

**Written Direct Testimony of  
Kēhaunani Abad**

**October 10, 2016**

***INTRODUCTION***

**A. Context of testimony provided**

The statements I make herein are offered in my volunteer individual capacity and are based on my professional and personal knowledge and experience in matters related to anthropology, ethnography, archaeology, historic preservation, and Hawaiian culture. My testimony has no connection to my formal employment or employer.

**B. Overview**

In my professional capacity as a trained anthropologist, ethnohistorian, and archaeologist specializing in Hawaiian culture and history, I have reviewed the Conservation District Use Permit Application (CDUA) for the Thirty Meter Telescope (TMT) Project and related documents such as the Final Environmental Impact Statement (FEIS) and incorporated Cultural Impact Assessment (CIS) and Archaeological Inventory Survey (AIS) for the TMT project submitted by the University of Hawai'i at Hilo and have made the following observations relative to my areas of expertise:

1. The TMT CDUA fails to demonstrate how the proposed use is consistent with the objectives of the subzone of the land in which the use will occur.
2. The TMT CDUA fails to adequately describe how the proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community, or region.
3. The TMT CDUA fails to adequately describe how the proposed land use, including buildings, structures and facilities will be compatible with the locality and surrounding areas, and to the physical conditions and capabilities of the specific parcel or parcels.

**The overall result of the above failures illustrates that the TMT CDUA has not demonstrated how the proposed land use is consistent with the purpose of the conservation district.**

### **C. Qualifications to provide expert testimony**

Below is a listing of experiences that qualify me to offer expert testimony in matters related to anthropology, ethnography, archaeology, historic preservation, and Hawaiian culture (see also Exhibit 1, Abad Curriculum Vitae).

1. I received a masters and a doctoral degree in Anthropology from the University of Hawai`i at Mānoa in 2000, specializing in Hawaiian archaeology in 1992 and 2000, respectively and including training in 'ōlelo Hawai'i (Hawaiian language).
2. I meet the standards established in HAR §13-281-3, §13-281-6, and §13-281-7 to serve as a principal investigator or researcher in archaeology, ethnography, or history.
3. I previously served as a Hawaiian cultural advisor, researcher and program developer for the Ho'okahua Division of Kamehameha Schools in Honolulu, Hawai`i (2005-2007) and later as the Kamehameha Schools' director of Kamehameha Publishing overseeing such matters as the cultural integrity of its publications (2007-2012).
4. I have also served as the director of the Community Engagement Division of the Office of Hawaiian Affairs (2012-2015), overseeing the cultural integrity and historical accuracy of film and print publications produced by this communications unit.
5. I currently serve as the director of Kealaiwikuamo'o at Kamehameha Schools, a division charged with supporting a collaborative network of preschool through graduate school entities dedicated to forwarding Hawaiian language, culture, and 'āina (land) based education (though this testimony is provided solely in my personal capacity, separate from my formal employment).
6. From 1994 to 2000, I served as the 'Ewa regional representative on the O'ahu Island Burial Council and was involved in the determining the cultural appropriate treatment of previously identified Hawaiian burials and advising the State of Hawai`i Historic Preservation Division regarding inadvertently discovered Hawaiian burials.
7. From 2006 to 2012, I served as Kamehameha Schools' representative on the O'ahu Island Burial Council.
8. I have prepared burial treatment plans and served as a cultural and archaeological monitor on behalf of the Queen Emma Foundation (John Young burial restoration) and Kamehameha Schools (Keanakamanō restoration).

9. I have served as an expert witness in cases involving Hawaiian burials as well as other sites of Hawaiian religious and cultural significance including the case of the City and County of Honolulu vs. Paulette Kaleikini (related to the Honolulu Rail project, 2011), Joseph A. Brescia vs. Ka'ūlani Edens-Huff, et al (related to the Nāue, Kaua'i Brescia property burial treatment plan, 2008), State of Hawai'i vs. Paulette Kaleikini (related to the Ward Villages project, 2008), the 'Īlio'ulaokalani Coalition, et al. vs. the United States Army (related to the Stryker Brigade, 2006).
10. I was qualified as an expert witness in archeology and Hawaiian cultural burial practices by Judge Ronald Ibarra during the trial of Kelly, et al., v. 1250 Oceanside Partners, et al. concerning burial protection issues involving the Hōkūli'a subdivision development in South Kona (2001).
11. At the request of Hui Mālama i Nā Kūpuna o Hawai'i Nei, and in relation to its repatriation efforts under the Native American Graves Protection and Repatriation Act, I have prepared several reports and oral testimony addressing cultural practices associated with burials and funerary objects involved in specific cases.
12. At the request of the Hawai'i Lā'ieikawai Association, I provided detailed analyses of the cultural impacts of development plans in Lā'ie relative to Nīoi Heiau (1995).
13. I was appointed by Kamehameha Schools President Michael Chun to serve on a Wahi Kupuna (Ancestral Sites) Task Force, which provided advisement on the regarding the identification, function, significance, and treatment of cultural sites within the 600-acre Kapālama Campus property (1994-2001).
14. I was named by the Hawai'i State Senate (via Resolution 193 during the 1993 legislative session) to a Department of Land and Natural Resources Interim Working Group charged with assisting the State Historic Preservation Division to draft its administrative rules governing HRS Chapter 6E relating to historic preservation.
15. I was appointed to the Kaho'olawe Island Reserve Commission's Technical Advisory Committee charged with providing recommendations relative to cultural resources on Kaho'olawe (1993).
16. I was contracted by the Department of Land and Natural Resources, Hawai'i State Parks and Recreation Division to complete an ethnohistoric study of plants association with heiau environments (1990-1991).
17. I have conducted academic research and have published peer reviewed academic articles with focuses on Hawaiian oral traditions, Hawaiian religious sites, and historic preservation issues affecting Hawaiian cultural sites.
18. I have also, by invitation of both state and national professional societies and

academic institutions, provided presentations on various topics involving ancient Hawaiian society and current Hawaiian cultural practices.

19. I descend from Kupaianalua and Halulukamanaoualanipili and have been raised by their descendant, my father, Fred Keakaokalani Cachola, who has taught me extensively about wahi kūpuna (ancestral sites) in Wai‘anae, O‘ahu and Kohala, Hawai‘i Island—their histories and traditions, and appropriate ways to care for them and interact with them.
20. My father and lifetime mentor, Fred Keakaokalani Cachola, has served by Presidential appointment on the Native American Advisory Group to the federal Advisory Council on Historic Preservation (as a noted expert in Hawaiian cultural matters, especially relating to historic properties) and has likewise served on local bodies such as the State Historic Places Review Board and the Office of Hawaiian Affairs Native Hawaiian Historic Preservation Council.

## **ANALYSIS**

### **D. The TMT CDUA failed to demonstrate how the proposed use is consistent with the objectives of the subzone of the land in which the use will occur.**

1. The proposed TMT project falls within the Conservation District Resource Subzone.
2. HAR §13-5-24-R-3(D-1) confirms that astronomy facilities are an identified activity that could occur within a resource subzone.
3. The TMT CDUA asserts that “the objective of the Resource subzone is to allow development of identified uses when they are accompanied by proper management that ensures sustained use of natural resources in these areas” (TMT CDUA, p. 3-10—3-11). The application explains that “astronomy facilities are an identified use in the Resource subzone...under an approved management plan” but then jumps to the conclusion asserting “this means that astronomy facilities with appropriate management have been deemed to be consistent with proper management of the natural resources in that subzone.”
4. However, §13-5-24(4) and 13-5-24-R-3(D-1) clarify that use of a resource subzone for an astronomy facility not only requires an approved management plan *but also requires a board permit*.

5. The rules relating to uses within a resource subzone do not assume that uses identified in the administrative rule, such as astronomy facilities, are automatically acceptable within a conservation district. A proposed astronomy facility must also meet the full spectrum of permitting requirements under §13-5-30(c).
6. A proposed astronomy facility in a resource subzone must still demonstrate, following stipulations in §13-5-30(c), that the project is in harmony with “the purpose of conserving, protecting, and preserving the important natural and cultural resources of the State” and must further demonstrate the following:
  - a. The proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community, or region;
  - b. 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;
7. As will be described below, the TMT CDUA fails to accomplish the above Items 6(a) and 6(b).

**E. The TMT CDUA failed to adequately demonstrate how the proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community, or region.**

***E1. The TMT CDUA failed to identify existing natural resources within the surrounding area, community or region for inclusion in its analysis.***

1. HAR §13-5-2 defines “natural resource” as “plants, aquatic life and wildlife, cultural, historic, recreational, geologic, and archeological sites, scenic areas, ecologically significant areas, watersheds, and minerals.”
2. The CDUA requires that the permit applicant demonstrate that the proposed use will not cause substantial adverse impact to existing resources within the surrounding area, community, or region. However, the TMT CDUA fails to address the full range of sites that should be considered in such a **regional** analysis.
3. The TMT CDUA acknowledges that “the TMT Observatory site, the Access Way, and the Batch Plant Staging Area are all within the Mauna Kea Summit Region Historic District – Statewide Inventory of Historic Places (SIHP) No. 50-10-23-26869” and that there are 263 sites within the Mauna Kea Science Reserve (TMT CDUA, p. 2-2). The TMT CDUA goes on to note that “the District includes a concentration of significant historic properties that are linked through their

setting, historic use, traditional associations, and ongoing cultural practices [and that] [t]he properties include shrines, adze quarry complexes and workshops, burials, stone markers/memorials, temporary shelters, historic campsites, traditional cultural properties (TCPs), a historic trail, and sites of unknown function” (TMT CDUA, p. 2-2).

4. However, rather than incorporating existing regional maps and comprehensive tables that document the breadth of Maunakea sites (e.g., Figure 19 and Table 5 in the TMT CIA [p. 66 and p. 73-76 respectively] and the FEIS Vol. 1 Table 3-3 [p. 3.41]), which would address the required evaluation of impacts to sites “within the surrounding area, community, or region” (§13-5-30(c)(4)), the TMT CDUA is silent in conveying whether the TMT project will cause substantial adverse impact on the high concentration of significant existing historical and cultural resources within the surrounding region.
5. The required wide-lens focus on regions stems from rules governing the environmental statements upon which the CDUA is typically based. HAR §11-200-17(g) stipulates that “The draft EIS shall include a description of the environmental setting, including a description of the environment in the vicinity of the action, as it exists before commencement of the action, from both a local and **regional** perspective. Special emphasis shall be placed on environmental resources that are rare or unique to the **region** and the project site (including natural or human-made resources of historic, archaeological, or aesthetic significance)...”
6. A **regional** perspective and unit of analysis is also strongly advised from an academic, archaeological perspective concerned with the scientific significance of sites. A body of archaeological literature referred to generally as distributional archaeology argues that studies using a smaller sized sites as the units of analysis lack rigor and fail to glean the full explanatory potential from the archaeological record, especially as it relates to surface artifacts (as opposed to artifacts found in excavations), a scenario especially applicable to finds at Maunakea. Methodological approaches that apply such a regional rather than site-level focus allow for the archaeological record to be thought of as a continuous distribution of artifacts over the surface of the land with different frequencies and densities that have tremendous explanatory potential that would otherwise be missed if only high-density areas (e.g., a shrine or lithic workshop site) were used as separate units of analysis that ignore the lower artifact density areas between them (Dunnell and Dancey (1983; see also Ebert, Larralde, and Wandsnider [1987]; and Feder 2016:42). Following this perspective, Dunnell and Dancey (1983:274) advocate that “preservation must be regional in scale” to avoid the detrimental “biases” that result from a site-focused view of the past as unrelated, uneven spots of high cultural activity. In applying distributional archaeology to the Maunakea complex of sites, an appropriate scale of study

would be a historical district (e.g., MKSR) rather than the 263 separate sites within that district.

7. Instead of using a regional focus, the TMT CDUA isolates the project area from the rest of the contiguous historic district, as evident in the map offered in the TMT CDUA (Figure 2-1, p. 2-4) that graphically presents its focus of analysis. The map is entitled, “Historic Properties in the Vicinity of the TMT Project Areas.” It applies a view that is too narrow for evaluating potential impacts of a project “to existing natural resources within the surrounding area, community or region,” as required by HAR §13-5-30(4) and HAR §11-200-17(g).
8. The map, Figure 2-1 (TMT CDUA, p. 2-4), identifies only 17 of the 263 regional sites and offers these comments about them (TMT CDUA, pp. 2-2—2-3):
  - a. “There are no historic properties located within 200 feet of the limits of grading at the proposed TMT Observatory 13N site.” There is no explanation regarding why sites in the required wider regional perspective were excluded from the map and analysis and how the seemingly arbitrary 200-foot limit was determined.
  - b. “There are no individual historic properties located within 500 feet of the Batch Plant.” There is no explanation regarding why sites in the required wider regional perspective were excluded from the map and analysis and how the seemingly arbitrary 500-foot limit was determined.
    - (1) In fact, upon closer examination, the statement itself is false since one of the 17 sites depicted, the Kūkahau‘ula traditional cultural property (TCP), “is located approximately 50 feet to the east of the Batch Plant area” (TMT CDUA, p. 2-4).
    - (2) It appears that the TMT CDUA excluded Kūkahau‘ula as a site for inclusion in their analysis under the belief that the portion of Kūkahau‘ula located within the arbitrary 500 feet radius of the Batch Plant does not include “individual historic properties” is a site complex or district comprised of multiple sites, which constitutes a distinct historic property bearing its own site number (SIHP No. 50-10-23-21438). It greater significance, scale, and complexity than other sites identified in the area.
    - (3) HAR §13-276-2 defines “historic property” as “any building, structure, object, **district**, area, or site, including heiau and underwater site, which is over fifty years old” (emphasis added).
    - (4) “The Kūkahau‘ula TCP is a historic property (SIHP No. 50-10-23-21438) occupying an area of approximately 463 acres” (TMT CDUA, p. 2-2). It “consists of a group of pu‘u commonly known as Pu‘u Hau‘oki, Pu‘u Wēkiu, and Pu‘u Kea” and “has been determined to be a historic [district] by SHPD owing its association

with legendary figures and on-going Native Hawaiian cultural practices” (Ibid.).

- c. “Approximately 1,100 feet of the 3,400 foot long Access Way serving the TMT Observatory would cross Kūkahau‘ula.” This statement offered in the TMT CDUA is not accompanied by an analysis demonstrating how the TMT project will not create substantive adverse impacts to Kūkahau‘ula.
9. The TMT CDUA also fails to describe how the TMT will not cause substantial adverse impact to five historically and culturally significant sites in close proximity to the TMT Project area depicted in the TMT CDUA in Figure 2-1 (p. 2-4), which are specifically highlighted in the Cultural Impact Assessment (CIA) presented within the TMT project FEIS Vol. 3 (TMT CIA, p. 64): “Five archaeological sites—all shrines—have been documented within approximately 1,000 feet of the TMT Observatory Project area: three of these (16171, 16172 and 21200) consist of single uprights; Site 16172, the closest site to the TMT Observatory Project area, is approximately 250 feet north of the northern boundary of the Project area. The other two sites are a pair of cairns with several uprights (16170) and a pair of uprights (16169).”
10. The sites (16172, 16167, and 16166) are documented in more detail in FEIS Vol. 1 (p. 3-43) and the Draft Historic Preservation Mitigation Plan, Appendix A of the TMT CDUA (p. A-2). However, no explanation is offered in those documents regarding how the TMT project will not cause substantial adverse impact to those sites.

**The above illustrates that the TMT CDUA failed to demonstrate how the project would not cause substantial adverse impact to sites both within the close vicinity of the project and in the surrounding region of the project. Such a failure suggests that the TMT CDUA should be rejected.**

***E2. The TMT CDUA failed to adequately address the highly significant nature of sites in the region.***

1. The TMT FEIS Vol. 1, Table 3-3 (p. 3.41), conveys that numerous historic properties exist in the surrounding region of the project. More specifically, Table 3-3 (FEIS Vol. 1, p. 3.41) documents 263 sites in the Maunakea Science Reserve (MKSR), of which 141 (or 54%) are shrines, of which 67 (or 25%) comprise the Maunakea Adze Quarry Complex, and of which 29 (or 11%) are burials or possible burials.
2. The concentration of shrines increases at Kūkahau‘ula, the Maunakea summit region within MKSR,. “At least 79 shrine sites (three that are also lithic workshops) have been documented in the summit region, comprising 83% of



known sites in the region...Overall, the very high proportion of shrines near the summit is noteworthy and unique in comparison to most other places on Hawai'i Island" (TMT FEIS Vol. 3, CIA, p. 64). Indeed it could be said as well that such quantity and concentration of shrines is unique to all other islands in the archipelago, with the exception of a few extremely remote, highly sacred, and ceremonially crucial locations such as Nihoa and Mokumanamana in the World Heritage Papahānaumokuākea Marine National Monument. Indeed, such a high concentration of religious sites in a regional complex is highly significant and exceedingly rare.

3. "The TMT Observatory site, the Access Way, and the Batch Plant Staging Area are all within the Mauna Kea Summit Region Historic District," which "has been determined by the State Historic Preservation Division (SHPD) to be significant under all five criteria (A, B, C, D and E)" (TMT CDUA, p. 4-1).
4. HAR §13-284-6 (emphasis added) describes site significance, establishing that "to be significant, a historic property shall possess integrity of location, design, setting, materials, workmanship, feeling, and association and shall meet one or more of the following criterion:
  - (1) Criterion "a". Be association with events that have made an important contribution to the broad patterns of our history;
  - (2) Criterion "b". Be associated with the lives of persons important in our past;
  - (3) Criterion "c". Embody the distinctive characteristics of a type, period, or method of construction, represent the work of a master, or possess high artistic value;
  - (4) Criterion "d". Have yielded, or is likely to yield, information important for research on prehistory or history; or
  - (5) Criterion "e." Have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity."
5. While the Hawai'i State administrative rules are silent relative to a specific definition for "historic district," the policies governing the National Historic Preservation Act establish this definition (54 U.S.C. §3003, Sec. 300305, emphasis added): "The term 'historic conservation district' means an area that contains—
  - (1) historic property;
  - (2) buildings having similar or related architectural characteristics;
  - (3) **cultural cohesiveness**; or
  - (4) any combination of features described in paragraphs (1) to (3)"

6. Maunakea houses Keanakākoʻi, “perhaps the most renowned” set of ana (caves) and kākoʻi (quarries) where dense, high-quality basalt was harvested in generations past for tool making (TMT FEIS Vol 3., CIA, p. 181). “Recognized on both the State and National Registers of Historic Places, the basalt found between approximately 11,000 and 12,400 feet elevation on Maunakea is among the highest quality in the Hawaiian Islands. Measuring some 4,800 acres, the quarry itself is one of the largest of its kind in the world, certainly in Polynesia” (Ibid.).
7. The Mauna Kea Summit Region Historic District (State Inventory of Historic Places No. 50-10-23-26869) is one of the most culturally sacred and significant areas in all of Hawaiʻi.
  - a. “Mauna Kea is...known in native traditions and prayers as Mauna a Wākea (Kea), ‘The Mountain of Wākea’ It is the first born mountain son of Wākea and Papa, who were also the progenitors of the Hawaiian race. Mauna Kea is symbolic of the *piko* (umbilical cord) of the island-child, Hawaiʻi, and which connects the land to the heavens” (Maly and Maly 2005:v).
  - b. The Kūkahauʻula district is a wahi pana (highly storied, legendary place) of the highest order, associated with numerous moʻolelo (traditional narrative accounts) and mele (chants) that comprise what could be considered part of the canon of traditional Hawaiian literature (as documented by Maly and Maly 2005).
  - c. “There is a strong, close, and well documented association of this historic district with culturally cohesive, eminent resident Hawaiian deities such as Wākea, Kūkahauʻula, Poliʻahu, and Lilinoe, as embodied in a mele (chant) describing Maunakea published by S. Lohiau in 1861 in *Ka Hoku o ka Pakipika*:  
...A makani moe lehua ke hau ka hele Mauna,  
Awiwi ka hele i ka uka o Haliukua,  
Lili luna Poliahu i ka ua o noe,  
He ua noe pau pili hau no Lilinoe,  
Paa na hale ohu makahi o Kukahauula,  
(...Along with the wind that overcomes the lehua when the Mauna [Maunakea] journey becomes cold and icy,  
Swift is the traverse upland of Haliukua,<sup>1</sup>  
Poliʻahu trembles with cold high above in the misty rain,  
A misty rain that is indeed the realm of Lilinoe,

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<sup>1</sup> ‘O Haliukua “ka aina iwaenakonu o ka ululaa...keia aina uka waokele (Manuka)...i Kona” (Kawaikaumaiikamakaopua 1925, 5). Haliukua is an area in the center of the forest of the uplands of Manukā, Kona.

The mist-adorned dwellings are everlasting in the presence of Kūkahau‘ula<sup>2</sup>...)

- d. This sacred realm is closely associated with pivotal aspects of a Hawaiian life cycle, lending to its role as being a traditional place where burials of piko from newborns and the kupapa‘u (corpses) of deceased loved ones would be interred for an eternity of connection to this sacred ‘āina and kūpuna (ancestor).
- e. Maunakea is also associated with “the gods and deities whose forms are seen in the heavens and whose names are commemorated at locations on Mauna Kea” (Maly and Maly 2005:vi).
- f. “In the *Kumulipo*, and other *mele* of creation, we find that all forms of the natural environment, from the skies and mountain peaks, to the watered valleys, plateau lands, and lava plains, and to the shoreline and ocean depths are believed to be *kinolau* (physical embodiments) of Hawaiian gods and deities” (Maly and Maly 2005:7). In that way, such natural phenomena, features, and locations that are a part of the proposed TMT project area are essentially embodiments of Hawaiian deities.
- g. “Another Hawaiian genealogical account records that Wākea (the expanse of the sky—the male) and Papa-hāhau-moku (Papa, who gave birth to the islands—the female)—also called Haumea-nui-hānau-wāwā (Great Haumea, born time and time again)—and various gods and creative forces of nature, gave birth to the islands...As the Hawaiian genealogical account continues, we find that these same god-beings, or created forces of nature who gave birth to the islands, were also the parents of the first man (Hāloa), and from this ancestor all Hawaiian people are descended. It was in this context of kinship, that the ancient Hawaiians addressed their environment...Importantly, in these genealogical accounts, we find too, that Mauna Kea is referred to as “Ka Mauna a Kea” (Wākea’s Mountain), and it is likened to the first-born of the island of Hawai‘i” (Maly and Maly 2005:7-8).
- h. The above features of Maunakea documented in the body of Hawaiian literature led Maly and Maly (2005:10) to offer this summative statement: “We observe once again, that in the Hawaiian mind, all aspects of natural and cultural resources are interrelated. All are culturally significant. Thus, when speaking of Mauna Kea—the first born child of Hawai‘i, abode of the gods—its integrity and sense of place depends on the well-being of the whole entity, not only a part of it.”
- i. In the same light, recognizing that Native Hawaiians descend from the same progenitors—and that the ‘āina is therefore their kūpuna (ancestor) and Maunakea one of its eldest siblings—the well-being of Maunakea is viewed as tantamount to the well-being of kanaka ‘ōiwi (Native Hawaiians) who descend from that same lineage. This sentiment can be

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<sup>2</sup> Translation by K. Abad.

readily seen in numerous statements offered in the TMT EIS Vol. 2 and other public forums in which the TMT project has been discussed.

- j. From my perspective as a trained anthropologist and Hawaiian Studies academic professional, it is clear that currently expressed Native Hawaiian views about the interconnectedness of Native Hawaiian people and ‘āina (land) from genealogical, spiritual, and cultural perspectives is consonant with traditional Hawaiian cultural precepts that can be found consistently in a large body of literature on Hawaiian culture from nineteenth century and early twentieth century Hawaiian and Western scholars that describe Hawaiian deities as being embodied in ‘āina and that place people in the role of caring for that deity through caring for ‘āina. Indeed, there is clear cultural integrity in Native Hawaiians’ attestations that their cultural and spiritual well-being are connected to the well-being of ‘āina at a general level and even more so with regard to various specific ‘āina that hold a high level of cultural significance to Native Hawaiians, as with Maunakea.
8. The TMT CDUA failed to include in its assessments an explanation of how the TMT project would not cause substantive adverse impact to the highly significant cultural sites in the surrounding region of the project—sites that have a profound impact on Native Hawaiians who maintain an identity and set of cultural perspectives and practices consistent with traditional views that see Hawaiian deities as being embodied in ‘āina and place people in a position of caring for ‘āina as a form of caring for their deities.

**The TMT project’s failure to address such important cultural and historical resources in the region in its required CDUA analysis, suggests that the TMT CDUA should be rejected.**

***E3. The TMT CDUA is significantly flawed in its discussion of project impacts***

While the TMT CDUA makes no affirmative statement about how the project will not cause substantive negative impacts on cultural and historical resources in the area, it takes the tact of acknowledging some degree of impact and then suggests that those impacts are erased by proposed management and mitigation efforts. Two problems are evident in this approach. First, the acknowledged impacts are incomplete because they are inappropriately assessed. Second, there is an analytical error in the assumption that mitigation is equivalent to eliminating adverse impacts.

E3a. The TMT CDUA incompletely identified project impacts relating to cultural practices and beliefs

1. HAR §11-200 relating to environmental impact statements defines “environment” to mean “humanity’s surroundings, inclusive of all the physical, economic, **cultural**, and social conditions that exist within the area affected by a proposed action, including land, human and animal communities, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance” (HAR §11-200-2)
2. HAR §11-200-2 defines “cumulative impact” as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”
3. Under the topic of “Cultural Practices and Beliefs,” the TMT CDUA (Table 2.1, p. 2-8) asserts—with no explanation or evidence to illustrate how the conclusions were drawn—that because the TMT is proposed to be built “in an area removed from places of highest cultural concern...the project will have little impacts on the following cultural practices: (1) pilgrimage, prayer, shrine erection and offerings; (2) collection of water from Lake Waiau; (3) piko deposition; (4) scattering of cremation ashes; and (burial blessing).
4. This listing of impacts accounts only for a small range of what is entailed in the identified cultural practices—that is, the physical ability to be at the sites indicated and to conduct only certain types of cultural practices at the sites. More specifically, the TMT CDUA assumes that pilgrimage to and prayers at shrines and the erecting of shrines is all that is needed in the continued engagement of cultural practices relative to shrines. However, shrines with uprights traditionally were commonly used in tandem with one another or with other parts of the natural setting. The tandem use of upright stones with other uprights at other shrines or with other natural features allowed skilled observers to mark in the creation of those alignments a siting mechanism to later identify a natural phenomena (e.g., the rising of the sun at summer solstice), relocate a natural feature (e.g., a cave opening that had be sealed and hidden), or a significant natural resource (e.g., an abundant fishing spot). The TMT CDUA fails to consider the relationships among the shrines and among shrines and the surrounding environment that might be impacted or destroyed through construction or that may no longer be visible (e.g., the summit of Haleakalā or cinder cones in the Maunakea summit area).

5. Such view planes among shrines and the natural environment will certainly be impacted by the TMT project that would entail a footprint of “roughly five acres,” a dome height that “will be 184 feet above finished grade, with an exterior radius of 108 feet,” and a cylindrical structure that “will enclose 34,304 gross square feet” (TMT CDUA, p. 1-9—1-10). Recognizing that the average height of a story of a building is 10 feet, the height of the proposed TMT project is about 18 stories high.<sup>3</sup>
6. The above listing of impacts in Item 4 further does not consider the cultural beliefs and cultural welfare of Native Hawaiians. The large-scale destruction caused by the TMT, and the continued imposition of the TMT structure within the culturally sacred landscape of Maunakea, would have a profound impact on the cultural beliefs and welfare of Native Hawaiians. If the TMT were to be built, one’s purpose in engaging in cultural practices at Maunakea would need to be altered in fundamental ways. For instance, rather than going to the Maunakea summit region to honor the deities of Maunakea and engage in strengthening one’s relationship with them and their inseparable embodiments in the natural environment, one would rather need to seek healing for those deities and for their embodied places as well as seek forgiveness for failing to protect those deities and their natural embodiments from being irreparably harmed. That cultural perspective has been articulated regularly by Native Hawaiians engaged in protecting Maunakea. That perspective can also be seen in the testimony of Pua Case recorded in the transcript of the Board of Land and Natural Resources hearing held on February 12, 2013 (also viewable on YouTube at <https://www.youtube.com/watch?v=vjyjNtdaVyk>).
7. Such development-triggered altering of the fundamental nature of Native Hawaiian cultural practitioners’ relationships to their sacred spaces and deities associated with those spaces is a form of deprivation of the practitioners’ rights to engage in traditional and customary cultural practices protected in Article XII, Section 7 of the Hawai’i State Constitution and the more specific case law established in 1995 by Judge Klein’s ruling in the case of PASH and Pilago v. Hawai’i County Planning Commission.
8. In assessing the impacts of the proposed TMT project as it relates to Hawaiian cultural sites and Native Hawaiian’s cultural beliefs and practices relative to those places, the TMT CDUA fails to apply appropriate anthropological methods.
9. For different purposes, anthropologists apply one of two perspectives or “lenses” in their research: Emic and etic perspectives. Emic perspectives derive

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<sup>3</sup> The TMT CDUA (p. 4-25) further clarifies that additional fill material will be used “to raise the ground level” prior to construction make the vertical extent of the structure to rise even higher than 184 feet above the original grade of the land.

from informants within a culture and elucidate the knowledge, understandings, feelings, insights, etc. within that cultural milieu and from that cultural lens. This approach “avoids imposition of the researchers’ constructs” in order to form an in-depth understanding of that culture and its perspectives (Morris et al. 1999:783). In contrast, etic perspectives derive from outside of a culture, as with a theoretic lens being applied upon a culture to elucidate an academic inquiry about the culture. This approach is typically used in studies that seek to explain through such theoretical models the similarities and differences of two or more cultural groups (Ibid.).

10. In the context of historic preservation studies (e.g., preparing an EIS, CIA, AIS, or CDUA) emic oriented methods are required, given the nature of the subject matter and the kinds of research questions that need to be addressed such as the cultural functions and potential cultural significance of sites.
11. HAR §13-284-6 establishes that to be significant under Criterion E, “a historic property shall possess integrity of location, design, setting, materials, workmanship, feeling, and association and shall”... “have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group’s history and cultural identity.”
12. Identifying sites as being significant under Criterion E requires an emic approach, as is evident in the definition of that criterion. For the same reason, identifying whether and how such sites would be impacted by a proposed project similarly requires an emic approach.
13. The National Park Service’s Guidelines for Evaluating and Documenting Traditional Cultural Properties (National Register Bulletin 38, Parker and King [1998:4]) confirms that etic approaches are inappropriate. Bulletin 38 emphasizes that historic preservation professionals must “seek to avoid...ethnocentrism in the evaluation of traditional cultural properties,” that is, “viewing the world and the people in it only from the point of view of one’s own culture,” being unable to understand or relate to “the feelings, attitudes, and beliefs of someone who is a member of a different culture.” Bulletin 38 further emphasizes that “it is vital to evaluate properties thought to have traditional cultural significance from the standpoint of those who may ascribe such significance to them” (Ibid.).<sup>4</sup>

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<sup>4</sup> Bulletin 38 suggests a need to question the validity and necessity of accepting such emic perspectives in cases where the historic written literature does not align with what informants convey (which is not applicable in the case of Maunakea where there is clear consistency about the significance of the sites in

14. National Register Bulletin 38 (Parker and King 1998) clearly suggests to the historic preservation professionals involved directly or indirectly in preparing portions of the TMT CDUA that they should seek emic or Native Hawaiian cultural perspectives in determining not only the locations, background, functions, and significance of important cultural sites in the region surrounding the proposed TMT project, but also in assessing how the proposed project might impact cultural beliefs and practices associated with those sites.
15. However, the TMT CDUA (Table 2.1, p. 2-8) asserts—with no explanation or evidence to illustrate how the conclusions were drawn—that because the TMT is proposed to be built “in an area removed from places of highest cultural concern...the project will have little impacts on the following cultural practices: (1) pilgrimage, prayer, shrine erection and offerings; (2) collection of water from Lake Waiau; (3) piko deposition; (4) scattering of cremation ashes; and (burial blessing).
16. Such conclusions in the TMT CDUA do not comport with many of the comments recorded in the TMT project’s FEIS Vol. 2, which speak to the significant adverse cultural impacts foreseen by Hawaiian cultural practitioners and their supports, if the proposed project were to be permitted.
17. Such conclusions rendered in the TMT CDUA seem to be offered from a Western perspective rather than the perspective recommended by the National Park Service Bulletin 38 (Parker and King 1998), that is, the perspective of those from within the culture associated with the sites in question.

E3b. The TMT CDUA incompletely identified project impacts relating to historic properties

1. With regard to “Historic Properties,” the TMT CDUA (Table 2.1; p. 2-11) asserts that:
  - a. “The project will not have a substantial adverse effect on historic properties;”
  - b. The project “will not result in the loss of any historic properties within the Mauna Kea summit region;” and that

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question) or when contemporary informants differ in their views. In the latter case—which may be seen as applicable to Maunakea in that there are contemporary Hawaiian-blooded people who have no qualms about the TMT being constructed within a historic district—Bulletin 38 cautions that “individuals who have economic interests in the potential development of an area may be strongly motivated to deny its cultural significance,” or as in the case of Maunakea, the impacts of the TMT project on cultural practices and values associated with Maunakea.



- c. “The physical impacts on the Kūkahau‘ula TCP will be minimal and will not rise to the level of significant.”
2. However, as was demonstrated above (in Section E1, pp. 5-8 of this document), the TMT CDUA failed to include an analysis of the impacts of the proposed project on sites within the larger region, which were not considered.
3. The TMT CDUA further seems only to consider the physical harming of sites as creating significant adverse impact.
4. However, the significance of historic properties includes more than just their physical condition. HAR §13-284-6 establishes that to be significant under any specific criterion, a site must first be demonstrated to “possess integrity of location, design, setting, materials, workmanship, feeling, and association.”
5. A massive TMT development extending over five acres and stretching up to the equivalent of an 18-story building (TMT CDUA, p. 1-9—1-10) placed within the midst of a highly dense concentration of shrines, and within an area that embodies revered Hawaiian deities, would have a significant impact on the integrity of location, setting, feeling, and association of sites in the region. None of these important intangible dimensions that give sites their significance is considered in the TMT CDUA.

E3c. The TMT CDUA failed to adequately assess the impacts of the proposed project on significant Maunakea cultural and historic sites.

1. HAR §11-200-12 relating to significance criteria stipulates that “in considering the significance of potential environmental effects, agencies shall consider the sum of effects on the quality of the environment, and shall evaluate the overall and cumulative effects of an action,” and “in determining whether an action may have a significant effect on the environment, the agency shall consider every phase of a proposed action, the expected consequences, both primary and secondary, and the cumulative as well as short-term and long-term effects of the action.” More specifically, if a project entails any of the following (excerpted from a longer list of impacts specified in this rule), then the project is deemed to have a significant impact:
  - a. Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;
  - b. Curtails the range of beneficial uses of the environment;
  - c. Substantially affects the economic welfare, social welfare, and cultural practices of the community of the State;
  - d. Involves a substantial degradation of environmental quality; or

- e. Is individually limited but cumulatively has considerable effect upon the environment.
2. Given the points raised above in Items E3a and E3b, it is clear that the TMT CDUA did not adequately assess the impacts of the proposed project on significant Maunakea cultural and historic sites. Indeed, if the TMT were to be built, these sites and the cultural practices and cultural practitioners associated with them would experience substantial negative impacts.
3. Indeed, in 2005, the FEIS for the proposed Outrigger Telescopes Project determined that “the impact of past, present, and reasonably foreseeable future activities on cultural and biological resources is substantial, adverse, and significant.” And though “the Outrigger Telescopes project would add a small incremental impact,” “overall, past, present, and reasonably foreseeable future activities have a significant impact on the quality of the human environment” (NASA 2005:xxi).
4. The Outrigger Telescopes Project’s assessment further calls into question the reliability of the opposite “no impact” or “minimal impact” assessments offered in the TMT CDUA, which describes a project of far greater magnitude than the proposed set of Outrigger Telescopes.

E3d. The TMT CDUA appears to equate mitigation efforts to the erasure or elimination of significant adverse impacts.

1. HAR §11-200-17(m) stipulates that EIS documents include various “mitigation measures proposed to avoid, minimize, rectify, or reduce impact,” a requirement also included in a CDUA.
2. None of the rules suggest that any given number or degree of mitigation efforts erases or eliminates adverse impacts. Stated another way, if adverse impacts were on the right side of a balancing scale and mitigation efforts were on the left side of the balancing scale, the adverse impacts would still remain adverse impacts on right side of the scale even as mitigation efforts to minimize, rectify, or reduce impacts were added to the left side. Only avoidance measures (e.g., choosing an alternate site in Chile) would actually remove the adverse impact on the right side of that scale.
3. However, the TMT CDUA seems to have done the equivalent of taking off a measure of impact from the right side of the scale for every mitigation effort that was placed on the left side of the scale, ultimately concluding that the TMT project creates few, minimal, or insignificant negative impacts.

4. In contrast, an appropriately prepared CDUA would have acknowledged the significant negative impacts while using the opportunity of the CDUA to demonstrate how the specific mitigation actions effectively outweigh the adverse impacts—thus convincing appropriate reviewers of the CDUA to grant the project a CDUP. The mitigation efforts that the CDUA proposed include the following summarized in Table 2.1 (TMT CDUA pp. 2-8—2-26) and the TMT Management Plan (Section 4.3):
  - a. Coating and recoating the TMT dome to have a reflective surface “which during the day reflects the sky and reduces the visibility of the structure,”
  - b. “Education efforts to generate public awareness about the importance of preserving the cultural landscape.”
  - c. Mandatory cultural and natural resources training of employees to have them “understand, respect, and honor Mauna Kea’s cultural landscape and cultural practices.”
  - d. “Limit threats to natural resources through management of permitted activities and uses.”
  - e. Limiting the TMT Access Way from two to one lane.
  - f. Required orientation sessions for users, “including but not limited to visitors, employees, observatory staff, contractors, and commercial and recreational users.”
  - g. “Continue and increase opportunities for community members to provide input to cultural and natural resources management activities on Mauna Kea.”
  - h. “Provide opportunities for community members to participate in stewardship activities.”
  - i. “Maintain and expand regular interaction and dialogue with stakeholders, community members, surrounding landowners, and overseeing agencies to provide a coordinated approach to resource management.”
  - j. “Engage in outreach partnerships with schools...”
  - k. “Collecting and transporting all wastewater down the mountain for treatment.”
  - l. Scholarships, mini-grants, and educational programs, etc.
5. Fundamental concerns of Native Hawaiian cultural practitioners regarding the cultural impacts of a massive construction project on Maunakea would not be erased or brought down to a “minimal” impact via the above mitigation measures proposed in the TMT CDUA, as none of the mitigation efforts addresses the core Hawaiian cultural belief that such a project is incompatible with a sacred environment that embodies esteemed deities.

***E4. For multiple reasons, the TMT CDUA failed to demonstrate how the proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community, or region.***

1. The TMT CDUA failed to identify existing natural resources within the surrounding area, community or region for inclusion in its analysis.
2. The TMT CDUA failed to adequately address the highly significant nature of sites in the region.
3. The TMT CDUA is significantly flawed in its discussion of project impacts
  - a. The TMT CDUA incomplete identified project impacts relating to cultural practices and beliefs
  - b. The TMT CDUA incomplete identified project impacts relating to historic properties
  - c. The TMT CDUA failed to adequately assess the impacts of the proposed project on significant Maunakea cultural and historic sites.
  - d. The TMT CDUA appears to equate mitigation efforts to the erasure or elimination of significant adverse impacts.

**F. The TMT CDUA fails to adequately describe how the proposed land use, including buildings, structures and facilities will be compatible with the locality and surrounding areas, and to the physical conditions and capabilities of the specific parcel or parcels.**

The same discussion applied to Item E relates equally to this item. Since the TMT CDUA has not met the lower bar demonstrating that the project will not cause adverse impact, it has not met the higher bar of demonstrating that the project is compatible with the surrounding areas.

**G. The overall result of the above failures illustrates that the TMT CDUA has not demonstrated how the proposed land use is consistent with the purpose of the conservation district to regulate land-use in the conversation district for the purpose of conserving, protecting, and preserving the important natural and cultural resources of the state.**

**H. For all of the above reasons, the TMT CDUA should be rejected.**

References Cited

Dunnell, Robert C., and William S. Dancey.

- 1983 "The Siteless Survey: A Regional Scale Data Collection Strategy." *Advances in Archaeological Method and Theory* 6 (1983): 267-87.  
<http://www.jstor.org/stable/20210070>.

Ebert, James I., Signa Larralde, and LuAnn Wandsnider

- 1987 "Distributional Archaeology: Survey, Mapping and Analysis of Surface Archaeological Materials in the Green River Basin, Wyoming," In *Perspectives on Archaeological Resources Management in the 'Great Plains,'* Edited by A. J. Osborn and R. C. Hassler. Omaha: I and O Publication Co.  
<http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1111&context=anthropologyfacpub>

Feder, Kenneth L.

- 2016 "Site Survey." In *Field Methods in Archaeology*, Seventh Ed., pp. 41-68. Routledge, New York.

Kawaikaumaiikamakaokaopua, Z. P. K.

- 1925 "Moolelo No Kekahi Alii Kaulana o Ka Moku o Kau, Hawaii Ko Halae'a," *Nupepa Kuokoa*, 10 September, p. 5.  
[http://ulukau.org/collect/nupepa/index/assoc/HASH01d0/1375fd93.dir/021\\_0\\_064\\_037\\_001\\_01\\_ful\\_19250910.pdf](http://ulukau.org/collect/nupepa/index/assoc/HASH01d0/1375fd93.dir/021_0_064_037_001_01_ful_19250910.pdf)

Lohiau S.

- 1861 "He Mele no Kawaikini," *Ka Hoku o ka Pakipika*, Helu 4, Aoao 1, Okatoba 17.  
<http://bit.ly/2d3GCBJ>

Maly, Kepa and Onaona Maly

- 2005 "Mauna Kea—Ka Piko Kaulana o ka 'Āina:" *A Collection of Native Traditions, Historical Accounts, and Oral History Interviews for: Mauna Kea, the Lands of Ka'ōhe, Humu'ula and the 'Āina Mauna on the Island of Hawai'i.* Prepared for the Office of Mauna Kea Management, University of Hawaii-Hilo. <http://bit.ly/2dLrZ4e>

Morris, Michael W., et al

- 1999 "Views from Inside and Outside: Integrating Emic and Etic Insights about Culture and Justice Judgement," *Academy of Management Review*, Vol 24, pp. 781-796. <http://bit.ly/2d8uMBr>

Kēhaunani Abad, PhD 10.10.16

National Aeronautics and Space Administration

2005 *Final Environmental Impact Statement for the Outrigger Telescopes Project*,  
Vol. 1. Universe Division, Science Mission Directorate, Washington, DC.

Parker Patricia and Thomas King

1998 “Guidelines for Evaluating and Documenting Traditional Cultural Properties,”  
*National Register Bulletin 38*, U.S. Department of the Interior, National Park  
Service, National Register, History and Education, National Register of  
Historic Places. <https://www.nps.gov/nr/publications/bulletins/nrb38/>