of Aha Moku is to bring forth the voices of the community (people), their concerns along with the concerns from various agencies/communities businesses back to the people to collaborate and work to find resolve. Aha Moku provides recommendations/solutions from the community (people) on natural and cultural resources to the attention of the Department of Land and Natural Resources and other entities. The perspective always from a Native Hawaiian practice that connects generational knowledge and methodologies to protect, preserve and sustain Ka Hōkū-Noho-Aupuni (Milky Way), to Ka Lewa Lani (Highest Stratum in the sky) to ka wēlau (the highest tip)/ka wēkiu (Highest peak) of the mauna, to ka mole (bottom of the sea)/ka papakū (ocean floor).

One of the mandates within the Aha Moku System, via Act 288 SLH 2012, is to “advise the Chairperson of the Board of Land and Natural Resources”, and “the Legislature” on issues pertaining to natural resources. These recommendations come directly from the maka‘ainana (people) to the ahupua‘a representatives, to the moku representatives, then to the moku po‘o.

When the University of Hawaii applied for their permit for the Thirty Meter Telescope (TMT) project to be erected on the summit of Mauna Kea in 2013, the Aha Moku Advisory Committee (AMAC) opposed the ruling. The people opposed the granting of the permit at the Board of Land and Natural Resources meeting. The ensuing contested case was filed by the maka‘ainana (people) to the Moku Representatives (primarily from the Hāmākua Moku) and supported by all the other Moku.

Here are my concerns regarding a few of the aspects of this Senate Bill 3090 SD 1.

- I have spoken to Kūpuna who are trying to follow what is going on with regards to Senate Bill 3090 SD 1. These Kūpuna can't quite grasp/digest the language of this bill and the way this bill is set up. Senate Bill 3090 SD 1 is very lengthy and takes some time to review, understand and process.
- Adequate time should be given so all community members whom are able to review, process and form opinion to be able to provide testimony.
- Community members shared that a bill of this importance should be brought into each community so that the bill can be explained and people can get a clear understand of the language within the bill. This will allow people to form their own opinion.
- Concerning “Authority” meaning the “Mauna Kea Management Authority”
 - We do understand that this group of individuals must meet standards that will meet the needs of Mauna Kea, however,
 - Why must the individuals be appointed by the Governor?
 - Why do these individuals have to come from;
 - the director of business, economic development, and tourism;



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- (2) Members of private organizations, who shall be invited by the governor to participate as follows:

(A) The president of the Association of Hawaiian Civic Clubs, who shall serve as an ex officio member

(B) The president of the East-West Center, who shall serve as an ex officio member

(C) One member of the Native Hawaiian Bar Association who shall be selected by the governor from among three nominations provided by the board of directors of the Native Hawaiian Bar Association

(D) One member who shall be selected by the governor and who shall be a member of the Royal Order of Kamehameha and a resident of the island of Hawaii;

(E) One representative of a statewide business organization; and

(F) One representative of a business organization on the island of Hawaii;

- (3) One member of a private organization who shall be invited by the president of the senate; and
- (4) One member of a private organization who shall be invited by the speaker of the house of representatives;

The reason we ask is, if the intention is the critical need for fresh leadership centered on a new organizational structure, management system, and procedures this is not the only way. This structure lacks input from the community.

- Our recommendation is to;

1)

- provide a prerequisite of the credentials desired for each candidate to the public. All interested parties are asked to provide a resume to include all desired credentials.
- place all names of interested candidates onto a ballot and allow the public/community elect the candidates.
- The public can elect up to 20 candidates to create a pool for the Legislator, the Governor and Office of Hawaiian Affairs to select from.



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2)

- A practitioner or lineal descendent of practitioners of Native Hawaiian traditional and customary practices associated with Mauna Kea; provided that such representative shall have been appointed from a list of nominees submitted by Aha Moku representatives from the Hilo Moku, Hāmākua Moku, Kohala Moku, and the Kona Moku with the support of the Puna and Ka‘ū Moku working in partnership/collaboration with the Office of Hawaiian Affairs (The justification is that the Native Hawaiian practitioner who continues to practice the loina (culture) and ‘ike (ancestral knowledge) that is passed from generation to generation relating to Mauna-A-Wākea will know what is best for Mauna-A Wākea and how to protect its environment, and its sacred importance to/for the people of Hawai‘i and the many malihini who visit its summits).
- Substantial experience as a Native Hawaiian traditional and customary practitioner; provided that such representative shall have been appointed from a list of nominees submitted by Aha Moku representatives from the Hilo Moku, Hāmākua Moku, Kohala Moku, and the Kona Moku with the support of the Puna and Ka‘ū Moku working in partnership/collaboration with the Office of Hawaiian Affairs (The justification is that the Native Hawaiian practitioner who continues to practice the loina (culture) and ‘ike (ancestral knowledge) that is passed from generation to generation relating to Mauna-A- Wākea will know what is best for Mauna-A Wākea and how to protect its environment, and its sacred importance to/for the people of Hawai‘i and the many malihini who visit its summits).

3)

- We strongly oppose the Auction or Selling of any Mauna Kea lands! Once something is gone you can never replace it or return it to its original state. Mauna Kea is sacred with a unique ecosystem and if we continue to sell and build we will lose the mana and beauty of this treasured/valued mauna of Hawai‘i island. We want the future generation to be able to see/enjoy the beauty of Mauna Kea and embrace its mana. We don’t want to have to say “I remember when Mauna Kea _____.” We often hear this from kūpuna and mākuā about the many places on O‘ahu, “I remember the old Waikiki”, “My ‘ohana used to holoholo out Hale‘iwa but no can today”. We don’t want our mo‘opuna to see pictures or documentaries of what our mauna used to look like.

4)

- We understand and value the need for science and astrology however, we oppose the number of telescopes on Mauna-A-Wākea (Mauna Kea). We are in an advance technological age. We should be looking at ways to view the universe through a different lens. Our kūpuna were able to kilokilo the stars and galaxies before telescopes. They knew the solar system without the use of a telescope. Today we have the use of these telescopes taking us even closer, making many new discoveries yet it is not enough. What will happen when our technology and expertise exceeds the need for telescopes? What will happen to these structures that litter our mauna? The damage/haumia is done. The cement that is poured deep into the honua, how do we remove that?



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- We recommend that the existing telescopes be refurbished/repurposed to meet the needs of our scientist/astronomers.
- Replace the 12 existing telescopes (Caltech Submillimeter Observatory (closed), Canada-France-Hawai'i Telescope, Gemini North and Gemini South, NASA Infrared, James Clerk Maxwell, Subaru, Submillimeter Array, United Kingdom Infrared, Very Long Baseline Array, W.M.Keck Observatory, UH88 and UH Hilo Hōkū Kea) with the 1 Thirty Meter Telescope on the same already desecrated land.
- Reduce the number of telescopes/observatories to be built on the mauna. Seeking/developing other more advanced technological means to view our universe that will not change or damage the mauna. Change our lens!

(5)

- We oppose the leasing of lands; Lease provisions, Lease restrictions.
- This sections needs to be discussed further with the public to get mana'o on what is a good length/term of lease.
- A recommendation is no lease shall be for a longer term than five years, with the privilege of extension of another 5 years provide the lease holder is in good standing, responsible to mauna and people, demonstrates good stewardship.
- Much more discussion needs to happen with the public to get the peoples perspective.

(6)

- We oppose the reservation of rights to prehistoric and historic remains along with Minerals and water rights.
- The authority does not have any rights or authorization to prehistoric or historic remains found on the land. These remains belong to kūpuna who traversed these lands. The kuleana of the Authority is to seek out the lineal descendants of said remains.
- Another recommendation is that the Authority needs to work with the People of Hawai'i Island through the Aha Moku, The Hawai'i Preservation Society, The Burial Council or Persons who are experienced in Traditional protocols (in the removal of such remains) prior to the removal any remains.
- Lake Waiiau is an important water resource on the mauna. The Authority does not have authorization over the minerals and water. The mauna provides each moku with water from the rain and snow. We should seek ancestral knowledge on how we as a whole can mālama these valuable resources.

There is so much more that needs to be discussed regarding Senate Bill 3090 SD 1. With only 1 week to go through and review is difficult to provide feedback/recommendations that can gain the support needed to move forward.



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With this said, I have brought forth mana‘o and recommendations from members of the Aha Moku o Hawai‘i, Moku O Keawe, Kūpuna who are trying to support the efforts of not only the Mauna but our lāhui and the many people with whom I have had the privilege of listening to their mana‘o and concerns.

We look forward in furthering the discussion to help move the efforts and Mana of the Mauna to what is **Pono** for all.

Na Ke Akua no e kau mai i kona ‘ike, ka na‘auao a me ka mākaukau ma luna o kākou a pau. ‘Āmama, ua noa, lele akula.

‘O wau me ka ha‘aha‘a,

Piilani Kaawaloa, Po’o

Aha Moku Advisory Committee, Moku O Keawe

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Harry Kim
Mayor



Wil Okabe
Managing Director

Barbara J. Kossow
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County of Hawai'i
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February 21, 2018

Senator Donovan M. Dela Cruz, Chair
Committee on Ways and Means
Hawai'i State Capitol, Room 211
Honolulu, HI 96813

Senator Gilbert S.C. Keith-Agaran, Vice-Chair
Committee on Ways and Means
Hawai'i State Capitol, Room 211
Honolulu, HI 96813

Dear Chair Dela Cruz, Vice-Chair Keith-Agaran and Committee Members:

Re: SB 3090, SD 1 Relating to Government (Mauna Kea)
Hearing Date: 02/23/18 – 10:30 am; Conference Room 211

As much as I appreciate the interest this Legislature has in resolving issues surrounding management of our beautiful and sacred mountain, Mauna Kea, I cannot support SB 3090, SD 1. On the other hand, I also appreciate the foresight it takes to have a legislative vehicle available, in case action is necessary to implement a solution that fulfills the mountain's destiny and the desires of the parties. If that is the goal of SB 3090 and SB 3090, SD1, I applaud it.

Mauna Kea can be a symbol of international cooperation. The mission of the place is to be a beacon of hope for the world. The vision includes bringing world recognition of the Hawaiians, their achievements as well as the wrongs done to them. The mission of this mountain is not just to showcase that, but to showcase to the world the beauty of the cosmopolitan people of Hawaii and the possibility of harmony and peace. Where else, but this little place in the ocean, to have countries commit to that? To a lot of people, Mauna Kea is not a place for science, it is part of their soul. If we are going to enter into that sacred space, we must do so with care and caution and compassion.

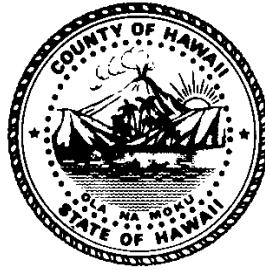
In truth, the legislature may not be the best forum to resolve the conflicts surrounding Mauna Kea, as much as you would like to help. However, the current management structure is based on statute, and therefore any reform may have to be enshrined in statute. SB 3090, SD 1 is an attempt to contribute to the mission, but the legislation that can resolve our conflicts has not yet been written.

I respectfully request that the Legislature pause in its well-meaning efforts, for fear that it may escalate the war. My recommendation would be passage of an SB 3090, SD 2 that leaves out all specifics and is virtually a "short form" bill, and allow the process to continue.

Respectfully submitted,

Harry Kim
Mayor, County of Hawai'i

JEN RUGGLES
Council Member
District 5 – Puna Mauka,
Pāhoa Mauka, Kalapana



*Public Works & Parks and Recreation
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HAWAI'I COUNTY COUNCIL

February 21, 2018

TESTIMONY ON SB 3090 S.D.1 RELATING TO GOVERNMENT

before the

COMMITTEE ON WAYS AND MEANS

Senator Donovan M. Dela Cruz, Chairman

And

Senator Gilbert S.C. Keith-Agaran, Vice Chairman

Friday, February 23, 2018

Conference Room 211 10:30 a.m.

I deeply appreciate the Senate's effort to improve management of Mauna Kea and resolve the long-standing conflict over this mountain. A change in management and governance is long overdue and I thank you for starting this discussion.

The current management and development policies have generated more harm and massive animosity towards the astronomical facilities development on very special lands. It is clear from the constant voices of concern from residents going back to the early 1970's, the many court cases spanning a decade, and the many arrests of Protectors on Mauna Kea, that the Department of Land and Natural Resources and the University of Hawaii have clearly done a bad job.

Proponents of continued control by the University of Hawaii allege that the bad management policies have ended and the harm mitigated. NASA environmental reviewers, however, have concluded that "the cumulative impact of the past, present and reasonably foreseeable astronomy developments have resulted in significant, adverse and substantial impacts to the cultural and natural resources of Mauna Kea." (NASA Federal Environmental Impact Statement (EIS) and OHA v. Sean O'Keefe, Civil. No. 02-00227 July 15, 2003.) The reasonably foreseeable future impacts includes the Thirty Meter Telescope and the "recycling" of outdated sites, both included in the U.H.'s 2000 Master Plan.

I feel this bill SB 3090 S.D.1 does not accomplish the goals identified in its preamble. Although this bill puts a limit to the number of telescopes allowed on Mauna Kea, it does not assure island residents that industrial developments will be curtailed. It removes the protections that Mauna Kea's sensitive lands have under current law and offers developers the incentive of having their projects approved without a conservation district land use permit. The lands controlled by the proposed Mauna Kea Management Authority (MKMA) would be exempt from the definition of 'public lands'. Taking Mauna Kea out of the public (and conservation) land use designations

removes much needed safeguards that help protect Kanaka Maoli (and public) rights and resources.

I find that SB 3090, in its various drafts, it is Oahu centric, business weighted, and empowers people who will have no incentives, no standards and no values to wisely manage land, manage and balance human rights and the Hawai'i Constitution, and conserve the summit's unique cultural and natural resources.

This Bill gives the MKMA the power to exploit and limit access to the sacred and historic Mauna Kea summits through the establishment of entrance fees and management rules and regulations. Entrance fees for cultural practitioners could be waived, but it is not clear if access will be allowed for customary and traditional practices only during visitor center normal operating hours.

The people are demanding a shift in power and the state is reluctant to relent, SB3090 S.D.1 serves only to further entrench the authority over our beloved mountain with the state, who heretofore has not taken good care.

I recommend that you hold this bill.

Mahalo.



To: Senator Donavon Dela Cruz, Chair, Committee on Ways and Means
From: Maunakea Observatories
Subj: Letter Opposing SB3090 SD1 Creating a Maunakea Management Authority
Date: 21 February 2018

In conjunction with our written testimony submitted February 10, 2018, to the HRE/WTL committees, the undersigned Directors of the Maunakea Observatories continue to express our concerns and **opposition** to SB3090 SD1 creating a new Maunakea Management Authority (MMA). We acknowledge and agree with several changes made to this draft legislation since it was originally proposed, which help address some of the concerns expressed earlier about its provisions. We also agree with the bill's introductory statement "...the critical need to manage these sensitive cultural and natural resources in a way that supports both the continuance of traditional and customary practices and science and technology."

One of our largest concerns with this draft legislation is that, like its predecessor SB3090, the net effect of creating the MMA would be to further destabilize the conditions needed for Maunakea astronomy to proceed with confidence. This is crucially important to the federal funding agencies around the globe that, combined, sponsor most of the operations and development costs of the Maunakea observatories. After several years of conflicts, these agencies need to be reassured that Hawaii astronomy will be supported by the State for decades to come. The sweeping changes proposed by SB3090 SD1 would not help rebuild international confidence in the State of Hawaii as a host for the world's foremost astronomical research complex. The Maunakea Observatories are in the best position to gauge the risk to our funding this legislation poses and we strongly encourage the State to work with the community and the Maunakea Observatories to identify and pursue a better path forward.

Some of our specific concerns with the current draft of this legislation includes –

One of the Board members would be "an expert in astronomy who is not currently employed at an astronomy facility or the University of Hawaii's institute for astronomy".

This drastically reduces the pool of qualified people to represent astronomy on the Board and leaves unclear who would qualify as an "expert". We prefer the Maunakea Observatory community be able to recommend several candidates that the Board can select from.

"No more than thirteen telescopes shall be present on Mauna Kea lands at any time; provided that no more than nine telescopes shall be present on Mauna Kea lands by January 1, 2028."

This appears to be predicated on decommissioning requirements incorporated into TMT's CDUP. If TMT does not go forward in Hawaii, telescope decommissioning plans for existing facilities should revert back to those defined in the Comprehensive Management Plan.

“At no time shall the total combined footprint of all improvements, including buildings, roads, telescopes, decommissioned telescope structures, and all infrastructure, on Mauna Kea lands exceed the total developed footprint of improvements, including buildings, roads, telescopes, and all infrastructure present on Mauna Kea as of December 31, 2031.”

While we agree with the intent of minimizing the footprints of all observatory related structures on the summit, this complex provision requires further review by the Maunakea Observatories and we cannot support it at this time.

“Fees and surcharges. (a) The authority shall establish an annual fee for each visitor to Mauna Kea...”

Per our previous testimony, we remain concerned that the revenues generated through the proposed fees on the public and commercial tour operators will be inadequate to cover the cost of the MMA.

The statement that “...negative experiences over the past fifty years have eroded public confidence and demonstrated the critical need for fresh leadership centered on a new organizational structure, management system, and procedures.”

This statement leads to an overarching concern we have with SB3090 SD1. This legislation is predicated on the assertion that the Office of Maunakea Management (OMKM) is fundamentally unfit to continue its execution of the Comprehensive Management Plan (CMP) due to demonstrated mismanagement and/or the perception that OMKM cannot be trusted to manage the Maunakea Science Reserve (MKSr). We are open to improvements and agree changes may be needed, but we believe the current management structure is sound and provides already established mechanisms for making community-driven management and policy improvements through updating the CMP, implementing administrative rules, and negotiating new lease terms. We believe the most effective path to solving issues is via these mechanisms rather than starting over with a new structure that creates disruption, uncertainty and delays, likely at a higher cost.

The Maunakea Observatories interact extensively with the staff and leadership at OMKM and, through those experiences and our representation on the Maunakea Management Board, we have considerable and probably unique visibility into OMKM. Our perspective is that the MKSR is well-managed and we offer a variety of examples below of the work sponsored or led by OMKM to support that conclusion. We are aware of this work through our many years of interactions with OMKM and participation in the Maunakea Management Board, where status reports of various projects and activities OMKM is pursuing are reported on a recurring basis.

The [CMP](#) and its sub-plans are designed to support numerous community interests in the MKSR, including [cultural](#), [environmental](#), [public access](#), and scientific research (e.g., [astronomy](#)). Central to the protection of cultural resources in the MKSR is the monitoring of hundreds of shrines (kuahu) across the upper regions of the MKSR. The combination of maintaining an up-to-date inventory of the numerous historic and culturally important sites in the MKSR, and the Maunakea Rangers which are present daily

Should a new authority be created to provide fresh management for Mauna Kea?

B. No, oppose proposal (592 Votes)

A. Yes, overhaul current management (266 Votes)

C. Undecided; need to hear more (191 Votes)

This is not a scientific poll — results reflect only the opinions of those voting

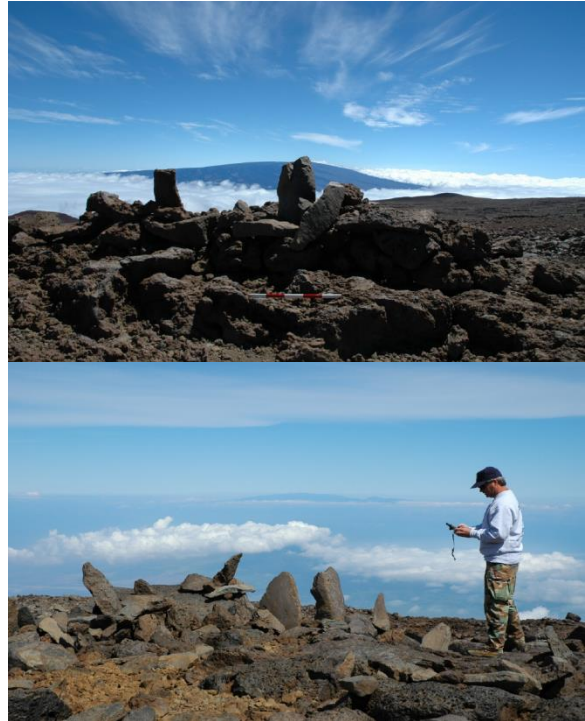
A recent informal poll conducted by the Honolulu Star Advertiser, gauging the public’s confidence in the current management of Maunakea, suggests the majority of the public does not agree that sweeping management changes like those in SB3090 SD1 are needed.

(weather permitting), provides rigorous protection of these priceless components of Hawaiian culture. It isn't clear what the proposed MMA would do differently or better to protect these sites, which have been well protected under the CMP and OMKM. This essential work goes relatively unnoticed in part because of its success at preserving culturally sensitive sites – “no news is good news” when it comes to historic site preservation. “No news” also means this important work is probably not widely known.

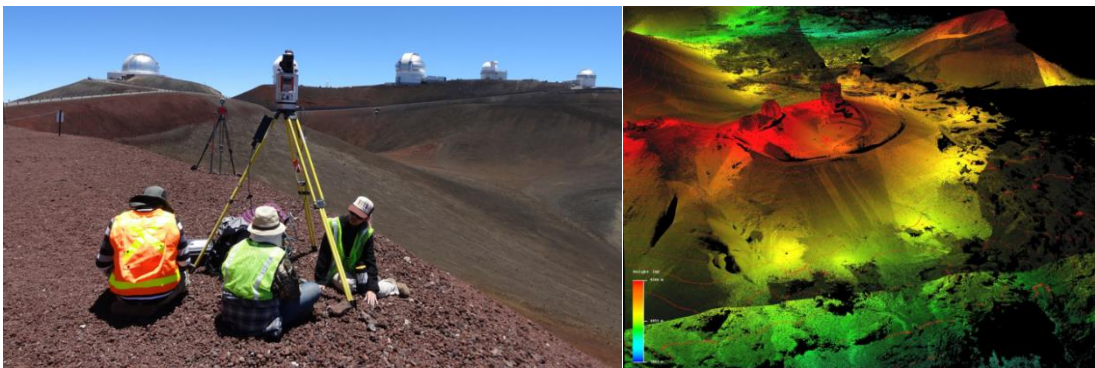
OMKM's summit mapping efforts go far beyond locating shrines and ahu. They include mapping the surface of the summit to extraordinary accuracy using advanced LIDAR and stereoscopic imaging techniques, yielding maps of the surface of Maunakea that are accurate to ± 1 cm. By mapping the summit on a recurring basis with this technology, it is possible to trace surface erosion and develop erosion mitigation strategies, as needed.

Research extends below the surface of Maunakea as well, with extensive studies completed on the [permafrost](#) beneath its surface. Formed millennia ago but discovered only decades ago, this layer of ice has been found to be melting over time, presumably due to global climate change. Today only a small region of permafrost is known to exist in the MKSR, thanks to OMKM's work.

OMKM sponsored research also includes the atmosphere above Maunakea, studying the historic and [future climatology of Maunakea](#). This work was done in collaboration with the University of Hawaii's Meteorology department, which also operates the [Maunakea Weather Center](#) - sponsored in large part by the Maunakea Observatories. This unique work points toward warming summit conditions later this century, when snow on Maunakea will be rare. Reduced mid-to-high altitude precipitation will affect various forms of life on Maunakea, hence the need to factor these effects into future management plans.



Kuahu or shrines are cataloged and monitored through OMKM programs to help ensure they are protected for future generations to cherish.

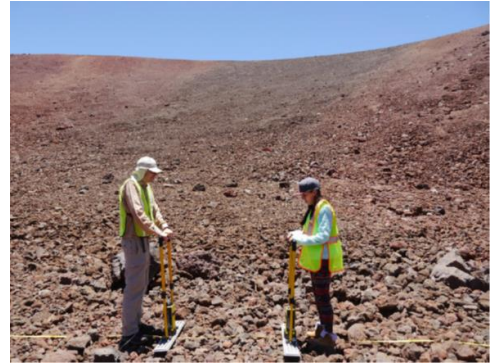


Left – Sophisticated LIDAR equipment that is positioned periodically on the summit to measure the location of cinder across the summit to within ± 1 cm. Right – Using these data 3D maps are rendered that allow the monitoring of erosion across the summit over time. These data critically inform strategies to mitigate summit erosion.

There are numerous other examples of OMKM led or sponsored work, supporting the protection of the MKSR including -

- Forming an [Invasive Species Plan](#) that lays out a rapid response strategy in the event invasive species (e.g., ants) are detected
- Creating the [Maunakea Speaker Series](#) that attracts expertise worldwide to share their research about Maunakea by giving presentations at various venues in Hilo
- Developing and publishing a “Field Guide to Native Plant Species” on Maunakea and mapping the [locations of countless plants](#), some of them at risk, across the MKSR
- Funding basic research about the lifecycle and habitat of the [wekiu bug](#) and various arthropods on Maunakea
- Conducting inspections of trucks bringing equipment or cargo to the summit to ensure they are not bringing up invasive species
- Sponsoring research into the nocturnal habits of birds and bats around Maunakea using sophisticated acoustic and radar equipment
- Establishing new signage to better educate the public about the summit
- Supporting an impressive Ranger program that protects and educates numerous people visiting Maunakea each year
- Supporting weed pulls around Halepohaku and planting keiki māmane and ‘āhinahina (silversword) in the lower MKSR, removing in the process tons of weeds with the help of thousands of hours of community volunteers
- Receiving numerous awards from the community including most recently a prestigious award from the Historic Hawaii Foundation for OMKM’s [Property Monitoring Program](#)

The Maunakea Observatories appreciate the many nuances and perspectives about the future of Maunakea and how important this issue is to our community. Any organization, including OMKM, can and should seek to improve as it fulfills its mission. We seek a balanced approach that honors the many interests in Maunakea’s future, based upon community-based management in partnership with the Observatories at many levels. That said, it is hard to reconcile our observations and experiences with OMKM with the basic premise behind SB3090



Non-intrusive ground penetrating radar used to map subsurface permafrost, which is melting, presumably due to global climate change.



OMKM organized weed pulls and keiki plantings around Halepohaku have drawn hundreds from across the Hawaii Island community.

SD1, that OMKM's management of the MKSR is so flawed that it needs to be wholly replaced. The proposed MMA would in many cases (e.g., historic site preservation), at best, match OMKM's performance record. We prefer working together with stakeholders, community and State officials to put our collective energy into identifying areas of improvement and then addressing them through the CMP and its sub-plans, administrative rules, and the eventual new terms and conditions negotiated for the Maunakea Observatory sites on the summit. This approach builds off the numerous investments made in OMKM to date, not just by UH, but by our community through thousands of volunteer hours. There is plenty of latitude and opportunity for improvement with the management systems in place, and we advocate a common-sense approach to sustaining a bright future for Maunakea for generations to come by building off OMKM's solid foundation in land management.

Mahalo,



Director Doug Simons, Canada-France-Hawaii Telescope



Director Laura Ferrarese, Gemini International Observatory



Director Pierre Martin, Hoku Kea Observatory



Director Paul Ho, James Clerk Maxwell Telescope (East Asian Observatory)



Director Walter Braken, Long Baseline Observatory



Director John Rayner, NASA Infrared Telescope Facility



Director Michitoshi Yoshida, Subaru Telescope



Director Klaus Hodapp, UKIRT



Director Hilton Lewis, W.M. Keck Observatory (Keck I and Keck II)

SB-3090-SD-1

Submitted on: 2/21/2018 4:19:13 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Nancy Redfeather	Testifying for Ka Ohana O Na Pua	Oppose	No

Comments:

Mauna Kea must remain in the public land trust.

We cannot give title to Mauna Kea to a group of people whose names are yet uncertain.

We should not continue to undermine current or pending litigation.

We should not be excluding the public from the Summit.

Mauna Kea is a State and Island Treasure. All Treasures of Nature must be protected, if not they will be lost for all future generations.

SB-3090-SD-1

Submitted on: 2/21/2018 8:32:24 AM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
William Walter	Testifying for Hawaii Island Chamber of Commerce	Oppose	No

Comments:

The Hawaii Island Chamber of Commerce (HICC) strongly opposes SB3090, Maunakea Management Authority.

1. HICC has been a part of our island's business community for 120 years. Our organization is comprised of nearly 270 member businesses and professionals. We have embraced business and economic development since our beginnings.

We believe that the Office of Maunakea Management (OMKM) has taken on its mission to protect, preserve and enhance Maunakea's cultural and natural resources through its implementation of the Maunakea Comprehensive Management Plan. The management of such an immense, diverse and remote acreage on the mountain has been a major endeavor not without its challenges. The OMKM has implemented fixes to correct prior deficiencies.

We understand the move to change organizations because of prior growing pains - experienced, frankly, by most organizations over this period. But we do not believe that now is the time to make a major overhaul of the management, but to allow OMKM to move forward having made the necessary corrections. We expect that a new organization would suffer its own growing pains, make its own errors. We see a lot of positives with the stewardship of Maunakea by the Office of Maunakea Management. OMKM has come a long way; it has learned how to spot issues that need to be resolved and to resolve them. We cannot see anyone else managing Maunakea better.

Sincerely,

Bill Walter, President, Hawaii Island Chamber of Commerce

SB-3090-SD-1

Submitted on: 2/21/2018 9:41:38 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Jim Albertini	Testifying for Malu 'Aina	Oppose	No

Comments:

Our organization strongly opposes SB 3090 SD1. This bill appears to be a desperate end run to push through TMT and establish a pro money making, anti-Hawaiian, authority to control the sacred Hawaiian Kingdom government lands of Mauna a Wakea. Have you no shame?

Jim Albertini, president of Malu 'Aina

SB-3090-SD-1

Submitted on: 2/23/2018 1:23:19 AM

Testimony for WAM on 2/23/2018 10:30:00 AM

LATE

Submitted By	Organization	Testifier Position	Present at Hearing
Kealoha Pisciotta	Testifying for Mauna Kea Anaina Hou, Kai Palaoa, Kia™i Kanaloa	Oppose	No

Comments:

TESTIMONY IN OPPOSITION TO SB3090 SD1

My name is Kealoha Pisciotta and I submit this testimony in behalf of myself as president of Mauna Kea Anaina Hou, founder of Kai Palaoa (a marine protection group) and as a member of Kia'i Kanaloa (and Island Wide Network of Ocean and Cetacean protectors).

We again, file testimony in OPPOSITION to this bill. We previously filed OPPOSITION testimony, we stand on our previous testimony and add that we still oppose it with the amendments—completely and wholly!

We have great Aloha for all of you as our fellow Hawaiian and Non-Hawaiian lawmakers and Ohana, and we wish to work with you on this important issues that will IMPACT our beloved MAUNA KEA. However we can work with only on something real and lasting that could heal us and the MAUNA KEA! This measure is not that.

Over time, the legislative process has devolved into a less the ideal of form of Democracy and continues to be zero sums —winner take all. There will be a few winners and many “losers”—unfortunately those “losers” are your Ohana too.

Over 700 testimonies were filed in OPPOSITION and only 4 were filed in SUPPORT— so there is no rational way to explain how these measure was advanced, let alone look like democracy at all.

Further, as was explained in our previous testimony in OPPOSITION TO SD3090 as members of the group Senator Kahele had asked to sit and discuss what has come to be called the Mauna Kea Temple Report that was written over 17 years ago; SB 3090 in no way resembles our Temple Report so we must OPPOSE it.

We recently met to build consensus and we agreed to submit the Audit bill ONLY and we SPECIFICALLY AND EXPRESSLY GOT NO SUPPORT OR AI LIKE (consensus) to have a bill submitted such as SB 3090 for the creation of a MANAGEMENT AUTHORITY at this time.

Again this bill represent that broken trust and a violation of the AI LIKE PROCESS. Evidenced in the overwhelming opposition of SB 3090.

The Temple Report symbolizes real change —this bill is the STATUS QUO.

The Temple Report's first position is

NO FURTHER DEVELOPMENT. The most contentious development such as the TMT could STILL be built under this measure.

The so called Authority could still extend the lease. So we are opposed to limiting practitioners and others and charging local people to go up Mauna Kea.

It is offensive! It is also offensive to treat Mauna Kea as a profit work horse and money funnel. Mauna Kea is a our Temple, like any other Church, Synagogue or house of worship —it is not a Park and it needs to be treated with reverence. No one pays to pray.

The people are not to blame for the problems on the Mauna and even if they were there are laws in place to deal with excessive numbers of people and this is not one

We call on you to to invoke the Aloha Spirit Law to kill” this measure and instead join us to find that higher standard of Aloha.

In Aloha We Remain.

Kealoha Pisciotta

BEFORE THE SENATE WAYS AND MEANS COMMITTEE

Hawaii State Legislature, February 23, 2018
Senate Bill No. 3090 SD1
Relating to Government

Aloha Chair Dela Cruz, Vice-Chair Keith-Agaran, and Members of the Committee

The Ka Lāhui Hawaii Political Action Committee (KPAC) opposes Senate Bill 3090 SD1 which solidify the State's authority over our sacred and historic mountain through the creation of the Mauna Kea Management Authority (MKMA) giving over the governance and management of 11,400 acres of Mauna Kea lands to the MKMA comprised of seven individuals appointed by the Governor.

Despite 700 testimonies in opposition to Senate Bill 3090 (SD1 Proposed) and only four in support of the creation of a MKMA the Senate Higher Education and Water and Land Committee passed SB 3090 SD1 Proposed with amendments. This Bill gives the MKMA the power to exploit and limit access to the sacred and historic Mauna Kea summits through the establishment of entrance fees and management rules and regulations.

Although this bill puts a limit to the number of telescopes allowed on Mauna Kea, it does not stop the building of the Thirty Meter Telescope(TMT) or any industrial developments. Furthermore, the creation of the MKMA undermines pending litigation regarding the future of sacred Mauna Kea and its fragile environments and sidesteps powerful efforts of Kanaka Maoli and the public toward healing and resolution.

KPAC is concerned with this Bill because there has been NO community education, meaningful input, and consensus on the impacts of this bill on the future of sacred Mauna Kea and what is more concerning is that the language of this bill may very likely keep drastically changing as it moves through the legislature.

This Bill exempts lands to which MKMA holds title from the definition of "public lands" - former Crown and Government lands of the Hawaiian Kingdom which was illegally ceded to the US and then as a condition of Statehood transferred to the State of Hawai'i to serve 5 purposes including the "betterment" of the conditions of native Hawaiians (Kanaka Maoli of 50% blood quantum or more). The Admissions Act states that any other object besides the 5 purposes shall constitute a breach of trust.

KPAC asserts the rights of Kanaka Maoli to nearly 2 million acres of public lands currently being held by the State of Hawai'i.

Respectfully submitted,

M. Healani Sonoda-Pale
Chair, KPAC

SB-3090-SD-1

Submitted on: 2/20/2018 9:17:22 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Jay Herrera	Testifying for Hui O Kanaka Mano	Oppose	No

Comments:

Hundreds of testimonies submitted against this bad bill and almost none in favor, yet this bill continues to move. No doubt pushed on by the special interest, corporate, and union corruption that pays into the coffers of morally bankrupt politicians who would sell their own tutu down the river for a buck. Shame on Senators Dela Cruz and Kahele who have turned their back on the Kanaka Maoli only to divert funds to the outer island and its minions. The people know what is happening and who is to blame. I suggest these legislators do some research on the Mauna and the number of people who have lost their lives acting contrary to what is Pono including the delusional coconut astronomer who recently died of unknown circumstances. When the Iwi are disturbed because you helped facilitate the developement of sacred land and burials, and you or your children become sick I will pray for you. The Ignorant. You swore to uphold the will of the people and the people have spoken, yet you dont listen. Auwe! Contrary to what these mainland haoles seem to think, money doesnt buy you happiness, and when you lose your bid for re-election and have only your name, the people will remember that name and that shame will follow you and your family for as long as the Mauna stands and Kanaka Maoli are there to protect it. When you act in such blatant disregard to the will of the people, those people become aware of the fact that their vote doesnt actually matter and that the system is not therefor the good of the people, but there to serve their corporate masters. Thats how the awakening of revolutions happen. WAKE UP!

February 22, 2018



Subject: Testimony of KAHEA: The Hawaiian-Environmental Alliance in Opposition to S.B. 3090, S.D. 1, before the Senate Ways and Means Committee of the 29th Legislature of the State of Hawai'i.

LATE

Aloha e Committee Members,

I am writing on behalf of KAHEA: The Hawaiian-Environmental Alliance, a 501(c)(3) nonprofit organization to **oppose S.B. 3090**. KAHEA is a community-based organization working to improve the quality of life for Hawai'i's people and future generations through the revitalization and protection of Hawai'i's unique natural and cultural resources. We advocate for the proper stewardship of our resources and for social responsibility by promoting cultural understanding and environmental justice.

We acknowledge and appreciate that amendments to S.B. 3090 are responsive to many community concerns. Amendments resulted in the much needed application of conservation district rules under Hawaii Administrative Rules (HAR) chapter 13-5, the inclusion of at least one Hawaiian cultural expert and other relevant expertise requirements amongst the seven member Mauna Kea Management Authority (MKMA) Commission, and the removal of exemptions from civil service and collective bargaining statutes.

S.B. 3090 appropriately recognized that years of mismanagement have "eroded public confidence and demonstrated the critical need for fresh leadership centered on a new organizational structure, management system, and procedures."

Yet, the purpose of S.B. 3090 remains "management." Further provisions in the bill make clear that MKMA will operate as a property manager and require continued development of Mauna Kea to fund future management. MKMA would be attached to the Department of Accounting and General Services (DAGS), whose mission does not include conservation. Two Authority member seats are reserved for business experts, who we fear will forward an agenda to commercialize the sacred mauna. MKMA is required to be self-funded, and entrusted with Mauna Kea summit lands as its only asset.

A new model of governance is needed, but S.B. 3090 does not provide that. It repeats a wrong-headed approach directed at managing development and without acknowledging the problem is *over-development* on the mauna. Facilitating development on Mauna Kea is the *opposite* lesson that we should have learned from litigation and contested case hearings on the Thirty Meter Telescope.

Public confidence has indeed been "eroded" and now, the state cannot present a preformed template and ask the community to trust it to fill in

PROTECTING

NATIVE HAWAIIAN

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RIGHTS AND OUR FRAGILE

ENVIRONMENT

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877.585.2432

www.KAHEA.org
kahea-alliance@hawaii.rr.com

KAHEA: the Hawaiian-Environmental Alliance is a non-profit 501(c)3 working to protect the unique natural and cultural resources of the Hawaiian islands. KAHEA translates to English as "the call."

the blanks. Governance of Mauna Kea must proceed from a truly community-based process that builds trust amongst people who have shown their commitment to protecting the mauna. The wisdom and leadership of these people are nowhere accommodated in this bill.

Thank you for considering KAHEA's testimony.

Me ka mahalo nui,

KAHEA Board of Directors and Staff, 2018



300 Kuulei Rd. Unit A #281 * Kailua, HI 96734 * Phone/Fax (808) 262-0682 E-Mail: htff3000@gmail.com

February 23, 2018

COMMITTEE ON WAYS AND MEANS

Senator Donovan Dela Cruz, Chair
Senator Gilbert Keith-Agaran, Vice Chair

SB 3090 SD1 RELATING TO GOVERNMENT

Aloha,

Chair, Dela Cruz
Vice Chair, Keith-Agaran
Committee Members

Hawaii's Thousand Friends has the following comments on SB 3090 SD1

§ - 1 Findings and purpose

The fact that the new authority shall be self-funded means that some sort of economic development must occur on the mauna to fund administration, capital improvement projects and "other purposes."

What types of money-generating projects and activities would be permitted on the mauna, given that the job of the new authority would be to protect and preserve the cultural landscape, fragile alpine habitat, endemic species habitat, historical and archaeological legacy?

§ -4 Powers and responsibilities; generally

The bill states that the "authority shall hold title to the lands situated on Mauna Kea..." but does not specify if the land will be held in trust. This issue must be addressed.

§ - 5 Auction § -6 Drawing

Under what circumstances would any of the approximately 11,400 acres lands, which are part of Hawaii's "ceded lands trust" also known as "public trust lands" that are held in trust by the State of Hawai'i and to be managed for the benefit of Native Hawaiians and the public, be sold or leased to an entity other than the Authority or the State?

§ - 10 Rights of holder of security interest

*A **security interest** is defined as a legal right granted by a debtor to a creditor over the debtor's property (usually referred to as the collateral), which enables the creditor to have recourse to the property if the debtor defaults in making payment or otherwise performing the secured obligations.*

What is the motivation for this section, which is totally inappropriate for public trust lands and violates the State Constitution Article XI 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. (Hawai`i State Constitution Article XI Section 1)

§ -29 Disposition to governments, governmental agencies, public utilities, and renewable energy producers.

Under what circumstances and why would the Authority relinquish guardianship of “public trust land” through quitclaim deeds?

Who are the “governments” and “agencies” referred to in (3)?

Does this description give the Authority the power to quitclaim Mauna Kea “public trust lands” to “governments and agencies “ other than the State of Hawai`i and associated state agencies?

Under what definition and circumstances can the Authority determine that it is “beneficial to the State” to quitclaim “public trust lands?”

§ 32 Footprint; limitations

How will creating a new Authority that waits until 2031 to limit the development footprint on Mauna Kea “improve the public’s confidence?”

If the purpose of creating the new Authority is restore “public confidence” then all development – buildings, roads, telescopes and infrastructure should be stopped in 2018 and not wait fourteen more years.

§ -37 Project approval

Removing the approximately 11,400 acres of Mauna Kea from the definition of public lands under §171-2 could have major consequences; e.g.

- Would the lands still be designated Conservation or can the authority change the designation?
- Can the Authority create its own land zoning and uses?
- Would the Authority need to apply to the Land Use Commission for any land designation changes?
- Would the Authority be exempt from requiring Conservation District Use Permits?
- Would the Authority be exempt from Chapter 343 Environmental Impact Statements?

We need to be careful that public processes are in place that protects the public trust. While frustration with the present setup abounds, we see no inherent value in changing to a commission form of governance. In fact, there are pitfalls. Accordingly we are opposed to the bill.



HAWAII REGIONAL COUNCIL OF CARPENTERS

February 21, 2018

COMMITTEE ON WAYS AND MEANS

Senator Donovan M. Dela Cruz, Chair

Senator Gilbert S.C. Keith-Agaran, Vice Chair

Dear Chair Dela Cruz, Vice Chair Keith-Agaran and members of the committee,

The Hawaii Regional Carpenters supports the intent of SB 3090 which establishes the Mauna Kea Management Authority. The Thirty-Meter-Telescope (TMT) project has spurred meaningful discussions as to how Mauna Kea should be managed. However, regardless of whether TMT is ever constructed in Hawaii, the future stewardship and management of Mauna Kea remains a matter that needs to be resolved. We hope that this committee agrees there is value in advancing the bill to the House of Representatives so that stakeholders and the public can continue to debate the pros and cons of this legislation.

Thank you for allowing us to testify in support.

STATE HEADQUARTERS & BUSINESS OFFICES

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SB-3090-SD-1

Submitted on: 2/20/2018 7:36:30 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
De MONT R. D. CONNER	Testifying for Ho'omanapono Political Action Committee (HPAC)	Support	Yes

Comments:

We continue to STRONGLY SUPPORT this bill. Mahalo.

SB-3090-SD-1

Submitted on: 2/21/2018 1:42:19 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Javier Mendez-Alvarez	Individual	Support	No

Comments:

SB-3090-SD-1

Submitted on: 2/20/2018 8:42:33 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Gordon Takaki	Individual	Oppose	No

Comments:

I am strongly opposed to SB3090. The Office of Maunakea Management does not have to be replaced. Rather they should be applauded for managing the mountain of much immense and remote acreage. There were prior challenges and perceived issues which the Office of Maunakea Management has addressed. Replacing the current stewardship with another authority will not guarantee success. If anything, it will delay proper management as the new authority will need time to understand the complexity of the mountain with its cultural diversity.

Please defer SB3090.

SB-3090-SD-1

Submitted on: 2/21/2018 6:52:10 AM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Yvonne H Verburgt	Individual	Oppose	No

Comments:

Dear Senators,

I strongly oppose SB3090 and urge you to reject it. This new proposed authority is completely unnecessary and adds another burden of bureaucracy. This bill adds uncertainty to the future of astronomy in Hawaii where Hawaii currently holds a global leadership position. Astronomy provides a large financial benefit to Hawaii Island.

Please reject SB3090

Yvonne Verburgt

Hilo, Hawaii

SB-3090-SD-1

Submitted on: 2/21/2018 6:32:06 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Patricia Blair	Individual	Oppose	No

Comments:

SB-3090-SD-1

Submitted on: 2/21/2018 1:12:07 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Mary	Individual	Oppose	No

Comments:

Dear Senators, I respect very much the amount of time and energy you have all spent on behalf of care of our beautiful Mauna Kea. She is a very special place for many, many people, myself included.

However, I believe it is an inappropriate use of state funds to create a new, very bureaucratic entity to replace OMKM at this point in time. I was very actively involved as a volunteer with the Comprehensive Management Plan and now the Office of Mauna Kea Management. The level of commercialization that will have to occur to generate the funding this bill dreams to create is NOT acceptable use of our beautiful lady, Mauna Kea. She deserves better! We deserve better! Accessibility is very important to the well being of the island, the people but mostly for Mauna Kea!

Please hold this measure now. Thank you for your careful listening.

SB-3090-SD-1

Submitted on: 2/22/2018 6:57:59 AM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Diane Harmony	Individual	Oppose	No

Comments:

SB-3090-SD-1

Submitted on: 2/21/2018 11:08:42 AM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Terez Amato Lindsey	Individual	Oppose	No

Comments:

Takes away the rights of indigenous people to practice

Cultural activities and self determination.

SB-3090-SD-1

Submitted on: 2/21/2018 1:11:07 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Rachel L. Kailianu	Individual	Oppose	Yes

Comments:

A'OLE!!! No exclusion of any and all lands related to Mauna Kea... The public lands trust should never be subjected to a change in law to accommodate any/all department agencies.

SB-3090-SD-1

Submitted on: 2/21/2018 2:37:31 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Peggy McArdle	Individual	Oppose	No

Comments:

SB-3090-SD-1

Submitted on: 2/21/2018 9:31:55 AM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Clarence Ching	Individual	Oppose	No

Comments:

I am Kukauakahi, also known as Clarence ku Ching, a Hawaiian by ethnicity, culture and nationality, and a cultural practitioner on Mauna Kea.

I am in strong opposition to this veiled attempt to correct the past and present situations on Mauna Kea! "Mismanagement by wolves" will provide nothing new than the current "mismanagement by foxes."

By moving away from a failed experiment to carry out Mauna Kea's resource management and administration by an agency that violates the standards, qualities, values and has little or no expertise to competently manage land, manage and administer the practice of native and human rights (which is a NO-NO), implement the Hawai'i State Constitution, and conserve cultural and natural resources, to now turn over the Mountain to yet another agency that has NO standards, NO qualities, NO values and NO expertise to competently manage land, manage and administer the practice of native and human rights (still a NO-NO), implement the Hawai'i State Constitution, and conserve cultural and natural resources will guarantee failure to this pending legislation.

Except for the suggestion of two Hawaiian-related members, there is no nexus, no logic, of necessary and specific qualifications for the nomination of other factors from which the proposed members of the proposed Authority are to be appointed by the governor.

To continue politicizing Mauna Kea will continue the present pilikia on the Mountain. Furthermore, to seemingly transfer the governor's present power of appointment of the Board of Natural Resources to the governor's power of appointment of Members of the Authority - continues the principles of mismanagement and desecration of Mauna Kea. The change from "foxes" to "wolves" will not solve the situation!

Additionally, to monetize the Mountain by having paid, full-time Members of the Authority who aren't required to have any valid qualifications is pointless. If there will be any motivation for these "professional" hirings to "earn their keep" - the conservations and protections of the Hawai'i State Constitution to the Mountain will most certainly have to be violated. This is totally NOT-GOOD for Mauna Kea.

For the GOOD of Mauna Kea - give its management and administration back to those who value and care for the mountain, who will do so with little or no expense - and certainly not to professional bureaucrats whose potential self-interests will predominate their motivations on the Mountain.

I am in strong OPPOSITION!

SB-3090-SD-1

Submitted on: 2/21/2018 9:23:44 AM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Nathan Yuen	Individual	Oppose	No

Comments:

Senate Committee on Higher Education
Chair Kaiali'i Kahele and Vice-Chair Donna Mercado Kim

Senate Committee on Water and Land
Chair Karl Rhoads and Vice Chair Mike Gabbard

Senate Committee on Ways and Means
Chair Donovan M. Dela Cruz and Vice Chair Gilbert S.C. Keith-Agaran

Dear Members of the Senate Committees on Higher Education, Water and Land, and Ways and Means:

I strongly oppose SB3090 which establishes the Mauna Kea Management Authority.

The bill removes the summit of Mauna Kea from the definition of "public land" with no community input. Mauna Kea is ceded land and by definition is public land.

The bill gives title to 11,400 acres to the Mauna Kea Management Authority made up of 7 members all of whom are to be appointed by the Governor. This gives too much power to the Governor.

The bill undermines pending litigation concerning Mauna Kea.

The bill proposes limiting access to the Mauna Kea summits to Kanaka Maoli and the public.

I strongly oppose SB3090 and urge you not to pass this through your committee. Thank you for this opportunity to testify on this important matter.

Sincerely,
Nathan Yuen

SB-3090-SD-1

Submitted on: 2/21/2018 9:02:56 AM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Shannon Murphy	Individual	Oppose	No

Comments:

We cannot lose this opportunity to lead the world into the future of exploration, just as the ancient Hawaiians led their people into a new world.

A healthy future for astronomy on MK is important to our families, as well as to the Hawaii Island community in general. It provides well-paying careers in a clean industry and contributes 5-10% of the economy on Hawaii Island.

The bill does not provide any vision for the continuation of world-leading astronomy on Mauna Kea. Instead it focuses on placing restrictions and increased costs on astronomy.

We don't need to reinvent the wheel. The current management of Mauna Kea has been exemplary. We need to reduce the bureaucracy, not enlarge it.

Mahalo,

Shanon Murphy

SB-3090-SD-1

Submitted on: 2/22/2018 7:07:22 AM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Debra Koonohiokala Norenberg	Individual	Oppose	No

Comments:

SB-3090-SD-1

Submitted on: 2/21/2018 4:17:46 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Lehua Kaulukukui	Individual	Oppose	No

Comments:

I OPPOSE because:

1. This bill removes and the Mauna Kea Summits from the "Public Land" trust with no community input. HEWA.
2. Gives title to 11,400 acres to the Mauna Kea Management Authority made up of 7 members who are appointed by the Governor. HEWA LOA.
3. Undermines pending litigation and continues to move forward despite overwhelming opposition. HEWA LOA.
4. Proposes limiting access to the Mauna Kea summits to Kanaka Maoli and the public. HEWA LOA.

LEHUA KAULUKUKUI

President, Kuamoo Foundation

**Chair Donovan Dela Cruz
Vice Chair Gilbert Keith- Agaran
Committee on Ways and Means
Hearing on February 23, 2018**

Opposition SB 3090 SD1

I am writing in opposition to SB 3090 SD1

Prior to 2000, there was much that UH's management of Maunakea did which created what we as a Hawaii Island community complained. This situation changed in 2000. Through community pressure, the University of Hawaii Board of Regents and ultimately the State Board of Land and Natural Resources agreed to the formation of Hawaii Island-based community managed Office of Maunakea Management. OMKM's formation created a new structure for the Hawaii Island volunteer driven Mauna Kea Management Board and the Native Hawaiian advisory council Kahu Ku Mauna to advise and give OMKM direction. I was involved in the community group pushing for the creation of OMKM under the direction of UH Hilo Chancellor.

OMKM's task was and continues to be the protection, preservation and enhancement of Maunakea's cultural, natural and recreation resources and they have been successful in these endeavors.

Starting from scratch was difficult indeed but the Office of Maunakea Management headed up first by Retired Judge Walter Heen and now Stephanie Nagata rose to the tasks.

Here are a few milestones that have been accomplished by the Office of Maunakea Management:

June 2001 - Annual surveys begin of Wēkiu bug that are on the verge of being considered an endangered species.

July 2001 – Maunakea Rangers are established. The Rangers work 365 days a year and protect cultural and natural resources.

August 2001 - The road to Pu'u Poli'ahu, considered one of the most sacred sites on the summit, is closed to vehicular traffic at the recommendation of the Kahu Kū Mauna council, while also ensuring the health and safety of cultural practitioners, local residents, tourists and observatory personnel.

July 2004 - Archival study of native traditions, historical accounts and oral history interviews of residents with historic connections to Maunakea begin.

March 2005 - The study of biology of Wēkiu bug begins.

August 2005 - Archaeological/historic survey of the 11,288-acre UH managed Maunakea Science Reserve begins.

January 2006 - The first of several climate studies on the impact of the mountain's ecosystem begins.

After five years, 263 sites were identified, with about 900 features, including shrines, burials and trails were identified and is the basis for the Cultural Resource Management Plan.

February 2007 - Maunakea Rangers begin bi-annual inspections of observatories to ensure compliance of conservation district use permits.

May 2007 - Annual surveys for alien/invasive species begins.

August 2007 - The development of Natural Resources Management Plan begins.

August 2007 – The development of the Comprehensive Management plans begins.

November 2008 - Three public meetings are held in Hilo, Kona and Waimea on the proposed Comprehensive Management Plan.

April 2009 - The Comprehensive Management Plan is approved by the Board of Land & Natural Resources.

April 2009 - The university begins work on four management sub plans - cultural resources, natural resources, public access and telescope decommissioning,

September 2009 - Three open houses in Hilo, Kona and Waimea are held on the Cultural Resources Management Plan and the natural Resources Management Plan.

December 2009 - Three open houses held in Hilo, Kona and Waimea on Public Access and Decommissioning management sub plans.

March 2010 - The Board of Land and Natural Resources approves four Comprehensive Management sub plans.

March 2011 - Rangers begin monthly photo document of water level of Lake Waiau and fund mapping lake bed bottom.

March 2011 - Maunakea Rangers begin periodically hiking to the historic adze quarry on state managed land to assess conditions and remove trash.

May 2011 - Botanical survey of the 11,288-acre UH managed Mauankea Science Reserve begins.

June 2011 -Botanical baseline survey begins leading to robust natural resources program for the mountain and oversees regular monitoring and preservation of the mountain's plant life.

July 2011 - Biodiversity study of arthropods begins.

October 2011 - Wēkiu bug is removed as a candidate for federal protection because of UH's management plans to protect the species.

March 2012 - A volunteer program to remove fireweed and other invasive weeds is created. More than 1,000 volunteers have worked more than 7,000 hours removing over 1,500 bags of invasive weeds, and planted several hundred Mauna Kea Silversword plants.

March 2012- Monthly and quarterly monitoring for ants of summit and Halepohaku facilities begin.

July 2012 - Annual monitoring of historic properties begins.

July 2013 - Orientation plan on cultural and natural resources is implemented for all workers on the mountain including observatory, construction and commercial tour operators.

August 2014 - The State Auditor observed: ***“We found that UH has developed several management plans that provide a comprehensive framework for managing and protecting Mauna Kea while balancing the competing interests of culture, conservation, scientific research, and recreation.”***

August 2014 –Economic Impact of Astronomy study reports that Astronomy generates \$167 million annually in Hawai‘i, \$91 million on Hawai‘i Island, and is responsible for 1,000 jobs statewide and billions of dollars into the local economy since the late 1960s.

July 2014 - Historic Preservation Division approves Long Term Monitoring Plan for Historic Properties, Kahu Ku Mauna approves.

June 2014 - Geology and erosion study of the summit begins.

July 2014 - Historic Preservation Division approves Burial Treatment Plan.

February 2015 - Invasive Species Management Plan is approved by Maunakea Management Board

June 2016 - The Office of Maunakea Management receives the **2016 Pūalu Award for Environmental Awareness from the Kona-Kohala Chamber of Commerce** that recognize organizations that exhibit sensitivity and concern for the environment through innovative environmental practices.

February 2017- OMKM launches the Maunakea Speaker Series in conjunction with UHH Department of Physics and Astronomy.

April 2017 - The Maunakea Management Board, Kahu Kū Mauna council and the Office of Maunakea Management received a Preservation Commendation Award from the Historic Hawai‘i Foundation, the foundation’s highest recognition of preservation, rehabilitation, restoration and interpretation of the state’s architectural, archaeological and cultural heritage.

June 2017 – Three telescopes are officially set for decommissioning and begin the process laid out in the Decommissioning Plan.

July 2017 - The Office of Maunakea Management receives the **2017 Pūalu Award for Culture and Heritage from the Kona-Kohala Chamber of Commerce** that recognize organizations that promote island traditions and preserve our multi-cultural heritage.

January 2017 - A survey of sea birds and bats begins.

Much of today’s criticism of the management of Maunakea is based on people who are opposed to the level of astronomy on the mountain. Astronomy is an initiative of the State of Hawaii that began with Governor John A. Burns in the late 1960s and has nothing to do with the University of Hawaii and OMKM’s successes in managing the lands of Maunakea.

SB 3090 SD1 is in direct opposition to what we on Hawaii Island fought for in the late 1990s—Hawaii Island community-based management of Maunakea. It’s crazy to undo everything that was successful and now go back 20 years and start something new.

The proposed management organization is bureaucratic, extremely expensive and could possibly change with every administration causing turmoil and lack of predictability. The intention is that the necessary funding would eventually be generated largely by commercialization of access to the mountain through extensive restrictions and fees as well as "monetizing" viewing time which essentially places additional burden on the telescope operations on Maunakea. The necessary level of commercialization would be unacceptable to the community, and would have a substantial negative impact on natural and cultural resources and on the ability to maintain world-leading astronomy.

The proposed authority describes the representative of the astronomy community as someone not employed or connected with any telescope operation on the mountain. Why would the astronomy organizations targeted to pay more fees agree to do so without fair representation?

The State Auditor stated in their 2014 report, "We found that UH has developed several management plans that provide a comprehensive framework for managing and protecting Mauna Kea while balancing the competing interests of culture, conservation, scientific research, and recreation."

I couldn't agree more. I urge you to oppose SB3090 SD1.

Roberta F. Chu
Hilo

SB-3090-SD-1

Submitted on: 2/21/2018 4:29:10 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
n marciel	Individual	Oppose	No

Comments:

Oppose removing Mauna Kea from designated "public lands" or any continued or additional privatization of Mauna Kea or any ceded Hawaiian lands/'aina;

Oppose placing restrictions - times, days and where kanaka maoli/native Hawaiians may worship and/or practice/observe anything cultural, sacred or meaningful to Native Hawaiians;

Oppose any issuance of tickets, forced removal or arrests by the state to/of Native Hawaiians for cultural practice, or peaceful protest at Mauna Kea;

Oppose ANY additional construction of buildings or telescopes a top, on or around Mauna Kea and Mauna kea summit;

Oppose any continuation of environmental and cultural destruction and desecration of Mauna Kea- a top, surrounding, and within the mauna;

SB-3090-SD-1

Submitted on: 2/21/2018 2:21:00 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Peter Altomare	Individual	Oppose	No

Comments:

1) The telescopes pay a substantial amount of money to education for ALL of our children.

this is in lieu of payments of "Rent" to OHA. It benefits ALL our children and their futures, so maybe they can stay home in Hawaii, and not have to leave home and their families. Cultural nationalism doesn't cut it. Hawaii has been a State since 1959.

2) What impact this proposal will have on the operations of the existing telescopes and the proposed TMT is open to question, not to mention other scientific operations such as NEHLA and geothermal energy. In future lawmaking. Consequently this Bill is potentially quite destructive to the well being of our State and it's citizens.

3) Have the authors of this proposal considered the impact on one of the few sources of jobs given our geographic isolation, that we can leverage for our sustainability and survival here in the middle of the Pacific Ocean? Please give some of these issues due consideration now, instead of trying to fix a possible mistake later at incalculable cost in the future.

Thank you Mr. Chairman and Members fo your consideration of my comments and thoughts.

SB-3090-SD-1

Submitted on: 2/21/2018 5:03:53 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
L.J. Remillard	Individual	Oppose	No

Comments:

-- This new authority is unnecessary because UH and OMKM are doing a good job of managing MK, either as illustrated in their testimony or by alluding to other testimony, such as that from MKO.

-- A healthy future for astronomy on MK is important to me my family, and my company, as well as to the Hawaii Island community in general. It provides well-paying careers in a clean industry and contributes 5-10% of the economy on Hawaii Island.

-- The bill does not provide any vision for the continuation of world-leading astronomy on Mauna Kea. Instead it focuses on placing restrictions and increased costs on astronomy.

-- The bill would introduce a huge amount of uncertainty and further destabilize the situation on Mauna Kea. It would almost certainly result in the TMT giving up on coming to MK.

-- The bill assumes that existing leases and subleases could be renegotiated by mutual agreement to suit the purposes of the management authority. This is highly unlikely given the nature of the anticipated changes, and the fact that the existing agreements run through 2033. The authority could easily become embroiled in expensive and time-consuming lawsuits if it tried to impose its will.

--The proposed management organization is large, bureaucratic and would be extremely expensive. The intention is that the necessary funding would eventually be generated largely by commercialization of access to the mountain through extensive restrictions and fees. The necessary level of commercialization would be unacceptable to the community, and would have a substantial negative impact on natural and cultural resources and on the ability to maintain world-leading astronomy.

-- The bill contains an unspecified allocation of State funds to cover start-up costs. One might think that the Ways and Means Committee would want to have at least an estimate of these costs.

-- The bill proposes to charge all visitors (except cultural practitioners) an access fee and to ban the use of personal vehicles above Hale Pohaku. This is contrary to the long tradition of free public access.

SB-3090-SD-1

Submitted on: 2/21/2018 12:11:14 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Vidura Wickramasinghe	Individual	Oppose	No

Comments:

Aloha, I am submitting my testimony in complete opposition to this proposed bill for the following reasons-

This proposed bill:

- Gives title to 11,400 acres to the Mauna Kea Management Authority made up of 7 members who are appointed by the Governor.
- Undermines pending litigation and continues to move forward despite overwhelming opposition.
- Proposes limiting access to the Mauna Kea summits to Kanaka Maoli and the public.

Mauna Kea is sacred place which was treated as such for over 2000 years, and was left pristine and undisturbed until the western invasion only 125 years ago. We can see the pollution and disturbance this has caused already, within this short span of only one century. While the legality of US's presence in all of Hawaii remains questionable, I believe it is NECESSARY that the management of Mauna Kea, the MOST sacred place to the majority of polynesians remain in their hands as the Western mind and heart is still young and is incapable of fully understanding what Sacred is.

True warriors will do whatever it takes to protect what they are required of - that which they know is their duty. I am humbly requesting you to take decisions in a pono way to avoid confrontation with people and officials again, which we know will happen if they attempt to go forth with ANY more construction projects upon the mountain. This resistance will continue until these projects die and we know this to be fact. I hope and trust that you will do the right thing.

Mahalo nui!

SB-3090-SD-1

Submitted on: 2/21/2018 9:33:43 AM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Richard Ha	Individual	Comments	No

Comments: SB3090 Aloha Chair Delacruz and members I am writing this as an individual who has been closely involved in the TMT issue for more than 10 years. I also happen to be a PUEO board member. PUEO was the only native Hawaiian entity that participated in the TMT contested case hearing in support of the TMT. I was one of the three original TMT committee members of the Hawaii Island Economic Development Board (HIEDB) ten years or so ago. To me the problem stems from an inadequate accommodation of the Hawaiian culture. The observatories are like little temples. Where is the Hawaiian temple? The problem is showing itself when the Mauna Kea Support Services is expected to perform its mission on an inadequate amount of land. Since the Saddle Road was redone, there are more and more people going to the summit. There are 300 or so visitors every evening. Star gazing has been curtailed due to safety reasons. Sales of souvenirs exceed \$1 million annually. Something has to give. It does not matter which entity, UH or a new Management Authority, takes over. What matters is control of the land on which a cultural center above the clouds can go. Right now, DLNR controls the area west and adjacent to Hale Pohaku. UH does not have control of enough land to separate the visitor issues from the hard core mission of the Maunakea Support Services. The people who work at the Maunakea Support Services are doing a good job with the resources that they are given. It's a systemic problem, that can only be solved when people recognize the problem. Trying to squeeze an inadequate culture center on the tiny property is not solving the problem. The IFA is responsible for figuring this out. I don't see that they get it. From that stand point I support moving the IFA to the Big Island. I support the good work that OMKM has done over the years. However, they do need to think past the Hale Pohaku footprint. It's not adequate for the next fifty years. I support an audit, not because I think it's necessary, but because people need a common frame of reference of understanding where the money goes and what is real money and what is not. Building the facility takes real money, trading telescope time is not. I may be wrong, but I don't think that the audit will turn out like OHA's recent audit. OHA should not have anything to do with managing Maunakea, except collecting their 20%. As Hawaiian language proliferates, year after year, the pressure will inevitably build. The Hawaiian race is diluting rapidly. My grandma was pure Hawaiian. Two generations later, I am quarter Hawaiian. What will we look like and who will people of 1/64 Hawaiian associate themselves with? We need a place where we will not be forgotten. Soon we will be flying into space. Will Hawaiians have a place in the discussion? Not, if we do not have a place above the clouds with the observatories. I think the cultural center above the clouds can be the place where the generations of Hawaiian language school graduates can associate themselves proudly with. The cultural center can separate the support

services mission from the cultural. This is a huge safety issue. It can be the place where the UH Hawaiian language school can send graduates to educate. We do not have to reinvent the wheel. Imiloa understands how this can work- Imiloa Mauka, Imiloa Makai. People have to go to the 9,000 ft level to acclimate anyway. From there the traffic to the summit can be controlled by charging more. If the site is to the west where people can see the sunset, we can manage traffic to the summit better. If we do that, the cultural center becomes more sustainable. Hawaiian craft people can sell their stuff to tourist. We don't have to buy as much stuff from outside the state to sell to tourist. Right now, we generate \$1 million annually without trying. Imagine if we tried. I don't think it's fair to put everything on UH. This is a whole state issue. How about the rich people who live in Hawaii. I'm sure they would be happy to contribute to a cultural center above the clouds. This is a world issue, rich people in the world would see the value of a cultural center above the clouds. I Mahalo Sen Kahele for bringing the issue forward. I don't think anyone else could have done what he did. In pre contact days, we lived in a "gift economy" . The more one gave, the more one received. Anyone traveling on the Kings trail around the island knew he/she would be welcomed if they needed shelter. Then, it became the "market economy" . The more one took, the more one received. This is the big disconnect that exists today. Hawaiians are known for sustainability and the spirit of Aloha. This is the moral authority that the cultural center above the clouds would represent. Build the cultural center above the clouds and everything else will fall into place Aloha Richard Ha

SB-3090-SD-1

Submitted on: 2/21/2018 9:23:14 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Jennifer Mather	Individual	Oppose	No

Comments:

Aloha,

I oppose SB 3090 SD1.

Mahalo,

Jennifer Mather

SB-3090-SD-1

Submitted on: 2/21/2018 10:10:15 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Patricia P Ikeda	Individual	Oppose	No

Comments:

OPPOSE SB3090 SD1 for the following reasons:

- * removes the Mauna Kea summits from the "Public Land" trust with no community input.
- * gives title to 11,400 acres to the Mauna Kea Management Authority made up of 7 members who are appointed by the Governor, who is pro-TMT (along with Mayor Kim).
- * undermines pending litigation and continues to move forward DESPITE OVERWHELMING OPPOSITION.
- * proposes limiting access to the Mauna Kea summits to Kanaka Maoli and the public.

SB-3090-SD-1

Submitted on: 2/22/2018 8:38:08 AM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Walter Ritte	Individual	Support	No

Comments:

I AM IN STRONG SUPPORT OF SB 3090

It has become painfully obvious that the U/H is not capable of management of this important and culturally sensitive mauna of Maunakea. In the long run, a special management group will send a message that government is serious in seeking a solution, and that the status quo will not solve this mess we find our selves in. Maunakea has become a SYMBOL of everything that is wrong with how Hawaiians and their culture is viewed and treated in Hawaii. A line has been drawn, there will be no compromise on the building of the TMT on Maunakea. This new management team can set a new norm on how issues such as the TMT can and will be treated in the future so as to avoid such lose lose conflicts.

SB-3090-SD-1

Submitted on: 2/21/2018 9:22:15 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Julia Paul	Individual	Oppose	No

Comments:

This is not the answer.

SB-3090-SD-1

Submitted on: 2/22/2018 12:15:47 AM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Kauai Trainer	Individual	Oppose	No

Comments:

I am opposed to SB 3090 SD1 Proposed. AGAIN. Title of Mauna Kea does not belong to anyone but the Hawaiian Kingdom. If you fail to recognize this truth and instead want to believe in the power of a joint resolution of congress, then you still must recognize that the state of Hawaii is Trustee of the Public Trust. It cannot convey title of public trust lands to anyone nor any organization without a constitutional convention and vote by the beneficiaries.

"**Â§ -4 Powers and responsibilities;** (12) Prevent illegal activities on, unlawful occupation of, or trespassing on Mauna Kea lands. (13) Cause all trespassers and persons unlawfully occupying Mauna Kea lands, and their effects, and all animals trespassing on the lands to be removed therefrom and to impound the animals according to law;" I oppose this bill because it fails to identify the state of Hawaii as the illegal occupiers of Hawaiian Kingdom lands but instead creates confusion as well as insinuates that Protectors are criminals in their attempts to protect our national heritage and place of worship. The state of Hawaii continues to support state sponsored terrorism and criminalization against kanaka.

"(15) Enforce contracts respecting sales, leases, licenses, permits, or other disposition of Mauna Kea lands;" I oppose this bill because Mauna Kea lands CANNOT be sold.

"(16) Recover money due the authority for damage done to any Mauna Kea lands by wrongful entry and occupation or by wrongful removal therefrom or destruction of any property;" I propose you amend this because this section needs to exempt kanaka from the assumption that accessing our national and ancestral lands is wrongful and that supercilious reports of the authority can use this general language to criminalize kanaka for the building of ahu. At the same time, this section could more clearly define that the removal of the top of Kukahauula was destruction and damage done to Mauna Kea and that those entities responsible for this desecration will be held accountable.

" (1) The authority may grant easement, by direct negotiation or otherwise, for particular purposes in perpetuity on terms as may be set by the board, subject to reverter to the authority upon termination or abandonment of the specific purpose for which it was granted; provided the sale price of the easement shall be determined pursuant to section -8; and

(2) No person who has had a previous sale, lease, license, permit, or easement covering Mauna Kea lands canceled, during the five years preceding the date of disposition, for failure to satisfy the terms and conditions thereof shall be eligible to purchase or lease Mauna Kea lands or to be granted a license, permit, or easement covering Mauna Kea lands." I oppose the sale of easements and any lands. Delete anything in regards to sale or auction of Mauna Kea lands.

Â§ -16 Reservation of rights to prehistoric and historic remains on leased lands. The authority, in leases of lands, shall retain the rights to all prehistoric and historic remains found on those lands. I oppose this bill because only lineal descendants have the rights to iwi.

"Â§ -17 Lands for historic preservation and restoration. (a) Any law to the contrary notwithstanding, the authority may lease lands for use in historic preservation and restoration projects." I do not like the language of this section.; there needs to be greater clarity on why leases should be given in these areas; it is too general on purpose?

"(d) Notwithstanding any other law to the contrary, the authority may sell or take actions to cause the sale of any perishable natural resource that is seized to prevent the waste of the natural resource and to ensure the economic value of the natural resource" I oppose this bill because Mauna Kea resources should stay on Mauna Kea and not be sold.

Please stop trying to legislate kanaka identity and culture. Stop trying to sell and auction off our national lands. Stop trying to criminalize kanaka. Please do not pass SB3090 SD1.

SB-3090-SD-1

Submitted on: 2/21/2018 10:52:47 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Kathleen K.Lacerdo	Individual	Oppose	No

Comments:

I oppose SB3090 SD1

- it removes the Mauna Kea summits from the "public land" trust with no community input

- it gives title to 11,400 acres to the Mauna Kea Management Authority made up of 7 members who are appointed by the governor

- it undermines pending litigation and continues to move forward despite overwhelming opposition

- proposes limiting access to the Mauna Kea summits to Kanaka Maoli and the public

- the Democratic processes are not adhered to by those elected by the people for the people

SB-3090-SD-1

Submitted on: 2/21/2018 8:26:25 AM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Eric Baicy	Individual	Oppose	No

Comments:

This sweeping 82 page bill does little to address anything. In fact in the beginning of the **bill cites that there have been numerous changes to management since 1998 but glosses over those results and focuses on "past failures". Prove there is a current management problem and how this bill fixes it before creating a new office and financial burdens to the public.**

This is a reactionary bill responding to public outcry from a small segment of society. It does not justify removing the mountain from public stewardship.

This bill does not justify installing a panel of 7 random people selected only by their backgrounds to make decisions. The Mauna Kea Authority is going to create more problems than it solves. Putting an OHA rep, a practitioner, 2 "business" people, 1 astronomer, 1 land manager, and 1 cultural expert will only create an unbalanced decision making process. In general that situation **guarentees 3 votes against any changes and for reducing astronomy, which requires just 1 other vote from business, or environmental or land management to sway the decisions. It's a bad idea and an unfair balance.**

Before this bill can be seriously considered, it must be proven that new management is even required.

This claim: "Accordingly,the legislature finds that there is a clear need for one entity to serve as a single focal point of management, responsibility, communication, and enforcement regarding Mauna Kea." is disturbing. There is a process in place to assure the public has input now and other areas of both UH and government has input and decisions. Consoldating power into one "Authority" is going to insure many minor public interests to be ignored and only the vision of the "Authority" will be prioritized. Any what is the logic of installing an "authority" over Mauna Kea? There are many "sacred" parts of land all over Hawaii that are developed every day. **This bill does nothing but pander to a small group of people and will bias its voting balance in their favor.**

The activity on Mauna Kea is a huge part of Hawai'i's economy. Please don't put it in the hands of 7 people and remove the land from public domain.

SB-3090-SD-1

Submitted on: 2/21/2018 9:08:12 AM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Makaniolu Huaka	Individual	Comments	No

Comments:

Honorable Senators,

Thank you for the opportunity to comment on SB3090. In preparing my comments I reviewed the current Mauna Kea Master Plan, Comprehensive Management Plan and subplans, Annual Reports on the Mauna Kea Comprehensive Management Plan, Annual Mauna Kea Land Fund legislative reports, Mauna Kea Management Board meeting minutes, State audits, TMT contested case materials, and several news sites. In summary, SB3090 should not be supported as currently written. If drastically revised, this bill may be salvageable as drastic and immediate changes in Mauna Kea management are needed.

Management Authority/Management Board - must remain volunteer based, represent stakeholders (no more than 10 individuals from pre-defined interest groups including observatory(s) and cultural practitioners) and by definition this includes conflicts of interest, be based on the Island of Hawai'i, be nominated by the Governor and approved by the legislature. The authority must be independent of UH, astronomy, and the current protest community (but include representatives from the same). It must provide constructive and meaningful critique of and guidance to the management staff--in both public forum and private reviews. The Legislature must clarify if State sunshine laws apply. Tenure: up to two 4-year terms. There are succinct book(lets) available on the subject for volunteer board members and how to fulfill their task. The current bill proposes a system of paid political patronage for patrons of the bill's sponsors and must be stricken.

Management Staff - should be professionals with standards set for land/resource management training and experience among publicly recruited staff. The stipulation for hiring of attorneys must be removed, the point of this legislative involvement is to move away from constant legal wrangling. Staff should be housed under the hiring authority of UH or DLNR. The staff may not receive performance review, management, or operational guidance from any University official however, this is a role reserved to the volunteer management authority. The physical location of staff offices must be removed

from its current co-location with UH IFA. There is a disused observatory office (Caltech Smithsonian Observatory (CSO)) that is on UH system property and available for the purpose of housing the management staff and supporting the management authority. This facility's ongoing use by an observatory represents a give-away by UH. Whenever appropriate and feasible, UH system students and faculty should be used to further the management mission -- exceptions for use of consultants, contractors, outside attorneys, etc. must be justified per public reporting and revision requirements below.

Funding - must be clear, transparent, routinely reported -- annually -- and include annual workplans (projected budgets), explicitly identify all allocations and other forms of income, and provide complete annual expense reports. Annual reports must explain the funding structure such that they address existing community (mis)understanding regarding funds. The Management Authority shall have the right to approve or reject use of funds. One analogue to Mauna Kea is our National Park System. By comparison parks are in no way self-funding, and it is unreasonable to expect Mauna Kea to be self funding, although that is no reason to not require reasonable rent (or similar) from any observatory.

Fees for Observatories and Tours and Visitors - to be discussed and course of action to be determined via the volunteer Management Authority in a public meeting(s). This is not a University or astronomy related decision. This is not a decision by, nor for, any one cultural group nor proponents or opponents of the "fake State".

Scope - should be legislatively mandated to include: Imiloa, Visitor Information Station, Mid-Level Facilities, Road Maintenance, Weather Center, etc. under a single authority. Funding streams may need separation but managed and reported consistently across the authority. The current separation of MKSS from OMKM is absurd and unjustifiable given the demonstrated conflicts of interest even simply from a cursory review of the TMT contested case. Initial land affected should be existing UH managed lands, however adding coordinated authority of the Mauna Kea Ice Age NAR and Mauna Kea Forest Reserve should be studied independently and reported back to the legislature to include a draft of potential legislation combining the three entities land area under one jurisdiction within 3 calendar years of bill enactment.

Role of DLNR - DLNR must participate (attend) all authority and committee meetings, within reason. A designated DLNR representative or representatives shall be assigned

and publicly identified for these purposes. Annual discussion and presentation of management to the BLNR should be mandatory.

Reporting and Revision - the Comprehensive Management Plan is clearly identified as an adaptive plan. This means it may not and will not be followed to the letter. Deviation must however, be identified and communicated in a consistent and meaningful written forum. Clear programmatic reports must be shared annually and periodic overall program reviews conducted less frequently (given the State's general track record with such topics, the University's proposed 5yr time cycle is patently absurd and a recipe for constant flux and disagreement). However, annual programmatic reports detailing activities, accomplishments, results, deficiencies, pending actions, etc. should be a requirement and include: operations (roads, utilities, building maintenance), education (visitor centers and outreach), heritage management, natural resources, public/visitor/commercial activities, observatory activities, and permitting/compliance/overall management. Such staff reporting, management authority review and constructive commentary, public feedback, and revision is the essential basis for updated above mentioned topics.

Scheduling, timing, and proposed actions (such as removing or adding observatories) - the bill should void Governor Ige's ill-fated proclamation. The management authority shall have the authority to recommend, approve, or deny the promulgation of an application for a master/general lease, additions or removal or modification of observatories, commercial tour permit numbers and processes, infrastructure requests, etc. at the timing of its choosing. Any requests by stakeholders, including the legislature and governor and University and OHA and others, must be made in a transparent public forum. The management authority shall have the capability to sanction observatories for *policy* violations, and must publicly report sanction actions on an annual basis. The management authority shall also have the authority to submit funding requests for infrastructure improvements that Observatory, user fees, commercial tour fees, etc. cannot sustain. As public land the resources are a public trust.

The bill shall be effective immediately, don't wait 15 years! Some changes may have to wait for implementation, such as lease and sub-lease renewals, but must be made at the first opportunity.

Mahalo

Makaniolu Huaka

SB-3090-SD-1

Submitted on: 2/21/2018 8:21:37 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Ann Mello	Individual	Oppose	No

Comments:

This bill still needs work. Many issues have yet to be addressed satisfactorily. I am opposed to the bill as it is currently written and urge you not to pass it.

February 21, 2018

OPPOSE SB3090 SD1

Aloha e Chair and Committee Members,

SB3090 SD1 does not reflect the considerable and impassioned testimonies of the hundreds who provided comments on the original bill. Nor does it address the issues that the Hawaii Island aha /natural and cultural working group raised in three days of eight hour meetings. While it is acknowledged that there are management failures at both UH and DLNR, the strategy proposed in the bill to address the problems does nothing to improve the situation.

Makeup of the Board

The governor currently appoints the members of the BLNR and the Chair of DLNR. Why would the members of an authority appointed by the Governor be in any way more sensitive to the management than those currently appointed by the governor? The recommendations of the office of Hawaiian affairs could likewise be politicized, and the office is widely criticized for corruption, misappropriation of funds, and politicization for personal aggrandizement. Why would the legislators or the public consider the appointment of those recommended by OHA better than the current regime?

Transparency

The proposal does not provide for transparency in governance, nor does it reference the specific rules under which the governance would take place.

Funding

The revenues generated from astronomy and commercial tours could not provide the funding to pay for board members, staff and enforcement officers, and the public (taxpayer) wishing to visit the mountain would bear the regressive burden of paying a fee to utilize a public resource on a state funded road. Also, it is not clear at all how those wishing to access the Natural Area Reserve or hunting areas would do so without paying a fee. Surely this is a burden that the public would find outrageous.

Further development

Implicit, but unspoken, is the idea that further development, including the TMT, could take place, as long as the number of telescopes did not increase. This is unacceptable and untenable. Expansion of the current astronomy infrastructure footprint must not be a hidden agenda tucked into a bill that hides its intent. It must be clear to the governor, the legislative body, and the astronomy community that a substantial and empowered community of native Hawaiians, students, environmentalists, and educators oppose further development. For this reason and many more, I oppose this bill and ask you to do the same.

Thank you. Deborah Ward

SB-3090-SD-1

Submitted on: 2/20/2018 11:17:11 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
keomailani von gogh	Individual	Oppose	No

Comments:

SB-3090-SD-1

Submitted on: 2/20/2018 9:14:44 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Thayne Currie	Individual	Oppose	No

Comments:

Despite literally **hundreds of testimonies in opposition to this bill** from both sides in the debate of over Maunakea with almost zero support, the legislature still seems intent in pushing it forward for reasons that are unclear to anyone.

If astronomers, PUEO members and other pro-TMT Hawaiians, cultural practitioners, Hawaiian sovereignty activists, TMT protesters, and everyone in between see this bill as disastrous, perhaps the legislature should admit that this bill is in fact a mistake and let it die a quick death.

I STRONGLY oppose this bill. While I appreciate the intent of this bill to protect the cultural and natural resources of Maunakea, its specific motivation to create an entirely new management authority is misplaced and the bill, if implemented, would bring about disastrous consequences.

First, I simply and strongly disagree that OMKM should be replaced another, entirely new agency. While the bill rightly notes that the 1998 state audit of Maunakea's management was highly critical, the Office of Mauna Kea Management was formed and the 2000 Master Plan was formulated in direct response to management criticisms, constituting "a new organizational structure, management system, and procedures." The 2014 audit was not nearly as negative as this bill's language seems to imply, instead noting that "UH and BLNR have made progress in implementing many of [the office's] recommendations", finding that "UH and DLNR's updated plans, leases, and observatory permits provide an improved framework for protecting Mauna Kea lands."

Any fair-minded assessment would also conclude that OMKM is diligently implementing recommendations made by the 2014 auditor's report, as described last summer in "Follow-Up Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve"). The report concludes that as of last year 4 of the 7 currently-applicable recommendations have been implemented at least in large part. Many of the non-implemented recommendations are held up by other agencies/offices, not OMKM. For

instance, the completion of Recommendation 2 hinges on feedback received during the administrative rules process which must be initiated by the governor's office. Even then, there is new progress. For example, the University has now completed draft administrative rules (previously stalled by the governor's office) which have been approved and reviewed by Kahu Ku Mauna and MKMB.

As described by numerous testimonies at the recent BLNR meeting (Jan. 26), the difference in management of Maunakea pre-OMKM and under OMKM is night and day: the mountain is highly regulated, the ranger program does well with ensuring safe access, and the observatories are clean and free of trash/debris surrounding them. The community at large acknowledges OMKM's stewardship of Maunakea in tangible ways. The Kona-Kohala Chamber of Commerce has now twice honored OMKM with its PÅ«alu Award, in 2016 for its innovative, community-focused activities focused on environmental protection and last year for the agency's Long-Term Historic Property Monitoring Plan. The Historic Hawaii Foundation likewise lauded OMKM its protection of cultural resources through this plan.

These positive assessments are in line with my own experience, as an astronomer by vocation and a frequent visitor to the summit of Maunakea since 2006. The past 11 ½ years have provided me ample opportunities to witness OMKM's ability to care for and manage Maunakea. I firmly believe that OMKM excels at the exceptionally difficult task of managing and protecting the natural and cultural resources of Maunakea, while providing an unrivaled center for scientific discovery through astronomical research and safe access to the summit for a wide range of visitors. I have found OMKM personnel to be highly professional and knowledgeable about the many facets of Maunakea that Hawai'i residents value.

Second, the bill if implemented would, at best, create unnecessary and significant chaos, severely impeding the stewardship of a mountain so many Hawai'ians hold dear. This bill, was initially intended to take effect upon its approval, and that is the obvious intent despite the current rewording that it takes effect in 2033 "to encourage discussion". In such a case, the bill would remove numerous experienced, seasoned managers and effective infrastructure of management essentially overnight. In its place, it would put an entirely new infrastructure, new people, filled with stakeholders who do not necessarily have any experience at all in managing a conservation district, and expect them (on day one) to manage this very complex and challenging place. This is a recipe for disaster.

Coupled with the ostensibly extremely short timeline for implementation is extremely loose language about the status/possible renegotiation of current subleases and future development on the mountain that could either be weaponized against the astronomy community or alternatively allow the university to skirt rules. For instance, the cap of 13 telescopes on the mountain is vague. Would the entirety of CSO need to be removed

for TMT to even put up fencing on its site for construction? Alternatively, would removing the mirror for Hoku'kea count as "removing a telescope"? This imprecision only invites more legal challenges. Another example. Almost the entire community (the majority in favor of TMT and minority opposed) believes there should be limits on new development, with Governor Ige suggesting that TMT should be the last new site developed. While the bill caps the number of telescopes, there is no language in the bill that would, say, prevent development (after TMT) on currently undisturbed sites, only that the total footprint is capped (and how would this be determined? SMA's 'footprint' by some definitions is adjustable).

The bill suggests that the current subleases "shall be transferred to the authority and shall be subject to renegotiation upon mutual agreement of the parties." This is insane. The current subleases, which are legally binding contracts, run through 2033. How exactly will this 'mutual agreement' be reached? All this will accomplish is entangling the authority in an endless string of lawsuits, which will only enrich the pocketbooks of lawyers and otherwise satisfy no one. While the legislature should be commended for their interest in the management of Maunakea, I strongly feel that this bill, taken in its entirety, just makes things much worse.

Certainly, there are aspects of Maunakea's management that could be improved. For example, through the adoption of the administrative rules or other means, the rangers should be given greater enforcement powers. I personally would also like to see substantial revisions to the way in which the Visitor's Center is run. Other specific items in the bill are good ideas: e.g. requiring that, as a condition of their sublease renewals, the telescopes follow TMT's lead and describe in a formal way how they will give back to the community through more local jobs and greater educational opportunities. The community would benefit from improving the existing, working system through these focused additions considered in a future legislative session rather than this bill.

If the legislature seems absolutely intent on passing a bill on something related to the management of Maunakea, the absolute worst thing to do is to pass a bill that has bipartisan opposition such as this one. A much better option would be to focus on targeted issues (in a special legislative session or next year) that have broad, bipartisan support, including enforcement powers for rangers, conditions for the renewal of subleases, and giving OMKM administrative rules. If there are to be any substantial and fundamental changes to management of Maunakea in the future, they should express the consensus of the community at large.

Maunakea is revered by so many in Hawai'i. It is special to me as well, both

professionally and personally. It must be protected and its cultural and natural resources preserved. This bill does not protect Maunakea but will damage it. I am thankful for the dedication and expertise of OMKM personnel who excel at protecting this special place.

I am fortunate to count myself among the most well paid individuals on Hawaii Island, and to work for an organization that provides excellent benefits to its staff, and where people view their coworkers as family. I work at a telescope; jobs like mine are accessible to any resident of Hawaii who desires to invest the time and hard work necessary to get there. My telescope makes a concerted effort to hire people locally when they can, but it is never easy finding people with the required skill set in this line of work; consequently my coworkers are from diverse backgrounds and places, including Hawaii.

My telescope receives funding from the hard-earned tax-payer money of two *foreign* countries. Believe me when I tell you that this funding is by no means easy to obtain or guaranteed from year to year. You can't sell the knowledge gained in Astronomy. It has no business value. We do not have anything for sale, barter or exchange – yet we contribute to the State both financially and culturally in very concrete ways. We are rarely acknowledged for this, and have perhaps not sought out such acknowledgement until recently. To do this work, we ask little else from the State of Hawaii, but to provide continued and rock-solid, dependable access to a space on the top of Mauna Kea, unhindered by the political winds that may happen to be blowing on any given year.

I do not begrudge paying taxes, but I do expect fair representation from my government in return. In reading this bill, I was dismayed by the irony of seeing my tax dollars being spent on measures that will eventually act to remove my family from this island. This is not hyperbole; how long do you believe that foreign governments will continue to invest good money in a jurisdiction where projects that take years to come to fruition can be snuffed out at the whimsy of local politicians who refuse to hear good counsel? An observatory is more than just a building on a high mountain. An observatory is made up of the people and families who support its infrastructure, people who live and contribute to the community, its schools and myriad organizations. Its roots extend around the world to the universities and labs that support us.

No amount of rhetoric can change the fact that I am a person who is angry that voted officials on a distant island are juggling with my family's well-being, and all of the hard work put in by colleagues past and present, to please a few loud voices that have reached their ears.

This bill does nothing to quell disagreements about how Mauna Kea should be shared. Quite to the contrary, the proposed management plan will aggravate problems on all sides of the equation.

Let me start with my foremost contention with this bill; how is it conceivable that the proposed new management board should not include representation from the observatories or UH? The omission is a slight to all those at UH who work every day to clear the roads, shepherd tour buses and tourists on the access road and those researchers who continue to study and monitor the summit environment's flora and fauna. It leaves out a key component of the management of the mountain that I can only interpret as a flagrant disrespect for astronomy professionals, environmental scientists and those who work every day to keep visitors safe and to preserve the mountain.

Even more infuriating, under the new scheme OHA will be taking 20% of the income generated from visitors fees and "monetization" of observatory activities (e.g. sale of IP, technology transfers). This exhibits a gross ignorance of the operation model and mission of the observatories. We spend money, we do not make it. Not the slightest hint is given as to what OHA will be allowed to do with the funds collected. Presumably, they will use it to run more feel-good TV commercials to help spruce up their image? If collected at all, the money should be directed to the department of education; something

that could potentially benefit everyone in the state and does not so blatantly feed an entity cast with a mission that by its very nature serves a focused group of citizens.

The bill leaves the door wide open for the observatories to be subject to arbitrary usage fees imposed by the management board. Conveniently, there will be no representation from the observatories on the board so that they will have no control on how these fees are set. The observatories will be having interesting conversations with their funding agencies to explain how their rent may fluctuate to suit the needs of a fickle landlord.

But to switch from aggravating to bizarre, consider now the proposed idea of limiting the quantity of observatories on the mountain to an arbitrary number. This idea exhibits a complete ignorance of what it means to build an observatory. Each observatory is different and has a lifetime limited by the science goals for which it is targeted. The bill seems to have been written by somebody who thinks that the top of Mauna Kea is simply a parking lot for telescopes – “hmm, we’ll limit the parking to 9 stalls, sounds about right”. If anything, a fixed total number of hectares allotted to astronomy, not including road access, would make more sense. The issue is complex, because it is impossible to predict what will be needed in terms of the shape and function of future observatories. Clearly, this issue needs further consultation with the astronomy community in collaboration with those who understand the cultural significance of the summit areas. Ultimately, I suspect that management of astronomy’s footprint probably won’t be amenable to an arbitrary hard-and-fast rule.

An equally important omission in this bill is that there is no provision on the proposed board for a representative from the natural conservation standpoint. This individual should have hard credentials in biology/environmental science and be appointed by UH as they have been the most important source of meaningful environmental research conducted on the mountain.

Missing also is the third variable of the equation - It is not clear to me that anybody on the proposed board stands to directly represent cultural practice and history of the mountain. The manner in which to vet this/these representative(s) is not clear to me, but a solution must be found nevertheless.

A final point is that I do not see the value in having ex-officio members on the board. Either the East West Center representative has valuable input with equal voting rights, or should not be on the board.

To summarize, my reading of this bill is that it has little to do with UH’s purported “mismanagement” of the mountain and establishing a more successful alternative. The makeup of the proposed board speaks very clearly to the State’s actual intentions; they wish to turn Mauna Kea into yet another tourist cash cow. The effect if not intent is to eventually drive the observatories and most of their families out of Hawaii. This bill goes no further than paying lip service to the three important aspects of Mauna Kea; history/culture, astronomy and natural conservation. However, it does nothing to improve stewardship of these from what is already in place, but sets the stage for disappointments on many fronts down the road.

Marc Baril

Resident of Waimea, Hawaii

**Committee on Ways and Means
Hearing on February 22, 2018**

Opposition SB 3090 SD1

I am writing in opposition to SB 3090 SD1 .

Everything that we as a Hawaii Island community complained about what was wrong with the management of Mauna Kea in the 1990s changed in the year 2000.

Through community pressure, the University of Hawaii Board of Regents and ultimately the State Land Board agreed to Hawaii Island-based community management and the Office of Maunakea Management was formed. With this formation came the Hawaii Island volunteer driven Mauna Kea Management Board and the Native Hawaiian advisory council Kahu Ku Mauna.

I was on the initial Mauna Kea Management Board, served for 12 years and served my final 5 years as Chair.

OMKM's task was and continues to be the protection, preservation and enhancement of Maunakea's cultural, natural and recreation resources and they have been successful in these endeavors.

Starting from scratch was difficult indeed but the Office of Maunakea Management headed up first by Retired Judge Walter Heen and now Stephanie Nagata was up to the task.

Here are a few milestones that have been accomplished by the Office of Maunakea Management:

June 2001 - Annual surveys begin of Wēkiu bug that are on the verge of being considered an endangered species.

July 2001 – Maunakea Rangers are established. The Rangers work 365 days a year and protect cultural and natural resources.

August 2001 - The road to Pu‘u Poli‘ahu, considered one of the most sacred sites on the summit, is closed to vehicular traffic at the recommendation of the Kahu Kū Mauna council, while also ensuring the health and safety of cultural practitioners, local residents, tourists and observatory personnel.

July 2004 - Archival study of native traditions, historical accounts and oral history interviews of residents with historic connections to Maunakea begin.

March 2005 - The study of biology of Wēkiu bug begins.

August 2005 - Archaeological/historic survey of the 11,288-acre UH managed Maunakea Science Reserve begins.

January 2006 - The first of several climate studies on the impact of the mountain's ecosystem begins.

After five years, 263 sites were identified, with about 900 features, including shrines, burials and trails were identified and is the basis for the Cultural Resource Management Plan.

February 2007 - Maunakea Rangers begin bi-annual inspections of observatories to ensure compliance of conservation district use permits.

May 2007 - Annual surveys for alien/invasive species begins.

August 2007 - The development of Natural Resources Management Plan begins.

August 2007 – The development of the Comprehensive Management plans begins.

November 2008 - Three public meetings are held in Hilo, Kona and Waimea on the proposed Comprehensive Management Plan.

April 2009 - The Comprehensive Management Plan is approved by the Board of Land & Natural Resources.

April 2009 - The university begins work on four management sub plans - cultural resources, natural resources, public access and telescope decommissioning,

September 2009 - Three open houses in Hilo, Kona and Waimea are held on the Cultural Resources Management Plan and the natural Resources Management Plan.

December 2009 - Three open houses held in Hilo, Kona and Waimea on Public Access and Decommissioning management sub plans.

March 2010 - The Board of Land and Natural Resources approves four Comprehensive Management sub plans.

March 2011 - Rangers begin monthly photo document of water level of Lake Waiau and fund mapping lake bed bottom.

March 2011 - Maunakea Rangers begin periodically hiking to the historic adze quarry on state managed land to assess conditions and remove trash.

May 2011 - Botanical survey of the 11,288-acre UH managed Mauankea Science Reserve begins.

June 2011 -Botanical baseline survey begins leading to robust natural resources program for the mountain and oversees regular monitoring and preservation of the mountain's plant life.

July 2011 - Biodiversity study of arthropods begins.

October 2011 - Wēkiu bug is removed as a candidate for federal protection because of UH's management plans to protect the species.

March 2012 - A volunteer program to remove fireweed and other invasive weeds is created. More than 1,000 volunteers have worked more than 7,000 hours removing over 1,500 bags of invasive weeds, and planted several hundred Mauna Kea Silversword plants.

March 2012- Monthly and quarterly monitoring for ants of summit and Halepohaku facilities begin.

July 2012 - Annual monitoring of historic properties begins.

July 2013 - Orientation plan on cultural and natural resources is implemented for all workers on the mountain including observatory, construction and commercial tour operators.

August 2014 - The State Auditor observed: ***“We found that UH has developed several management plans that provide a comprehensive framework for managing and protecting Mauna Kea while balancing the competing interests of culture, conservation, scientific research, and recreation.”***

August 2014 –Economic Impact of Astronomy. Astronomy generates \$167 million annually in Hawai‘i, \$91 million on Hawai‘i Island, and is responsible for 1,000 jobs statewide and billions of dollars into the local economy since the late 1960s according to economic report.

July 2014 - Historic Preservation Division approves Long Term Monitoring Plan for Historic Properties, Kahu Ku Mauna approves.

June 2014 - Geology and erosion study of the summit begins.

July 2014 - Historic Preservation Division approves Burial Treatment Plan.

February 2015 - Invasive Species Management Plan is approved by Maunakea Management Board

June 2016 - The Office of Maunakea Management receives the **2016 Pūalu Award for Environmental Awareness from the Kona-Kohala Chamber of Commerce** that recognize organizations that exhibit sensitivity and concern for the environment through innovative environmental practices.

February 2017- OMKM launches the Maunakea Speaker Series in conjunction with UHH Department of Physics and Astronomy.

April 2017 - The Maunakea Management Board, Kahu Kū Mauna council and the Office of Maunakea Management received a Preservation Commendation Award from the Historic Hawai‘i Foundation, the foundation’s highest recognition of preservation, rehabilitation, restoration and interpretation of the state’s architectural, archaeological and cultural heritage.

June 2017 – Three telescopes are officially set for decommissioning and begin the process laid out in the Decommissioning Plan.

July 2017 - The Office of Maunakea Management receives the **2017 Pūalu Award for Culture and Heritage from the Kona-Kohala Chamber of Commerce** that recognize organizations that promote island traditions and preserve our multi-cultural heritage.

January 2017 - A survey of sea birds and bats begins

Much of today’s criticism of the management of Maunakea is based on folks who are opposed to the level of astronomy on the mountain. Astronomy is an initiative of the State of Hawaii that began with Governor John A. Burns in the late 1960s and has nothing to do with the University’s and OMKM’s successes in managing the lands of Maunakea.

SB 3090 SD1 is in direct opposition to what we on Hawaii Island fought for in the late 1990s—Hawaii Island community-based management of Maunakea. It’s crazy to undo everything that was successful and now go back 20 years and start something new.

The State Auditor stated in their 2014 report, "We found that UH has developed several management plans that provide a comprehensive framework for managing and protecting Mauna Kea while balancing the competing interests of culture, conservation, scientific research, and recreation."

I couldn’t agree more. I urge you to oppose SB3090 SD1.

Barry K. Taniguchi
Hilo

HONOLULU, HAWAII.

Feb. 19, 2018

Re: S.B No. 3090
S.D 1

Honorable Ronald D. Kouchi
President of the Senate
Twenty Ninth State Legislature
Regular Session 2018
State of Hawai'i

MEMORANDUM IN OPPOSITION

Sir:

Your Committee on Higher Education and Water and Land to which was referred S,B No, 3090, Entitled :

“ A Bill for an Act Relating to Government ”

I oppose in opposition to Chairman Karl Rhoads of Judicial Committee 29th House District, Regarding his letter of proposal dated, Feb 16, 2018.

The purpose of this opposition to his proposal has been noted, contradiction within;

- 1) Establish the Mauna Kea Management Authority.
- 2) Limit the number of Telescopes that may be authorized on Mauna Kea.
- 3) Authorize the renegotiation of leases, subleases, easements, permits and licenses pertaining to Mauna Kea.
- 4) Require that revenues derived from activities on Mauna Kea be shared with the Office of Hawaiian Affairs.
- 5) Exclude Mauna Kea land from the definition of “Public Land”; and
- 6) Provide free access to Mauna Kea for traditional culture purposes.

I oppose the proposal of No. 1, 2, 3, 4, and 5 regarding the fact that Mauna Kea's original Office of Mauna Kea Management in the past had and has been noted by the State Auditor, failed to adhere to their duties to perform yearly task to the upkeep of Mauna kea.

The second issue is No. 2, limiting the number of Telescopes authorized on Mauna Kea. There is a controversial debate on the facts that both OMKM , UH , and TMT related the fact they were removing the number of Telescopes from Mauna Kea. Which again, OMKM and the University of Hawai'i Board of Regents have both failed to comply after records of their statements have been recorded in Court. Regardless, No. 3, request to renegotiate leases , subleases , easements, permits and licenses, contradicts his proposal of No. 2, No. 5 and , possibly No. 6. There is viable contradiction in this proposal by Judicial Chairman Karl Rhoads. Why would we allow substantial changes to Mauna Kea after requesting to remove all or any of the Telescopes that they had implied to be removed ? And , renegotiate compliance to sublease, produce easements, provide permits and licenses to reconstruct what they had originally planned to remove ? There is no equitable fact of logic in this proposal. No. 4 implies to share revenues with the Office of Hawaiian Affairs. We have just been exposed to the State Auditors Report on the condition of the Report regarding the “million” of dollars and mis-appropriated funds by the Board Members. No. 5, insinuates exclusion of the word “Public Land” and provide access to Mauna kea for traditional Culture purposes. Yet, Mauna kea is “ not” public land, and is still Crown Land and should be permanently held as “ Crown Land” under the original Hawai'i Constitution for all Culture practices and purposes.

HIGER EDUCATION:

Addressed by Chair Karl Rhoads is nothing more than a frivolous statement., Higher Education begins in School. Not in the minds eye of Technology and Science upon a Mountain that displays a Telescope. **The right of the people to protest is a fundamental right and should not be abridged by false light.**

You've learned as well as our generation and past generations have, education begins in the classrooms. Not on a mountain top seeing the planets from a Telescope. Where education begins, is where we all learned to read, write, and understand the words of our language, not from a Telescope. Hours spent in schools reading text books, doing logic from basic math, are all learning materials in growth. Show how a Telescope will produce one's mind to learn mathematical equations by looking at a planet, and I will show you that same person will not be able to mentally learn mathematical equations. You cannot learn math unless you've learned the basics and that has to be taught in schools, not on a mountain top looking through a Telescope. The entire reasoning becomes ambiguous to call it higher education.

SUPREME COURT:

Lemon v. Kurtzman, 91 S. Ct. 215 (1971).

Established the three part test for determining if an action of government violates First Amendment's separation of church and state:

- 1) the government action must have a secular purpose;
- 2) its primary purpose must not be to inhibit or to advance religion;
- 3) there must be no excessive entanglement between government and religion.

Where excessive entanglement between government and religion exist, violates the rights of the people and overrides any appropriations or measures of public policy of enforceable means just to gain privy rights of land by **intangible reason**. Such intangible reason is slated as "using higher education" in a form of a title or a verbal communication where it is **intangible**. Where a person or persons may have an interest in any action, matter, or thing. There is no physical connection or reality.

The tangible relationship of the matter exist where it is produced, exercised and valid in present form and in physical form. This form is considered as relevant, physically in chanting, praying in a singular form or as a community environment. There is sustainability in action or act.

This makes the Culture and its history of religious practice viable where the same practices of religious acts worldwide have been practicing their style of religion. Japan, China, Indonesia, India, Korea, and all other Eastern Countries around the world have their own style of practice in religion. You would not go to another Country and destroy their religious faith for the sake of your own wants and desires of Western Culture or Scientific belief. Religion came far beyond first before we even knew Science. Egyptians prayed to the Gods they never met before they discovered Science. Japan, China, and all the other Countries around the world did the same before they discovered Science.

SUPPLIMENT OF LEGAL AUTHORITIES :

We concur the following in application;

*Pele Defense Fund v. Paty: Exacerbating the Inherent Conflict Between Hawaiian Native Tenant Access and Gathering Rights and Western Property Rights. 16 UH L. Rev. 207.

*The Reassertion of Native Hawaiian Gathering Rights Within The Context of Hawai'i's Western System of Land Tenure. 17 UH L. Rev. 165.

*Native Hawaiian Cultural Practices Under Threat. I HBJ No. 13, at pg.1

*Tr. 11/02/16 at 80:9-81:13. Goodfellow Construction, the prime contractor, were done in violation of H.R.S. §711- 1077 Desecration, And, therefore, among other violations, arrest and prosecution of citizens preventing the desecration of protected conservation land, in violation of due process of the 14th amendment was done in violation of 18 U.S. Code § 241 – Conspiracy against rights of citizens and 18 U.S. Code § 242 – Deprivation of rights under Color of Law." [sic].

Resolution," which "dictate[d]" its conclusion, , at 212, 177 P. 3d, at 988, the State Supreme Court ordered "an injunction against the defendants from selling or other - wise transferring to third parties (1) the Leiali'i parcel and (2) any other ceded lands from the public lands trust until the claims of the native Hawaiians to the ceded lands have been resolved," , at 218, 177 P. 3d, at 928. In doing so, the court rejected petitioners' argument that "the State has the undoubted and explicit power to sell ceded lands pursuant to the terms of the Admission Act and pursuant to state law." , at 211, 177 P. 3d, at 920 (internal quotation marks and alterations omitted).

Unless the State can produce substantial fact that Hawai'i is a State, All Ceded Lands (Crown Lands), must remain undeveloped, and under the protection of the Hawaiian People.

Thank you , Mel Wildman.

McCully Works
40 Kamehameha Ave.
Hilo, Hi. 96720

SUPPORT for SB3090

LATE

Committee of Ways and Means:
Chair: Donovan Delacruz Vice Chair: Gilbert Keith-Agaran

I write in Strong Support for SB 3090, SD1

SB 3090, SD1 includes significant amendments that reflect the testimony and concerns of the stakeholders as well as the public at large. Important changes include;

1. Due Process is specifically addressed through affirmation of conservation district rules and contested case hearings remaining a right to those qualified claimants.
2. Statutory controls on and of astronomical facilities
3. The proposed board would have a diverse and appropriate representation that reflects both our community and the leaseholders interests.
4. The near parallel restrictions on land use with HRS171 provide the public with assurances that the lands will not be alienated and the uses have sufficient protections for and to the public's interests.
5. The new proposed authority will go through proper procedures as defined in HRS Ch. 91 in establishing administrative rules appropriate to the unique demands placed on the lands composing and surrounding Mauna Kea.

It is long overdue that we achieve the highest level of responsibility and authority over the lands of Mauna Kea. The irreplaceable nature of what it provides requires a committed, focused, and righteous Authority that places the public uses and benefits as it's sole interest. This is in stark contrast with the University and the DLNR, both of which have many competing interests. Their lack of effectiveness and commitment to balance both astronomy and cultural concerns has led to the current quagmire of court proceedings. It is our States collective shame that we now have an international profile for dysfunctional policies and rules because of how these agencies have handled these issues.

There is no perfect solution to the problems that we have created on Mauna Kea. But we have allowed something great to be created there, the foremost astronomical center on our planet. Now let's fix the problems that have accrued along the way.

Please don't let "PERFECT" get in the way of the "GOOD". Support SB 3090, SD1 Mahalo for your consideration,

Jim McCully

IMUA Mauna Kea

Dear Senate Ways and Means Committee: -Chair Dela Cruz	yes
Dear Senate Ways and Means Committee: -Vice Chair Keith-Agaron	yes
Dear Senate Ways and Means Committee: - Senator English	yes
Dear Senate Ways and Means Committee: - Senator Galuteria	yes
Dear Senate Ways and Means Committee: - Senator Harimoto	yes
Dear Senate Ways and Means Committee: - Senator Inouye	yes
Dear Senate Ways and Means Committee: - Senator Kahele	yes
Dear Senate Ways and Means Committee: - Senator Kidani	yes
Dear Senate Ways and Means Committee: - Senator Riviere	yes
Dear Senate Ways and Means Committee: - Senator Shimabukuro	yes
Dear Senate Ways and Means Committee: - Senator Wakai	yes
My name is	Refer to Table Below
My email is	[REDACTED]
I reside at	[REDACTED]
I am-Kanaka Maoli aka Native Hawaiian	Yes [VARIOUS]

I am-Registered to vote in Hawaii. yes

I OPPOSE Senate Bill 3090 SD1:-This Bill would solidify the State's authority over our sacred and historic mountain through the creation of the Mauna Kea Management Authority (MKMA) giving over the governance and management of 11,400 acres of Mauna Kea lands to the MKMA comprised of seven individuals appointed by the Governor. yes

I OPPOSE Senate Bill 3090 SD1:-Despite 700 testimonies in opposition to Senate Bill 3090 (SD1 Proposed) and only four in support of the creation of a MKMA the Senate Higher Education and Water and Land Committee passed SB 3090 SD1 Proposed with amendments. yes

I OPPOSE Senate Bill 3090 SD1:-This Bill gives the MKMA the power to exploit and limit access to the sacred and historic Mauna Kea summits through the establishment of entrance fees and management rules and regulations. yes

I OPPOSE Senate Bill 3090 SD1:-Although this bill puts a limit to the number of telescopes allowed on Mauna Kea, it does not stop the building of the Thirty Meter yes

Telescope(TMT) or any industrial developments.

I OPPOSE Senate Bill 3090

SD1:-The creation of the MKMA undermines pending litigation regarding the future of sacred Mauna Kea and its fragile environments and sidesteps powerful efforts of Kanaka Maoli and the public toward healing and resolution.

yes

I OPPOSE Senate Bill 3090

SD1:-There has been NO community education, meaningful input, and consensus on the impacts of this bill on the future of sacred Mauna Kea and what is more concerning is that the language of this bill may very likely keep drastically changing as it moves through the legislature.

yes

I OPPOSE Senate Bill 3090

SD1:-This Bill exempts lands to which MKMA holds title from the definition of "public lands" - former Crown and Government lands of the Hawaiian Kingdom which was illegally ceded to the US and then as a condition of Statehood transferred to the State of Hawai'i to serve 5 purposes including the "betterment" of the conditions of native Hawaiians (Kanaka Maoli of 50% blood quantum or more). The Admissions Act

yes

states that any other object besides the 5 purposes shall constitute a breach of trust.

Germaine Meyers	Jason Afong	Herman Canonio	Anna Rizzo	Leinani Lopes-Salaua
Anelalani Maui	Nanea Lopes	Kawika Lopes	Noelani Wong	Rebecca Vincent
Rhiannon Callahan	mary drayer	Keala Kahuanui	Lindsey Drayer	Delphina Nova
Audrey Tamashiro-Kamii	Lynn A Regidor	Gregory Johnson	Hokulani Kaikaina	Sandra Pa
Purdyka Wahilani	Kathy Kaukani	Noe Lopes	Alisha Kamauoha Renaud	Winona Lee
Michael Wauschek	Tisha Kalama-Kidder	Henry Michael Kidder	Gonsalves Renee	Lauri Broad
Kekukuna Tringali	Nanci Munroe	Donald Zane	Lei Niheu	Patricia McCarver
PAHNELOPI MCKENZIE	Nicole Gonzales	Deborah Hauanio	Cheryl Tindell	Eva Maikui
Kukana Kama-Toth	Cameron Ahia	Nicole Naone	Barbara Underwood	James Rodrigues
Reni A'ia'i Bello	Kira Souza	Theresa Keohunani Taber	Pua Case	Emma McGuire
Tina Pena	Roland Chang	Cheryl Burghardt	christopher kahunahana	Leona Leialoha
hayden robinson	Wendy Green	Kahe'e Manuwai	James Manuwai III	Kealohalani Manuwai
Jade Maximillen	Izula Jade Humphrey	Sharon Willeford	John Omerod	MaryAnn Omerod
Laura Hernande	Peggy McArdle	Maria Elena Moreno	Buck Romero	Dianna Wilcox
Blake Watson	Claud Sutcliffe	Gayle Kaio	Rebekah Luke	Teresa Nakama
Daniela Martinez	Rory Kim	Aisea Fonua	Joshua Lelemia Irvine	Jenna Martin
Nohea Santimer	Connie Mah	S L	Alma Mainz	Shanin Terrell
mahina poepoe	Keonekaulana Case	Mikilani Young	Katy Benjamin	Ronald Fujiyoshi

Julie Kaneshiro	Theodora Akau Gaspar	Baron Ching	Maelani Lee	Dr. Kalamaoka'aina Niheu
Christian Zavala	Tiana-Malia Kawaihoa-Marquez	Shirley Lum	Malia Marquez	NO KAPAOLE
Kelvin Gonsalves	Sharron Cushman	Candace Fujikane	Hank Fergerstrom	Wai'ala Ahn
Healani Sonoda-Pale				

Attn: Chair of WAM is Donovan Dela Cruz, vice chair, Gilbert Keith-Agaran:

Please note that I am strongly opposed to SB 3090, SD1 and would appreciate your opposition to this bill as well.

Aloha,
Carol VanCamp

LATE

SB-3090-SD-1

Submitted on: 2/22/2018 12:43:22 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Noalani Nakasone	Individual	Support	No

Comments:

As a Native Hawaiian I urge you to

Please Support this Bill. Mahalo!

LATE

SB-3090-SD-1

Submitted on: 2/22/2018 6:50:24 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Mona Daniels	Individual	Support	No

Comments:

LATE

SB-3090-SD-1

Submitted on: 2/22/2018 12:31:19 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Theodora Akau Gaspar	Individual	Oppose	No

Comments:

SB-3090-SD-1

Submitted on: 2/22/2018 7:32:39 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

LATE

Submitted By	Organization	Testifier Position	Present at Hearing
Cory Harden	Individual	Oppose	No

Comments:

Aloha legislators,

Please oppose SB3090 SD1. It does not reflect the hundreds of earlier testimonies, nor the hours of work by the Hawai'i Island aha. It would not improve management of Mauna Kea.

mahalo,

Cory Harden, Hilo

From: [Carol VanCamp](#)
To: [WAM Testimony](#)
Subject: SB 3090, SD1
Date: Tuesday, February 20, 2018 3:57:19 PM

Attn: Chair of WAM is Donovan Dela Cruz, vice chair, Gilbert Keith-Agaran:

Please note that I am strongly opposed to SB 3090, SD1 and would appreciate your opposition to this bill as well.

Aloha,
Carol VanCamp

Carol A. VanCamp
HC2 Box 9547, Kea'au, HI 96749
Phone/Fax: (808) 982-9958
Cell: (808) 938-0828
Cvancamp3@hawaii.rr.com

LATE

SB-3090-SD-1

Submitted on: 2/22/2018 8:23:49 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Deborah Mader	Individual	Oppose	No

Comments:

Aloha chair,

I strongly oppose SB3090 SD1 for the following reasons:

This Bill would solidify the State's authority over Kanaka Maoli sacred and historic mountain through the creation of the Mauna Kea Management Authority (MKMA) giving over the governance and management of 11,400 acres of Mauna Kea lands to the MKMA comprised of seven individuals appointed by the Governor.

There were over **700 testimonies in opposition** to Senate Bill 3090 (SD1 Proposed) and only four in support of the creation of a MKMA the Senate Higher Education and Water and Land Committee.

This Bill gives the MKMA the power to exploit and limit access to the sacred and historic Mauna Kea summits through the establishment of entrance fees and management rules and regulations.

Although this bill puts a limit to the number of telescopes allowed on Mauna Kea, it does not stop the building of the Thirty Meter Telescope (TMT) or any industrial developments.

The creation of the MKMA undermines pending litigation regarding the future of sacred Mauna Kea and its fragile environments and sidesteps powerful efforts of Kanaka Maoli and the public toward healing and resolution.

There has been NO community education, meaningful input, and consensus on the impacts of this bill on the future of sacred Mauna Kea and what is more concerning is that the language of this bill may very likely keep drastically changing as it moves through the legislature.

This Bill exempts lands to which MKMA holds title from the definition of "public lands" - former Crown and Government lands of the Hawaiian Kingdom which was illegally ceded to the US and then as a condition of Statehood transferred to the State of Hawaii to serve 5 purposes including the "betterment" of the conditions of native Hawaiians (Kanaka Maoli of 50% blood quantum or more). The Admissions Act states that any other object besides the 5 purposes shall constitute a breach of trust.

Please do not pass SB3090 SD1

Mahalo nui
Deborah Mader

LATE

SB-3090-SD-1

Submitted on: 2/22/2018 11:58:56 PM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Jennifer Leina'ala Sleightholm	Individual	Oppose	No

Comments:

Aloha hou, my name is Jennifer Leina'ala Sleightholm. I am a party in the second Mauna Kea Contested Case, a resident of Hawai'i island, a mother, grandmother, aloha 'aina, and kia'i mauna. I apologize for the late submission but many of us have been up against a Supreme Court deadline, while trying to balance our family and work life as well as having to submit multiple testimonies.

I strongly oppose SB3090. I'm baffled at how this bill is being passed through even after 700 opposed, not to mention the fact that there is strong bipartisan opposition from both the pro TMT group and the pro mauna group. That says a lot. These are 700 voices, many of whom are voters.

To have a committee that would be appointed by the governor is frightening. He has no pilina with Mauna Kea and is not qualified to appoint people into positions to manage the mountain. What would the vetting process be? Will there even be one? How are businessmen qualified to "manage" a temple?

Until Mauna Kea is cared for with a familial kinship thought process, which the mauna is, a family member, there will never be a "management authority" adequate to care for the mauna.

By passing this bill, it will send a clear message to your constituents that their voices don't matter. I urge you to kill this bill. That would be what's best for Mauna Kea.

LATE

SB-3090-SD-1

Submitted on: 2/23/2018 5:24:02 AM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Rocky	Individual	Oppose	No

Comments:

I am against this bill on the principle that the USA committed a terrorist act against my country the Kingdom of Hawaii, kanaka maoli and my culture. Every single year your terrorist organization you represent strips our human rights and ignore the fact that you are the illegal aliens here. You all treat us like we are invisible. Why would a huge country like the USA want to steal my country? History shows it was for greed and power.

I agree that UH/OMKM are a complete failure. But so is the state of Hawaii. Building on Molu o Keawe's largest aquifer is playing Russian roulette with our water supply. Really easy to believe the state will make billions with this bill but it is not a win win situation. My country again loses for the Greed of UH and terrorist State of Hawaii. I am fighting the extinction of my culture with every bill you all try to slip into at the last minute.

This bill SB 3090 was the most unusual bill I have ever seen in that TMT and I are against this bill yet it is still alive. Why? I agree with this bill in that US/SOH/OMKM need to be removed from controlling Mauna Kea but am against the state creating another. This group will be appointed by the Governor? He already shown he would arrest the protectors of Hawai'i nei for money. Arresting kanaka maoli for protecting our most sacred site is another terrorist act against my country.

TMT actually wanted to get the same \$1 dollar a year rent but when we protested this fact. Then they thought that donating a \$1 million dollars a year to the keiki o ka'aina that we would be ok with this. I am not. I see this is another rich white man (Gordon Moore) using his money to eliminate kanaka from the face of the earth. While, TMT wants to give a million dollars a year to our keiki, I want to give the keiki o ka'aina their birthright which is worth more than trillion dollars a year.

So for these reasons I am against SB3090SD1

LATE

SB-3090-SD-1

Submitted on: 2/23/2018 8:26:46 AM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Donna Grabow	Individual	Oppose	No

Comments:

Aloha,

I OPPOSE this bill because it is a sneaky way to change the Mauna Kea Summits from "Public Lands", and give title to 11,400 acres to the Mauna Kea Management Authority.

The Royal Hawaiian Land patents were surveyed and documented in the 1800s.

This unfair bill caters to the corporate interests, instead of to the interests of the original people of the Hawaiian nation; kanaka maoli.

There can be a 'management team' of 7 members appointed by the Governor.

This move by the State of Hawai'i undermines pending litigation, yet the Bill continues to move forward despite overwhelming opposition. Furthermore, this Bill proposes limiting access to the sacred Mauna Kea summits to Kanaka Maoli and the public.

Donna Grabow

Hilo, Moku o Keawe

LATE

SB-3090-SD-1

Submitted on: 2/23/2018 9:49:28 AM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Kapua Keliikoa-Kamai	Individual	Oppose	Yes

Comments:

Aloha kakou,

I VEHEMENTLY OPPOSE SB 3090 SD1 - RELATING TO GOVERNMENT. Establishes the Mauna Kea Management Authority. Limits the number of telescopes that may be authorized on Mauna Kea. Authorizes the renegotiation of leases, subleases, easements, permits, and licenses pertaining to Mauna Kea. Requires that revenue derived from activities on Mauna Kea be shared with the Office of Hawaiian Affairs. Excludes Mauna Kea lands from the definition of "public lands." Provides for free access to Mauna Kea for traditional cultural purposes. Establishes police powers and provides for enforcement of laws on land under the jurisdiction of the Mauna Kea Management Authority. Appropriates funds. Effective 12/31/2033. (SD1)

I offer these OPPOSING statements:

- Mauna Kea must REMAIN IN THE PUBLIC LAND TRUST to do otherwise is a violation of the fake-state Constitution!
- YOU cannot give title to Mauna Kea to a group of people who only serve the will of this fake-state and it's governor; they won't necessarily serve the PEOPLE of Hawaii and much less the Hawaiians.
- PROVE YOUR TITLE TO MAUNAKEA FROM 1845's Board of Commissioners (Land Commission) or even the 1848 Mahele to today. THERE IS A DISPUTABLE BREAK IN TITLE; therefore NO TITLE TO GIVE!!!
- STOP trying to undermine current or pending litigation!
- STOP limiting acces to Hawaiian cultural practitioners!
- YOU should not be excluding the public from the Summit. Mauna Kea is a treasured and SACRED. As such, it MUST be protected PER YOUR OWN STATUTES and GUIDELINES!

Mahalo for allowing my late testimony is VEHEMENT OPPOSITION TO SB 3090 SD1! Refer it back to it's respective committee's or KILL IT NOW!

Kapua Keliikoa-Kamai,

Concerned Wai'anae Resident

Hawaiian Kingdom Resident

LATE

SB-3090-SD-1

Submitted on: 2/23/2018 9:49:28 AM

Testimony for WAM on 2/23/2018 10:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Kapua Keliikoa-Kamai	Individual	Oppose	Yes

Comments:

Aloha kakou,

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Hawaiian Kingdom Resident