

Written Direct Testimony of E. Kalani Flores

E ala ē me ke aloha a me ka 'oia'i'o.
Awaken with *aloha* and truth.

Background, Experience, and Expertise of Witness

I am E. Kalani Flores, member of the Flores-Case 'Ohana, residing in Pu'ukapu, Waimea, Kohala Waho, Mokupuni o Hawai'i who is a Kanaka Maoli (also identified as a Native Hawaiian, *he hoa'āina o Moku o Keawe, he 'ōiwi o ka pae 'āina Hawai'i*, an indigenous person of the archipelago of Hawai'i) and a descendent of native Hawaiians who inhabited the Hawaiian Islands prior to 1778 as established through my genealogical lineage of Hukiku and Keulua. I am a cultural practitioner with substantial interest in Mauna a Wākea (also referred to as Mauna Kea), who continues to exercise my traditional and customary Native Hawaiian cultural, spiritual, and religious practices and who continues to engage in cultural practices, protocols, and ceremony gatherings connected to and on Mauna a Wākea. These traditional and customary Native Hawaiian practices, including pilgrimages to the top of Mauna a Wākea, pre-date 1892 as evidenced through *'ike kupuna*, oral traditions, indigenous knowledge, ancestral insight, cultural sites, and several reports.¹

I have a B.A. degree in Hawaiian Studies from the University of Hawai'i at Hilo (UHH) along with a D.O.E Teaching Certification. I have been an educator for over 30 years with the Hawai'i State Department of Education and the University of Hawai'i systems. I am presently employed as a tenured Hawai'i Life Styles - Professor at Hawai'i Community College – Pālanui instructing Hawaiian Studies courses, including, but not limited to the subjects of Hawaiian language, cultural traditions, spirituality, ethnobotany, and history. I am also fluent in the Hawaiian language. In addition, I am also owner of a consulting firm, *Mana'o'i'o*, specializing in the field of Hawaiian Studies who has consulted on several projects and authored several Hawaiian cultural and historical research reports for Federal and State agencies as well as for private firms. I've served for over 30 years on commissions, committees, and boards that included the review of archaeological surveys, mitigation plans, technical reports, and other similar types of documents.² I have extensive experience and knowledge in the review and assessment of reports and documents. Consequently, based upon the legal standards covered in Hawai'i Rules of Evidence – Rule 702, I would be qualified as an expert witness through my knowledge, skills, experience, training, ancestral connections, and education in the subject matter pertaining to Hawaiian cultural traditions including the review and assessment of cultural reports and surveys.

¹ Archaeological Inventory Survey of the Mauna Kea Science Reserve – Final Report (Aug. 2010), Cultural Impact Assessment Study: Native Hawaiian Cultural Practices, Features, and Beliefs Associated with the University of Hawai'i Mauna Kea Science Reserve Master Plan Project Area (Aug. 1999), Mauna Kea – Ka Piko Kaulana o ka 'Aina (Mar. 2005)

² [see Exhibit B.02b Vitae for complete listing] served on Hawai'i County Public Access, Open Space, & Natural Resources Preservation Commission (5 yrs); Kaua'i County Historic Preservation Review Commission (6 yrs); OHA - Native Hawaiian Historic Preservation Council (10 yrs); Bishop Museum Native Hawaiian Culture & Arts Program (7 yrs)

Conclusion of Written Direct Testimony

It is very evident that the proposed Thirty Meter Telescope (TMT) construction and development within a conservation district is inconsistent with the criteria outlined in HAR § 13-5 and a permit should **not** be approved because the Applicant, University of Hawai'i (UH), is **not** capable of fulfilling the burden of demonstrating that this project is consistent with this criteria as well as associated legal authorities. Particularly, the TMT project is **not** capable of meeting the Conservation District eight criteria as stipulated in HAR § 13-5-30(c).

Likewise, significant sections of the Conservation District Use Application (CDUA) HA-3568 submitted by the Applicant are **incomplete and inaccurate**. Also, the Applicant is **not** in compliance with its mandated management plans intended to protect the natural and cultural resources on Mauna Kea.

In addition, the Board of Land and Natural Resources (BLNR) and Department of Land and Natural Resources (DLNR) have not fulfilled their affirmative duty and legal obligations to protect the public lands trust, resources, and rights of the public, beneficiaries, and Native Hawaiians associated with the lands of Mauna Kea. The following testimony will highlight why the BLNR should **not** approve a Conservation District Use Permit (CDUP) for the proposed TMT project.

Prior to BLNR approving any such permit pertaining to the public lands in a conservation district on Mauna Kea, the following actions are mandated by law and statutory provisions to be completed:

- BLNR/DLNR completing an independent *Ka Pa'akai* analysis for the lands of Mauna Kea
- UH completing a five-year review and update of the Mauna Kea Comprehensive Management Plan (CMP)
- UH taking corrective actions to ensure compliance with the Mauna Kea CMP and Mauna Kea Science Reserve Master Plan (2000)
- BLNR/DLNR ensuring that UH is in compliance with these plans
- UH completing an Environmental Impact Statement (EIS) for a proposed new general lease that would extend beyond 2033
- BLNR/DLNR determining the legality and impacts of issuing a new general lease
- UH taking corrective actions to resolve the incompleteness and inaccuracies in the CDUA HA-3568
- BLNR/DLNR thoroughly examining and reviewing CDUA HA-3568 to ensure its completeness and accuracy
- BLNR/DLNR affirming that the proposed mitigation measures for TMT impacts are adequate and accurate
- BLNR/DLNR and UH ensuring that Native Hawaiian traditional and customary rights and practices are being protected

If the BLNR/DLNR and UH attempt to circumvent this due process of law without completing the afore-mentioned actions, it will be another example of putting "the cart before the horse".

This testimony also highlights the deficiencies and lack of accountability in this process, elaborates in detail beyond what has been written in previous reports, and provides new insight not previously disclosed or included by the Applicant in their CDUA HA-3568 and their supporting documents for the proposed TMT project.

I. BLNR/DLNR has failed its statutory and constitutional obligations

BLNR/DLNR, failed to meet their statutory and constitutional obligations under *Ka Pa'akai o Ka'aina v. Land Use Commission (Ka Pa'akai)* 94 Hawaii 31, 7 P.3d 1068 (2000) to preserve and protect traditional and customary rights of Native Hawaiians. Prior to approving a permit or other actions pertaining to the culturally sensitive lands of Mauna Kea, BLNR/DLNR is required to complete an assessment/analysis independent of the developer or applicant. As such, BLNR/DLNR is not able to delegate this constitutional responsibility to the developer, Thirty Meter Telescope International Observatory LLC (TIO) (formerly TMT Observatory Corporation), or the applicant, UH.

This matter was brought directly to the attention of BLNR/DLNR since the first contested case hearing for CDUA HA-3568 as well as at subsequent BLNR meetings through both oral and written testimony regarding the Mauna Kea Master Lease and TMT sublease. In addition, this matter was once again brought to the attention of BLNR/DLNR in the agency appeal Civil No. 14-1-324, *E. Kalani Flores v. Board of Land and Natural Resources, et al.* as noted in those documents and briefs filed in this case. Many of the arguments set forth in this appeal regarding BLNR's consent to the TMT sublease are also relevant to the issues at hand regarding this CDUA. As of this date, BLNR/DLNR has not been able to produce a copy of any such independent *Ka Pa'akai* analysis completed by this State agency despite a formal UIPA request to produce such a copy. (See Exhibit B.02c)

In the *Ka Pa'akai* decision, the Hawaii Supreme Court articulated an analytical framework for the State's obligation to protect Native Hawaiian traditional and customary rights. The court ruled:

- (1) the state and its agencies are obligated to protect the reasonable exercise of customarily and traditionally exercised rights of Native Hawaiians to the extent feasible;
- (2) agencies are obligated to make an assessment, independent of the developer or applicant of impacts on customary and traditional practices of Native Hawaiians; and.
- (3) the independent assessment must include the three factors (A, B, and C) listed below, otherwise known as the "Ka Pa'akai framework."
 - A) the identity and scope if "valued cultural, historical, or natural resources" in the petition area, including the extent to which traditional and customary native Hawaiian rights are exercised in the petition area;
 - B) the extent to which those resources-including traditional and customary native Hawaiian rights-will be affected or impaired by the proposed action; and
 - C) the feasible action, if any, to be taken by the LUC to reasonably protect native Hawaiian rights if they are found to exist.

(Ho'ohana Aku, a Ho'ōla Aku at 14-22, Exhibit B.02d)

Furthermore, UH reaffirms that the afore-mention *Ka Pa'akai* analysis is **required as referenced in their own management plan**; "Further, this analysis should be applied before an action is approved and begun, and the analysis should be completed by the State and not delegated by the State to the entity applying for approval."³ (CMP-Public Access Plan at 2-29).

³ Public Access Plan for the UH Management Areas on Mauna Kea, A Sub-plan of the Mauna Kea Comprehensive Management Plan (Jan. 2010)

Due to the fact BLNR/DLNR failed to identify and assess customarily and traditionally exercised rights and practices of Native Hawaiians associated with the proposed TMT project on public lands prior to being fully developed, they failed to and are not capable of protecting such rights and practices because such rights and practices are unknown to them. Consequently, **BLNR/DLNR is obligated to complete an independent *Ka Pa'akai* analysis prior to approving CDUA HA-3568.**

BLNR/DLNR, representing the State as the Lessor, has the sole legal obligation, duty, and responsibility to appropriately manage and protect these conservation and public trust lands of Mauna Kea. BLNR/DLNR has improperly delegated those duties and responsibilities resulting in non-compliance with the BLNR and UH BOR approved plans for Mauna Kea. The failure of BLNR/DLNR to assume its appropriate role as Lessor has resulted in substantial, adverse, and significant impacts to the natural, cultural, and historic resources on Mauna Kea. This matter has been previously brought to the attention of the BLNR/DLNR for several decades as noted below in the Hawaii State Auditor's Report No. 05-13 (p. 30):

The lack of oversight by the department allows the university and its sublessees unchecked discretion on the use of Mauna Kea and leaves cultural and natural resources at risk for further damage.

In addition, the BLNR allowed TMT Observatory Corporation to take possession of said public lands and commence with construction activities including grading, excavation, and geotechnical boring on the proposed site prior to consenting to a sublease for this area. These activities, between August and October 2013, resulted in irreparable harm and damage to this unique and pristine geological and cultural landscape. Exhibit B.02e The BLNR did not consent to sublease under General Lease No. S-4191 to the TMT International Observatory LLC over eight months later on June 27, 2014. Exhibit B.02f. Matters pertaining to the TMT sublease are presently under appeal in the Third Circuit Environmental Court (Civil No. 14-1-324) was remanded back to BLNR as noted in the Order for Remand. (see Exhibit B.02g)

II. UH is NOT in compliance with its Mauna Kea management plans

Before BLNR approves the CDUA or any other actions within the Mauna Kea Science Reserve (MKS^R), the Applicant must be in compliance with the BLNR approved management plans and conditions of the Conservation District rules. Presently, UH is not in compliance with the Mauna Kea CMP, associated subplans, and MKSR Master Plan. Furthermore, BLNR/DLNR has the statutory obligation to ensure that UH is in compliance with these plans. Likewise, the BLNR is required to complete a "comprehensive review" prior to approving permits and associated management plans under HAR § 13-5-30.

1. Firstly, UH has not reviewed and updated the CMP and subplans that were required to be completed by April 2014 in order to be in compliance with the rules of the Conservation District. In addition to a board permit, astronomy facilities also require an approved management plan according to HAR §13-5-24(c) [R-3/D-1]. The CDUA reaffirms that the CMP, subplans, and TMT Management Plan are "intended to fulfill the purpose of the Conservation District concerning the TMT project. In addition to this and in conjunction with one another, these plans are intended to fulfill the requirements for the Resource subzone, specifically management plan requirements under Exhibit 3 to the Conservation District Rules." (CDUA at 2-2)

The CMP was submitted to and approved by the BLNR on April 9, 2009. However, UH has failed to update and complete the five-year review of this plan as required and stipulated in the CMP. Section 7.4.2 of the CMP outlines the requirements and process for monitoring, evaluating, and updating this plan as noted below.

Regular monitoring and evaluation of the CMP is needed to determine if management actions are effective over time and are meeting management needs, and to ensure that the best possible protection is afforded Mauna Kea's resources.

Monitoring and evaluation of the effectiveness of the CMP should occur annually, and an annual progress report should be prepared. **A major review and revision of the CMP should occur every five years**, using information contained in the annual reports. Five-year evaluation and revision should include consultation with federal and state agencies and the local community, to inform stakeholders on program progress, and to gather input on changes or additions to management activities. **The CMP must also be updated to comply with any requirements or conditions imposed by the BLNR on the CMP upon acceptance of the plan.** (emphasis added) (CMP at 7-64)

The requirement for UH to conduct a "major review every five years" is further reiterated in the CMP Implementation Plan (IP) (2010) as outlined below:

4.2.2 Five-Year Management Outcome Analysis and CMP Revision

The OMKM program should be subjected to a major review every five years, and the CMP should be revised, as necessary. This process should involve input from State and Federal agencies and the public. (CMP IP at 17).

2. UH has failed to implement and complete several significant components of these management action plans identified in the following Tables that required immediate implementation. The CMP identified specific management actions in order to protect the natural and cultural resources on Mauna Kea. In most cases, the Office of Mauna Kea Management (OMKM) of the University of Hawai'i at Hilo (UHH) is either directly responsible for implementing these actions or for ensuring its implementation by others.

Table 7-1. Management Actions: Native Hawaiian Cultural Resources (CMP 7-7 to 7-8)

Table 7-3. Management Actions: Natural Resources (CMP 7-15)

Table 7-4. Management Actions: Education and Outreach (CMP 7-23)

Table 7-5. Management Actions: Astronomical Resources (CMP 7-28)

Table 7-9. Management Actions: Activities and Uses (CMP 7-34 to 7-35)

Table 7-10. Management Actions: Permitting and Enforcement (CMP 7-41)

Table 7-11. Management Actions: Infrastructure and Maintenance (CMP 7-45)

Table 7-12. Management Actions: Construction Guidelines (CMP 7-49)

Table 7-13. Management Actions: Site Recycling, Decommissioning, Demolition and Restoration (CMP 7-54)

Table 7-14. Management Actions: Considering Future Land Use (CMP 7-57)

Table 7-15. Management Actions: Operations and Implementation (CMP 7-60)

Table 7-16. Management Actions: Monitoring, Evaluation and Updates (CMP 7-64)

One such example of these incomplete management actions is **FLU-2** in which UH was required to develop "land use zones" in the Astronomy Precinct based on updated cultural and natural resource information that would "delineate areas where future land use will not be allowed and areas where future land use will be allowed". It is

stated in the BLNR 2015 Annual Report (Appendix A at 26) submitted by the OMKM, **FLU-2 has still not been implemented as required.** As noted, “This was originally listed for Immediate implementation. However, this task will require additional data gathered from baseline surveys of the resources.” Exhibit B.02h. The following description outlines the significance and goal of completing management action FLU-2:

FLU-2. Land use zones

Any potential future observatories will be located inside the Astronomy Precinct. The goal of this process is to refine telescope siting areas defined in the 2000 Master Plan based on updated cultural and natural resource information (see Section 7.1.1 and Section 7.1.2). **Land use zones will be developed that will delineate areas where future land use will not be allowed and areas where future land use will be allowed, but where compliance with prerequisite studies or analyses prior to approval of a CDUP, will be required.** When assessing proposed infrastructure expansion, additional consideration will be given to the location of current infrastructure and previously disturbed areas (see Section 7.3.1). New land uses should be located close to existing infrastructure or previously disturbed areas, to reduce impacts on undisturbed areas and to minimize unnecessary damage to geological features. As stated in the 2000 Master Plan, all major undeveloped cinder cones and their intervening areas will be protected from future development by astronomical or other interests.

These include the following *pu’u*: Ala, Hoaka, Kūkahau’ula, Līlīnoe, Māhoe, Mākanaka, Pōepoe, Poli’ahu, and Ula. (CMP at 7-57 to 7-58)

OMKM was tasked with overseeing and implementing the management actions identified in the CMP Implementation Plan (2010). However, there were several significant management actions that were originally listed in the 2009 timeframe as Immediate (1-3 years) and Short-term (4-6 years) that have not yet been implemented and accomplished. Subsequently, OMKM changed their reporting methods assigned to the progress status definitions. This resulted in having the existing CMP status plans being submitted annually to BLNR for review without any definitive dates listed for the implementation of these management actions that in many cases that are considered crucial in the protection of Mauna Kea’s natural and cultural resources. Below is a sampling of these incomplete management actions.

CMP	Management Actions	Implement-ation Schedule	Comments	Sub Plans
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.	Short-term	The State Historic Preservation Division approved the Archeological Inventory Survey for the Mauna Kea Ice Age Natural Area Reserve. A complete inventory of the historic properties on the summit region of Mauna Kea will be included in the filing of a petition to designate the summit region of Mauna Kea an Historic District as proposed by SHPD and for placement on the National Register of Historic Places.	CRMP 2.4.2.1
CR-4	Establish a process for ongoing collection of information on traditional, contemporary, and customary cultural practices.	Short-term		CRMP 4.2.1.1
NR-3	Maintain native plant and animal populations and biological diversity.	Mid and Long-term		NRMP 4.2.3.8

NR-4	Minimize barriers to species migration to help maintain populations and protect ecosystem processes and development.	Mid and Long-term		NRMP 4.2.3.11
NR-12	Create restoration plans and conduct habitat restoration activities, as needed.	Mid and Long-term	A proposal to study wēkiu bug habitat restoration has been reviewed and will be initiated.	NRMP 4.3
EO-4	Develop and implement a signage plan to improve signage throughout the UH Management Areas (interpretive, safety, rules and regulations).	Short Term	This was originally classified as Immediate implementation but has been deferred to Short Term to accommodate the accrual of additional resource information. A map showing the location of signs on UH's managed lands has been completed. New cultural and safety related signs are installed.	NRMP 4.4.2 PAP 4.2, 5.2, 6.2
IM-14	Encourage observatories to investigate options to reduce the use of hazardous materials in telescope operations.	Short-Term		
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	This was originally listed for Immediate implementation. However, this task will require additional data gathered from baseline surveys of the resources.	NRMP 4.3.3.1
OI-4	Establish grievance procedures for OMKM, to address issues as they arise.	Short-term		PAP 6.6
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	Five-year CMP revision interval is 2014. Revision process initiated by OMKM for eventual submission to BLNR.	NRMP 5.2 CRMP 5.5 PAP 7

Furthermore, Table 4.1: Management Actions Detailed in the CMP and Subplans in the CDUA inaccurately identified the applicability to the TMT project to significant management actions. Several of these management actions that would directly or indirectly apply to the TMT project were instead identified as being “Not Applicable”. These are some of same actions identified in the CMP that were not previously completed by the Applicant as required:

CMP	Subplans	Management Actions	Applicability to TMT Project
CR-1	NRMP 4.4.2 CRMP 4.3.3 PAP 4.2, 5.2, 6.1	Kahu Kū Mauna shall work with families with lineal and historical connections to Mauna Kea, cultural practitioners, and other Native Hawaiian groups, including the Mauna Kea Management Board's Hawaiian Culture Committee, toward the development of appropriate procedures and protocols regarding cultural issues.	Not Applicable
CR-2	CRMP 2.4.2.1	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.	Not Applicable

CR-10	CRMP 4.3.1 PAP 5.2	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.	Not Applicable
CR-13	CRMP 4.3.2, 4.3.7	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.	Not Applicable
NR-15	NRMP 4.1	Conduct baseline inventories of high-priority resources, as outlined in an inventory, monitoring, and research plan.	Not Applicable
NR-16	NRMP 4.1 PAP 6.4	Conduct regular long-term monitoring, as outlined in an inventory, monitoring, and research plan.	Not Applicable
NR-17	NRMP 4.1.2.3	Conduct research to fill knowledge gaps that cannot be addressed through inventory and monitoring.	Not Applicable
NR-18	NRMP 4.1, 4.5	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.	Not Applicable
EO-7	NRMP 4.4.2 CRMP 5.3 PAP 5.2, 6.3, 6.8	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.	Not Applicable
P-3	NRMP 1.4.3.2	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.	Not Applicable
FLU-2	NRMP 4.3.3.1	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.	Not Applicable

In order to protect the natural and cultural resources on Mauna Kea, UH should be mandated to implement these requirements and other significant management actions dating back to 2009 prior to approval of any new CDUPs within this Conservation District. Correspondently, BLNR/DLNR has neglected their prime responsibility to require UH's compliance with these management actions.

3. UH's ineffective management and unlawful actions of its own employees and individuals under their jurisdiction have resulted in adverse impacts upon Mauna Kea's natural and cultural resources. The OMKM has failed to follow the appropriate procedures for adopting implementing administrative rules for those lands and resources under their management. In the interim, staff and personnel of the OMKM have failed to follow the existing rules and protocols as outlined the CMP. For example, it's known that individuals associated with OMKM have desecrated and dismantled cultural sites on Mauna Kea without following their own existing rules and protocols. Exhibits B.02i and B.02j.

4. UH is also **not in compliance with the guidelines set forth in the MKSR Master Plan (MP) of 2000**. The proposed siting of the TMT observatory is not in compliance with the Design Guidelines and criteria stipulated in the Master Plan (pp. IX 22-23) as noted below that are also referenced in the CMP (p 7-56).

5. Minimum visual impact from significant cultural areas. Views from the pu'u and archaeological sites will be respected in the siting of future facilities. The location of new facilities will avoid interference with the visual connections between the major pu'u and the shrine complexes.

6. Avoid or minimize views from Waimea, Honoka'a and Hilo. Sites for proposed new facilities will maximize the use of the existing topography to shield views from the downslope communities. Prominent sites along the ridges or pu'u will not be selected for new development of astronomy or other research and education facilities.

7. Close to roads and existing infrastructure. Sites for proposed new development will be selected close to the existing roadways to minimize the amount of disturbance to the natural terrain. Utilities and communications service to new sites will be extended along the existing roadway routes to minimize disturbance.

The non-compliance of the Design Guidelines stipulated in the Master Plan is noted in the following areas; 5) Due to the proposed placement and the massive size of the TMT observatory amongst the shrine complexes on the northern plateau, it will definitely interfere with the visual connections between the major pu'u such as Pu'u Kūkahau'ula and Pu'u Poliahu and the hundreds of shrines at this particular elevation. The CDUA and survey reports have failed to address this impact. 6) Likewise, from Waimea, Honoka'a, and other areas, views of the TMT observatory will be another prominent eyesore and 'pimple' on this sacred landscape. A large population of Native Hawaiians as well as other residents and visitors in these areas will be impacted with this adverse visual impact. 7) Instead of using the existing roads within the SMA area, this project intends to cut another new road segment and installation of underground utilities through the side of Pu'u Kūkahau'ula, a *wēkiu* bug habitat, Traditional Cultural Property, and designated State Historic Property (SIHP #50-10-23-21438).

In addition, it's very apparent that the use of the aluminum-like finish for the TMT dome is **not** adhering to the Design Guidelines in the Master Plan (pp. XI-6) as it would **not** blend into the landscape, but would instead be more reflective and visible from distances near and afar.

Surfaces, Textures and Material: Surfaces, textures and material used for construction in the Science Reserve should seek to blend the facility into the landscape. Selection criteria are as follows:

· As much as possible, surfaces should be non-reflective in the visible spectrum to minimize glare and visibility from distant areas.

Consequently, the collective and cumulative impacts of the TMT project are not minimum, but instead significant, substantial, and adverse resulting in this project being inconsistent with the Master Plan concepts, objectives, and design guidelines. As such, the present plans for the TMT project should be rejected as mandated. The importance of the implementation of these design guidelines is referenced in the Master Plan and CMP as noted below.

There are two aspects of facility planning location and design that need to be considered in order to protect cultural and natural resources. Location refers to the siting of facilities, while design refers to characteristics of the physical structure, and both of these must be directed at minimizing impacts to resources. Section XI of the 2000 Master Plan provides design guidelines to direct development for both renovations of existing facilities and new construction in a manner that would integrate development into the summit environment. Topics addressed include: facility siting, scale, height and width, color, surface texture and material, roofs, fences, roadways and parking. (CMP at 7-56)

It is important to maintain compatibility and consistency of recommendations between the 2000 Master Plan and the CMP, to ensure that identified facility needs and designs are consistent with the overarching management plan put forth in the CMP (see Section 7.2.1).

Plans found to be inconsistent with the Master Plan concepts and objectives shall be rejected. Major variations from development standards shall also be rejected. (MP XI-9)

III. Matters pertaining to a proposed new general lease should be determined first

Prior to BLNR approving a permit for the TMT project that would extend beyond the expiration of General Lease (GL) No. S-4191 for the MKSR, UH should complete an EIS first and then BLNR/DLNR should determine the legality and impacts of issuing a new general lease.

It is common knowledge that the life of the proposed \$1.4 billion TMT observatory is more than 50 years and its life would extend considerably beyond 2033 when the GL No. S-4191 expires. According to the proposed project schedule in the CDUA (pp. 1-18 to 1-19), construction would take seven years or longer. If construction were to resume within two years from the conclusion of this contested case hearing and potential legal appeals, the observatory might be operational around 2025, leaving only 6 years or less of service before the termination of the lease and decommissioning. Based upon the Decommissioning Plan for the Mauna Kea Observatories – a subplan of the CMP, the TMT observatory would have to be decommissioned, including removal and site restoration, before the expiration of the existing general lease. (CMP Decommissioning Plan at 31).

UH, Lessee of the MKSR, submitted a request at the BLNR Nov. 8, 2013 meeting (Agenda Item D-5) for an issuance of new direct 65-year general leases. However, this action was deferred at the BLNR Dec. 13, 2013 meeting (Agenda Item D-15) upon the request of UH in order to prepare and complete an Environmental Impact Statement (EIS) as required by HRS Chapter 343 and HAR Chapter 200 of Title 11 for proposed new long-term general leases for the MKSR and related facilities and easements to replace its existing leases. Based upon the EIS Preparation Notice (EISPN), submitted Dec. 23, 2014, to the State Office of Environmental Quality Control regarding issuance of new general leases, it discusses three alternatives. These three alternatives and potentially additional alternatives advanced by stakeholders during the EISPN review period are still yet to be fully evaluated in this environmental assessment process. Alternative 1 is a “*No Action Alternative*”, under which the existing MKSR GL No. S-4191, would run its course and UH and its sublessees would terminate their uses no

later than the end of 2033. (EISPN-New Master Leases at 2-2).⁴ Exhibit B.02k. Should the “*No Action Alternative*” be selected, no new telescopes (including the TMT) should be built and all of the existing facilities would eventually be decommissioned and the land would be returned to DLNR. *Id.* at 2-5. The TMT project will no longer be viable if it has to be decommissioned by 2033, only six years or less after it is proposed to become operational. Wouldn’t it be beneficial to the partners of TIO of this proposed \$1.4 billion project to have this matter settled now then later? **Thus, it’s for these very reasons that the EIS for the proposed new long-term general leases should be completed prior to BLNR approving a permit for the TMT project. If not, this would be another example of putting “the cart before the horse”.**

IV. Sections of CDUA HA-3568 are incomplete and inaccurate

The Board should not approve a permit for the TMT project because significant sections of CDUA HA-3568 are incomplete and inaccurate. All information, materials, reports, and documents inserted and referenced in this application are subject to further review and scrutiny to determine if they are complete and accurate. Likewise, the Applicant assumes the burden and responsibility that the CDUA is complete and accurate.

Several significant deficiencies in the CDUA were brought to the attention of the Applicant during the first contested case hearing. Thus, they had several years to address these matters, make necessary revisions and corrections, and resubmit this application. However, they chose to move ahead with the original application and failed to address its deficiencies without having it come before the BLNR for a new and proper hearing since CDUP HA-3568 was vacated by the Hawai’i State Supreme Court’s decision in *Mauna Kea Anaina Hou, et al. v. Board of Land and Natural Resources, et al.*.

In addition, the BLNR/DLNR is obligated to verify and substantiate that the information in the CDUA is complete and accurate. However, it appears that DLNR staff did not take a ‘hard look’ at significant aspects of this CDUA in the initial submittal. Instead, information was cut and pasted in their entirely directly from the Application’s submittals and included in their staff OCCL report that was submitted to Board members for their consideration. Exhibit B.35. Likewise, it has been six years since October 10, 2010 when this application was submitted to BLNR/DLNR for review. Since that time, significant aspects pertaining to Mauna Kea have evolved and changed. The BLNR should have required the Applicant to update and resubmit their application to be heard at a Board meeting and required public hearing to ensure due process of law. In addition, DLNR should have revisited and updated their staff report in this matter.

1. CDUA - Sect. 4 Cultural Resources

Based upon my extensive review and examination of the CDUA, associated documents, and related archaeological surveys and reports, it’s very evident that significant parts of the CDUA Sect. 4 pertaining to the cultural resources on Mauna Kea are incomplete and inaccurate. The TMT proposes to be located within the Mauna Kea Summit Region Historic District (SIHP #50-10-23-26869) which is historically and culturally significant under all five criteria of the Hawai’i Register of Historic Places (HRHP) and Hawai’i Administrative Rules (§13-275) and under all four criteria of the

⁴ Alternatives 2 and 3, respectively, include a new master lease encompassing all the area covered by the existing master lease, and one that reduces the portion of the summit under UH control.

National Register; and this Historic District is eligible for inclusion in the National Register of Historic Places (NRHP) as well as eligible for designation as a Traditional Cultural Property (TCP). The MKSRHD includes a concentration of significant historic properties that are linked through their setting, historic use, traditional associations, and ongoing cultural practices. The properties include shrines, adze quarry complexes and workshops, burials, stone markers/memorials, temporary shelters, historic campsites, traditional cultural properties, historic trails, and sites of unknown function. In 1999, the MKSRHD was determined eligible for listing on the National Register. **Despite the known historic and cultural significance of Mauna Kea, the CDUA fails to disclose or assess the impacts of the TMT upon the integrity and criteria for eligibility of these historic and cultural properties.**

The CDUA was incomplete for failing to:

- disclose the impacts of the TMT upon the integrity of the historic properties within the broader context of the Mauna Kea Summit Region Historic District.
- assess the impacts of the TMT upon the NRHP criteria for eligibility.
- assess the impacts of the TMT upon the HRHP integrity.
- assess the impacts of the TMT upon the TCP criteria for eligibility.
- assess the impacts of the TMT upon the view planes and spatial relationship amongst the hundreds of *ahu* (shrines) considered historical properties and cultural resources.
- assess the impacts of the TMT upon the visual alignments between the various *ahu* (shrines) and the summit and noted *pu'u* (i.e. Pu'u Kūkahau'ula, Pu'u Poliahi).
- assess the impacts of the TMT upon the cultural landscape that is presently undeveloped without any telescopes.
- disclose the impacts upon SIHP Site Nos. 16169 and 21447 along with other cultural resources referred to as "find spots" (Nos. 1997.034, 2005.05, 2005.06, 2000.7, & 2005.08) that are within the Astronomy Precinct and within the vicinity of the proposed TMT project area. The CDUA omitted any reference to these sites even though they are identified in archaeological reports and survey maps.
- assess the impact of construction activities upon historical properties and cultural resources within the vicinity of the proposed TMT project area and the potential of toppling over of *ahu* due to ground disturbing activities.
- assess the impact of construction activities associated dust and noise upon cultural practitioners and their practices.
- assess the impact of construction activities upon the access of cultural practitioners to cultural sites on the northern plateau and near the Batch Plant.
- assess the impacts upon the historic & cultural resources due to the increased intensity of the conservation district land use with further subdivision with the subleasing to TMT

The CDUA was submitted to BLNR in October 2010 prior to the Final Archaeological Inventory Survey (FAIS) for the TMT Observatory Project's completion by Cultural Surveys Hawai'i, Inc. in January 2011. Thus, information was not included in the CDUA. Instead, information in the CDUA regarding the cultural resources and historic properties within the vicinity of the TMT project is attributed to Pacific Consulting Services Inc. (PCSI) who had actually done the general MKSR Archaeological Inventory Survey (AIS) and not the TMT site specific survey and report.

Upon closer examination of CDUA Figure 4.1 (p. 4-2) when compared to Figure 5.17 (AIS Vol. 1 at 5-59), both attributed to PCSI, as well as Figure 2.9 (CRMP-CMP at 2-52), it is very apparent that information in the figure in the CDUA has been manipulated and altered to downplay and reduce the significance of historic properties and cultural resources within the vicinity of the proposed location of the TMT. Exhibits B.021-n. First of all, the figure has been cropped to exclude the historic properties and cultural sites located directly north of the Astronomy Precinct. In addition, SIHP site numbers were eliminated from sites located in right corner of this figure. Also, locations and numbers of all cultural resources were eliminated from this figure.

The AIS of the Mauna Kea Science Reserve conducted by PCSI is void of any consultation with Native Hawaiian cultural practitioners associated with customary and traditional practices in the vicinity of the proposed TMT project. As a result, significant cultural sites in the vicinity of this proposed project have been overlooked and the functions and purposes of previously identified sites have been inaccurately depicted.

There are significant sites that our 'ohana has identified through 'ike kupuna, indigenous knowledge and ancestral insight within the vicinity of the proposed TMT that have not been identified in archaeological surveys that would be adversely impacted by such a project in the proposed location. Many of the *ahu* (shrines) and other formations on the northern plateau are interconnected by location, function, orientation, and energetic lines. The TMT would be situated amongst these sites causing adverse disturbance and impacts between the grid of interconnected sites.

2. CDUA - Sect. 7 Visual Impact

Based upon my personal observations and experiences, I can attest that significant parts of CDUA Sect. 7 Visual Impact including the Visual Impact Technical Report are flawed with inaccuracies and are incomplete. I am able to personally testify that I've observed the visual impacts of the existing telescopes during various times of the day and from various locations from the districts of Kohala, Hāmākua, Hilo, and Kona. The visual impact of the TMT is a significant reason why this project doesn't meet the HAR § 13-5-30(c) criteria. Upon closer examination of the CDUA, it is very evident that information presented is inaccurate such as the section below:

7.2.3 TMT OBSERVATORY DOME FINISH

The finish for the TMT Observatory dome will be a reflective aluminum-like finish, similar to that of the Subaru observatory. The use of a reflective aluminum-like finish was based on the following considerations (1) visibility of the dome, (2) optimum performance of the observatory, and (3) reduced need of cooling air within the dome during the day. When considering the visibility of the dome, the aluminum-like exterior finish was selected over white and brown because the aluminum-like finish reflects the colors of the sky and ground, which helps the dome blend into its setting and reduces the visual impact whether the summit is bare or covered in snow. (CDUA 7-9)

The CDUA inaccurately stated:

- "...the TMT Observatory dome will be a reflective aluminum-like finish, similar to that of the Subaru observatory." (CDUA 7-9)
- "...the aluminum-like exterior finish was selected over white and brown because the aluminum-like finish reflects the colors of the sky and ground, which helps the dome blend into its setting and reduces the visual impact..." (CDUA 7-9)
- TMT is not visible from Mauna Kea Summit (Table 7.5, CDUA p. 7-8)
- "...its visual impact is less than significant." (CDUA 2-27)

The CDUA inaccurately depicts reflective qualities of TMT dome in:

- Figure 1.7: Preliminary Architectural Renderings (CDUA 1-16 to 1-17)
- Figure 7.5: TMT Observatory, Aluminum-Like Finish – “Binocular” View from Waimea w/o Snow (CDUA 7-10)
- Figure 7.8: Simulation of the TMT Observatory from Near Keck Observatory Viewing North (CDUA 7-12)

The CDUA inaccurately compares the dome shape of the TMT observatory with the cylinder shape of the Subaru observatory which are significantly different. Due to the extremely different shapes of the TMT and Subaru observatories, the reflective qualities are also extremely different. Instead, the TMT dome is similar to the Gemini Observatory dome. (see Exhibit B.02o) As such, the proposed aluminum-like coating would actually be more visible due to the reflective sunlight and would not reflect the sky or ground to reduce the visual impacts as implied. Based upon my personal observations of these observatory domes at various times of the day from various vantage points on the summit, from my front yard, along the coast, and numerous other areas, the aluminum-like coating of the Gemini Observatory dome does not reflect the sky or ground. The primary reason for this is that the dome shape causes the sunlight to reflect directly back into your eyesight. Likewise, it's practically impossible for the ground to be reflected due to the dome shape as the ground terrain would have to be located above the height of the dome. It's for these reasons that renderings and Figures 7.5, and 7.8 in the CDUA, created through a software program, inaccurately depicts the reflective nature of the TMT dome. Exhibits B.02p-r. The Applicant has failed to provide any concrete evidence such as a genuine photo of an observatory dome similar in shape to the TMT dome such as the Gemini Observatory dome that actually demonstrates it could reflect the sky or ground.

Furthermore, information in the CDUA is inaccurate regarding TMT's visual impacts. In Figure 7.5 in the CDUA, Line No. 16 states that the TMT is not visible from the Mauna Kea Summit. However, based upon site visits during the initial and present contested case hearing, the TMT observatory would be clearly visible from Pu'u Kūkahau'ula (also considered the Mauna Kea Summit) as evidenced by the red balloon demonstration.

The CDUA falsely downplayed the adverse visual impacts of the proposed TMT observatory and its non-compliance with the Hawai'i County General Plan (2005). Exhibit B.02s. The CDUA (Sect. 7.1.1) only briefly mentions one goal (b) and disregards the other two goals (a & c) in the section of Natural Beauty of the General Plan as outlined below especially since the TMT project is not capable of meeting these goals:

7.2 GOALS

- (a) Protect, preserve and enhance the quality of areas endowed with natural beauty, including the quality of coastal scenic resources.
- (b) Protect scenic vistas and view planes from becoming obstructed.
- (c) Maximize opportunities for present and future generations to appreciate and enjoy natural and scenic beauty. (General Plan 7-2)

The Hawai'i County General Plan further describes the importance of Hawai'i's natural and scenic beauty as a “valuable” and “irreplaceable” asset as part of the public trust as noted below (emphasis added):

The natural beauty of Hawaii is a universally recognized characteristic and one of the most significant and valuable assets of this island. In a relatively small area exists a great range of environments, from lush green tropical valleys to snow-capped mountains.

Hawaii's natural beauty is both an irreplaceable asset and a part of the public trust. It is fragile and although often enhanced by man can easily be adversely affected. Measures must be taken to insure its protection, both now and in the future, for the enjoyment of Hawaii's residents and visitors. (General Plan 7-1)

The importance of natural and scenic beauty and its true evaluation as an asset of public trust to be protected for future generations remain with the people of this island. While public planning and regulation are instrumental in achieving the goals set forth for this element, it is public awareness and interest that will maintain the natural beauty of the island of Hawaii. (General Plan 7-2)

In conclusion, the visual impact analysis, photos renderings of the TMT dome, and information presented in the CDUA are significantly inaccurate. Likewise, the immense and enormous size of the proposed TMT observatory in the conservation district would create an adverse visual impact upon the sacred landscape of Mauna a Wākea and this would not preserve or improve upon the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics. Also, the visual impacts of the TMT are not in compliance with the Hawai'i County General Plan (2005) and MKSR Master Plan (2000). It very apparent that the TMT project can't meet the following criteria set forth in HAR § 13-5-30(c):

- (4) The proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region;
- (5) The proposed land use, including buildings, structures and facilities, shall be compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels;
- (6) The existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable;

V. Mitigation measures are inadequate or non-existent

The Applicant knows that the visual impact of the TMT will be substantial and significant due to the dome height at nearly 190 feet and with a diameter of 216 feet. However, there aren't any actual measures that could mitigate this visual impact. Instead, the Applicant proposes the following non-existent mitigation measures in the CDUA (p. 2-17).

- 1) locate the TMT "north of and below the summit"
- 2) design the dome "to fit very tightly around the telescope"
- 3) to have a aluminum-like coating "that reflects the sky and reduces the visibility of the structure"

These are not mitigation measures for the adverse visual impacts within the Mauna Kea Summit Region Historic District upon the natural beauty and open space of the undeveloped northern plateau. The location of the TMT on the northern plateau is due to the fact that there isn't any available space available on the summit. In addition, even if an existing telescope site could be recycled for this project, the TMT would obstruct and impact the other existing telescopes due to its massive size and height of nearly 190 feet. The Master Plan clearly outlines below why the TMT is proposed to be located on the northern plateau instead of on the summit due to its extremely large size and not as a reason to mitigate its adverse visual impact.

Existing astronomy facilities require a clear line of sight to approximately 12 degrees above the horizon in a full circle. The location of proposed new facilities cannot obscure the observation function of the existing telescopes on the mountain." (p. IX-22)

Future telescope redevelopment on the summit ridge will limit these facilities to a maximum height and diameter of approximately 130 feet, to limit the visual impact along the ridge. (p. IX-31)

In addition, telescope engineers have indicated that wind forces acting on the structure are expected to be severe and problematic. To minimize potential obscuration of existing observatories, the potential site for this facility must also be located in an area that is distant from the prominent topography at the summit ridge and nearby *pu'u*. (p. IX-37)

Despite the existing design of the TMT dome to fit tightly around the telescope, it still doesn't mitigate its adverse visual impact. Furthermore, this design is inconsistent with the Design Guidelines in the 2000 Master Plan for the Next Generation Large Telescope (NGLT) with a mirror of 25 to 50 m. in diameter such as the TMT. The TMT design deviated from these guidelines that proposed a "unique sliding dome mirror enclosure with a sub-grade foundation" that would have actually drastically reduced the height less than the nearly 190 feet of the existing design. (see Figures IX-16 & IX-21, Exhibits B.02t-u) The adverse visual impact of its massive size and height still exists and has not been mitigated.

Strict design guidelines will dictate the size and color of the NGLT. The preliminary design concept proposed for the NGLT employs a unique sliding dome mirror enclosure with a sub-grade foundation, as shown in Figure IX-21. The lower half of this observatory will be built below grade to minimize the apparent height and mass of the facility. The facility shown in the concept has a 30-m. mirror, with a dome shaped and colored to simulate a small *pu'u* to blend well with the surrounding landscape. (MP IX-21)

The other mitigation measure to have an aluminum-like coating "that reflects the sky and reduces the visibility of the structure" is also not true as previously discussed. This also does not follow the Design Guidelines of the Master Plan as it proposed a "dome shaped and colored to simulate a small *pu'u* to blend well with the surrounding landscape." If the shape and color of the TMT design was in compliance with these guidelines, it could have actually mitigated its adverse visual impacts.

Likewise, other proposed mitigation measures do nothing to directly or indirectly mitigate any of the adverse impacts of this project as noted below:

- The TMT project facilities will be furnished with items to provide a sense of place and acknowledge the cultural sensitivity and spiritual attributes of Mauna Kea.
- TMT project staff will work with OMKM and ‘Imiloa to develop exhibits regarding natural resources.
- The TMT project’s outreach staff will work with ‘Imiloa and OMKM to develop exhibits for the Visitor Information Station (VIS) and ‘Imiloa regarding the cultural and archaeological resources of Mauna Kea and support/fund programs specific to Hawaiian culture.
- TMT project daytime activities will be minimized on up to four days per year identified by Kahu Kū Mauna.

None of these proposed mitigation measures directly address the harm that would be caused by the TMT project or telescope development and activities in general.

Instead, some of these measures would actually provide direct financial benefits to the Applicant such as providing funds and support staff for exhibits and programs for UH’s facilities at ‘Imiloa and VIS. In other words, the Applicant is going to personally benefit from the adverse impacts of this project. In addition, the TMT project proposes to decorate its facilities with a “sense of place and acknowledge the cultural sensitivity and spiritual attributes of Mauna Kea” – the very aspects that its development would adversely impact. This proposed measure to decorate the facilities as such that would have in the very nature of its construction resulted in the desecration of this culturally sensitive landscape is really appalling to a cultural practitioner such as myself. Likewise, how would minimizing the TMT project’s daytime activities on up to four days per year especially when most of the telescope activities are already minimized during the day be a mitigation measure?

Because the significant, substantial, and adverse impacts can’t be mitigated to a level that is less than substantial, the BLNR cannot approve this CDUA without further attributing to the cumulative impacts upon the natural and cultural resources of Mauna Kea.

VI. Subleasing has increased the intensity of land use

UH’s actions of subleasing their general lease has resulted in the intensity of the development and land use on Mauna Kea. The act of subleasing these lands resulted in the “**division**” of a greater parcel into smaller parcels. In other words, that act is a “**subdivision**” which is defined by the BLNR’s own rules as “a division of a parcel of land into more than one parcel.” HAR § 13-5-2.⁵ To further amplify this subdivision of land into smaller parcels, the existing subleases also include maps and legal descriptions along with metes and bounds defining their subdivided parcels. Likewise, the proposed TMT Sublease also explicitly identified an additional proposed subdivision of the premises and easement areas through maps and legal descriptions along with metes and bounds.⁶ (see Exhibit B.02f) The act of subdividing the 8.7 acres

⁵ “Subdivision” means a division of a parcel of land into more than one parcel.” The County of Hawaii also defines a “subdivision” in similar manner. See Section 23-3(29), Hawaii County Code.

⁶ 3. Survey/Site Specific Description. The site shown in Exhibit C-1 hereto has been surveyed. The area covered by the Subleased Premises is specifically described in the metes and bounds description in Exhibit C-2 hereto. The area covered by the Easement Area is specifically described in the metes and bounds description in Exhibit C-3 hereto.

of land out of 11,288 acres for TIO's use, occupancy, and construction work is deemed to be a special form of "land use" that would further intensify the existing land uses and development on Mauna Kea. However, this aspect has not been addressed in the CDUA.

Furthermore, the implementation of the Master Plan resulted in the creation of the Astronomy Precinct and the subdivision of about 525 acres from the 11,288 acres of the general lease.

UH's subdivision and subleasing of the conservation district lands on Mauna Kea have resulted in the violation of the following criteria set forth in HAR § 13-5-30(c):

- (7) Subdivision of land will not be utilized to increase the intensity of land uses in the conservation district; and

VII. Adverse impacts upon the sacred *piko* and resources of Mauna a Wākea

The proposed TMT construction and development within the environmentally and culturally sensitive landscape would cause adverse impacts and irreparable harm upon the sacred *piko* as well as the natural and cultural resources of Mauna a Wākea.

Mauna a Wākea is the *inoa* (name) reverberated by the ancestral guardians connected to this sacred mountain. In English, it literally means, "Mountain of Wākea". It's within this name that unfolds the understanding of the significance of this mountain. Wākea (Sky Father) is personified in the atmosphere and heavenly realm that envelops Papahānaumoku (Mother Earth). As such, this mountain, unlike any other in the Pacific, pierces above the clouds into the realm of Wākea. It is the tallest mountain in the world over 33,000 feet when measured from the ocean floor to its summit. This mountain is also referred to as "Mauna a Kea", "Mauna Kea", or just "Wākea".

According to *'ike kupuna*, indigenous knowledge and ancestral insight, the top of Mauna a Wākea is one of the three most sacred and significant places on Hawai'i Island. It is indeed a sacred *piko*. It is difficult to explain to those who have forgotten or lack an understanding of why such a place as Mauna a Wākea is sacred. The knowing of Mauna a Wākea as being *kapu* (sacred) was known from the remote times of the ancient ones. It is for this reason that amongst the countless ancestors of Kanaka Maoli and numerous *ali'i* (chiefly) dynasties that lived in these islands, they never built any large *heiau* (temples) on the summit in this realm that is considered *kapu*. This is the reason that none of the Mauna Kea archaeological surveys have ever located a traditional man-made structure on the summit. In the times of our ancestors, prior to structures being constructed, one would consult with individuals such as *kahuna kuhikuhi pu'uone* who specialized in protocols associated with the selection of such sites. In addition, consultation and direct communication between intermediaries and those of the ancestral realm associated with those places was an essential and integral part of the process so as not to create a physical and/or spiritual disturbance, disconnection, or imbalance between man and his *akua*, and between man and his environment. We charge that this process of consultation with those recognized as the ancestral *akua*, *kupua*, and *kūpuna* of Mauna a Wākea was not done by the Applicant and was also never done by any previous astronomy projects built on the mountain.

There are several references in the Applicant's TMT CDUA and associated reports such as the TMT Final EIS (FEIS), MKSR Master Plan, and the Mauna Kea CMP acknowledging the sacred attributes and landscape of Mauna a Wākea. A sampling of references from these reports that substantiate the sacredness of this mountain are copied below (emphasis added):

The ancient saying "*Mauna Kea kuahiwi ku ha'o i ka mālie*" (Mauna Kea is the astonishing mountain that stands in the calm) (Pukui 1983: No. 2147), expresses the universal feeling experienced by all who come in contact with this special place. Standing tall over the Island of Hawai'i, Mauna Kea is home to vast physical, natural and cultural resources (Figure I-1). From early adze makers to modern day astronomers, Mauna Kea has long been a special place for work, worship, and reflection. For native Hawaiians, both ancient and modern, the feelings for Mauna Kea go beyond wonder and astonishment, to the recognition of the mountain as a sacred domain. These profound feelings of reverence are expressed in the saying: "*O Mauna Kea ko kākou kuahiwi la'a*" (Mauna Kea, our sacred mountain). **As with other ethnic cultures throughout the world, early Polynesians believed their highest points of land were the most sacred; and Mauna Kea having the highest mountain top in all of Pacific Polynesia, was considered the most sacred place of all.** Standing tall over the island of Hawai'i, Mauna Kea was host to early Hawai'ian traditions which included religious practices, study of the heavens, and tool making in the Keanakāko'i adze quarry. (MP, p I-1)

The physical prominence of Mauna Kea as well as its stationing nearest to the heavens holds a spiritual significance for the Hawaiian people, a significance that can be expressed in likening the mountain to a sacred altar. (CMP, p 1-3)

For some Hawaiians, Mauna Kea is so revered that there is no desire to ascend it, no desire to trespass on what is considered sacred space. Simply viewing the tower, the mountain, from afar, both affirms its presence, and reaffirms the sense of connection with both place and personage. **For this reason, many Hawaiians feel that activities on Mauna Kea that lead to visible alterations of the landscape not only have a significant effect on the mountain itself, but also have a damaging effect on everything and everyone that is physically, genealogically, spiritually, and culturally tied to Mauna Kea.** (CMP, p 1-4)

However, it is quite apparent that the UH and proponents of the TMT have either decisively disregarded its significance or do not understand why Mauna a Wākea is sacred. Otherwise, they would not be proposing to build this project of such an immense scale on an area of the summit, still pristine, pure, and in its natural state. Likewise, BLNR members and DLNR staff must not have truly grasped the magnitude of this TMT project or do not comprehend the significance and sacredness of this mountain. For if they did, they would have investigated this matter with more scrutiny and not be proceeding so swiftly to approve this CDUA. **The true aspect of stewardship entrusted with the BLNR/DLNR for our precious and public lands in the conservation districts is to ensure that these significant areas are acknowledged, preserved for present and future generations, and not commercially destroyed. In essence, the development on the summit of Mauna a Wākea is a commercial enterprise under the guise of science, educational, and economic opportunities that has resulted in the cumulative impacts noted below.**

Thorough examination of the Applicant's own documents will reveal that the TMT FEIS (p. S-8) discloses that,

From a cumulative perspective, the impact of past and present actions on cultural, archaeological, and historic resources is substantial, significant, and adverse; the impacts would continue to be substantial, significant, and adverse with the consideration of the Project and other reasonably foreseeable future actions.

In addition, it is stated in the TMT FEIS (p. 3-29) that,

The Project has the potential to impact the spiritual and sacred quality of Mauna Kea.

Yet, despite what has been written, the TMT project is pushed forward notwithstanding these cumulative impacts that are identified as substantial, significant, and adverse.

The greatest obstacle in the protection of sacred places is a lack of understanding of why these places are significant and so special. It has been forgotten when humans interacted with the natural forces and energies of this Earth. Those who have forgotten are products of their social, educational, and/or religious systems. From the modern mindset, most people can recognize the significance of a church building, appreciate the majestic and sacred architecture of a cathedral or synagogue, or be in awe of ancient pyramid and temple structures. However, it seems more difficult for modern minds to recognize that places in nature which bears no special markings or buildings are also considered sacred.

There are countless mountains around the world considered sacred by cultures past and present. These holy mountains are also keystones to indigenous religions that regarded these areas as the abodes of certain gods, goddesses, deities, divine beings, natural forces, and spirits. In addition, pilgrimages to sacred mountains have been taking place for thousands of years. Whether it is Mauna a Wākea, Mount Shasta in California, Mount Fuji in Japan, Mount Teide in the Canary Islands, or Mount Sagarmāthā (Everest) in Nepal, their sacredness has resonated from centuries past. [see photos of these sacred mountains in Exhibit B.02v]

Sacred mountains such as Mauna a Wākea, due to their geological composition and extreme height, are a *piko* (portal) that allows for the transference of energy from one source to another. This understanding is reflected in the traditional Hawaiian concept of the "triple *piko*" of a person. In essence, the *piko* on the summit of the mountain is comparable to the *piko* located on the tops of one's head at the fontanel. This perspective is also described in the Cultural Anchor of the CMP. [an abbreviated description is recopied below]

Mauna Kea is "*ka piko o ka moku*," which means "Mauna Kea is the navel of the island." Understanding the word *piko* may give a deeper understanding of why Mauna Kea is the *piko*, or navel, of the island.

In terms of traditional Hawaiian anatomy, three *piko* can be found. The fontanel is the *piko* through which the spirit enters into the body. During infancy, this *piko* is sometimes "fed" to ensure that the *piko* becomes firm against spiritual vulnerability. For this reason, the head is a very sacred part of the anatomy of the Hawai'i native

The second *piko* is the navel. This *piko* is the physical reminder that we descend from a very long line of women. The care of this *piko* ensured two things: the healthy function of the child and the certification that the child

is a product of a particular land base.

The final *piko* is the genitalia. The genitalia are the physical instruments that enable human life to continue. The health of all *piko* ensures that the life of the native person will rest on an axis of spirituality, genealogy and progeny.

When we understand the three *piko* of the human anatomy, we may begin to understand how they manifest in Mauna Kea. Mauna Kea as the fontanel requires a pristine environment free of any spiritual obstructions.

It is this *piko* on top of the summit where energies and life forces flow from the Creator and higher dimensions, through the realm of Wākea, and then into the Earth. Likewise, the *piko* on top of one's head where life force energies from the Creator and higher dimensions flows into one's body. On 4 March 2011, a photograph was taken from Waimea by Kehaulani Marshall showing a portal opening above the *piko* of Mauna a Wākea when such an event was occurring. [see photo in Exhibit B.02w] **However, when the *piko* of the summit is obstructed with the physical excavation of the landscape, asphalt and cement pavement, metal posts implanted in ground, buildings, and construction, it curtails, restricts, or prevents this pure flow of energy. Thus, the development on the summit is causing adverse impacts and significant obstructions to the life forces that flow into these islands through this *piko*. Due to the immense size of the proposed TMT project, it will cause substantial, significant, and cumulative adverse impacts upon Mauna a Wākea.**

In addition, Mauna a Wākea anchors a very complex multi-dimensional over-fold, and does so through its very conscious geometric grid, complex frequencies, and unique electromagnetic field. The summit is also an area where vortexes of energy occur. Vortexes are swirling eddies of electrical and magnetic energies. They are a function of the gravity and electromagnetic grids. Based upon the natural energy pattern due to the earth's polarity, vortexes generally spin counterclockwise above the equator and clockwise below it. Vortexes distribute energy outward in what is termed electrical vortexes, and inward in what is termed magnetic vortexes. Some function as both. Mauna a Wākea, for example is an inward and outward vortex-portal complex. [see diagram in Exhibit B.02x]

However, the electrical substation, power lines, and high voltage current that runs to the top of the summit is interfering and disturbing the electromagnetic fields and vortexes that naturally occur on the mountain. Thus, the development on the summit is causing adverse impacts and significant disturbances to the natural electromagnetic fields and vortexes on the mountain. Due to the immense size of the proposed TMT project, it would require an increased electrical current to the summit that further add to the substantial, significant, and cumulative adverse impacts upon Mauna a Wākea.

Also, Mauna a Wākea also resonates in harmonic oscillation with Mount Shasta in California, Mount Fuji in Japan, and other specific mountains around the world. **As a result of this energetic connection between these mountains, these other areas are also impacted by what occurs on Mauna a Wākea. Thus, the development on the summit is causing adverse impacts and significant disturbances to other important mountains and areas. Due to the immense size of the proposed TMT project, it would cause substantial, significant, and cumulative adverse impacts upon Hawai'i, Japan, California, and other noted areas.**

VIII. Adverse impacts upon ancestral *akua*, *kupua*, and *kūpuna*

The proposed TMT construction and development within the environmentally and culturally sensitive landscape would cause adverse impacts and irreparable harm upon those *akua*, *kupua*, and *kūpuna* of Mauna a Wākea.

The term “*akua*” is being used in this testimony in a broad cultural context to be inclusive of gods, goddesses, deities, devas, nature spirits, divine beings, and natural forces. The ancestral *akua* that were recognized by our *kūpuna* are those primarily embodied in the natural forces of nature. Likewise, they could take multiple forms (*kinolau*) such as animals, plants, and natural elements. Some were identified with names and some were not. The use of *akua* as a common noun is distinct and different when used as “Akua” or “Ke Akua” in the proper name form which typically refers to the Creator or God. The term “*kupua*” is used in this testimony in reference to other entities or supernatural beings who also have the ability to assume different forms.

Individuals with a western mindset and a lack of understanding might chose to dismiss the existence of *akua* and *kupua* completely as mythological folklore. While others might chose to dismiss their existence due to personal religious persuasions and/or social upbringings. The Earth, Universe, and Cosmos is teeming with life in many variant forms, forms vastly different from our own. Yet the consciousness inside is of the same Creator, same creative divinity as our own. It is narrow minded to believe that the human physical form is the only form of life.

There are several ancestral *akua* connected to Mauna a Wākea that have been recounted by our *kūpuna* in their oral traditions and subsequently articulated in literature. Some of these accounts are referenced in the document, Mauna Kea - Ka Piko Kaulana O Ka 'Āina (2005), prepared by Kepa and Onaona Maly of Kumu Pono Associates, LLC for the OMKM. Also, in the TMT FEIS and CMP documents, there are various references regarding the ancestral *akua* along with their connections to the sacred landscape on the summit of this mountain. An example of this type of reference is noted below.

The origins of Maunakea and its central place in Hawaiian genealogy and cultural geography are told in *mele* (poems, chants) and *mo'olelo* (stories, traditions). Native Hawaiian traditions state that ancestral *akua* (gods, goddesses, deities) reside within the mountain summit area. Several natural features in the summit region are named for, or associated with, Hawaiian *akua*; these associations indicate the importance of Maunakea as a sacred landscape. Each part of the mountain contributes to the integrity of the overall cultural, historical, and spiritual setting (TMT FEIS, page 3-11).

As a result of his exhaustive studies, Kepā Maly identified many traditional cultural properties on Mauna Kea. He documented ongoing traditional cultural practices associated with several of these. It is a sacred landscape that provides a connection, genealogically, physically, and spiritually to ancestral realms. The mythical creation of Mauna Kea is part of a Hawaiian cosmology that establishes a relationship between all things animate and inanimate. (CMP, p 1-2)

Native Hawaiian traditions state that ancestral *akua* (gods, goddesses, deities) reside within the mountain summit area. These personages are embodied within the Mauna Kea landscape – they are believed to be physically manifested in earthly form as various *pu'u* and as the waters of Waiau. Because these *akua* are connected to the Mauna Kea landscape in Hawaiian genealogies, and because elders and *akua* are revered and

looked to for spiritual guidance in Hawaiian culture, Mauna Kea is considered a sacred place. (CMP p 5-3)

Members of the Flores-Case 'Ohana have connected with some of those *akua*, *kupua*, and *kūpuna* of Mauna a Wākea through genealogical ties as well as through customary and traditional practices. Through these practices, *'ike kupuna*, indigenous knowledge, and ancestral insight, the following information and understanding were provided about those connected to this sacred mountain.

(Guardian - name not disclosed at this time), a guardian force of nature from the depths of Mauna a Wākea came forth to provide the following insight. [Note: It was felt as though it was a male presence and so his gender is referenced as such. Such beings, in truth are often not of either gender, but rather espouse certain frequential attributes that humans define as male or female.] In a ceremony conducted on the summit on 8 May 2011, I personally witnessed the presence of this guardian. He came from the very depths of the mountain, way below the crust of the ocean floor, one who carries the ancient knowledge. He stated, "I come from the depths, the ancient *pōhaku*." He is the guardian of the bottom, deep below in the earth. He was filled with joy that we were there to listen. However, he was also filled with sadness because of the observatories on her (the mountain's) shoulders and breasts were causing such desecration. He was aware of her feelings because they are all connected. Other guardians on the mountain have been awakened and are on alert regarding this proposed development. They are all in full communication with the Creator who can see all things through Wākea.

He declared that those who are planning to cause further desecration on Mauna a Wākea are "ignorant and lost". In addition, he explicitly stated a message to them, "You are responsible for what you do not know and you will be held responsible." He also mentioned that everyone is accountable for their own actions. Furthermore, he emphasized that, "You don't know what is coming when you do this, you have been warned." He is the one who has the power to shake the earth. Such a decision is not his, but would come from the Creator if needed to restore balance on the mountain.

(Guardian – rough English translation of name, "The one who sees far into the heavens"), an ancestral guardian connected to a *pōhaku* and previously unidentified site within the vicinity of the proposed TMT site. This guardian explained the significance of many of the sites on the northern plateau as they are interconnected like a large star map. Individuals from certain family lines were guided to come up to the mountain during certain times of the year to reestablish, construct, align, activate, and/or maintain these sites. The TMT construction activities of excavating, grading, and rock-crushing in the area have already caused a great disturbance amongst these sites and guardians. This ancestral guardian also reiterated some of the significant impacts that would result from the building of this telescope and the consequences of attempting to pursue this project on this sacred landscape.

Poliahu, "*ka wahine i ke kapa hau*" (the woman in the mantel of snow), is at times referred to as an *akua wahine*. She is a part of Mauna a Wākea and creates the rain, snow, hail, and sleet on this mountain. She serves as caretaker and guardian for the mountain and grants permission to certain spirits coming to the mountain. Poliahu has two attendants assisting her, Lilinoe and Lihau. She is a part of the landscape features with a highly evolved consciousness. Both oral and written native Hawaiian traditional accounts have documented her connection to Mauna a Wākea. I have been present at times when she has shared her concerns about the existing and proposed further desecration on the mountain. She has explicitly remarked that she does not want the existing and any new observatories on this sacred mountain. They are blocking the *piko* on the summit. If she is dislocated due to the new telescope, it might create new

problems and affect the weather patterns on the mountain as well as other areas on the island.

Mo'oinanea, *mo'o wahine* and guardian of Lake Waiau, is at times referred to as a *kupua*. She is described in several traditional accounts and has genealogical ties to the Mauna a Wākea. Firstly, it is difficult to explain or define who Mo'oinanea is for those who may lack an understanding. The existence of her as a *mo'o wahine* goes beyond anyone's personal belief, cultural attributes, or religious persuasion. We contend that just because other individuals are not able grasp this understanding, do not easily dismiss Mo'oinanea's existence on Mauna a Wākea. Mo'oinanea is a revered and significant figure in both oral and written native Hawaiian traditional accounts that have documented her connection to Mauna a Wākea. She is able to communicate with individuals who have the cultural sensitivity and 'gift' to see, hear, and interact with her.

There are numerous traditional and family accounts describing the episodes, sightings, and interactions with *mo'o* in these islands of Hawai'i. When I was younger, my Tūtū Wahine Anahiwa would share accounts of a *mo'o wahine* who would be seen basking on the rocks and combing her hair near the family's *kuleana* parcel alongside the Hālawa Stream on the island of O'ahu. In addition, other *kūpuna* have personally shared with me similar family accounts of *mo'o* that were seen on other islands such as Moloka'i, Maui, Kaua'i and Hawai'i Island. They are often known to reside in fresh water tributaries, ponds, coastal areas, forests, and mountain zones. Their presence is not only documented in Hawai'i, but their existence has been documented throughout the ages and by cultures around the world. These benevolent and fully conscious beings exist, and are as much a part of our Earth as humanity. They possess supreme divine intelligence and are extremely advanced. They are protectors of humanity and of the planet and are often closely aligned to the earth's electromagnetic and crystalline energies and fresh waters. These *mo'o* have been on the Earth since the beginning. They are indeed physical. They exist primarily in a higher parallel dimension, but do also bodily exist in our physical world. They do reproduce, and the ones on our planet in the present, were all spawned and birthed on the earth. Likewise, they do have physical life spans and also have their own hierarchy and distinct genealogies.

I have been present at times when Mo'oinanea has shared her personal accounts about herself and her family as well as described the type of cultural traditions our *kūpuna* of old practiced on the Mauna a Wākea including pilgrimages to the top of the mountain. In addition, she has expressed her concerns about the existing observatories and proposed further desecration on the mountain with the new project. She has shared that the existing observatories have created obstructions and hazards for those who reside on Mauna a Wākea. Likewise, the proposed new observatory will adversely impact Mo'oinanea and others who dwell on the summit. When these guardians and caretakers of the natural elements on Mauna a Wākea are negatively impacted by human's actions, it will also impact the natural elements that are integrally connected to them. Consequently, these actions will also impact us as humans as the natural elements and environment start to shift and change. There is an imbalance and disharmony that has been created on this sacred *piko*.

Kūpuna, ancestors, including *ali'i* of the past, are also on Mauna a Wākea serving in different capacities or having come to this mountain under different circumstances. Some serve as guardians of various sites and places on the mountain. Others had ventured up to this sacred mountain during various different periods of time. Members of the Flores-Case 'Ohana have encountered and engaged with these *kūpuna* on several occasions through our cultural practices, ceremonies, and visits on the mountain. One such group that we had encountered had fled up towards the top of their sacred

mountain at the time after western contact (circa mid-1800's) when foreign diseases and epidemics swept through the villages along the Kona coast. Many of them were being persecuted by foreigners, particularly missionaries, during this time when many were dying by the hundreds. So for those who could, they fled up to the mountain to die in the realm closer to Wākea. One *kūpuna* recounted this account as she was the last one alive amongst her family and others in her group. She sang to them as they each had passed away until she was the very last one to pass. There were literally hundreds of them who had passed during these times and their remains are scattered around the mountain depending upon where they ended up.

The ancestral *akua*, *kupua*, and *kūpuna* who are connected to Mauna a Wākea will be directly and immediately affected by the proposed TMT project. Likewise, we as Kanaka will also be directly and immediately affected by the proposed TMT project if permitted to proceed forward.

IX. Adverse impacts upon Native Hawaiian customary and traditional practices

The proposed TMT construction and development within the environmentally and culturally sensitive landscape would cause adverse impacts and irreparable harm upon those cultural sites and our traditional and customary Native Hawaiian cultural, spiritual, and religious practices as members of the Flores-Case 'Ohana.

The TMT project proposes to be built in an undeveloped area amongst the hundreds of the documented and undocumented *ahu* (shrines) and cultural sites. The concentration and placement of these sites on this northern plateau was not randomly done by our *kūpuna*. They were erected and established with specific intentions. Many of these *ahu* are interconnected similar to a star map. **Embedded within these *ahu* and stones is 'ike *kupuna* and ancestral knowledge along with ancestral guardians. As such, construction of the TMT observatory in this vicinity would sever our past, present, and future generational connections with the 'ike *kupuna* and ancestral knowledge implanted at these sites. With the understanding that many of these sites serve as depositories of ancient wisdom as well as multi-dimensional portals, the massive extent of destruction proposed in this culturally sensitive landscape would also adversely impact our Native Hawaiian customary and traditional practices that are still connected to these sites. Once this landscape is excavated by the proposed TMT construction, it can never be repaired and restored. Many of these sites are interconnected and the detrimental impact on those in the vicinity of the proposed TMT site would also negatively impact the other sites and ancestral guardians connected to them.** Aspects of these sites are described in the Master Plan:

All aspects of Hawaiian life were steeped in ritual. For the Hawaiian people, spiritual beliefs, cultural practices and all facets of daily life were intricately bound to the natural landscape of the islands. (p. V-2)

The term 'shrine' is used by [Patrick] McCoy to describe all of the religious structures that exist in the summit region of Mauna Kea. The most common of the archaeological features on Mauna Kea, shrines are characterized by the presence of one or more upright stones. The shrines at Mauna Kea range from single uprights to more sophisticated complexes with pavements and prepared courts. The majority of shrines on Mauna Kea are located conspicuously on ridgetops or at breaks in the slope. It is not surprising that shrines were placed in prominent locations with commanding views of the landscape. Shrines have not been found on the tops of cinder cones. (p. V-7)

McCoy has interpreted the shrine complex in the summit region as evidence of an historically undocumented pattern of pilgrimage to worship the snow goddess, Poli'ahu, and other mountain gods and goddesses. (p. V-7)

Our *kūpuna* understood and acknowledged the unseen, but recognized, energy of a site that was in their vicinity. The Earth is considered by many indigenous peoples to be our 'Mother' or 'Grandmother'; always there to care for us, nurture us and teach us when we violate her purity. Kanaka Maoli refer to her as Papahānaumoku (Earth Mother). They are also attuned and capable of feeling many facets of her energy and thus developed a communion with these energies. On the northern plateau, many of the sites have both visual and energetic alignments with each other as well as with other noted natural features such as the surrounding *pu'u*. Due to the massive height and size of the TMT observatory, it would cause significant visual, physical, and energetic obstructions amongst these sites.

In the pursuit of scientific exploration with a total disregard of Native Hawaiian cultural traditions and their sacred landscape, the proposed TMT project would contribute to the cumulative desecration and destruction of one the most sacred sites on this Earth. In the desire to discover the potential for life in other parts of this universe, some have forgotten the sacredness for all aspects of life on this planet. We are in the time when the understanding of the spiritual universe extends beyond the physical universe.

Everyone is responsible for their own energies and the energies they bring into this sacred space on Mauna a Wākea. All energies that are put out, comes back. All life is energy and we are transmitting it at every moment. Likewise, for every action there is an equal reaction. The Earth, the Universe, and the Cosmos are composed of living conscious energy that consists of geometries, light and electromagnetics. You can acknowledge this energy or not, you can listen to it or not. You can ignore it, or you can know it.

It is important to remember that many peoples, including Kanaka Maoli have a reverential relationship with the living Earth. The cultural perspective of *aloha 'āina*, to have sincere love and respect for the land and nature, is at the heart of Hawaiian traditions. For those who are listening, what is our *'āina* trying to tell us during these times of change?

Mālama Honua, Mālama Hawai'i, Mālama Mauna a Wākea

(Care for our Earth, Care for our Hawai'i, Care for our Sacred Mountain)

I ka Piko o ke Aloha