FINAL ENVIRONMENTAL IMPACT STATEMENT

Volume 2 – Section 8.0

Thirty Meter Telescope Project

Island of Hawai‘i

Proposing Agency:
University of Hawai‘i at Hilo

This Environmental Document was Prepared Pursuant to Hawai‘i Revised Statutes, Chapter 343, Environmental Impact Statement Law and Chapter 200 of Title 11, Hawai‘i Administrative Rules, Department of Health, Environmental Impact Statement Rules

May 8, 2010

EXHIBIT A-4

8.0 Responses to Comments

This chapter provides individual responses to all substantive comments received during the Draft EIS comment period. Table 8-1 provides an index of all comments received and where they can be found within this chapter. This section is formatted to provide the comments and responses in a side-by-side format; however, in some cases the length of the responses prevents the comment and response from appearing on the same page, especially for longer submissions. The comment number is provided to the left of the comment and above the response. Due to software limitations, the line indicating the location of the comment in the left margin sometimes does not completely bracket the entire comment.

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UH-HILO
CHANCELLOR'S OFFICE

U.S. Department of Homeland Security
FEMA Region IX
1111 Broadway, Suite 1200
Oakland, CA. 94607-4052

FEMA

June 2, 2009

Office of the Chancellor
TMT Observatory Project
University of Hawaii at Hilo
200 W. Kawili Street
Hilo, Hawaii 96720-4091

Office of the Chancellor

This is in response to your request for comments on the Draft Environmental Impact Statement Thirty Meter Telescope (TMT) Observatory Project, Maunakea, Hawaii.

1 Please review the current effective Flood Insurance Rate Maps (FIRMs) for the County of Hawaii (Community Number 155166), Maps revised April 2, 2004. Please note that the County of Hawaii, State of Hawaii is a participant in the National Flood Insurance Program (NFIP). The minimum, basic NFIP floodplain management building requirements are described in Vol. 44 Code of Federal Regulations (44 CFR), Sections 59 through 65.

A summary of these NFIP floodplain management building requirements are as follows:

- All buildings constructed within a riverine floodplain, (i.e., Flood Zones A, AO, AH, AE, and A1 through A30 as delineated on the FIRM), must be elevated so that the lowest floor is at or above the Base Flood Elevation level in accordance with the effective Flood Insurance Rate Map.

- If the area of construction is located within a Regulatory Floodway as delineated on the FIRM, any ***development*** must not increase base flood elevation levels. **The term *development* means any man-made change to improved or unimproved real estate, including but not limited to buildings, other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials.** A hydrologic and hydraulic analysis must be performed *prior* to the start of development, and must demonstrate that the development would not cause any rise in base flood levels. No rise is permitted within regulatory floodways.

1

Thank you for your input. The current effective FIRMs have been reviewed and the only Project component that may be developed in a flood zone is the Headquarters facility. The following has been added Section 3.7 of the Final EIS to address this comment:
"If the Headquarters is built within Flood Zone A, the Project will not adversely impact the floodplain or its functions, and will comply with rules and regulations of the National Flood Insurance Program. As the Mauka Lands Master Plan Final EIS (UH, 2005) indicates, 'When the lots affected by the Zone A floodplain are developed, a detailed study should be performed to determine the 100-year floodplain.'"

- All buildings constructed within a coastal high hazard area, (any of the "V" Flood Zones as delineated on the FIRM), must be elevated on pilings and columns, so that the lowest horizontal structural member, (excluding the pilings and columns), is elevated to or above the base flood elevation level. In addition, the posts and pilings foundation and the structure attached thereto, is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all building components.

- Upon completion of any development that changes existing Special Flood Hazard Areas, the NFIP directs all participating communities to submit the appropriate hydrologic and hydraulic data to FEMA for a FIRM revision. In accordance with 44 CFR, Section 65.3, as soon as practicable, but not later than six months after such data becomes available, a community shall notify FEMA of the changes by submitting technical data for a flood map revision. To obtain copies of FEMA's Flood Map Revision Application Packages, please refer to the FEMA website at http://www.fema.gov/business/nfip/forms.shtm.

Please Note:

2 Many NFIP participating communities have adopted floodplain management building requirements which are more restrictive than the minimum federal standards described in 44 CFR. Please contact the local community's floodplain manager for more information on local floodplain management building requirements. The Hawaii County floodplain manager can be reached by calling Bruce McClure, P. E., Director, Department of Public Works, at (808) 961-8321.

If you have any questions or concerns, please do not hesitate to call Cynthia McKenzie of the Mitigation staff at (510) 627-7190.

Sincerely,

Gregor Blackburn, CFM, Branch Chief
Floodplain Management and Insurance Branch

cc:
Carol Tyau-Beam, NFIP State Coordinator, Hawaii Department of Land & Natural Resources
Cynthia McKenzie, Senior Floodplanner, CFM, DHS/FEMA Region IX
Alessandro Amaglio, Environmental Officer, DHS/FEMA Region IX

2
The Project has, and will continue to coordinate with the Hawaii County Department of Public Works and Department of Planning. As identified in Section 3.19 of the Draft EIS, permits are required from these agencies and will be acquired prior to developments that require them.

United States Department of the Interior

NATIONAL PARK SERVICE
Pacific West Region
909 First Avenue, Fifth Floor
Seattle, Washington 98104-1060

IN REPLY REFER TO:
N16 (PWR-NR)

November 4, 2009

Ms. Malie Espin
PB Americas, Incorporated
1001 Bishop Street, Suite 2400
Honolulu, HI 96813

Dear Ms. Espin:

On behalf of the National Park Services' (NPS) National Natural Landmarks Program I would like to thank you for the opportunity to provide comment on the Draft Environmental Impact Statement (DEIS), Thirty Meter Telescope Project, Island of Hawaii – May 23, 2009.

The importance of the Thirty Meter Telescope Observatory project and its inherent value in the pursuit of trying to answer fundamental questions related to the nature and underpinnings of the universe is beyond reproach. However, the National Park Service is concerned about the deleterious effects its construction will have on the nationally recognized resources of Mauna Kea National Natural Landmark (NNL). The following comments specifically related to Mauna Kea NNL, including a number of concerns and suggestions for mitigation is respectfully submitted for your consideration as you move forward in the development of the final environmental impact statement for the TMT Observatory project.

1 Upon review of the Draft Environmental Impact Statement (DEIS), it was a disappointment to see that only one sentence was devoted to Mauna Kea NNL and nothing about the National Natural Landmarks Program (Mauna Kea Summit Region and Hale Pohaku, Page 3-106). As background information, the National Natural Landmarks Program was established on May 18, 1962 by former Secretary of the Interior, Stewart Udall, under the authority of the Historic Sites Act of 1935 (16 U.S.C. 461-467). A national natural landmark is a nationally significant natural area that has been designated by the Secretary of the Department of the Interior. To be nationally significant, a site must be one of the best examples of a type of biotic community or geologic feature in its biophysiographic province. Examples of this natural diversity include terrestrial and aquatic ecosystems, fossil evidence of biological evolution, as well as features, exposures and landforms that record active geologic processes, like Mauna Kea NNL. The determination that a site is one of the best examples of a particular feature in a natural region or biophysiographic province is based on the *primary criteria* of illustrative value and condition of the specific feature; *secondary criteria* include rarity, diversity, and value for science and education (Federal Register – Title 36, Chapter 1, Part 62).

TAKE PRIDE IN AMERICA

1
Information regarding the National Natural Landmark (NNL) program and the Mauna Kea NNL specifically has been included in the Final EIS, primarily in Section 3.6, which discusses geology. The discussion includes the following:
"The U.S. Department of Interior, National Park Service, National Natural Landmarks Program designated a portion of Maunakea as a National Natural Landmark (NNL) in November 1972. A NNL is a significant natural area that has been designated by the Secretary of the U.S. Department of the Interior. To be nationally significant, a site must be one of the best examples of a type of biotic community or geologic feature in its biophysiographic providence. The primary criteria for designation are that the area is of illustrative value and condition of the specific feature; secondary criteria include rarity, diversity, and value for science and education. A brief prepared by the program describes the Mauna Kea NNL as follows:..."

In the case of Mauna Kea it met this test in 1972, when it was added to the National Registry of Natural Landmarks and the criterion still holds true today. In fact, few sites possess better credentials to justify their national significance than does Mauna Kea. First and foremost, Mauna Kea is the exposed portion of the highest insular mountain in the United States, rising up approximately 30,000 feet above its submerged base at the bottom of the Pacific Ocean. Second, on its summit slopes is found Lake Waiau, the highest lake in the United States. Third, though located in the tropics, indisputable evidence of glaciations is present above the 11,000-foot level. Lastly, and possibly transcending all of these nationally significant qualities, is the fact that Mauna Kea is the most majestic expression of shield volcanism in the Hawaiian Archipelago, if not in the world. It should also be noted that Mauna Kea National Natural Landmark is owned by the State of Hawaii and its 83,900-acre boundary incorporates the Mauna Kea Science Reserve, Ice Age Natural Area Reserve, and the Mauna Kea Forest Reserve (see attached, Mauna Kea NNL boundary map).

The DEIS does a commendable job in elucidating the purpose, need, and objectives of the project as well as a description of the environmental setting and the potential impacts to the constituent biological, cultural, and physical resources of Maunakea. The analysis also provides for a number of potentially worthwhile plans and programs in particular like the *Invasive Species Prevention and Control Program* and the *Cultural and Natural Resources Training Programs* as a means for mitigating and ameliorating impacts to the nationally significant resources of Mauna Kea NNL. However, the DEIS falls short in describing a robust *Habitat Restoration Program* that if fully-developed and adequately funded could have a significant positive effect on the biodiversity of Mauna Kea.

- **Habitat Restoration Plan**

The DEIS states, "Mitigation measures being considered by TMT that go beyond what is required by the CMP and other applicable requirements include habitat restoration and dust control measures. TMT would either (a) prepare and implement a Habitat Restoration Plan to compensate for the minimal loss of mamane subalpine forest habitat displaced by the TMT Mid-Level Facility development, or (b) help fund the papilla recovery effort. These are both being considered. Because the minimal loss of habitat as a result of the TMT Mid-Level Facility is not considered significant and an offsetting restoration plan would provide minimal benefit, TMT is considering providing funding equal to such a restoration effort to the palila recovery effort instead (Mitigation Measures, Pages 3-51 and 3-52)."

2 It is the National Park Services' assertion that instead of choosing between the two alternatives, a comprehensive and holistic Habitat Restoration Plan should be funded based upon the totality of impacts to Mauna Kea National Natural Landmark. The restoration of the federally endangered palila bird and its critically and fragmented mamane habitat should be just one component of a multi-species and multi-landscape level habitat restoration plan. The Wekiu bug, a federal candidate species, and its adjoining alpine stone desert habitat which will be impacted by any of the four observatory alternatives should be included in such a plan. Likewise, the federally endangered Mauna Kea Silversword, including other rare and imperiled examples of Mauna Kea biodiversity should be included in such a habitat restoration plan. In conjunction with such a comprehensive plan, a parallel annual competitive Grants program should be funded to stimulate research and resource management projects critical to restoring Mauna Kea's biological

2

The comment about funding a comprehensive habitat restoration plan to address the totality of impacts to the Mauna Kea NNL, including those related to the palila bird and its mamane habitat, the Mauna Kea Silversword, and Wekiu bug, is acknowledged. The totality of impacts disclosed in Section 3.16 of the Draft EIS includes impacts from all past, present, and foreseeable future actions; the proposed Project is one component of the foreseeable future actions. As such, mitigation is required for the impacts associated with the Project, including its contribution to cumulative impacts, as evaluated in the Draft EIS. As discussed in the Draft EIS, neither palila bird nor Mauna Kea Silversword is present within the Project area. Also, efforts to restore the palila bird and Mauna Kea Silversword have been ongoing for many years under the direction of the U.S. Fish and Wildlife Service.

In response to comments received during the Draft EIS comment period, the Project's limited impact on Type 3 Wekiu bug habitat, and input received about the feasibility and effectiveness of any habitat restoration approach, as an alternative to the habitat restoration plan the Project will instead monitor arthropod activity in the vicinity of the portion of the Access Way that will impact the sensitive, Type 3 Wekiu bug alpine cinder cone habitat. Monitoring will be performed prior to, during, and for at least two years after construction in this area. This information has been included to Section 3.4 of the Final EIS.

Also, preliminary discussions between UH and the TMT Observatory Corporation relating to a sublease for the Project have included sublease rent as a topic. It is generally anticipated that sublease rent will commence upon the TMT Observatory's first scientific observations and continue for the term of the sublease or until observatory decommissioninig, whichever is sooner. The lease rent shall consist of an annual payment, to be deposited into the Mauna Kea lands management special fund and used for the purposes set forth in HRS § 304A-2170. This dollar amount will be adjusted annually using an appropriate inflation index (the baseline from when the inflation index will be applied will be the date of execution of the sublease.) Please see Section 3.10.3 of the Final EIS for additional information.

The Office of Mauna Kea Management (OMKM) recently prepared a Comprehensive Management Plan (CMP) for the University of Hawai'i Management Area, which includes Hale Pohaku and the Mauna Kea Science Reserve. The CMP addresses research and resource management within the areas, and the Project's funding of needed research is consistent with the CMP.

diversity. The length of such a grants program should coincide with the life span and decommissioning period of the proposed TMT Observatory.

- **Dome Mitigation Measures**

3 One of the "Unresolved Issues" of particular interest to the National Park Service and to the future integrity of Mauna Kea NNL is the selection of the level of reflectance for the TMT Observatory dome's proposed exterior finish. Based on the "Photo Simulations" presented in the DEIS the National Park Service agrees that the reflective aluminum-like finish appears to reduce the visual impact of the observatory in all conditions and vantage points in comparison to the
4 white and brown finishes. The DEIS however states, "The proposed location for the TMT observatory is the primary mitigation for the Project's potential visual impacts (3.5.4. Mitigation Measures, Page 3-72)."

5 The National Park Service recommends that if the TMT Observatory comes to fruition and either a reflective aluminum-type finish or alternatively an aluminum-type colored paint is selected as the dome's exterior finish that additional mitigation include either retro-fitting the dome's of the other 11existing observatories with the reflective aluminum-like finish or minimally an aluminum-colored paint. Based on the data presented in the DEIS (Optimum Performance of the Observatory, Page 3-63) such a comprehensive mitigation measure would lower both the emissivity and absorption levels of all of the observatories resulting in overall better performance and lower energy costs. Such a uniform appearance would significantly decrease the cumulative impact of the current 11 observatories while at the same time increasing the overall visual integrity of Mauna Kea NNL. It is the expectation of the National Park Service that the TMT Observatory Corporation would provide the necessary leadership to promulgate these mitigation measures with the owners of the other eleven observatories.

- **Interpretation and Education**

The Draft EIS states, "The TMT Observatory and the Access Way would unavoidably remove any surface geologic structures present, such as lava flow morphology and glacial features. However, such geologic features are not unique on Maunakea and are better developed at many other areas, especially on the southern summit area adjacent to the Maunakea Access Road in the MKSR Natural/Cultural Preserve Area and the Ice Age NAR (3.6.3, Potential Environmental Impacts, Page 3-81)". Pursuant to this section under Mitigation Measures, the DEIS states, "There are noteworthy examples of glacial features near the proposed Access Way, and such features are underappreciated. A possible mitigation effort could be to identify these features along the Access Way to enhance public interpretation/education efforts; this could be done in coordination with the OMKM and to assist in the realization of CMP Management Action EO-4 (3.6.4, Page 3-82)".

6 The National Park Service contends that the permanent destruction of any surface geologic structures within Mauna Kea NNL is significant and that it denigrates from its overall status as a national natural landmark. In recognition of this fact the National Park Service recommends the TMT applicant to actually implement additional interpretation and educational opportunities within the Mauna Kea Science Reserve focused on the visiting public. In fact, as an additional mitigation measure, the National Park Service recommends retrofitting the Visitor Information

3
Thank you for your input. Based on comments received during the Draft EIS comment period, the aluminum-like finish, similar to that of the Subaru Observatory, is being carried forward as the TMT Observatory dome finish. This is reflected in Section 3.5 of the Final EIS.

4
The location of the TMT Observatory is the primary mitigation measure because, if the observatory were located in the vicinity of the existing optical/infrared observatories, it would be visible from a much larger portion of the island, including more culturally significant locations in the summit region.

5
As recommended in the comment, the TMT Observatory dome will have a refective aluminum-like finish. By using this finish, TMT will provide leadership in the use of this type of finish for observatories on Maunakea. While the TMT Project cannot require retrofitting existing observatory domes, at least one observatory, the IRTF, recently made this improvement independently.

6
In response to the comment's recommendations, the mitigation measures outlined in Section 3.6.4 of the Draft EIS have been expanded to include developing exhibits with OMKM and 'Imiloa that reflect the nationally-recognized natural resources of the Mauna Kea NNL. However, it is beyond the scope of this project to expand the Visitor Information Station (VIS). Improvements to the VIS are a component of UH's master plans and management plans for the UH management areas, which include Hale Pohaku where the VIS is located.

Station with state of the art exhibits that reflect both the nationally recognized natural, cultural, and historical resources of Mauna Kea National Natural Landmark commensurate with the state of the art astronomical investigations and research being conducted there.

- **Acronyms and Abbreviations**

Though minor, in keeping with the previous items of concern, the acronym "NNL" should be added to the list of Acronyms and Abbreviations on page vii.

In summary the National Park Service appreciates the opportunity to provide comment on the Draft Environmental Impact Statement for the Thirty Meter Telescope Observatory on the Island of Hawaii. Aside from the aforementioned suggestions and additional recommendations for mitigation, the review of the DEIS has brought to our attention the incremental addition with resultant impacts of ten observatories to Mauna Kea NNL since its establishment as a national natural landmark in 1972. Realizing that additional observatories may be a consideration in the future, the National Park Service intends to review the current NNL designation and at the very least may consider removal of the 525-acre Astronomy Precinct from the current Mauna Kea National Natural Landmark designation. 7

The National Park Service hopes that you take into consideration the national significance that has been bestowed upon Mauna Kea National Natural Landmark and the notoriety and acclaim that it has brought to the State of Hawaii. If you have any questions regarding these comments, please contact Mr. Steve Gibbons, NNL Coordinator for our Pacific West Region via email (steve_gibbons@nps.gov) or at (360) 854-7203.

Sincerely,

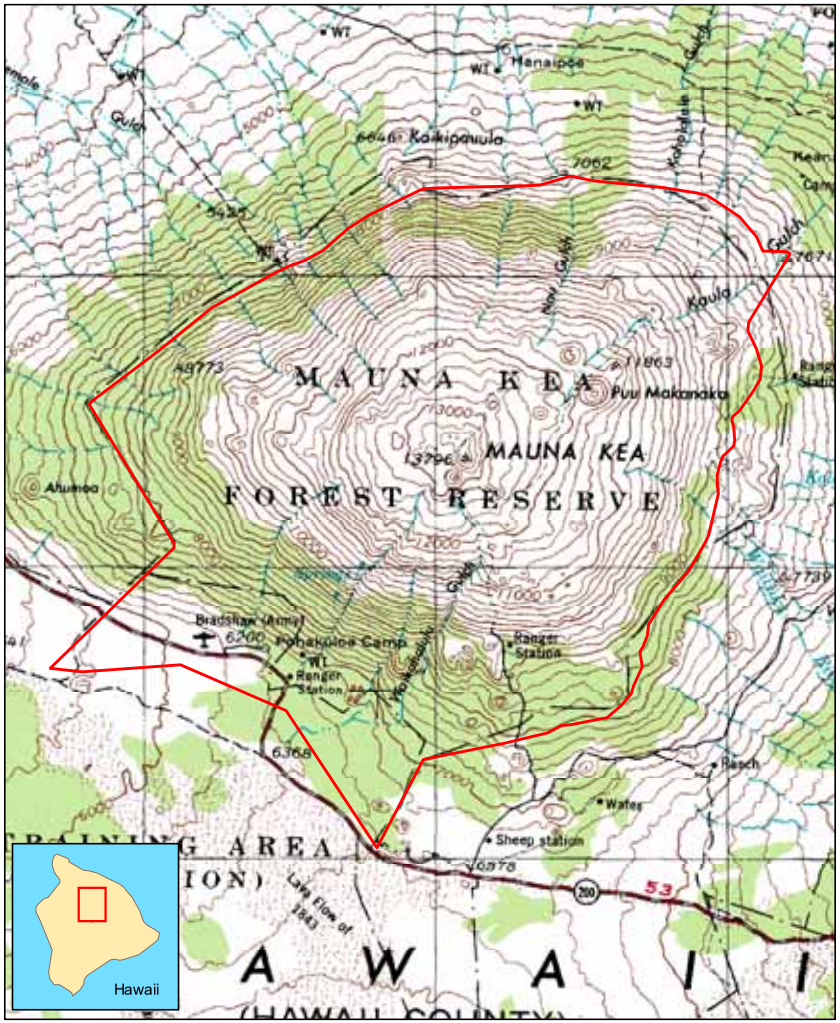
Rory D. Westberg

Rory D. Westberg
Acting Regional Director

Enclosures (1)

cc:
Margi Brooks, WASO
Ray Sauvajot, PWR
Steve Gibbons, PWR
Frank Hays, PWRH

7
The agency's statement that the National Park Service intends to review Maunakea's current NNL designation and, at the very least, may consider removing the 525-acre Astronomy Precinct from the current Mauna Kea NNL designation, is acknowledged. The comment has been forwarded to OMKM, which oversees UH's Management Areas on Maunakea.



MAUNA KEA NATIONAL NATURAL LANDMARK
Hawai'i, Hawai'i

250k Quad

0 2 4 Miles

NNL Boundary

N

Produced by the PWRO-Seattle GIS Group
Plot Date: July 15, 2009

NNL boundary from NPS.
Topo map from USGS.
Island boundary from ESRI.

I:\GIS\NNL\MaunaKea\Maps\MaunaKea.mxd
8.5x11 Portrait

OMKM
Office of Mauna Kea Management

University of Hawai'i at Hilo
640 N. A'ohoku Place, Room 203, Hilo, Hawai'i 96720
Telephone (808) 933-0734 Facsimile (808) 933-3208
Mailing Address: 200 W. Kawili Street, Hilo, Hawai'i 96720

July 6, 2009

TMT Observatory Project
Office of the Chancellor
University of Hawai'i at Hilo
200 W. Kawili Street
Hilo, Hawai'i 96720-4091

Subject: Draft Environmental Impact Statement for the Thirty Meter Telescope Observatory Project

Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement (DEIS) for the proposed Thirty Meter Telescope project. The following are comments from the Office of Mauna Kea Management with input from the Mauna Kea Management Board (MKMB) and Kahu Ku Mauna (KKM).

1. **TMT Workforce Pipeline (Section 3.9.4)**

   "TMT is committed to partner with UH Hilo, Hawai'i Community College (HawCC), and the Department of Education (DOE) to help develop, implement, and sustain a comprehensive, proactive, results-oriented Workforce Pipeline Program that would lead to a highly qualified pool of local workers who could be considered for hiring into all job classes and salary levels. Special emphasis will be given to those programs aimed at preparing local residents for science, engineering, and technical positions commanding higher wages."

   The workforce program "would be focused on long term investments to strengthen the current STEM skills infrastructure at UH Hilo, HawCC and Big Island K-12 education organizations serving lower income and first-generation college attending populations."

   Financial resources are required to develop and implement the workforce program in coordination with UHH and HawCC. Funding is necessary to support the program at UHH and HawCC that enable local students to enter into TMT's professional and technical workforce. Areas of potential employment include engineering, astronomy, computer science, machinists, business administration and accounting. It is assumed, but not clear, that this program will be initiated upon TMT obtaining all necessary permits and not at "first light." Clearly this workforce program needs to begin early in the project in order for the youth of today to become eligible for employment when TMT begins operations. Funding of this Workforce Pipeline should be separate, and in addition to, the higher education package described on page S-7. 1

   To ensure this Workforce Pipeline project is implemented, TMT, in coordination with UHH and HawCC, should establish benchmarks of progress. Benchmarks may include, but not limited to, number of courses, enrollment, number of graduates, hiring of staff and/or faculty. 2

1
The Draft EIS clearly and consistently identified the Workforce Pipeline Program (WPP) as separate and distinct from the Higher Education Package (HEP); however, the HEP is no longer considered in the Final EIS. The concepts of the HEP in the Draft EIS have become a part of the WPP in the Final EIS.
It has always been the Project's intention to start the WPP during the early construction phase so that, as the commentor suggests, local youth of today have the qualifications for employment with the Project when the operational phase begins. Additional details concerning the WPP developed since completion of the Draft EIS are provided in Section 3.9.4 of the Final EIS.

2
The Workforce Pipeline Program (WPP) will be managed as part of the Thirty Meter Telescope Project training and staffing efforts by human resources, and coordinated with the Project's outreach and education programs. TMT began the development of the WPP with a workforce roundtable, which initiated information exchanges and close coordination with current and new programs on Hawai'i Island. Among those organizations with whom TMT is currently working with are: the University of Hawaii at Hilo (UH Hilo), including UH Hilo sciene, technology, engineering and math (STEM) programs; Hawai'i Community College (HawCC); the Workforce Investment Board; other workforce programs that train, retrain, and place trainees in jobs; current observatories; the Department of Education; and charter schools.
The success of the WPP depends not only on the Project but also its partnership organizations and those that participate. Therefore, the Project cannot commit to specific benchmarks related to the WPP but, as stated in the Section 3.9.4, page 3-103, of the Draft EIS, will fill employment opportunities locally to the greatest extent possible. Additional details concerning the WPP developed since publication of the Draft EIS are provided in Section 3.9.4 of the Final EIS.

2. Cultural and Environmental Training

OMKM commends TMT for requiring all construction workers and operations personnel to undergo an annual cultural and natural resources training program. It is requested that TMT coordinate and collaborate with OMKM and 'Imiloa on the development of this program. For consistency purposes OMKM requests access to the materials for the training of volunteers, staff, researchers, vendors, and commercial tour operators, and for use in outreach programs.

3

3. Replacement of the "Keck" Dormitories and Use of the Hale Pōhaku Gravel Lot

"Keck" Dorms

TMT is proposing to replace the existing "Keck" construction dormitory facilities with a new two-story dormitory (New Dormitory) that meets current standards. The New Dormitory will be used to house construction workers and will include a kitchen, dining facility and recreation facilities. Upon completion of construction the New Dormitory will be turned over to UH and transformed into useful space for OMKM's and Mauna Kea Support Services' long-term needs.

4

The current "Keck" dormitories are used for Visitor Information Station (VIS) storage, VIS and Ranger offices and a public presentation room. The demolition of "Keck" dormitories will require relocating the offices and activities. However, no space is currently or readily available. Unless space is found elsewhere within the Hale Pohaku Mid-Level complex the New Dormitory will need to include space for offices, storage and a presentation room.

Hale Pōhaku Gravel Lot

5

The use of the gravel parking area below the "Keck" dorms for a construction staging area will impact several permitted commercial tour operators who use that area for their star gazing activities. New areas will need to be made available for their use. It is suggested that areas near the Stone Cabins be improved for group star gazing, including the installation of footpaths, pads for setting up portable telescopes, solar path lighting, and renovation of the old restroom facility.

4. Access Way to TMT Site

6
7

Of the three access routes to the TMT site Option 2 will have less of an impact on Kūkaha'ula, Wēkiu bug habitat and the SMA array. It is preferred that the road be paved rather then applying a soil stabilizer such as Durasoil. It is also suggested that the paving material be a reddish color to blend in with the surroundings.

8

OMKM does not feel that Wēkiu bug habitat restoration is feasible or necessarily the best mitigation measure. OMKM would instead prefer funding for:

1. A post-doctoral position at UHH that will provide continued Wēkiu bug research, surveys, and monitoring
2. Implementation of management actions to protect the bug
3. Fund an annual Spring survey in suitable Wēkiu bug habitat in the surrounding areas and adjacent to the access route to the TMT site. These surveys should be conducted prior to, during and post construction

3

The Project will coordinate and collaborate with OMKM and Imiloa on the development of the Cultural and Natural Resources Training Program as requested. This has been added to the overview of the program in Section 3.1.3 of the Final EIS.

4

Section 2.5.3, page 2-17, of the Draft EIS indicates that the Project is aware that VIS personnel, rangers, and volunteers currently use these facilities. This page also indicates "The design of these facilities [TMT Mid-Level Facility] would be reviewed by the OMKM design review committee to ensure their compliance with requirements."
Section 3.10.3, page 3-121, of the Draft EIS also states "a small portion of the Keck construction-phase facilities at Hale Pohaku that would be replaced are currently used for storage by VIS personnel and the Subaru cabins that would be remodeled by the Project are currently used by rangers, VIS staff, and volunteers." In Section 3.10.4 an identified mitigation measure is to "coordinate the replacement and remodeling of the Keck construction dorms and Subaru construction cabin facilities with those currently using them. Arrangements would be made, in coordination with OMKM and MKSS, to address the potential future reuse of these facilities for the needed space and uses."
The Final EIS indicates that the TMT Mid-Level Facility is a "potential" development and all, some, or none of the components outlined in the EIS could be built. In addition, Section 3.10.3 and 3.10.4 of the Final EIS have been revised to indicate allowances will be made so that those currently using the Keck and Subaru construction buildings would continue to have access to similar office, storage and presentation spaces during TMT construction either in the new facilities or elsewhere at Hale Pohaku, should TMT's Mid-Level Facility require they temporarily be relocated.

5

Section 3.10.3 of the Final EIS has been revised to read "The Project's potential uses of Hale Pohaku will be consistent with existing uses, including the use of the lower portion of Hale Pohaku for star gazing by tour groups."
Because TMT is committed to being consistent with existing uses, other uses will not be displaced by the Project and improvements of other areas will not be necessary.

6

Thank you for your input. Of the three Access Way Options discussed in the Draft EIS, Option 1 is no longer being considered due to conflicts with SMA operations. Access Way Options 2 and 3 remain under consideration, but both have been refined since completion of the Draft EIS to reduce their impacts and provide for safe SMA operations. Please see Section 2.5.2 of the Final EIS for the updated Access Way discussion.

7

In Section 3.4.4, page 3-52, of the Draft EIS it is stated that, "TMT may elect to use soil-binding stabilizers to control dust along the unpaved portion of the Access Way", and the consideration of the use of these products is presented as a possibility. It is further indicated on this page of the Draft EIS that, "This would only be implemented following the approval of OMKM."
Based on comments received on the Draft EIS, this potential mitigation measure has been eliminated from consideration. The Final EIS does not include the use of a soil-binding stabilizer as a potential mitigation measure.

9 With respect to decommissioning, TMT should include the decommissioning of the TMT Access Way in its decommissioning plan.

5. Increase in Visitors

10 If TMT is built, the number of visitors to Mauna Kea will significantly increase resulting in increased vehicular traffic, commercial tours and other group tours, and recreational activities. The increase in visitors will impact existing public facilities on UH's managed lands on Mauna Kea. As it is these facilities are inadequate to accommodate the number of visitors that currently visit the mountain. The VIS, which is the only public facility at the Hale Pohāku mid-level complex, is too small to provide adequate room for interpretive displays, a gift shop, and rest and eating areas. There is insufficient parking, limited restroom facilities, and no dedicated storage for the telescopes. Except for portable toilets there are no public facilities with restrooms, a visitor or interpretive center, phones, or ranger station on the summit. The increase in visitors could add significantly to impacts particularly on the summit access and TMT Access roads, on cultural and natural resources, and the VIS.

17 There are several measures that TMT could implement to mitigate the impact from the increase in visitors.

1. Fund the expansion or redesign of the VIS to include a larger interpretive gallery, expanded gift shop, dining area, telescope viewing area and telescope storage. It is encouraged that the design connect the VIS to the New Dormitory, which upon completion of the TMT construction, can be converted and used as an extension of the VIS. The connection of the two facilities is especially important if the New Dormitory contains a public presentation room, and VIS and Ranger officers.
2. Expand the parking lot at the VIS.
3. Support a commercial tour capacity and fee study
3. Renovate the Stone Cabins as a cultural interpretive center. The Stone Cabins located above the VIS have not been officially surveyed, documented or inventoried but they are over 50 years old and are considered historic properties, thus making them suitable as an interpretive center. Although these building do not meet current building standards they are, with modification, still functional The Stone Cabins are currently being used for storage of old equipment.
4. Explore the idea of converting the Caltech Submillimeter Observatory facilities into a public facility, including a summit interpretive center, restrooms and rest stop, and a ranger summit station.
5. Assist 'Imiloa with the development of educational, interpretive, and outreach exhibits and programs. The expansion and enhancement of 'Imiloa's programs will generate awareness and provide educational opportunities about the cultural and environmental significance of Mauna Kea as well as its relationship to astronomy. In addition, the offerings of these programs would attract people to 'Imiloa and help reduce the number of visitors to Mauna Kea.

6. Cultural Assessment

11 OMKM's review of the cultural assessment finds the assessment lacking. In particular it does not appear that TMT made enough of an effort to consult with individuals nor cite interviews

8
Section 3.4.3 of the Draft EIS discusses potential impacts to biological resources. On page 3-41 it is stated that "Although the [Access Way] Option 2 or 3 impact is evaluated to be less than significant, to comply with the CMP (Management Action FLU-6), the Project would prepare and implement a Habitat Restoration Plan to compensate for the loss of Type 3 Wekiu bug habitat...". CMP Management Action FLU-6 states "Incorporate habitat mitigation plans into project planning process."
Based on comments received during the Draft EIS public review period and the issues associated with the feasibility and effectiveness of any habitat restoration approach, the planned mitigation measure for the loss of sensitive habitat has been modified. The Project will no longer prepare or implement a Habitat Restoration Plan as outlined in the Draft EIS. As detailed in Section 3.4.3 of the Final EIS, the Project is in comliance with Management Action FLU-6 through (a) Project planning to avoid impacts, (b) monitoring of arthropod activity in the region of the Access Way's disturbance of cinder cone habitat prior to, during, and for two years following the construction of that portion of the Access Way, and (c) working with OMKM on the development and implementation of a habitat restoration study.

12 documented in earlier studies. OMKM has spent the last 4-5 years working on the Cultural Resource Management Plan (CRMP) which included focus group meetings, individual interviews, and culmination of years of research on the cultural, historic and archaeological information associated with Mauna Kea. Likewise in 1999 and 2005, Kepa Maly conducted extensive interviews and ethnographic studies on Mauna Kea. [1] In 2000, the University of Hawai'i Mauna Kea Science Reserve Master Plan (Master Plan) gathered detailed cultural information on Mauna Kea. Over the last 10 years, extensive cultural research, including oral histories and interviews, have been conducted in relationship to Mauna Kea.

13 While the Draft CIA provides a thorough summary of the cultural, historical, and archaeological information about Mauna Kea, we believe it is not only appropriate but necessary to include the previous existing cultural research, as referenced above, in the CIA. This cultural information should be included as part of the cultural information in fully weighing the cultural impact of the proposed project to Mauna Kea and specifically on the cultural resources.

The EIS and CIA are intended to be disclosure documents that provide the public and decision makers the current and complete information prior to decision making. The CIA should include in its appendix references if not the actual cultural information, including a complete set of interviews from the previous cultural consultation efforts in order to provide the most comprehensive information about the cultural resources on Mauna Kea.

7. **Cumulative Impact**.
Section 3.16.6 of the TMT DEIS states that the cumulative impact on the cultural and natural resources resulting from the construction of all telescopes to date on Mauna Kea has been substantial, adverse and significant. It follows that the impact resulting from the construction and operation of any new facility would add to the cumulative impact. While the developer of a future project cannot be held responsible for mitigating all the impacts of prior land use actions, it should provide measures to mitigate additions to the cumulative impact.

14 TMT must consider that the impacts from construction and operations are not limited to the footprint of its facility, or the access ways. Of critical importance is the impact on the cultural sanctity of Mauna Kea. The time and length of construction raises the potential for the introduction of alien and/or invasive species, which could then result in impacts to the native biological community at Hale Pohaku and the summit region. Other impacts such as the increase in visitors and TMT Access way are discussed above.

[1] Maly, Kepā. 1999. *Mauna Kea Science Reserve and Hale Pōhaku Complex Development Plan Update: Oral History and Consultation Study, and Archival Literature Research, Ahupua'a of Ka'ohe (Hāmakua District) and Humu'ula (Hilo District), Island of Hawai'i.* Kumu Pono Associates.

Maly, Kepā and Onaona Maly. 2005. *Appendix A: Mauna Kea – "Ka Piko Kaulana O Ka 'Āina" A Collection of Oral History Interviews Documenting Historical Accounts and Recollections of Mauna Kea and the Mountain Lands of Hāmākua, Hilo and South Kohala, on the Island of Hawai'i*, Kumu Pono Associates.

9
Thank you for your input. Decommissioning of the TMT Observatory is discussed in Sections 2.7.4 and Section 3.15 of the Draft EIS. Based on comments received on the Draft EIS, Section 2.7.4, and other applicable sections, of the Final EIS states: "The TMT Observatory and the extent of the Access Way exclusively used to access the TMT Observatory will be dismantled and the site restored at the end of the TMT Observatory's life."

10
As addressed in Section 3.16.4, Cultural, Archaeological, and Historic Resources subsection, page 3-178, of the Draft EIS, "The Project and other foreseeable actions may attract visitors to the summit region to see the observatories. ... However, because Maunakea will continue to be a remote destination, these increases are likely to be slight relative to the existing level of visitors and employees." The potential impact of a slight increase in the number of visitors to the summit region and Hale Pohaku is discussed in other subsections of Section 3.16.4 and generally states that through implementation of the Management Actions in the CMP and its sub plans, including the Public Access Plan, potential increase in visitors would not result in a significant negative impact. References to the Public Access Plan have been added to the Final EIS.

17
TMT's sublease will include sublease rent that will commence upon the TMT Observatory's first scientific observations and continue for the term of the sublease or until the observatory decommissioning, whichever is sooner. The lease rent will be deposited into the Mauna Kea lands management special fund and used for the purposes set forth in HRS section 304A-2170, which include efforts to implement the actions outlined in the CMP. Therefore, the sublease rent could be utilized by UH to fund those uses listed by the commentor that are consistent with or authorized by H.R.S. section 304A - 2170.

11
Since the completion of the Draft EIS, the Thirty Meter Telescope (TMT) Project has continued to work on and develop the Cultural Impact Assessment (CIA) through additional interviews with community members and review of past studies. This work is documented in Section 3.2 and Appendix D of the Final EIS.

15 Mitigation measures proposed in the TMT DEIS for construction and post construction operating activities are not proportionate with the increase to the cumulative impact. It is recommended that TMT consider the following mitigation measures that support management and outreach activities:

1. Funding to support programs in Hawaiian studies and Hawaiian language at UHH and HawCC to help preserve the Hawaiian culture.
2. Coordinate with OMKM and fund baseline studies to help fill in resource data gaps, particularly those that the TMT project will impact. Suggested research includes botanical, alien species, and arthropod surveys.
3. Fund the mapping of the biological communities within the astronomy precinct and surrounding areas
4. Coordinate with OMKM and 'Imiloa on the development of educational and outreach materials, such as brochures and interpretive programs.
5. Fund a vehicular impact study, including commercial tour operations.
6. Coordinate with 'Imiloa on the development of programs and informational materials that explores the connection between Hawaiian culture and astronomy.

7. **Summary of Mitigation Measures**

16 It is recommended that the DEIS include a table summarizing the numerous proposed mitigation measures citing the corresponding authority (e.g., applicable statutes) and identification of the appropriate enforcing agency.

When TMT first communicated their desire to initiate an EIS, Henry Yang, Chair of the TMT Board wrote: "TMT is aware of and recognizes the cultural and environmental significance of Mauna Kea to the community, particularly, to Native Hawaiians, for whose proud and unique history, culture, and traditions we have a deep respect…We are committed and devoted to connecting the sciences with the humanities with a special focus on Native Hawaiians, the host culture, through dedicated consultation and outreach." TMT's consideration of the comments and implementation of the suggested mitigation measures contained herein and those submitted by others, will affirm its commitment to this community and its desire to be a member of the Hawai'i Island Ohana.

Sincerely,

Stephanie Nagata
Interim Director

c: Office of Environmental Quality Control

12

Both the Draft EIS, in Section 3.2, and the Initial Draft Cultural Impact Assessment (CIA) referenced the work performed by Kepa Maly and documented in reports dated 1999 and 2005. The CIA and Final EIS include references to the CRMP, which became available following completion of the Draft EIS, and the extensive cultural research performed over the years and documented previous studies. The Final EIS now includes the Kepa Maly work titled Mauna Kea-Ka Piko Kaulana o ka 'Aina in Appendix F and the CIA prepared for the 2000 Master Plan as Appendix E. References to these reports and information from them have been included in both the CIA for the TMT Project, Appendix D of the Final EIS, and Section 3.2 of the Final EIS.

13

As discussed in the previous response, the volumes of past cultural information, and now the CRMP, are referenced in the CIA (Appendix D of the Final EIS) and Final EIS (Section 3.2). Information from these documents that is most relavent to the TMT Project is also discussed in the body of the CIA and Final EIS. Thus the cultural information is sufficiently disclosed in the Final EIS.

14

Potential Project impacts on the spiritual and sacred quality of Maunakea are discussed in Section 3.2.3, pages 3-21 to 3-23, of the Draft EIS. This section includes a discussion of the impact beyond the physical presence of the TMT facilities, including the visual impact, the impact of employes in the area, the accidental release of wastewater or hazardous substance, and noise and dust. A summary of these impacts has been added to the Final EIS which states: "With some variation depending on which Access Way Option is selected, the Project will disturb an area of roughly 0.6 acre of Kukahau'ula; however, only a roughly 0.2 acre portion of this area, or less than one-tenth of one percent of the 480-acre area, is currently undisturbed. The TMT Observatory will add a new visual element to the northern plateau area that will be visible to varying degrees from the shrines along the northern slopes of Maunakea, but will appear in the view directly toward the summit from only a few of the shrines on the northern plateau. The TMT Observatory and Access Way will not be visible from the summit of Kukahau'ula, Pu'u Lilinoe, or Waiau. The Project will result in a total daily average of 30 (24 in the daytime and 6 at night) employees in the Maunakea summit region and the Project will have a zero-waste discharge system such that only during transportation to or from the observatory could these materials come into contact with land in the summit region. Noise and dust, closely related to the nine daily round trips of employees and materials to and from the observatory, will be an infrequent and transient impact related to the Project."
Potential construction-phase impacts on the spiritual and sacred quality of Maunakea are discussed in Section 3.15.1 of the Draft EIS.
Section 3.15.1 of the Draft EIS also contains the Project's proposed Invasive Species Prevention and Control Program, discussed on pages 3-147 and 3-148.

15

In reponse to this comment and other comment received on the Draft EIS, TMT has refined certain mitigation measures. The TMT outreach staff will coordinate with OMKM and Imiloa on the development of programs and informational materials, including materials that explore the connection between Hawaiian culture and astronomy. Although this was not specificially stated in the Draft EIS, activities such as this and related items have always been envisioned as ongoing tasks for the outreach staff. Section 3.2.4 of the Final EIS now states that "Through its outreach office and in coordination with OMKM and 'Imiloa, [TMT will] support the development of exhibits regarding cultural, natural, and historic resources that could be used at the VIS, 'Imiloa, TMT facilities, or other appropriate locations. Exhibits will include informational materials that explore the connection between Hawaiian culture and astronomy."

The Community Benefit Package (CBP) and Workforce Pipeline Program (WPP), now detailed in Section 3.9.4 of the Final EIS, include educational components. For example, the Final EIS indicates "It is envisioned that THINK Fund [the CBP] purposes could include:

- "Scholarships and mini-grants,
- "Educational programs,
- "College awards,
- "Educational programs specific to Hawaiian culture,
- "Educational programs specific to astronomy,
- "Educational programs specific to math and science, and
- "Community outreach.

"Educational initiatives will focus on K-5, 6-8, 9-12, and college. The program could include support for students to visit 'Imiloa, TMT, and other observatories."

In addition, the TMT sublease will include sublease rent. As discussed in Section 3.10.3 of the Final EIS, that rent payment will be deposited into the Mauna Kea lands management special fund and used for the purposes set forth in HRS section 304A-2170. Those purposes include implementation of the CMP, and, therefore, some of the items listed by the commentor.

16

The broader mitigation measures to be implemented by the Thirty Meter Telescope Project are highlighted in the Executive Summary and Section 3.1.4 of the Final EIS. In addition, mitigation measures associated with various subjects are listed in Table ES-1 in the Executive Summary.

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 7, 2009

POST MARKED
7-9-09

University of Hawaii at Hilo
Office of the Chancellor
200 W. Kawili Street
Hilo, Hawaii 96720-4091

To whom it may concern:

SUBJECT: Comments of the Department of Land and Natural Resources on the Draft Environmental Impact Statement for the Thirty Meter Telescope (TMT) by the University of Hawaii at Hilo, Mauna Kea, Island of Hawaii

BACKGROUND

The University of Hawaii at Hilo is proposing to construct a Thirty-Meter Telescope (TMT) at Mauna Kea, Island of Hawaii. The project also involves the construction of a headquarters office in Hilo and a satellite office in Kamuela. Our comments are limited mostly to project elements proposed at the summit of Mauna Kea, as well as mid-level facilities (Hale Pohaku).

The subject project site is located within the Mauna Kea Science Reserve, which is leased by the State to the University of Hawaii under General Lease No. S-4191. The proposed project appears to satisfy the character of use restriction under the lease, which is for "a scientific complex, including without limitation thereof an observatory, and as a scientific reserve ..." Any sublease under the lease requires the prior written approval of the Board of Land and Natural Resources (BLNR). The Draft Environmental Impact Statement (DEIS) recognizes at page S-8 that a sublease from the University to the TMT operator will be required, and that the sublease will need the approval of the Board of Regents of the University as well as that of the BLNR.

This DEIS has been prepared to support a future application before the Department of Land and Natural Resources (DLNR) for a Conservation District Use Permit (CDUP) under Chapter 183C, Hawaii Revised Statutes (HRS). The purpose of the DEIS is to identify and assess both positive and negative environmental consequences, including cumulative and secondary impacts of the proposed action within the study area, to propose and evaluate alternatives, develop mitigation measures, and to identify any unresolved issues.

In general, the DLNR found the DEIS to be well written and informative. However, we are concerned whether the DEIS (and certainly the forthcoming Final EIS) can be considered

1 complete with various Mauna Kea Comprehensive Management subplans still pending approval by the BLNR (e.g., Cultural and Natural Resources Management Plan, Public Access Plan, and Decommissioning Plan). We presume that these subplans will be more fully addressed in the Final EIS. In the meantime, we encourage the authors of the EIS to incorporate as much information as possible regarding these evolving subplans into the current EIS process since some of these subplans will have a direct bearing on the EIS process for TMT.

In addition, the DLNR questions some of the statements in the DEIS regarding the significance or non-significance of environmental and cultural impacts that might be a result of the development of the TMT.

DRAFT ENVIRONMENTAL IMPACT STATEMENT CONTENT

The DLNR has reviewed the DEIS for the project with respect to specific content requirements pursuant to Chapter 200 of Title 11, Hawaii Administrative Rules (HAR) and Chapter 343, HRS. The DEIS for the TMT contains the following:

- Summary Sheet (Preface)
- Executive Summary
- Table of contents
- Introduction
- Project description
- Environmental setting, impact, and mitigation
- Alternatives to the project
- List of preparers
- References

The following section evaluates specific content matters individually.

PROJECT DESCRIPTION

The project description appears thorough. Astronomy development generates many positive benefits both scientifically and locally, in the form of economic stimulation and higher education. The TMT has the potential to provide significant benefits in the form of pioneering astronomy with its unprecedented seeing ability. In addition, the project has the potential to directly benefit the economy of the Big Island and the State. Finally, should the TMT choose Hawaii as its location, they would likely provide an education and community benefits package that would provide additional benefits to the Big Island.

2 We recommend that the content of these benefits packages be disclosed as early as possible to be considered in the review of the EIS. Thus, while the TMT project carries many benefits both scientifically, economically, and in the form of higher education for the Big Island and the State as a whole, there will be environmental and cultural impacts of a significant and adverse nature on the summit area of Mauna Kea.

1
Information about the CMP and its Management Actions, which have been available since January 2009, was included in the Draft EIS. Information regarding the four required sub plans, the last of which was made available in January 2010, has been included in the Final EIS as appropriate.

2
Further information regarding the Community Benefits Package (CBP) and Workforce Pipeline Program (WPP) developed since publication of the Draft EIS has been included in Section 3.9.4 of the Final EIS. This more detailed information was developed through input provided in comments received on the Draft EIS and through continued coordination with the community.

Specific Comments Related to Project Description

3 • Page 2-6, last paragraph: It states: "A small portion of this area [referring to the TMT site] has already been disturbed by the existing 4-wheel drive road and site testing equipment used in the past." It should be noted that the "site testing equipment" referred to in this paragraph was approved by the DLNR in April 2005 to assess the quality of the area for a new telescope, such as the TMT. The area of impact was very small and temporary (the site testing equipment was removed). If the authors are going to include this statement in the DEIS, it should include a calculation of the area previously disturbed (in order to compare it with the proposed footprint of TMT site), to provide some means of comparison.

4 • The DEIS could have included more photographs of the proposed project area. We suggest that the Final EIS include a high resolution aerial or satellite image similar in scale to Figure 2-4 (Proposed TMT Observatory and Access Way).

5 • Page 3-1, 2nd paragraph: The authors note that in regards to the co-existence of astronomy development and native Hawaiian values that: "The BLNR shares the belief that these diverse interest can be accommodated." Please provide a specific citation for this comment, or delete it.

Thank you for acknowledging that there are a broad range of opinions regarding the effects of modern astronomy development at Mauna Kea.

PROJECT IMPACTS

Cultural Resources

The DEIS proposes that cultural impacts can be mitigated by training TMT employees to respect, honor, and not restrict or interfere with cultural or religious practices. It is presumed that this mitigation measure would be implemented through several measures identified in the Mauna Kea Comprehensive Management Plan (CMP) that was approved by the BLNR on April 9, 2009. Similar measures (permit conditions) were originally identified for the Keck Outrigger Telescope project and include efforts such as providing cultural training to construction managers, contractors, supervisors, all construction workers, and all persons involved in operation and maintenance activities including, but not limited to, scientist and support staff.

The University of Hawaii, Office of Mauna Kea Management (OMKM) is currently in the process of developing a Cultural Resources Management Plan (CRMP), which is a requirement of the BLNR prior to the submission of a Conservation District Use Application (CDUA) for the TMT project. Since the content and recommendations of the CRMP might include additional details in regards to cultural training and mitigation, it would undoubtedly affect TMT
6 construction, operation, and decommissioning. It would be appropriate to reference the CRMP in the Final EIS and to incorporate their Plan's guidelines or criteria in the TMT project.

3
The cited quote, on page 2-14 of the Draft EIS, provides information that the area was originally disturbed for site testing in the 1960s. The clarification provided in the comment has been included in the Final EIS, which states: "A 0.5-acre portion of this area has previously been disturbed by the existing 4-wheel drive road and site testing equipment; the original disturbance occurred during site testing in the 1960s, site testing was also performed in this area for the TMT Project in the 2000s."
The past disturbance was discussed in greater detail in Section 3.4.3 of the Draft EIS where it says "Roughly 0.5 acre of the 5.2-acre TMT Observatory site has previously been disturbed by roads and site testing."

4
Additional photographs, including satellite images have been included in the Final EIS, specifically as backgrounds for site location maps in Chapter 2.

5
The indicated statement has been deleted. That statement was based on the DLNR approval of past permits and plans, including the CMP, that could indicate a belief that astronomy and Hawaiian culture can coexist.

6
Information about the CMP and its Management Actions, which have been available since January 2009, was included in the Draft EIS. Information regarding the four required sub plans, the last of which was made available in January 2010, has been included in the Final EIS as appropriate.

7 One of the conditions of the CMP is the presence of site monitors during construction activities to ensure protection of cultural resources. This information should be included in Section 3.2.4 of the EIS since it would be a mitigation measure to protect cultural resources.

8 Under Section 3.2.5 "Level of Impact after Mitigation" for cultural resources, it concludes that cultural impacts would be incrementally reduced with the imposition of mitigation measures (e.g., training, ride sharing, signage) for those that hold that cultural practices and astronomy can co-exist. This statement provides the reader with little information or comfort. If you choose to use the term "incrementally reduced," please explain its meaning. For example, what is the quantity or value of the increments?

9 The summit of Mauna Kea has been characterized in literature as a sacred landscape in native Hawaiian culture. It appears likely that the construction of this very large observatory will have a significant and adverse impact on this important cultural landscape. Mitigation measures, including, education, training, ride sharing, and community benefits, may reduce such impacts, but the effect will remain significant, albeit difficult to measure (since the impact is already significant and adverse). It is our view that the effect of astronomy development on cultural resources and on the landscape of Mauna Kea has been significant and adverse. While a project such as TMT can bring new resources into play that may mitigate certain cultural impacts and even benefit native Hawaiians, we believe that the project will increase the level of impact on cultural resources, which remains to be significant and adverse. The EIS needs to be an objective analytical assessment of project impacts in this regard.

It should also be noted that an EIS should be and "shall not be merely a self-serving recitation of benefits and rationalization of the proposed action." (Chapter 200-11, HAR)

Biological Resources

10 If a project is initiated, we strongly recommend Option 1. Option 1 imposes the least damage to Weiku bug habitat. While the total length of new road to be constructed (600 feet) is greater than in Option 2 (275 feet), the proposed area is comprised of lower quality habitat types (4-6), which are used less frequently by Weiku bugs. Option 2 is considerably less desirable, as the area proposed for construction contains Type 3 habitat, where Weiku bugs have been found in abundance during surveys in recent years. Option 3 is the least desirable route, as it requires the greatest habitat disturbance (780-foot length widening, and 8-foot retaining wall) in Type 3 Weiku bug habitat.

Other comments include:

11 - Page 3-51, 1st bullet. Recommend individuals brush down clothes and shoes inside a contained indoor area. Debris should be collected and disposed to prevent contamination in natural areas.

12 - Page 3-51, 2nd bullet: "Regular" [inspections and washing of vehicles] is not defined. Strongly recommend:

7
The information is included in Draft EIS in Section 3.2.4, page 3-25, indicating that "Proposed mitigation measures related to construction are discussed in Section 3.15 and include actions such as cultural and archaeological monitoring." Further details about these construction-phase measures are provided in Section 3.15 of the Draft EIS.

8
Section 3.2.5 of the Final EIS has been expanded to clarify the Project's level of impact on cultural practices and beliefs after mitigation. Section 3.2.5. now reads,
"As stated above, there are diverse opinions concerning the Project's potential impact on cultural practices and beliefs.
For those of the opinion that any use, development, or disturbance of Maunakea by someone other than a Native Hawaiian is significant and unmitigatible, the Project's impact to the cultural, spiritual, and sacred quality of the summit region will be significant.
For those who believe nature and Native Hawaiian cultural practices can co-exist with astronomy, through compliance with all applicable governmental laws, codes, ordinances, rules, regulations, requirements and procedures; conformance with UH Management Area planning and management documents and policies (including the 1983 and 2000 Master Plans and the CMP, including all its associated sub plans); and implementation of the identified mitigation measures and management procedures, the Project's potential adverse impacts will be incrementally reduced and be less than significant.The Project is not anticipated to result in any substantial or significant adverse effect on the cultural practices of the community or State. The Project's impact on cultural practices and beliefs after considering compliance and the identified mitigation measures will be less than significant pursuant to the significance threshold stated in Section 3.2.2, which is based on the HRS Chapter 343 significance criteria."

9
The following has been added to Section 3.2.3 of the Final EIS:
"These Project impacts will occur within the context of the current conditions in the summit region. That context includes (1) the presence of eight optical/infrared observatories, a portion of the SMA observatory area, and access roads within Kukahau'ula, (2) many of the astronomy facilities being visible from culturally significant locations in the summit region, and (3) the presence of observatory employees and visitors in the summit region and their associated impacts. As detailed in Section 3.16.2, the past actions on Maunakea have resulted in substantial, significant, and adverse impacts to cultural resources."
The "Maunakea Summit Region and Hale Pohaku Summary" subsection of 3.16.4 of the Final EIS now reads:
"The addition of the Project and other foreseeable actions to the existing environment would have a limited incremental impact; however, the level of cumulative impact on cultural, archaeological, and historic resources would continue to be substantial, significant, and adverse." The "Maunakea Summit Region and Hale Pohaku" discussion in Section 3.16.4 provides the rationale for the "limited incremental impact" conclusion reached.

10
Thank you for your input. Of the three Access Way Options discussed in the Draft EIS, Option 1 is no longer being considered due to conflicts with SMA operations. Access Way Options 2 and 3 remain under consideration, but both have been refined since completion of the Draft EIS to reduce their impacts and provide for safe SMA operations. Please see Section 2.5.2 of the Final EIS for the updated Access Way discussion.

11
TMT generally agrees with this recommendation; however, plan details such as these will be developed for the CDUP application. The details of where brushing down will occur could depend on the starting point of the traveler, among other consideration.

12
TMT generally agrees with these recommendations; however, plan details such as these will be developed for the CDUP application.

- All vehicles and machinery staged at low elevation locations (ex. Waimea/Hilo) be sprayed with a high pressure sprayer prior to being moved to high elevation construction or staging areas
- Weekly vehicle inspections for evidence of insects/weeds (also in surrounding parking areas)
- Weekly washing of vehicles with a high-pressure sprayer, when vehicles are moving between Hale Pohaku staging area and construction site.

13
- Page 3-51, 3rd bullet: "Regular monitoring" is not defined. Strongly recommend:
  - Baseline monitoring of construction area, staging areas, and access way for ant populations, and invasive weeds prior to project initiation
  - Monthly monitoring of construction area, staging areas, and access way for ant or weed species
  - An eradication protocol must be developed and in place (along with appropriate supporting supplies/trained personnel) if/when establishment of new invasive species is detected
  - The above tasks should not be completed by untrained personnel. Recommend that a biological technician or biologist be hired by the TMT project to complete surveys. And/or funding be provided to DLNR or an appropriate agency.

14
- Page 3-51, 4th bullet: "Inspection by biologist..." Again, recommend that a biological technician or biologist be funded by the TMT project to conduct surveys.

15
- Page 3-51, 7th bullet: "Restoration plan would comply with CMP Management Action FLU-6". CMP FLU-6 only states that "habitat mitigation" be completed, and does not describe the means. Please provide a clear outline of intended mitigation protocols in EIS. Detailed plan for Weiku bug habitat mitigation, based on best scientific and management practices must be developed and presented. Recommend consulting with the OMKM Weiku bug Scientific Committee.

16
- Page 3-139, 3rd paragraph: "There is a possibility the project would employ a soil-binding stabilizer, such as Durasoil" – Strongly recommend that this product not be used anywhere on Mauna Kea. If necessary, water is the only substance, which should be used o reduce dust. The only data available on the environmental impacts of Durasoil are from the product manufacturer, and are NOT published research. And despite this limited research, data are available for two invertebrates (aquatic crustacean species), one species which succumbed to high mortality as a result of the application of this product. The product is non-toxic, but is a viscous substance, which is sprayed all over the ground, and can physically trap crawling invertebrates. When sampled in live traps, Weiku bugs are frequently found stuck in the shrimp paste bait. Durasoil would likely prove to be a great source of mortality for Weiku bugs and potentially other native invertebrates on Mauna Kea.

13
TMT generally agrees with these recommendations and the specific monitoring components will be part of a detailed management plan developed for the CDUP application.

14
During Project construction, as discussed in Section 3.15 of the Draft EIS, monitoring will be carried out by a trained biologist. The CMP Management Action C-5 requires "on-site monitors (e.g., archaeologists, cultural resources specialists, entomologists) during construction, as determined by the appropriate agency." CMP Management Action C-5 requires "Inspection of construction materials." The CMP requires that these monitors and inspectors be "selected by OMKM and approved by the appropriate agency" and be funded by the Project.
During operation of the TMT Observatory, major shipments will be monitored in the same manner.

15
Section 3.4.3 of the Draft EIS discusses potential impacts to biological resources. On page 3-41 it is stated that "Although the [Access Way] Option 2 or 3 impact is evaluated to be less than significant, to comply with the CMP (Management Action FLU-6), the Project would prepare and implement a Habitat Restoration Plan to compensate for the loss of Type 3 Wekiu bug habitat...". CMP Management Action FLU-6 states "Incorporate habitat mitigation plans into project planning process."
Based on comments received during the Draft EIS public review period and the issues associated with the feasibility and effectiveness of any habitat restoration approach, the planned mitigation measure for the loss of sensitive habitat has been modified. The Project will no longer prepare or implement a Habitat Restoration Plan as outlined in the Draft EIS. As detailed in Section 3.4.3 of the Final EIS, the Project is in comliance with Management Action FLU-6 through (a) Project planning to avoid impacts, (b) monitoring of arthropod activity in the region of the Access Way's disturbance of cinder cone habitat prior to, during, and for two years following the construction of that portion of the Access Way, and (c) working with OMKM on the development and implementation of a habitat restoration study.

16
In Section 3.4.4, page 3-52, of the Draft EIS it is stated that, "TMT may elect to use soil-binding stabilizers to control dust along the unpaved portion of the Access Way", and the consideration of the use of these products is presented as a possibility. It is further indicated on this page of the Draft EIS that, "This would only be implemented following the approval of OMKM."
Based on comments received on the Draft EIS, this potential mitigation measure has been eliminated from consideration. The Final EIS does not include the use of a soil-binding stabilizer as a potential mitigation measure.

General Comments Regarding Weiku bug

17 Invasive species are the single greatest threat to the conservation of the Weiku bug and its limited habitat. As such, the period of time where the greatest amount of construction traffic (up and down the mountain) is necessary should be scheduled for winter months (November thru March). During this time, invasive species that may accidentally be introduced to the mountain will have a much lower likelihood of establishing, and adversely impacting Weiku bug habitat.

18 Conversely, if any habitat mitigation is to be completed, it should be completed in the early summer, when Weiku bug numbers are high, and overlapping generations are present. Actions during this time may result in high-localized mortality, but will represent a lesser impact to the general population of bugs [vs. winter/early spring when only a single generation is represented in the population].

Additional Comments Regarding Biological Resources

19
- The "Batch Plant Staging Area" is proposed to be used for heavy equipment and materials staging. This area is adjacent to the Mauna Kea Ice Age Natural Area Reserve (MKIA NAR). The TMT project must survey and clearly define the boundary between the NAR and the Batch Plant before commencement of use of this area so there are no encroachments during construction.

20
- The summit area of Mauna Kea is designated a National Natural Landmark (NNL), a program administered by the U.S. Department of the Interior (DOI). A NNL is a nationally significant natural area that has been designated by the Secretary of the Interior. To be nationally significant, a site must be one of the best examples of a type of biotic community or geologic feature in its natural region. Examples of this natural diversity include terrestrial and aquatic ecosystems, features, exposures, and landforms that record active geologic processes as well as fossil evidence of biological evolution. The objectives of the NNL Program are fourfold: to encourage the preservation of sites illustrating the geological and ecological character of the United States; to enhance the scientific and educational value of the sites thus preserved; to strengthen public appreciation of natural history; to foster a greater concern for the conservation of the nation's natural heritage. Has the DOI been consulted on the proposed TMT project? We advise that the TMT consult directly with the DOI's NNL program and determine if this project will impact this designation.

21
- Section 3.4.3 states that the biological resources section complies with the requirements of the CMP. The OMKM is currently in the process of developing a Natural Resources Management Plan (NRMP), which is a requirement of the BLNR prior to the submission of a CDUA for the TMT project. Since the content and recommendations of the NRMP might include additional details in regard to the biological resources, it would undoubtedly affect the TMT project. It would be appropriate to reference the NRMP in the Final EIS and to incorporate that Plan's guidelines or criteria in the TMT project.

17
The information about the overall Thirty Meter Telescope Project schedule was presented in Table 2-1 on page 2-22 of the Draft EIS. Section 2.7.2, page 2-23, of the Draft EIS discusses the construction period where it is noted that, "It is also anticipated that winter weather conditions at the TMT Observatory site would interrupt construction at times, until the dome is completed."
Section 3.4.3 of the Final EIS discusses the Project's potential for habitat displacement in relation to the refined Access Way Options 2 and 3 that remain under consideration for the Project. The potential area of Project disturbance that is Wekiu bug habitat Type 3 varies depending on the Access Way Option, from about 0.06 acre for Option 3B to approximately 0.23 acre for Access Way Option 2A.
Since the area of Type 3 Wekiu bug habitat that will be disturbed is limited to 0.23 acre at most, the period of construction in that small area will be limited in duration. Overall, extending the period of construction would extend the duration of other construction-related impacts, which would result in prolonging potential adverse environmental effects.
Therefore, the construction schedule will not be limited relative to Wekiu bug prevalence or the likelihood of invasive species establishment.

18
Section 3.4.3 of the Draft EIS discusses potential impacts to biological resources. On page 3-41 it is stated that "Although the [Access Way] Option 2 or 3 impact is evaluated to be less than significant, to comply with the CMP (Management Action FLU-6), the Project would prepare and implement a Habitat Restoration Plan to compensate for the loss of Type 3 Wekiu bug habitat...". CMP Management Action FLU-6 states "Incorporate habitat mitigation plans into project planning process."
Based on comments received during the Draft EIS public review period and the issues associated with the feasibility and effectiveness of any habitat restoration approach, the planned mitigation measure for the loss of sensitive habitat has been modified. The Project will no longer prepare or implement a Habitat Restoration Plan as outlined in the Draft EIS. As detailed in Section 3.4.3 of the Final EIS, the Project is in comliance with Management Action FLU-6 through (a) Project planning to avoid impacts, (b) monitoring of arthropod activity in the region of the Access Way's disturbance of cinder cone habitat prior to, during, and for two years following the construction of that portion of the Access Way, and (c) working with OMKM on the development and implementation of a habitat restoration study.

19
This requirement has been added to Section 3.15.2 of the Final EIS.

20
Information regarding the National Natural Landmark designation of Maunakea have been added to Section 3.6 of the Final EIS. The Project has coordinated with the Department of Interior regarding the NNL program since the publication of the Draft EIS. On November 4, 2009, comments from the Department of Interior National Park Service were received. Those comments and responses to the comments are included in Section 8 of the Final EIS.

21
Information about the CMP and its Management Actions, which have been available since January 2009, was included in the Draft EIS. Information regarding the four required sub plans, the last of which was made available in January 2010, has been included in the Final EIS as appropriate.

22 • Page 3-50 states that an Invasive Species Prevention and Control Program would be in place during construction. This program should be developed well before the construction phase, and written into all contracts and sub-contracts. Additionally, please identify the party responsible for monitoring along the roadways.

23 • The OMKM is currently in the process of developing a Public Access Plan (PAC), which is a requirement of the BLNR prior to the submission of a CDUA for the TMT project. Since the content and recommendations of the PAC might include additional details in regard to access, it would undoubtedly affect the TMT project. It would be appropriate to reference the PAC in the Final EIS and to incorporate that Plan's guidelines or criteria in the TMT project.

24 • It is stated that HELCO will draw lines up through conduit 50 feet to the West of the Access Road. We do not have a map of the HELCO easement or the conduit map. We request more information, including these maps, to ensure that the activity does not occur in the Mauna Kea Ice Age Natural Area Reserve. If so, the party conducting the electrical line work will need a Natural Area Reserves Special Use Permit.

25 • Regarding the proposed developments at Hale Pohaku, TMT has the potential to be displacing other entities that may need this area, such as decommissioning crews, other construction crews, and ranger offices, etc. There should be better planning of the needs of the Hale Pohaku Area before TMT proceeds with its proposed building development so the maximum number of stakeholders is accommodated, including the general public.

26 • Page 3-169 states that there have been deer impacting the mamane forest on Mauna Kea. There are no wild deer on Hawaii Island.

Archaeological Resources

Our State Historic Preservation Division is finalizing comments on archaeological resources and will submit them separately at a later date.

Visual and Aesthetic Resources

27 The photographic simulations provided in the DEIS are very good; however, the DLNR would like to see more photographic simulations from perspectives within the summit area. We recommend visual renderings from the perspective of places such as Keck and Subaru observatories, Sub-millimeter Valley, the base and summit areas of Puu Poliahu, and other areas of the summit from which the TMT facility would impinge upon a scenic view.

The DEIS concludes that the visual impact if the TMT facility would be less than significant. It appears that the DEIS bases this conclusion on the fact that the location of the observatory on Mauna Kea would not substantially affect scenic vistas and viewplanes identified in county or state plans, which is one of the Chapter 343, HRS significance criteria triggers.

22
The Invasive Species Prevention and Control Program will be developed in detail during the CDUP process, prior to construction, and then program components will be incorporated into design documents and specifications. The program will also be included in contact documents.
The OMKM- and DLNR-approved biological inspector will oversee monitoring of the roadway during construction.

23
Only a limited number of Project personnel will be accessing the summit region regularly and, as the Draft EIS states, the Project will comply with the CMP Management Actions. Since the publication of the Draft EIS, the Public Access Plan (PAP) has been completed; the Final EIS has incorporated and referenced information from the PAP as appropriate.

24
A map illustrating the location of the electrical conduit has been included in Section 2.5.3 of the Final EIS. As shown on the map the electrical conduit is partially located within the Ice Age NAR. Section 3.19.1 of the Final EIS has been revised to reflect that HELCO will obtain a NAR Special Use Permit prior to upgrading the electrical conductors in the existing conduit.

25
UH has developed plans for Hale Pohaku over the years that address various stakeholders needs. TMT has also continued coordinating with the many Hale Pohaku stakeholders through regular meetings with the OMKM, its Board, and advisors. The TMT's Mid Level Facility will utilize a limited portion of Hale Pohaku as outlined in Section 2.5.3 of the Draft EIS. The OMKM meetings are open to the public and public stakeholders can provide input on the plans for and use of Hale Pohaku at those meetings as well as the Project's Draft EIS process.
Since the completion of the Draft EIS, TMT has re-evaluated its activities at the Mid-Level Facility and now considers its activities at Hale Pohaku as potential activities. The EIS has been revised to indicate that "The Project's potential uses of Hale Pohaku will be consistent with existing uses, including the use of the lower portion of Hale Pohaku for star gazing by tour groups."

26
With the information provided, the reference to deer in Section 3.16.2 has been deleted.

27
Potential visual impacts are discussed in Section 3.5.3, pages 3-59 through 3-74, of the Draft EIS. The visual analysis in this section indicates, and Figure 3-7 on page 3-61 in particular illustrates that the TMT Observatory would not be visible from the summit of Maunakea (Viewpoint 16; the summit of Kukahauula/Puu Wekiu). The Draft EIS includes a number of photo simulations from populated areas around the island from which the TMT Observatory would be visible.
In response to comments on the Draft EIS, an additional photo simulation of the TMT Observatory has been included in the Final EIS. The new simulation illustrates the view of a person standing near the Keck Observatory and looking toward the TMT Observatory 13N site. In addition to the simulation, the following information has been included in Section 3.5.3 of the Final EIS, "...the TMT Observatory will add a substantial new visual element in the landscape that will be visible from viewpoints along the northern ridge of Kukahauula and by people as they travel within the northern portion of the summit region."

28 In general, DLNR feels that the visual impacts have been downplayed in the analysis. The authors choose a technically narrow perspective on the visual impacts of the project by looking only at census data and household location in relation to the proposed TMT site. The analysis does not seem to account for the visual impact of the project on individuals that move within and between impacted viewplanes, impact on visitors, and more importantly, the impact of viewing a new very large observatory from the perspective within the summit area.

Land Use Plans Policies and Controls

29 • Page 3-109,1st paragraph: Please include the date when the CMP was approved by the BLNR (April 9, 2009).

30 • Page 3-109, 3rd paragraph: "The OMKM shall oversee compliance with CDUP conditions and lease requirements." It should be noted that although this language was included in the approved CMP, the BLNR included a special condition seven (7) of their April 9, 2009 approval as follows: "That the BOR recognizes that by approving the CMP, the BLNR has not delegated any authority (not already in existence) to the University with respect to land use approvals, leasing, or public access at Mauna Kea." We would like to clarify that OMKM has no expressed authority to oversee compliance with the CDUPs and/or leases, which remains under the authority of the DLNR, through Chapters 183C and 171, HRS.

31 • On page 3-116, last paragraph. The DEIS indicates that the project would be an allowable use within the resource subzone of the Conservation District. We would like to clarify that under our administrative rules (Title 13-5, HAR) the proposed use is an "identified use" not an allowable use. It would only be allowed if approved by the BLNR.

Water Resources

32 The applicant should provide the water demands and calculations to the DLNR Engineering Division so it can be included in the State Water Projects Plan update.

Cumulative Impacts

33 The section of the DEIS under Cumulative Impacts indicates that the current level of cumulative impact on cultural, archaeological, and historical resources is considered substantial and adverse. However, this language does not comport with language used in other sections (e.g., use of the word substantial vs. significant). Please clarify whether the term was meant to be "significant,"
34 and if not, provide a definition for the term "substantial" as referenced here. Furthermore, the DEIS states that the TMT will result in a small incremental increase in the cumulative impact to cultural resources. We do not necessarily agree that the impact of the project can be characterized as a "small incremental" increase. The TMT will result in a 50 percent increase in astronomy related personnel in the summit area, will consume over 6 acres in its construction,

28
In response to comments received on the Draft EIS, a visualization of the TMT Observatory from a viewpoint near the Keck Observatory, looking toward Haleakala has been included in the Final EIS in Section 3.5.3. Also, the Final EIS discusses that in addition to being visible to residents within the TMT viewshed, the TMT Observatory will be visible to other island residents and visitors when they travel within the TMT viewshed, including travel along roads and stops at viewpoints. The Project's visual impact is perceived by some to be significant; however, in the context of the existing observatories and the fact that the TMT Observatory will not block or substantially obstruct the identified views and viewplanes of the mountain, its impact is considered less than significant per HAR 11-200-12 significance criteria.

29
The information that the CMP was approved by the BLNR on April 9, 2009, has been included in the Final EIS.

30
The information provided about a special condition seven (7) and DLNR authority has been incorporated into Section 3.10 of the Final EIS, as appropriate.

31
The correction has been made from "allowable" to "identified" in Section 3.10.3 of the Final EIS.

32
This information will provided to the DLNR Engineering Division, as requested, upon the Project obtaining a Conservation District Use Permit (CDUP).

33
Substantial and adverse impact is a significant impact. To clarify, the word "significant" has been added in Section 3.16 of the Final EIS as appropriate.

34
Section 3.16.4 of the Draft EIS discusses the Project's contribution to cumulative impacts. On page 3-179 of that section it is stated that "The addition of the Project and other foreseeable actions to the existing environment would have a small incremental impact; however, the level of cumulative impact on cultural, archaeological, and historic resources would continue to be substantial and adverse." The following addresses some of the issues brought up in the comment:

•Based on updated Project information, an estimated minimum of 15, an average of 24, and a maximum of 43 TMT staff members will work at the TMT Observatory during the day and 6 employees will work at the observatory at night, for a total daily average of 30 TMT Observatory employees in the summit area. Therefore, the Project will increase the presence of astronomy related personnel in the summit area from roughly 100 per day to 130 per day; a 30 percent increase, rather than 50 percent, over existing conditions.
•Based on updated Project information, the footprint of the TMT Observatory dome, support building, parking area, and area disturbed during construction will be roughly five acres, 0.5 acre of which has been previously disturbed by the existing 4-wheel drive road and site testing equipment.
•While approximately 40,000 cubic yards of lava material will be moved, the Project will not significantly change the contours or reshape the geography of the mountain the way some of the existing observatories, which were built on cinder cones, have done.

However, to clarify, Section 3.16 has been revised to indicate the Project would add a "limited increment" to the level of cumulative impact. The increment is limited by the Project's mitigation measures outlined throughout the Draft and Final EIS, including those listed on page 3-177 of the Draft EIS.

and will result in the movement of almost 100,000 cubic yards of lava material. This project clearly represents more than a "small incremental" increase in environmental and cultural impacts. The EIS would be more informative if it used a more quantifiable process to measure the increased impact, compared to the existing conditions, such as comparing the footprints of all the observatories to the footprint of TMT.

In conclusion, DLNR is concerned about the presentation of information and recommends acknowledging and addressing the impacts of the largest telescope in the world to be constructed on Mauna Kea. The DLNR believes that the level of disclosure and evaluation is reasonable, but could be improved in order to enable DLNR to provide adequate information for decision makers to evaluate the impacts of the proposed action.

If you have any questions or need further information, please don't hesitate to contact me at (808) 587-0401.

Sincerely,

for Laura H. Thielen, Chairperson

C: DOFAW
HPD
Engineering
Land Division

MAUNAKEA 4

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

July 31, 2009

Dr. Hallett H. Hammatt
Cultural Surveys Hawai'i, Inc.
P.O. Box 1114
Kailua, Hawaii 96734

LOG NO: 2009.2487
DOC NO: 0907TD32
Archaeology

Dear Dr. Hammatt:

Subject: **Chapter 6E-8 Historic Preservation Review -**
Draft Archaeological Assessment of a 6-Acre Area For Ancillary Facilities in Support of the Thirty Meter Telescope Observatory Project, Maunakea
Ka`ohe Ahupua'a, Hāmākua District, Island of Hawai'i
TMK: (3) 4-4-15: 01 por. & 12 por.

Thank you for submitting the subject draft report entitled *Archaeological Study and Assessment for the Thirty-Meter-Telescope (TMT) Observatory Project Ancillary Facilities, Hale Pōhaku Area, Maunakea, Ka`ohe, Ahupua`a, Hāmākua District, Hawai`i Island TMK [3] 4-4-15: 001 por., 012 por.* (H.H. Hammatt, May 2009). We apologize for the delay in responding to this submittal, which was received in Kapolei June 3, 2009. The 6-acre project area consists of two disconnected parcels, the largest of which is located at the southern end of the Hale Pōhaku housing complex. A smaller parcel encompasses the HELCO substation area, located to the west of the Hale Pōhaku parcel.

The report contains background information on the historic context and previous archaeology in the vicinity of the project area, in addition to documentation of the current condition of two project parcels. It appears that some of the previous work conducted in the vicinity of the HELCO substation was not consulted during preparation of this report (see attachment).

No historic properties were identified within what appears to be the APE for this project. However, we have some concerns regarding the conclusions and recommendations regarding the HELCO substation area, and request additional information prior to concurring with the mitigation recommendations contained in the report. Please see the attachment.

Please contact Theresa Donham at (808) 933-7653 if you have any questions or wish to further discuss the conclusion of this letter.

Aloha,

Nancy A. McMahon

Nancy McMahon, Deputy SHPO/State Archaeologist
and Historic Preservation Manager
Historic Preservation Division

ATTACHMENT

Request for revisions/additions: *Archaeological Study and Assessment for the Thirty-Meter-Telescope (TMT) Observatory Project Ancillary Facilities, Hale Pōhaku Area, Maunakea, Ka`ohe, Ahupua`a, Hāmākua District, Hawai`i Island TMK [3] 4-4-15: 001 por., 012 por.* (H.H. Hammatt, May 2009)

Project area and surveyed areas:

1. The management summary indicates that the APE and the areas surveyed are the same. However, various maps (Figures 12-14) indicate that your surveyed area extended well outside what is indentified as "project areas". Consequently, the relationship between the "project area" as it is defined and the area that you surveyed is very difficult to establish.
2. You indicate an overall acreage for both project areas combined. Please clarify whether this was the APE or the surveyed area (it cannot be both) and provide the acreage of the individual areas that were surveyed.
3. You state on page 1 that the western area comprised of the existing HELCO substation. Other evidence in the report indicates that you examined a relatively larger area than this substation. Please show the perimeter of the surveyed area on Figure 1 and elsewhere and provide information on the size of the area and how far from the existing fence your transects extended.
4. Please ensure that the project area maps are consistent. For example, Figure 12 shows three disconnected surveyed areas, and a circular area at the HELCO station also identified as a project area (this is not shown on other maps). Also, the size of the area near Hale Pōhaku is different on various maps.
5. The DEIS for this project indicates that the HELCO substation will be expanded. If that is the case, then one would expect the APE at this location to extend beyond the existing substation. This is not indicated in the text or on maps.

6 **4.0 Results – 4.1.4 CSH 6:** this find consists of a "small quantity" of lithic material that was observed along the edge of a jeep road. You indicate that this may be a possible remnant of a previously identified site (8) reported by McCoy; however you conclude that the items have been picked up and placed on the side of the road cut. The photograph of these items shows what appears to be a soil pedestal beneath some of the stones, which would indicate a deflation process whereby the items are being exposed through erosion. We are not comfortable with your explanation that these items were moved to this location by human agency. Dr. McCoy has indicated that there is a known site that is being impacted by erosion along the edge of this jeep road. Please check the prior reports from this area and confer with Dr. McCoy regarding this artifact scatter. At this time it would appear that it is very likely a part of the previously identified site, and if it has not been assigned an SIHP site number, we request that you submit site number request forms as part of this report revision.

7 **5.1 & 5.2 Project Effect and Mitigation Recommendations:** We understand that CSH 6 may not be within the APE for this project; however there is a general uncertainty as to what areas will actually be affected by the HELCO expansion. We request that you provide more specific information regarding what areas within or near the HELCO substation will be affected by the project. If that information is not currently available, please provide recommendations regarding the protection of this site. The site is eroding from the bank of an existing road – will this road be used for access during construction and/or after completion of construction? If so, there should be a consideration of the ongoing or potentially increased erosion along the road, and proposed measures as to how the erosion can be curtailed.

1
All the responses to this submission from the State Historic Preservation Division (SHPD) are related to changes made to the Archaeological Study and Assessment for the Thirty-Meter-Telescope (TMT) Observatory Project Ancillary Facilities, Hale Pohaku Area, Maunakea, Kaohe, Ahupuaa, Hamakua District, Hawaii Island TMK [3] 4-4-14: 001 por., -012 por., which was Appendix F of the Draft EIS and Appendix H of the Final EIS. The discussion of survey areas in relation to the Project Area has been added to the Management Summary (pg. ii) and the Project Background (pg. 1, 3rd paragraph) in the Archaeology Study and Assessment in Appendix H.

2
The acreage of each individual survey area and project area has been added to the Management Summary (pg. i-ii) and the Project Background (pg. 1, 3rd paragraph) in the Archaeology Study and Assessment in Appendix H. The survey area, all totaled, was roughly 20.4-acres; the APE is considered to be the Project area, which is roughly 6-acres within the survey area.

3
The survey area around the HELCO substation has been added to figures and the acreage of the survey area (roughly 7 acres) has been added to the Management Summary (pg. ii) and the Project Background (pg. 1, 3 rd paragraph) in The Archaeology Study and Assessment in Appendix H.

4
Figures have been revised in the Archaeology Study and Assessment in Appendix H, consistently showing all survey areas and Project areas.

5
Based on refinements in Project design, it has been determined that the HELCO substation fenced enclosure will not have to be expanded. Upgrades to the substation can be made within the existing fenced enclosure, and access to the enclosure would be via the existing access road. Therefore, the APE for the HELCO Substation remains defined as the fenced substation enclosure in the Archaeology Study and Assessment in Appendix H. This has also been clarified in Section 2.5.3 of the Final EIS.

6
Following consultation with Dr. McCoy, who provided a revised location map for historic properties identified in the Hale Pohaku Area, the CSH 6 lithics are now believed to be associated with McCoy's Locality 8 lithic scatter. The Locality 8 lithic scatter was previously designated SIHP # 50-10-23-10320. Site location maps (Figures 11 and 13) now have CSH 6 labeled as SIHP # - 10320 in the Archaeology Study and Assessment in Appendix H. McCoy's (1991) description of Locality 8 has also been added to the report (pg. 34, 36-38) in Appendix H.

7
As stated above, the HELCO substation fenced enclosure will not have to be expanded and access to the enclosure would be via the existing access road. The jeep road west of the substation, in the vicinity of the observed lithic material, would not be used during Project-related construction activities. The Archeaology Study and Assessment Report (Appendix H) has been updated to state that should there be any proposed development more than 20 meters north and west from the northwest corner of the HELCO Substation enclosure that there be prior consultation with Dr. Patrick McCoy regarding proper mitigation measures for the lithic scatter site, potentially including data recovery. (pg. 40, 3rd paragraph, The Archaeology Study and Assessment in Appendix H).

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

October 7, 2009

Dr. Hallett H. Hammatt
Cultural Surveys Hawai'i, Inc.
P.O. Box 1114
Kailua, Hawaii 96734

LOG NO: 2009.1564
DOC NO: 0910TD14
Archaeology

Dear Dr. Hammatt:

Subject: **Chapter 6E-7 and 6E-8 Historic Preservation Review -**
Draft Archaeological Assessment of the Thirty-Meter-Telescope Project
Ka`ohe Ahupua'a, Hāmākua District, Island of Hawai'i
TMK: (3) 4-4-15: 009

Thank you for submitting the subject draft report entitled *Archaeological Study and Assessment for the Thirty-Meter-Telescope (TMT) Observatory Project, Maunakea, Ka`ohe Ahupua`a, Hāmākua District, Hawai`i Island TMK [3] 4-4-15: 009 por.*. (H.H. Hammatt, May 2009). We apologize for the delay in responding to this submittal, which was received June 3, 2009. The report documents the results of background research and a systematic pedestrian survey of a 36-acre area within the Astronomy Precinct designated as Area E. The proposed telescope project will encompass a total of five acres within Area E.

We have some questions regarding the scope of work for this survey as it relates to the overall TMT project and your survey area; and some requests for minor corrections in the text of the report. We also request that you add information and discussion regarding the Mauna Kea Summit Region Historic District, and consider impacts of the project to this district. Please see the attached comment sheet for details.

We request that you revise the report to reflect the information requested below. Please contact Theresa Donham at (808) 933-7653 if you have any questions or wish to further discuss the conclusion of this letter.

Aloha,

Nancy A. McMahon

Nancy McMahon, Deputy SHPO/State Archaeologist
and Historic Preservation Manager
Historic Preservation Division

ATTACHMENT

Request for revisions/additions: *Archaeological Study and Assessment for the Thirty-Meter-Telescope (TMT) Observatory Project, Maunakea, Ka`ohe Ahupua`a, Hāmākua District, Hawai`i Island TMK [3] 4-4-15: 009 por.*. (H.H. Hammatt, May 2009).

1.1 Project Background and 1.2 Scope of Work.

1
- The first sentence of the second paragraph on page 1 appears to be missing a word or words at the end.

2
- The second paragraph states that, "Minimally, land disturbing activities would include grading of the TMT Observatory site and Access Way and excavations associated with building construction and installation of subsurface utilities." The scope of work for this project includes a pedestrian survey of Area E, which is identified on maps in the report. This project area does not include the complete route of Access Way, which is depicted in the Draft Environmental Impact Statement (figure 3.2). This proposed roadway and its alternative routes extends south, well beyond the limits of your project area. This route should be included within the project area of an archaeological survey. If it is not included in this revised report, we will be requesting an additional survey and report on this proposed roadway.
- The TMT project as described in the DEIS includes a staging area in the summit region. Again, any staging areas located beyond Area E on the summit should be included in the archaeological inventory survey for the project. If it is not included in this study, an additional report should be completed for these areas (excluding those covered in the report for the Hale Pōhaku area).
- Be advised that if the Access Way alternative routes are included in your project area, the third paragraph of Section 1.1 will need to be revised. There is at least one historic property within the area potentially affected by this road.

3.2 Previous Archaeological Research

3
- Tables 1 and 2. Please include the table title on all pages of these tables. Please indicate the source for Table 2, list of previously identified sites in the Summit Region.

4
- Please include in this discussion the 1999-2000 work of McCoy and McEldowney in connection with the Historic Preservation Plan (HPP) that was prepared by SHPD for the 2000 Mauna Kea Science Reserve Master Plan. This preservation plan established the boundaries for the Mauna Kea Summit Region Historic District, which is shown in that plan. A map showing the boundaries of the historic district in relation the Area E should be included in this report. See below for further discussion of the district.

5
- Section 3.2.2 on Traditional Cultural Properties – please include the site numbers that have been assigned to TCPs in the Summit Region. Due to the fact that one of the TCPs (Pu`u Kūkahau`ula (SIHP No. 50-10-23-21438) is within the area affect by proposed routes of Access Way, a more in-depth discussion of this historic property should be included in the report.

6
5.1 Project Effect – the recommendation of this report is "no historic properties affected". We do not concur with this conclusion, due to the fact that you have not taken into consideration the potential effects of the project on the Mauna Kea Summit Region Historic District. The district is listed in the State Inventory of Historic Places (SIHP No. 50-10-23-26869); it is not currently listed in the Hawaii or National Registers; however it meets all five criteria of significance pursuant to Hawaii Administrative Rule §13-275-6 and 284-6; the district is therefore a significant historic property and subject to determination of effects and submittal of mitigation commitments to SHPD for approval (§13-275-7 & 8; 13-284-7 & 8). The district is likewise eligible for inclusion in the National Register under all four NRHP criteria of significance.

1
The responses to this submission are related to refinements to the Archaeological Inventory Survey for the Thirty-Meter-Telescope (TMT) Observatory Project, Maunakea, Kaohe Ahupuaa, Hamakua District, Hawaii Island TMK [3] 4-4-15: 009 por., which is included as Appendix G of the Final EIS. This report was titled as a "Archaeological Study and Assessment" in the Draft EIS.
Revised the first sentence of the second paragraph of page 1 in the Archaeology Inventory Survey in Appendix G to include "for use as a science complex".

2
In Archaeology Inventory Survey in Appendix G, the Project Background section (page 1, 2 nd and 3 rd paragraphs), scope of work (item 2, page 5), and report figures were have been revised to include the Access Way and Batch Plant Staging Area in the Project Area. Also, the Title of the report and 4th paragraph of page 1 were revised to reflect change from Assessment to Inventory Survey.

3
Table titles for Tables 1 and 2 are now included on all pages (pg. 14-21) of the Archaeology Inventory Survey in Appendix G. Source for Table 2 (McCoy et. al. 2009) has been included in Table 2 title (pg. 18) of the Archaeology Inventory Survey in Appendix G.

4
The discussion of the 2000 Historic Preservation Plan (now included in the Final EIS as Appendix J), including discussion of the Mauna Kea Summit Region Historic District (Section 3.2.3 pg. 26, 29) has been included in the Archaeology Inventory Survey in Appendix G and Section 3.2 and 3.3 of the Final EIS. Also, included the figure showing the Project area within the historic district (pg. 30). A similar figure has been added to Section 3.3 of the Final EIS.

5
SIHP #s for summit Historic Properties have been added to Figure 6 (pg. 27) and Section 3.2.2 (pg. 26) of the Archaeology Inventory Survey in Appendix G.
Discussion of Project effect on Pu'u Kukahau'ula Historic Property also has been added to Section 3.2.2 (pg. 26) of the Archaeology Inventory Survey in Appendix G and Section 3.3.3 of the Final EIS.

6
Added discussion of Project effect on the Puu Kukahauula Historic Property and Mauna Kea Summit Region Historic District (pg. 49-51) in the Archaeology Inventory Survey in Appendix G and Section 3.3.3 of the Final EIS.

A discussion of the five HRHP significance criteria for this district is found in the 2000 HPP and in the recent draft of the Cultural Resources Management Plan (CRMP) for the University of Hawaii Management Areas on Mauna Kea (McCoy et al. 2009, page 2-49). Both of these documents are available on line. A National Register of Historic Places (and HRHP) nomination form is currently being prepared and will be submitted for internal SHPD review prior to forwarding to the Hawaii Historic Places review board for nomination to the HRHP and forwarding to the Keeper of the National Register.

As stated in the HPP (2000):

> Within the historic district, the effect of a project on the historic district as a whole needs to be assessed as well as the project's effects on individual historic properties…***The effect on the historic district must be addressed even if no individual historic properties are found within or immediately adjacent to the project area***. (Emphasis added, Page 20, HPP, Appendix F, MKSR Master Plan 2000)

Our office has repeatedly stated that we consider the summit region to be a historic district in a number of letters regarding astronomy and astronomy-related projects (cf. Don Hibbard letter to Dierdre Mamiya, April 24, 2002; Don Hibbard letter to Robert McLaren, January 10, 2001; Timothy Johns letter to Kenneth Kumor, October 26, 2000; Don Hibbard letter to Robert A. McLaren, May 3, 1999). We therefore request that the relevant sections of this report be revised to reflect the current status of the Mauna Kea Summit Region Historic District, and to recognize that the TMT project will result in impacts to this district.

If the routes of Access Way are included in this study, Section 5.1 will need to address impacts to Site 21438, and any other historic properties that may be located along these routes.

7 **5.2 Mitigation Recommendations** – Please revise this section to reflect proposed mitigation of adverse effects to the relevant historic properties and the historic district.

7

Proposed mitigation measures to address the potential adverse effect on the Puu Kukahauula Historic Property and Mauna Kea Summit Region Historic District have been added to the Archaeology Inventory Survey (pg. 52-56) in Appendix G. Similarly, mitigation/treatment measures are discussed in Sections 3.3.3 and 3.3.4 of the Final EIS.

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

HRD09/3874D

June 30, 2009

TMT Observatory Project
Office of the Chancellor
University of Hawai'i at Hilo
200 W. Kāwili Street
Hilo, HI 96720-4091

RE: Request for comments on the Draft Environmental Impact Statement for the proposed Thirty Meter Telescope (TMT) Project, Maunakea, Hawai'i Island, TMK: (3) 4-4-15:1, 9 and 12.

Aloha mai,

On May 26, 2009, the Office of Hawaiian Affairs (OHA) received a letter requesting comments on the above-mentioned project. The University of Hawa'i is applying for a Conservation District Use Permit (CDUP) for the development of the proposed TMT Project at an elevation of about 13,150 feet near the summit of Maunakea. The TMT would be the most advanced and powerful ground-based observatory in the history of science, and would represent the largest telescope on Maunakea. The dome of the TMT facility would measure 180 feet in height with an exterior radius of 108 feet. Attached to the dome would be a three-level building. The entire footprint of the observatory, including the parking lot, would be five acres. Related development to the project would include the construction of an access way to the observatory, major renovations to the Hale Pōhaku Mid-Level Facility and the construction of headquarters at University Park at the University of Hawai'i at Hilo campus and a satellite office in Waimea. The TMT Observatory Corporation is a nonprofit partnership of the University of California, the California Institute of Technology and the Association of Canadian Universities for Research in Astronomy. The National Astronomical Observatory of Japan is also a partner. This group will fund and manage the project. OHA has reviewed the Draft Environmental Impact Statement for the CDUA and offers the following comments.

Lack of a Comprehensive Management Plan

The state Board of Land and Natural Resources (BLNR) has never approved a comprehensive management plan that examines or provides management guidance on this specific project, as required by Hawaii Administrative Rules (HAR) and a circuit court ruling.

While Chapter 13-5, HAR, allows for astronomy facilities within the Resource Subzone of the state's Conservation District, it does so only if the BLNR approves a management plan and permit for the project. The Maunakea Science Reserve, which includes the proposed TMT project sites, is located within the Resource Subzone of the state's Conservation District. Further, in his January 19, 2007 ruling, Third Circuit Court Judge Glenn Hara concluded that HAR §13-5-24 "requires a management plan which covers multiple land uses within the larger overall area that [the University of Hawai'i Institute for Astronomy] controls at the top of the Maunakea in the conservation district." Judge Hara noted that the state's administrative rules define "land use" as:

1) The placement or erection of any solid material on land if that material remains on the land more than fourteen days, or which causes a permanent change in the land area on which it occurs;
2) The grading, removing, harvesting, dredging, mining or extraction of any material or natural resource on land;
3) The subdivision of land; or
4) The construction, reconstruction, demolition, or alteration of any structure, building, or facility on land.

The development and decommissioning of astronomy facilities, such as the proposed TMT Project, would fall under the state's definition of "land use," and would therefore be required to be analyzed in a BLNR-approved comprehensive management plan. However, as we noted earlier, such a plan does not currently exist. The BLNR did recently approve a Maunakea Comprehensive Management Plan for UH Management Areas (January 2009). However, this plan does not fulfill the comprehensive management plan requirements set by HAR or Judge Hara's order. The January 2009 CMP states on page 7-54 that "[i]t needs to be emphasized that the CMP manages resources; it does not advocate or promote new telescope development." The January 2009 CMP instead deferred to the 2000 Master Plan, which outlines future observatory development for Maunakea, but was never approved by the BLNR. The January 2009 CMP specifically states that: "The CMP will not replace the 2000 Master Plan, which continues to serve as the University's development planning framework for responsible stewardship and use of the UH Management Areas. As the CMP maintains consistency with the 2000 Master Plan, future updates to that plan should be consistent with the CMP." (CMP, page 2-3.)

Judge Hara also noted in an August 3, 2006, memorandum that the 1995 Management Plan for Maunakea "did not provide the scope and coverage for the development of the astronomy facilities on Maunakea" as did the 1985 Management Plan, and that the 1995 Management Plan "would not support" the Conservation District Use Application for a proposed astronomy facility because the 1995 Management Plan "is virtually silent on the matter of future development of astronomy facilities on Maunakea." Therefore, the BLNR must approve a comprehensive management plan that covers future astronomy development and specifically the TMT project, before the TMT project could be built. 1

January 2009 CMP Sub plans not completed yet

2 On page 3-46 of the Draft EIS, the applicant states that it will comply with the requirements of the CMP. However, OHA believes that the Draft EIS is premature because the BLNR has not yet received or approved the four sub plans it required of UH when the BLNR approved the January 2009 CMP in April 2009. The BLNR required that within one year of the BLNR's approval of the CMP, or the submission of a Conservation District Use Application, whichever occurs sooner, UH shall submit for

1
The Comprehensive Management Plan (CMP) was approved by the BLNR on April 9, 2009, with conditions. The CMP as approved is a valid enforceable plan and is currently the management plan in effect, not the 1995 Management Plan. Section 7.3 - Managing the Built Environment - of the CMP includes Management Actions that address future astronomy development. The Draft EIS outlines a number of programs and plans that will be implemented by the Project to comply with the CMP Management Actions, including the Cultural and Natural Resources Training Program, Invasive Species Prevention and Control Program, and Waste Minimization Plan. These plans are discussed in various sections of the Draft EIS and more details regarding the management of the TMT Observatory specifically will be in plans included with the Project's Conservation District Use Permit (CDUP) application.

2
The CMP was approved by the BLNR on April 9, 2009, with conditions. Certain individuals and organizations requested a contested case proceeding for the CMP approval. The BLNR denied the request since a contested case hearing was not required by law and those requesting it did not establish a property interest in the CMP or that the CMP would affect property in which they possessed an interest. In approving the CMP, the BLNR required that UH be responsible for the implementation of the CMP subject to oversight of the BLNR. Failure to comply with the BLNR's conditions of approval of the CMP may result in sanctions. Hence the CMP and its conditions of approval have legal force and effect.

review and approval four sub plans: a Cultural Resources Management Plan, a Natural Resources Management Plan, a Decommissioning Plan and a Public Access Plan.

3 We question how a planning document such as the Draft EIS can be developed without the applicant knowing the contents of key documents it must comply with. The requirements of the sub plans may necessitate the applicant amending and altering major portions of the project. For example, what if the cultural resources management sub plan requires Management Action CR-2 of the CMP, which calls for the designation of the summit region of Maunakea as a Traditional Cultural Property, to be implemented immediately? While the TMT project is proposed for a site just below the summit, the exact boundaries of the proposed TCP for the summit region may include the TMT project site. How would this impact the plans for the TMT project?

Moreover, the concerns of the public cannot be assuaged by the applicant simply saying it "will comply" with the CMP (Draft EIS, page 3-46) and that it "acknowledges and would adopt, where relevant, provisions in the CMP and the four sub plans" (Draft EIS, 3-119). The public must have the opportunity to review and comment on the applicant's actual plans to comply with the requirements of the CMP's sub plans. If only the Final EIS addresses the CMP's sub plans (and not the Draft EIS), the public is robbed of its opportunity to inform comment on the applicant's compliance with the sub plans because the applicant does not have to address comments received on its Final EIS. Moreover, the entire environmental review process would be compromised.

4 We urge that this Draft EIS be amended and republished when the CMP's sub plans are approved by the BLNR to ensure the integrity of the public scoping process of the CMP and the state's environmental review process.

Accepting agency

5 We request that the accepting agency for this Draft EIS be the BLNR and not the University of Hawai'i, which is also the proposing agency. First, an outside agency should be the accepting agency to ensure the integrity of the state environmental review process. Moreover, BLNR should be the accepting agency because the project action (Draft EIS, page 1-1) for the EIS is the BLNR's issuance of a Conservation District Use Permit for the TMT project.

TMT sublease

According to page 2-10 of the Draft EIS, the sublease between UH and the TMT Observatory would need to be approved by the BLNR as BLNR is the landowner and leases the ceded lands of the Maunakea Science Reserve to UH. The subject land is designated as Section 5(b) Ceded Lands, which hold a considerable amount of sentimental, historical and legal significance for Native Hawaiians and OHA. These lands were illegally taken from the Hawaiian Kingdom after the 1893 overthrow and later transferred ("ceded") by the United States government to the State of Hawai'i upon statehood. Today, the state holds the Ceded Lands corpus in trust for Native Hawaiians and the general public. OHA is supposed to receive a portion of all revenues generated on these lands. As such, we request that the state 6 charge the fair market value for the sublease of the subject property for the TMT project. OHA also 7 requests that we receive our portion of the revenues derived from this project. In addition, we ask that the BLNR's consideration of the sublease for this project be subject to Chapter 91 and Chapter 92, Hawaii Revised Statutes.

3
The sub plans are now available and do not necessitate altering the Project. Chapter 3 of the Draft EIS evaluates the Project's potential impact on resources in the area based on their current status. Section 3.3 of the Final EIS has been updated to disclose potential Project impacts on Kukahauula, a State Historic Property, and the Mauna Kea Summit Historic District. However, in a disclosure document, such as the EIS, it is not appropriate to speculate on when or if designations beyond the control of the Project will take place or how those potential changes might affect the Project.
The following is a summary of the Project's effects on the historic properties, including the district, now included in Section 3.3.3 of the Final EIS: "The Project will not result in the loss or complete destruction of any historic properties within the Maunakea summit region. The physical impacts on the only historic property physically effected, Kukahau'ula, will be minimal and will not be significant.
"Impacts to the Historic District and its contributing properties will be confined to the impacts on Kukahau'ula and the introduction of the Project components into the Historic District. Although the TMT will be a new structure in the Historic District, it will be isolated in the Northern Plateau and will not be visible from most areas with the district. The district is currently recognized as a significant cultural landscape based on the multitude of historic properties in the area and despite the existence of the modern structures and numerous find spots in the area that may detract from its overall character.
"Because the Project will (a) have certain facilities within a Historic District, (b) affect a Historic Property within the district, and (c) provide treatments/mitigations to address those effects, it has been determined that the Project will result in an "effect with treatment/mitigation commitments."
"Because the Project will not result in the loss or complete destruction of any archaeologic/historic resource within the Maunakea summit region, this impact is considered to be less than significant."

4
The public has had opportunities to comment on the CMP and its sub plans through the process of their review and approval by the Board of Land and Natural Resources (BLNR). The Project and its mitigation measures have been refined, but not radically altered, to comply with the CMP sub plans and to address comments on the Draft EIS. Therefore, the TMT EIS process has provided appropriate opportunities for disclosure, review, and comment.

5
Section 1.2, page 1-1, of the Draft EIS indicates "Following publication of the Final EIS, the Governor of Hawaii will act on the EIS."
Section 3.19, page 3-196, of the Draft EIS indicates "The acceptance of the EIS pursuant to HRS, Chapter 343 by the Office of the Governor is a requirement of the Project in its entirety."
In the Final EIS Section 1.2 has been edit to read "Following publication, the Accepting Authority, the Governor of Hawai'i, will act on this EIS."
As indicated in the EIS, the Governor is the accepting authority under Hawaii Revised Statutes (HRS) Chapter 343, not the Department of Land and Natural Resources (DLNR) or any other agency. The Governor can seek input from various agencies, including the Office of Environmental Quality Control (OEQC) and DLNR, prior to acting on the EIS. By accepting the EIS the Governor will only be accepting that the EIS meets the requirements of HRS Chapter 343, not approving all aspects of the Thirty Meter Telescope Project.

6
State law (HRS §171-95) authorizes the BLNR to lease state land to government agencies at such rent and on such other terms and conditions as the BLNR may determine. It is common for BLNR to negotiate leases with nominal or no rent to governmental entities, including UH. For example, portions of the present UH Hilo campus are covered by state leases through BLNR at nominal or no rent.
The 1968 MKSR lease between DLNR and UH provide the terms of the master lease; those terms could be renegotiated as part of a discussion between UH and DLNR before the expiration of the existing lease. HRS section 304A - 1902 provides that the UH may charge a fee for the use of Maunakea lands and may enter into lease agreements provided it complies with all statutory requirements in the disposition of ceded lands.

It is our understanding that past subleases for other Maunakea observatories have been issued at the reduced rate of $1 per year with UH receiving in-kind viewing time at the observatories. OHA has concerns that this practice only benefits one state agency and prevents the Department of Land and Natural Resources and OHA from receiving a substantial amount of income that is sorely needed, especially during these difficult economic times. We note that public education is only one of the five purposes of Ceded Lands established by the Hawaii Admission Act.

Federal funding

8 OHA asks for clarification whether the TMT project has or will receive any funding from federal sources, such as the National Science Foundation. We also request the Draft EIS clarify the relationship between the National Science Foundation and the TMT project. We note that federal funding is a legal trigger for studies to be conducted in accordance with the National Environmental Policy Act and the National Historic Preservation Act.

Alternatives

The heart of an environmental review is its discussion of alternatives. Every environmental review must contain a rigorous and objective analysis of all reasonable alternatives to the proposed action. The alternatives offered must foster both informed decision-making and informed public
9 participation so that the least harm will come to the human environment. OHA points out that the existence of a viable but unexamined alternative would render this review inadequate.

10 The Chilean site (Cerro Armazones) that the TMT Observatory Corporation Board is considering should be included in the "Alternatives to the Project" section. While UH cannot approve the TMT in Chile, the possibility of the TMT being sited in Chile is very real, as the TMT Observatory Corporation just recently concluded negotiations with the Chilean government should TMT select Chile as its preferred site (TMT Top News, June 26, 2009, TMT.org). The fact that there is another site that meets the goals and requirements of the TMT project outside of the state should be considered by Hawai'i decision-makers when they examine whether to allow the project to be brought to Hawai'i. While UH cannot approve the Chilean site, it does have the authority to decide not to bring the TMT project to Hawai'i if the EIS process reveals that the project's environmental and cultural impacts of siting the TMT project in Chile are more acceptable than the environmental and cultural impacts of siting the project at Maunakea.

Cultural resources

The cultural resources analysis contained throughout the Draft EIS is wholly flawed. The
11 applicant does not properly examine the impacts of siting what would be the largest telescope on Maunakea. On page 3-19 of the Draft EIS, the applicant separates all cultural beliefs about Maunakea into two groups: one group that believes that Maunakea is too sacred for any development on the mountain; and another group that believes that culture and astronomy can co-exist and that the development of new telescopes can be mitigated. The applicant then only examines the impact the project has on the cultural resources of Maunakea through the lens of one group's beliefs. For example, page 3-25 states that "For those that hold that cultural practices and astronomy can co-exist, the mitigation for the cultural impacts outlined above would incrementally reduce the Project's potential impact on cultural resources." All cultural beliefs must be considered when determining the impact the project will have on cultural resources. To do otherwise is insulting and demeaning to those whose beliefs are completely left

7
A State agency must conform to the requirements of HRS Chapter 91, the Hawaii Administrative Procedure Act (HAPA), when acting in either a rule-making (quasi-legislative) or adjudicatory (quasi-judicial) capacity. The provisions of Chapter 92 generally apply when the BLNR decides to sell, lease or otherwise dispose of state lands. While it is anticipated that the BLNR will consider a sublease for its lands at Maunakea in accordance with HRS Chapter 92, that decision will ultimately be made by BLNR.
HRS section 304A - 1902 provides that the UH may charge a fee for the use of Maunakea lands and that in establishing the fees, the board of regents shall be exempt from the public notice, public hearing, and gubernatorial approval requirements of Chapter 91, provided the fees are established at an open public meeting pursuant to Chapter 92.

out of the analysis. This flawed tack creates a completely skewed conclusion that misrepresents the true impacts of the project.

12 The EIS needs to do a better job addressing the nuances in cultural beliefs. Not all beliefs fit perfectly into those two groups presented. Respectfully addressing the spectrum of cultural concerns will help capture a more accurate accounting of the true level of impact the project will have on cultural resources and help create more effective mitigation measures.

13 Another problem with the cultural resources analysis can be found in the cumulative impacts analysis. On page 3-178 of the Draft EIS, the applicant narrows its analysis of the cumulative impacts on the "Spiritual and Sacred Quality of Maunakea" to just the three currently designated Traditional Cultural Properties (TCPs) on Maunakea, but it does not examine the cumulative impacts on the spiritual and sacred quality of whole mountain. Many Native Hawaiians view the entire mountain, and especially the summit region, as being extremely scared. Thus, this analysis should be expanded beyond just the TCPs.

14 Moreover, Management Action CR-2 of the CMP prioritizes the designation of the summit region of Maunakea as a TCP, per the National Historic Preservation Act. The Final EIS needs to examine what kind of the impact developing the TMT project would have on the ability of the summit region of Maunakea to be designated as a TCP. Moreover, what if the CMP's yet-to-be-produced cultural resources sub plan sets an immediate deadline for the designation of the summit region of Maunakea from the 13,000 foot elevation mark and up (an area considered to be the "mamao" of the mountain, see page I-3 of the CMP) as a TCP? How will that impact this Draft EIS, the Final EIS, the applicant's plans for the project and all the cultural resources studies and mitigation plans? In addition, the Final EIS needs to examine what impact developing the TMT project will have on the summit region's eligibility to be listed
15 on the National Register of Historic Places. Further, the Draft EIS does not seem to consider the impacts of siting the TMT near the summit region, which is designated by the State Historic Preservation Division as a historic district.

16 Furthermore, we question the Draft EIS's findings that siting the largest telescope on Maunakea will only result in a small, incremental increase in the cumulative impact on the mountain's cultural resources. The sheer size of the proposed TMT project, its extended construction period, and the additional number of people trekking up to the TMT facility on a daily basis will result in considerable additional impacts. In addition, no cultural resources analysis exists under the No Action Alternative. This must be remedied in the Final EIS.

Workforce Pipeline Program

17 OHA asks that the Final EIS contain the actual dollar amount of funding that will be contributed to the various educational institutions through the Workforce Pipeline Program. We also ask that Native Hawaiian students, Hawaiian-focused charter schools and Hawaiian language immersion schools be specifically helped through this program.

Access Way

18 If the project is sited at Site 13N on Maunakea, OHA would prefer the Access Way Option 1 through the Submilimeter Array as it appears to have the least impact.

8

The TMT Observatory Corporation has received limited funding from the National Science Foundation (NSF) for the development of technology that can be used on other telescopes. With respect to the construction, operation, or decommissioning of the Thirty Meter Telescope Project, no Federal agency, including the NSF, has provided or pledged funds for such construction, operation, or decommissioning. Nor is TMT required to obtain a permit, license or other approval from the United States prior to the construction or operation of the Thirty Meter Telescope (TMT) Project. Federal funding alone does not trigger an obligation on the part of the United States to comply the National Environmental Policy Act (NEPA) or the National Historic Preservation Act (NHPA). For example, the United States' obligation to undertake an environmental review under NEPA is triggered only if a "major Federal action" may significantly affect the environment. Similarly, the United States' obligation to comply with the NHPA is triggered only if there is a federal "undertaking" which is defined as an activity or project carried out under the jurisdiction of a federal agency. The United States' obligation to comply with NEPA and the NHPA has not been triggered with respect to this Project.

9

All feasible and prudent alternatives are evaluated in Chapter 4 of the Draft EIS.

10

The site that was being considered in Chile is discussed in Chapter 5 of the Draft EIS. The proposing agency, the University of Hawaii at Hilo (UH Hilo), does not have any authority in Chile; therefore, the site in Chile is not an alternative available to them and is not discussed as an alternative in this State of Hawaii Chapter 343 EIS disclosure document.
UH Hilo and other decision-makers always have the freedom to decide not to proceed with the Project in Hawaii through a number of approval and agreement processes separate from this HRS Chapter 343 disclosure document process.

Cumulative impacts

19 The 2000 Master Plan, which was not approved by the BLNR, lists a number of future projects for Maunakea. The Master Plan states that at least four existing telescopes will be redeveloped, a total of 12 antennas will be added to the Submilimeter Array, and a conventional optical/IR telescope could be developed (2000 Master Plan, page IX-45). All the future projects listed in the 2000 Master Plan must be considered in the cumulative impacts analysis.

OHA Board of Trustees

The OHA Board of Trustees will be considering the Draft EIS for the TMT Project. However, this letter had to be signed prior to the meeting in which our Board was to consider this project in order to meet the Draft EIS's deadline for comments. Therefore, the applicant should be aware that additional issues and concerns from our Board of Trustees may be forthcoming.

Thank you for the opportunity to comment. If you have further questions, please contact Sterling Wong by phone at (808) 594-0248 or e-mail him at sterlingw@oha.org.

'O wau iho nō me ka 'oia'i'o,

Clyde W. Nāmu'o
Administrator

C: OHA Hilo and Kona CRC Offices

Laura Thielen, Chairperson
Board of Land and Natural Resources
Kalanimoku Building
1151 Punchbowl St.
Honolulu, HI 96813

Pua Aiu, Administrator
State Historic Preservation Division
601 Kamokila Boulevard, Room 555
Kapolei, HI 96707

Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands
Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

11

Section 3.2.3 of the Draft EIS clearly stated that there are a "diverse range of opinions" concerning potential Project impacts, and that, for the purposes of the discussion presented in the Draft EIS, those diverse range of opinions "have generally be found to fall into one of two broad categories." The quote provided by the commentor is made in reference to only one of those two broad categories. The next item in the Draft EIS states that for those that hold the opinion that any development or disturbance of Maunakea is significant, there "are no mitigation measures that could offset the adverse cultural impact of any development on Maunakea, including that of the Project." Although focusing on the two broad categories of cultural beliefs encountered during outreach to the community and in prior studies may not address absolutely every cultural belief individually, for clarity of discussion it is prudent and does disclose the commonly held opinions on the subject.

Section 3.2.3 of the Final EIS has been revised based on comment received on the Draft EIS and additional work to complete the Cultural Impact Assessment (CIA). Section 3.2.3 of the Final EIS summarizes the Project's impact on cultural practices and beliefs as follows: "Project impacts are discussed in detail above and include potential impacts to cultural practices and the spiritual and sacred quality of Maunakea. These Project impacts will occur within the context of the current conditions in the summit region. That context includes (1) the presence of eight optical/infrared observatories, a portion of the SMA observatory area, and access roads within Kukahau'ula, (2) many of the astronomy facilities being visible from culturally significant locations in the summit region, and (3) the presence of observatory employees and visitors in the summit region and their associated impacts. As detailed in Section 3.16.2, the past actions on Maunakea have resulted in substantial, significant, and adverse impacts to cultural practices and beliefs.

"For those who hold the opinion that any development or disturbance of Maunakea by someone other than a Native Hawaiian is significant and unmitigatible, the Project's added impact on cultural resources will be viewed as significant. However, through compliance with applicable rules, regulations, and requirements, including the CMP, CRMP, and the 2000 Master Plan, the Project's impact on cultural resources will be limited and less than significant in the view of those who believe cultural practices and astronomy can co-exist. Furthermore, the Project's impact will not exceed the significance threshold stated in Section 3.2.2, which is based on the HRS Chapter 343 significance criteria.

"When combined with the past actions that led to the existing conditions, the cumulative impact of all actions at and near the summit of Maunakea, including the future TMT Observatory, on cultural resources will continue to be substantial, significant, and adverse, as detailed in Section 3.16.4."

Office of Maunakea Management
640 N. Aohoku Place, Room 203
Hilo, HI 96720

Rolf-Peter Kudritzki
University of Hawai'i
Institute for Astronomy
2680 Woodlawn Drive
Honolulu, HI 96822

Environmental Protection Agency, Region 9
75 Hawthorne Street
San Francisco, CA 94105

Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96813

Advisory Council on Historic Preservation
1100 Pennsylvania Avenue NW, Suite 803
Old Post Office Building
Washington, DC 20004

12

Section 3.2.3 of the Final EIS has been revised to address comments received on the Draft EIS, including this one, and the outcome of the remainder of the Project's CIA process. Those revisions are discussed in the response above.
However, for clarity of discussion, the potential Project impact is discussed in the context of the two broad categories of opinion concerning the Project's potential impact and effectiveness of Project mitigation measures.

13

The Draft EIS states that "the integrity of the TCPs, including Kukahauula, Puu Lilinoe, and Waiau, is the most significant factor to the spiritual and sacred quality of Maunakea." The discussion in Section 3.16.4 is limited to this discussion because (a) the cumulative impact analysis is a higher level analysis than the Project-specific analysis in Section 3.2, which does address a wider range of issues, and (b) the Kukahauula historic property is the only historic property that the Project or other foreseeable actions would effect within the Mauna Kea Summit Region Historic District.

14

A disclosure document, such as the EIS, does not speculate on when or if designations beyond the control of the Project will take place or how those potential changes might affect the Project or vice versa.

15

Section 3.3.3 of the Final EIS has been revised to include an assessment of the Project's potential impact on the Mauna Kea Summit Historic District, a State Historic District. The following is a summary of the effect included in the Final EIS: "The Project will not result in the loss or complete destruction of any historic properties within the Maunakea summit region. The physical impacts on the only historic property physically effected, Kukahau'ula, will be minimal and will not be significant.
"Impacts to the Historic District and its contributing properties will be confined to the impacts on Kukahau'ula and the introduction of the Project components into the Historic District. Although the TMT will be a new structure in the Historic District, it will be isolated in the Northern Plateau and will not be visible from most areas with the district. The district is currently recognized as a significant cultural landscape based on the multitude of historic properties in the area and despite the existence of the modern structures and numerous find spots in the area that may detract from its overall character.
"Because the Project will (a) have certain facilities within a Historic District, (b) affect a Historic Property within the district, and (c) provide treatments/mitigations to address those effects, it has been determined that the Project will result in an "effect with treatment/mitigation commitments."
"Because the Project will not result in the loss or complete destruction of any archaeologic/historic resource within the Maunakea summit region, this impact is considered to be less than significant."

16

As disclosed in Section 3.16.4, page 3-177, of the Draft EIS, "The existing level of cumulative impact on cultural, archaeological, and historical resources is considered substantial and adverse." On page 3-179 it is stated "The addition of the Project and other foreseeable actions to the existing environment would have a small incremental impact; however, the level of cumulative impact on cultural, archaeological, and historic resources would continue to be substantial and adverse." On page 3-177 a list is provided to help explain why the Project would have a "limited" cumulative impact. The term small was used in comparing the Project's impact (with it being located outside of Kukahauula and not being visible from Kukahauula's summit) to that of all past and future action actions (many of which are located on Kukahauula and visible from its summit).
Based on comments received on the Draft EIS and completion of the Cultural Impact Assessment (CIA) process, Section 3.16.4 of the Final EIS has been revised to reflect that the Project would have a "limited incremental impact" on cultural, archaeological, and historic resources.

17

The Workforce Pipeline Program (WPP) will be managed as part of the Thirty Meter Telescope Project training and staffing efforts by human resources, and coordinated with the Project's outreach and education programs. TMT began the development of the WPP with a workforce roundtable, which initiated information exchanges and close coordination with current and new programs on Hawai'i Island. Among those organizations with whom TMT is currently working with are: the University of Hawaii at Hilo (UH Hilo), including UH Hilo sciene, technology, engineering and math (STEM) programs; Hawai'i Community College (HawCC); the Workforce Investment Board; other workforce programs that train, retrain, and place trainees in jobs; current observatories; the Department of Education; and charter schools.

The success of the WPP depends not only on the Project but also its partnership organizations and those that participate. Therefore, the Project cannot commit to specific benchmarks related to the WPP but, as stated in the Section 3.9.4, page 3-103, of the Draft EIS, will fill employment opportunities locally to the greatest extent possible. Additional details concerning the WPP developed since publication of the Draft EIS are provided in Section 3.9.4 of the Final EIS.

18

Thank you for your input. Of the three Access Way Options discussed in the Draft EIS, Option 1 is no longer being considered due to conflicts with SMA operations. Access Way Options 2 and 3 remain under consideration, but both have been refined since completion of the Draft EIS to reduce their impacts and provide for safe SMA operations. Please see Section 2.5.2 of the Final EIS for the updated Access Way discussion.

19

The projects UH believes as reasonably forseeable have changed since the 2000 Master Plan was prepared over 10 years ago. Those included in Section 3.16.3 of the Draft EIS are the only projects deemed reasonably forseeable at this time.

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME LEINAALA FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

In reply, please refer to:
EMD / WB
EPO-H4 4 015 009

June 23, 2009

TMT Observatory Project
Ms. Rose Tseng
Office of the Chancellor
University of Hawaii at Hilo
200 W. Kawili Street
Hilo, Hawaii 96720-4091

Dear Ms. Tseng:

Subject: Draft Environmental Impact Statement for Thirty Meter Telescope (TMT) Observatory Project, Mauna Kea, Hamakua, South Hilo and South Kohala, Island of Hawaii
TMK: (3) 4-4-015: 009 & 012, 2-4-001: 007 and 6-7-002

Thank you for allowing us the opportunity to review the above subject project which consists of the construction and operation, and ultimate decommissioning of the TMT Observatory.

As the project has approved treatment individual wastewater systems (IWSs) such as septic tanks, we have no objections to the observatory project. We encourage the developer to utilize recycled water for irrigation and other non-potable water purposes. 1

Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at (808)586-4294.

Sincerely,

TOMAS S. SEE, P.E., CHIEF
Wastewater Branch

c: EPO, Attn: Mr. Jiacai Liu (EPO 09-085)
Mr. Jerry Nunogawa, WB Engineer, Hilo

1
The Project will consider the use of recycled water for irrigation and other non-potable water purposes, including the use of grey water for flushing toilets. However, it is unlikely the Project facilities will require irrigation.

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

LINDA LINGLE
GOVERNOR
THEODORE E. LIU
DIRECTOR
MARK K. ANDERSON
DEPUTY DIRECTOR

STRATEGIC INDUSTRIES DIVISION
235 South Beretania Street, Leiopapa A Kamehameha Bldg., 5th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-3807
Fax: (808) 586-2536
Web site: www.hawaii.gov/dbedt

2009 JUN 15 PM 3:02
UH-HILO
CHANCELLOR'S OFFICE

June 9, 2009

TMT Observatory Project
Office of the Chancellor
University of Hawaii at Hilo
200 W. Kawili Street
Hilo, Hawaii 96720-4091

Re: Draft Environmental Impact Statement (DEIS)
Thirty Meter Telescope Observatory Project (TMT)
Mauna Kea, Island of Hawaii

In response to your May 23, 2009, notice, thank you for the opportunity to provide comments on the DEIS for the Thirty Meter Telescope Observatory Project (TMT) at Mauna Kea, Hale Pohaku Mid-Level Facility, Headquarters and Satellite Office in Kamuela.

We would like to call your attention to: (1) State energy conservation goals; and, (2) energy and resource efficiency and renewable energy and resource development.

1. **State energy conservation goals.** Project buildings, activities, and site grounds should be designed and/or retrofit with energy saving considerations. The mandate for such consideration is found in Chapter 344, HRS ("State Environmental Policy") and Chapter 226 ("Hawaii State Planning Act"). In particular, we would like to call to your attention HRS 226 18(c) (4) which includes a State objective of promoting all cost-effective energy conservation through adoption of energy-efficient practices and technologies.

2. **Energy and resource efficiency and renewable energy and resource development.** We would like to encourage that the University, in its planning efforts, consider Act 96, SLH 2006, which directs that state agencies meet the requirements of the Leadership in Energy and Environmental Design (LEED) program, among others. In addition, please review Act 160,2006 SLH which requires state agencies to report annually their electricity consumption, the steps taken to reduce energy use, and their plans for future reductions.

1
The Thirty Meter Telescope Project intends to show leadership in energy and environmental design. Measures to reduce energy use through efficiency were discussed in Section 3.12.4 of the Draft EIS. Additional measures have been added to this section in the Final EIS, which states:
"A TMT Energy Roundtable meeting was held on September 8, 2009, with representatives from HELCO, the Department of Energy (DOE)/National Renewable Energy Laboratory (NREL), Pacific International Center for High Technology Research (PICHTR), and Hawai'i Clean Energy Initiative. The importance of maximizing energy efficiency in the design of TMT's facilities was emphasized at this meeting. As part of TMT's design work there is an active program to analyze the environmental heat loads and energy usage in the telescope enclosure and supporting facilities. Appropriate energy saving designs will be employed into all aspects of the buildings and facility design including: high R-rated insulation panels, radiant exterior barriers, high performance window glazing, and air infiltration sealing, for example.
"Energy saving devices will be incorporated into Project facilities; plans include: solar hot water systems, photo voltaic power systems, energy efficient light fixtures controlled by occupancy sensors, efficient Energy Star rated electrical appliances at all facilities, and design with local knowledge to maximize the use of natural ventilation and lighting at the Headquarters."

2
The energy consumed by the Thirty Meter Telescope Project will be provided by the HELCO island-wide electric grid, roughly 40 percent of which comes from renewable sources. The Project does not have any involvement in where or how the energy provided by HELCO is generated (renewable vs. otherwise). However, Section 3.12.4 of the Final EIS has been updated to include the following:
"Energy saving devices will be incorporated into Project facilities; plans include: solar hot water systems, photo voltaic power systems, energy efficient light fixtures controlled by occupancy sensors, efficient Energy Star rated electrical appliances at all facilities, and design with local knowledge to maximize the use of natural ventilation and lighting at the Headquarters."

3 We note that the project is proposing energy-conserving lighting, appliances, and systems to reduce energy use and that there will be an annual audit of energy use by the project. We would be interested in a description of the audit.

We concur with the Mauna Kea Comprehensive Management Plan that the use of outside lights in the UH Management Areas shall be discouraged and minimized, and that the use of outside lights in the Astronomy Precinct shall be prohibited. In addition, the plan says that all management activities should coordinate with Federal, State and County agencies to control light pollution from sources within the UH Management Areas and, to the extent feasible, in areas outside the UH Management Areas.

Our website provides detailed information on guidelines, directives and statutes, as well as studies and reports on aspects of energy and resource efficiency at: (http://www.hawaii.gov/dbedt/info/energy/efficiency/state). Please also do not hesitate to contact Carilyn Shon, Energy Efficiency Branch Manager, at telephone number 587-3810, for additional information on LEED, energy efficiency, and renewable energy resources.

Sincerely,

Theodore A. Peck
Administrator

c: OEQC

3
Details of the Project's annual audit of energy use will be developed as the operation phase of the Project approaches, in 2018; a description of the audit would be premature at this point in the Project process.

LINDA LINGLE
GOVERNOR
THEODORE E. LIU
DIRECTOR
MARK K. ANDERSON
DEPUTY DIRECTOR
ABBEY SETH MAYER
DIRECTOR
OFFICE OF PLANNING

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

OFFICE OF PLANNING
235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824

2009 JUN -2 AM 10:37

UH-HILO
CHANCELLOR'S OFFICE

Ref. No. P-12585

May 28, 2009

Dr. Rose Tseng, Ph.D., Chancellor
TMT Observatory Project
Office of the Chancellor
University of Hawaii at Hilo
200 West Kawili Street
Hilo, Hawaii 96720-4091

Dear Dr. Tseng:

Subject: Draft Environmental Impact Statement (DEIS) for
Thirty Meter Telescope (TMT) Observatory Project
Mauna Kea, Hawaii
TMK: 4-4-15:9 and 12; 2-4-1:7; and 6-7-2: undetermined parcel

1 The subject project will require the issuance, by the Board of Land and Natural Resources of a Conservation District Use Permit (CDUP). The entire Mauna Kea Science Reserve (MKSR) is within the State Conservation District, Resource Subzone and subject to Chapter 343, Environmental Impact Statement Law.

The proposed construction and operation of the TMT Observatory and associated ancillary facilities, TMT Mid-Level Facility and electrical/communications infrastructure will function to support the Hawaii State Plan which promotes – science and technology industries that provide diversified employment opportunities and strengthen economic productivity.

Thank you for the opportunity to comment. Should you have any questions, please call our Land Use Division at 587-2842.

Sincerely,

Abbey Seth Mayer
Director

c: Katherine Kealoha, OEQC

1
As discussed in Section 3.10 of the Draft EIS, the lands of the summit region on Maunakea are classified by the State of Hawai'i as a conservation district, resource subzone, and is managed by the Department of Land and Natural Resources (DNLR) Office of Conservation and Coastal Lands (OCCL). The Project has been coordinating with the DLNR-OCCL in regards to land use within the conservation district.
As noted in Section 3.19.1 of the Draft EIS, on page 3-196, the Project will apply for a Conservation District Use Permit (CDUP), "...once the Project Final EIS is accepted...".

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1192.9

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL - 7 2009

Chancellor Rose Y. Tseng, Ph.D.
Office of the Chancellor
University of Hawaii at Hilo
200 W. Kawili Street
Hilo, Hawaii 96720-4091

Dear Chancellor Tseng:

Subject: Draft Environmental Impact Statement
Thirty Meter Telescope (TMT) Observatory Project
Maunakea, Hawaii

1 Thank you for the opportunity to provide comments for the subject project. The proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities, and we have no comments to offer at this time.

If there are any questions regarding the above, please have your staff call Mr. David DePonte of the Planning Branch at 586-0492.

Sincerely,

ERNEST Y. W. LAU
Public Works Administrator

DD:vca
c: OEQC
DAGS-Hawaii

1
Thank you, the Thirty Meter Telescope Project appreciates your review and participation in the process.

LINDA LINGLE
GOVERNOR

2009 JUN -5 AM 11: 12

UH-HILO
CHANCELLOR'S OFFICE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

BRENNON T. MORIOKA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRIAN H. SEKIGUCHI
JIRO A. SUMADA

IN REPLY REFER TO:

STP 8.3273

June 3, 2009

TMT Observatory Project
Office of the Chancellor
University of Hawaii at Hilo
200 W. Kawili Street
Hilo, Hawaii 96720-4091

Dear Chancellor:

Subject: Mauna Kea Thirty Meter Telescope (TMT) Observatory Project
Draft Environmental Impact Statement (DEIS)
TMK: 4-4-15: 9 and 12; 2-4-1: 7; and 6-7-2: undetermined parcel

Thank you for providing the subject DEIS for the State Department of Transportation's (DOT) review and comments. DOT understands that the subject project consists of the construction and operation of a new, thirty-meter telescope.

DOT previously commented on the subject project for the Environmental Impact Statement Preparation Notice (EISPN) in letter STP 8.3022, dated October 10, 2008. These comments remain valid for the DEIS. While DOT does not anticipate any significant adverse impacts to its transportation infrastructure resulting from the subject project, DOT asks that the applicant contact the Highways Division Hawaii District Office, telephone number (808) 933-8866, to discuss the need for an Oversize and Overweight Vehicles Permit for transporting large observatory equipment on State highway facilities. 1

DOT supports and appreciates the subject project's effort to institute a Ride-Sharing Program for the TMT Observatory, as well as for the Headquarters and Satellite Office employees.

DOT appreciates the opportunity to provide comments. If there are any other questions, please contact Mr. David Shimokawa of the Statewide Transportation Planning Office at (808) 587-2356.

Very truly yours,

BRENNON T. MORIOKA, PH.D., P.E.
Director of Transportation

c: Katherine Kealoha, Office of Environmental Quality Control

1
As discussed in Sections 3.11 and 3.19 of the Draft EIS, the Project will coordinate with HDOT regarding the issuance of an Oversize and Overweight Vehicles Permit at the appropriate time in the Project process.

LINDA LINGLE
GOVERNOR

MAJOR GENERAL ROBERT G. F. LEE
DIRECTOR OF CIVIL DEFENSE

EDWARD T. TEIXEIRA
VICE DIRECTOR OF CIVIL DEFENSE



STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE DIRECTOR OF CIVIL DEFENSE
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495



PHONE (808) 733-4300
FAX (808) 733-4287

2009 JUL -1 PM 4:22
UH-HILO
CHANCELLOR'S OFFICE

June 29, 2009

TMT Observatory Project
Office of the Chancellor
University of Hawai`i at Hilo
200 W. Kawili Street
Hilo, Hawaii 96720-4091

To Whom It May Concern:

Draft Environmental Impact Statement (EIS)
Thirty Meter Telescope (TMT) Observatory Project, Maunakea, Hawai`i

1 Thank you for the opportunity to comment on this development. We are concerned about the potential impact on cultural, historical, and archeological resources but defer to the Department of Land and Natural Resources on the practicality of the proposed mitigation measures.

If you have any questions please call Havinne Okamura, Hazard Mitigation Planner, at (808)733-4300, extension 556.

Sincerely,

EDWARD T. TEIXEIRA
Vice Director of Civil Defense

c: Office of Environmental Quality Control

1
Thank you for your review. The Project is coordinating with DLNR regarding the Project's potential impacts on cultural, historical, and archaeological resources and the Project's proposed mitigation measures.

6 JUL 2009

LINDA LINGLE
GOVERNOR

PATRICIA HAMAMOTO
SUPERINTENDENT

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

OFFICE OF THE SUPERINTENDENT

July 1, 2009

TO: Dr. Rose Y. Tseng, Chancellor
University of Hawaii at Hilo

FROM: for Patricia Hamamoto, Superintendent
Department of Education

SUBJECT: Environmental Impact Statement Comments for
Thirty Meter Telescope (TMT) Observatory Project
TMK 4-4-15:9 and 12, 2-4-1:7, and 6-7-2: undetermined parcel

1 The Department of Education has no comment or concern with the Thirty Meter Telescope Observatory Project but appreciates the opportunity to review the Environmental Impact Statement.

If you have any questions, please call Jeremy Kwock of the Facilities Development Branch at (808) 377-8301.

PH:jmb

c: Randolph Moore, Assistant Superintendent, OSFSS
Mary Correa, CAS, Kau/Keaau/Pahoa Complex Areas
Art Souza, CAS, Honokaa/Kealakehe/Kohala/Konawaena Complex Areas
Valerie Takata, CAS, Hilo/Laupahoehoe/Waiakea Complex Areas
Katherine Kealoha, OEQC

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

1
The Thirty Meter Telescope Project appreciates your review.

RECORD DETAIL

First Name :	Ryan
Last Name :	Riddle
Submission Date :	07/08/2009

Submission Content/Notes : A signed, official copy of the comments provided below will be faxed on 7/8/09.

July 7, 2009
RE: 0793

TMT Observatory Project
Office of the Chancellor
University of Hawaii at Hilo
200 W. Kawili Street
Hilo, HI 96720

Dear Whomever it May Concern:

Draft Environmental Impact Statement
Thirty Meter Telescope Observatory Project
Hamakua, South Hilo, and South Kohala, Hawaii

The proposed project would consist of the construction, operation, and eventual decommissioning of a thirty meter telescope (TMT) observatory on the northern plateau of Maunakea at an area referred to as 13N within Area E of the 525-acre Astronomy Precinct. The 13N site is located at 13,150 feet half a mile to the northwest of the eight existing observatories located near that summit. The TMT Observatory would take up 5 acres and be comprised of the telescope, adaptive optics system, dome, support building, and parking area. The dome encapsulating the telescope would have a total height of 180 feet and would likely have an aluminum-like exterior coating. The 35,000 square foot three-story support building would be attached to the building and be terraced to blend in with the area's natural contours. The project would also involve a 0.6 mile Access Way, a TMT Mid-Level Facility, a headquarters office in Hilo and a potential satellite office in Kamuela. The TMT Mid-Level Facility would consist of personnel facilities to initially support TMT Observatory construction, however, the facilities would ultimately be turned over to UH for general use.

This review was conducted with the assistance of Thomas Schroeder, Joint Institute for Marine and Atmospheric Research; and Ryan Riddle, Environmental Center.

General Comment

1 The draft environmental impact statement (DEIS) fails to adequately address an important alternative to the project, an alternate site in another country. Mauna Kea was not the only site considered for the thirty meter telescope. Another site in South America was among the sites in the running to host the telescope. Although it might be considered a substantial loss to U.S. scientific credibility and leadership, the possibility of selecting the Cerro Armazones site in Chile should have been explored in the discussion of alternatives. Section 11-200-17(F) of the Hawaii Administrative Rules requires the discussion of alternatives that could attain the objective of the action regardless of the cost of including alternate locations. Nowhere in the requirement of this section is the discussion of alternative locations limited to locations found in Hawaii. Even as the DEIS for the TMT is being prepared, negotiations for siting it in Chile are ongoing. In the examination of alternatives in the DEIS the option of locating the telescope in Chile must be discussed in order for it to be considered adequate.

In addition to our general comment, we also have several specific comments.

1
The site that was being considered in Chile is discussed in Chapter 5 of the Draft EIS. The proposing agency, the University of Hawaii at Hilo (UH Hilo), does not have any authority in Chile; therefore, the site in Chile is not an alternative available to them and is not discussed as an alternative in this State of Hawaii Chapter 343 EIS disclosure document.
UH Hilo and other decision-makers always have the freedom to decide not to proceed with the Project in Hawaii through a number of approval and agreement processes separate from this HRS Chapter 343 disclosure document process.

2

Fauna (p. 3-40)

In the last paragraph on page 3-40 the DEIS mentions that during a 1982 arthropod survey Wekiu bugs were present in low density in Type 5 habitats within Area E. What is meant by the term “low density” and at what threshold is this term applied?

3

Potential Environmental Impact (p. 3-47)

In the second paragraph on page 3-47 the DEIS states, “The CMP requires (Management Action FLU-5) that an airflow analysis be performed on the design of proposed structures to assess potential impacts to aeolian ecosystems . . . Because the TMT Observatory is not located on a cinder cone and Wekiu bugs are not normally present in the area, this requirement is not applicable to the Project.” What parameters does FLU-5 set for applicability?

Species or Habitat Displacement (pp. 3-47 – 3-49)

4

In the discussion of Access Way Option 3 the last paragraph on page 3-48 states, “The cinder here is considered to be good, but not optimal Wekiu bug habitat” in reference to Type 3 habitat. Can we infer from the list of six arthropod habitat types on page 3-40 that Type 2 would be optimal? What types would be considered good? What types would be considered poor?

12

In the first paragraph on page 3-49 the extent and location of potential habitat restoration is discussed, however, the DEIS never explains how this would be done. The DEIS states, “Should Option 3 be selected, it is envisioned that the disturbed area below the Subaru Observatory would be restored using methods described in the Outrigger Restoration Plan, which was never implemented.” What were the methods described in the Outrigger Restoration Plan?

5

Dust from Operations (p. 3-50)

On page 3-50 the DEIS states “Wekiu bugs only occupy habitats downwind of the Project sites during periods of high population, an uncommon event, and generally are more abundant elsewhere in the Maunakea summit region that would not receive dust from the Project areas.” What constitutes a “period of high population”?

6

Paved Road Through SMA Core Area (p. 3-50)

The DEIS states, “Wekiu bugs have been seen crossing dirt roads, but none have been observed crossing paved roads. Only Wekiu bugs that occasionally cross the dirt road while dispersing during periods of high population could be impacted by the pavement.” Does this mean that the Wekiu bug cannot cross pavement or only that the bug has not been observed doing so?

7

TMT Observatory Finish (pp. 3-62 – 3-64)

How many days per year is the summit snow-covered? While the extent of snow cover will understandably vary, it would be helpful to have some idea of the frequency of snow cover when considering the three different observatory finishes.

8

Soils and Slope Stability (pp. 3-78 – 3-79)

This section does not mention the presence or absence of permafrost. Can we assume that there are no areas of isolated permafrost in the

2

It is reported in Section 3.4, page 3-40, of the Draft EIS that, "During a 1982 arthropod survey Wekiu bugs were present in low density in Type 6 habitats within Area E, based on captures in 14 traps placed in the area." Details of the 1982 survey are available in the Howarth and Stone report, referenced in Appendix G of the Draft EIS. The Draft EIS uses the term low density to describe Wekiu bug presence in the lava flow habitat in 1982 based on the information in the report, including:

•on page 5: "Andesitic rock outcrops support low to moderate bug populations where the cracks and voids allow suitable refuge. Some of this catch may be due to dispersal from centers of populations during this unusually favorable year."
•And on pages 6 to 7: "Lava flows with large outcrops of andesitic rocks: ... The Wekiu bug appears to be relatively rare in much of this habitat, presumably because of the rarity of suitable microclimate and the lower surface area within the cracks and voids of the rocks."

3

Management Action FLU-5 of the CMP states, "Require an airflow analysis on the design of proposed structures to assess potential impacts to aeolian ecosystems." In Section 3.4.3, page 3-47, of the Draft EIS it is indicated that, "The Aeolian ecosystem is related to the Wekiu bug and the fact that its food supply consists of insects blown from lower elevations to the summit, where they come to rest and become Wekiu bug prey. Because the TMT Observatory is not located on a cinder cone and Wekiu bugs are not normally present in the area, this requirement is not applicable to the Project." The CMP and Natural Resources Monitoring Plan (NRMP) do not provide any parameters for the triggering of this airflow analysis requirement, but the Office of Mauna Kea Management (OMKM) has indicated it is not applicable to the Project due to its distance from Wekiu bug habitat.

4

Concerning the six types of Wekiu bug habitat listed on page 3-40 of the Draft EIS: Types 1 and 2 are considered optimal; types 3 and 5 are considered good; and types 4 and 6 are considered marginal. These assessments are based on information in the 1982 study, which first delineated these six habitat types, and subsequent studies in the summit region.

12

Section 3.4.3 of the Draft EIS discusses potential impacts to biological resources. On page 3-41 it is stated that "Although the [Access Way] Option 2 or 3 impact is evaluated to be less than significant, to comply with the CMP (Management Action FLU-6), the Project would prepare and implement a Habitat Restoration Plan to compensate for the loss of Type 3 Wekiu bug habitat...". CMP Management Action FLU-6 states "Incorporate habitat mitigation plans into project planning process."
Based on comments received during the Draft EIS public review period and the issues associated with the feasibility and effectiveness of any habitat restoration approach, the planned mitigation measure for the loss of sensitive habitat has been modified. The Project will no longer prepare or implement a Habitat Restoration Plan as outlined in the Draft EIS. As detailed in Section 3.4.3 of the Final EIS, the Project is in comliance with Management Action FLU-6 through (a) Project planning to avoid impacts, (b) monitoring of arthropod activity in the region of the Access Way's disturbance of cinder cone habitat prior to, during, and for two years following the construction of that portion of the Access Way, and (c) working with OMKM on the development and implementation of a habitat restoration study.

5

Section 3.4 of the Draft EIS refers to Wekiu bugs being present in the in the Thirty Meter Telescope Project areas or downwind of Project areas during periods of high population. Periods of high population, when Wekiu bugs inhabit Type 4 and 5 habitat, have only been recorded during a study in 1982. Monitoring has not been conducted every year, but has been conducted often enough to know that the population in 1982 was unusually high and that such events do not occur frequently. Even in the 1982 study, prior to follow up studies, the authors of the 1982 study recognized the year as "unusually favorable" for Wekiu bugs.

summit regions of interest that could interfere with construction activities?

9 Compatibility with Existing Uses (p. 3-120)

In reference to tourism, the DEIS states, “The Project is anticipated to result in a beneficial effect on tourism, stargazing, and sightseeing since many people may want to see the world’s most advanced observatory and the most powerful ground based telescope on earth.” This section should mention the possibility that some tourists and visitors may perceive the telescope differently and accordingly choose not to visit as a result of its construction.

10 Maunakea Summit Region - Air Quality (p. 3-135)

On page 3-135 the DEIS states, “The Maunakea summit area rises well above the atmospheric temperature inversions that occur around 7,000 feet. Particulates and aerosols like vog (volcanic gas), smog, dust, smoke, salt particles, and water vapors generated below the inversion level are “capped” by the temperature inversion, so they do not rise above the inversion level and do not cause any interference at the summit.” While this is generally true, there are exceptions. It is well known that anabatic currents can “sneak” along the slope and penetrate the inversion bringing among other things, insects to the summit. Along with the insects comes air from Hilo. While the overall effects are minor, this deserves a mention in the DEIS.

11 Hale Pohaku – Air Quality (p. 3-136)

The potential for inversion leakage should also be mentioned for Hale Pohaku as it would seem to be more of an issue at Hale Pohaku than at the summit.

Thank you for the opportunity to review this Draft EIS.

Sincerely,

Peter Rappa
Environmental Review Coordinator

cc: OEQC
Jim Hayes, Parsons Brinckerhoff
James Moncur, WRRC
Thomas Schroeder
Ryan Riddle

Stakeholder Type : Other

6
Wekiu bugs have been observed crossing unpaved roads, but have not been observed crossing paved roads. This fact, and the potential impact of paving the Access Way through the SMA core area is discussed in Section 3.4.3, page 3-50, of the Draft EIS.

7
Within Section 3.14, Climate, Air Quality and Lighting, of the Draft EIS it is stated that it is known that from November through March varying amounts of snow and ice regularly fall near the summit. The average number of days that snow is present varies year to year and there is no recorded average number of days. Text has been added to Section 3.5 of the Final EIS to clarify the periods when Maunakea could be covered in snow.

8
Permafrost is not mentioned in the Draft EIS because it is not believed that permafrost exists in the Thirty Meter Telescope Project area. The presence of permafrost in the summit region was reported by Woodcock in 1974 (referenced in Section 3.7.6 of the Draft EIS). He reported the existence of permafrost at Puu Wekiu; this permafrost was reported to have a limited breadth, of perhaps only 80 feet based on the study of surface exposures and shallow holes drilled for the study that passed through the permafrost at depths of 33 feet.
An article released on June 19, 2003, by the Hawaiian Volcano Observatory discussed the likelihood of permafrost at Lake Waiau, at an elevation of 13,020 feet (similar to that of the 13N Project site). It was written, "It seems unlikely that permafrost could survive beneath a Mauna Kea lake, because the average air temperature is too warm much of the year."

9

Comment acknowledged. While it is potentially true that the addition of the TMT Observatory to the summit of Maunakea may cause some tourists to choose to not visit the summit area, there are also many tourists that do come to Maunakea because they are interested in astronomy and their level of interest would increase with the potential to visit the world's most powerful telescope.
As suggested, the potential that some may perceive the TMT Observatory differently and, therefore, not want to visit the summit region, has been added to Section 3.10.3 of the Final EIS, which states: "However, others may perceive the TMT Observatory differently and, therefore, choose not to visit the summit region."

10

Section 3.14 of the Draft EIS summarizes climate, meteorology, air quality, and lighting conditions and evaluates the Thirty Meter Telescope Project's potential impact on these resources. Comments have pointed out that although the temperature inversion layer effectively caps particultes and aerosols below 7,000 feet, anabatic winds can on occasion come up the slopes of Maunakea, penetrating the inversion layer, bringing with them insects and relatively small volumes of air from the lower elevations.
This fact has been added to Section 3.14.1 of the Final EIS, which states: "However, anabatic winds can on occasion come up the slopes of Maunakea, penetrating the inversion layer, bringing with them insects and relatively small volumes of air from the lower elevations."

11

Section 3.14 of the Draft EIS summarizes climate, meteorology, air quality, and lighting conditions and evaluates the Thirty Meter Telescope Project's potential impact on these resources. Comments have pointed out that although the temperature inversion layer effectively caps particultes and aerosols below 7,000 feet, anabatic winds can on occasion come up the slopes of Maunakea, penetrating the inversion layer, bringing with them insects and relatively small volumes of air from the lower elevations.
This fact has been added to Section 3.14.1 of the Final EIS, which states: "However, as discussed above, anabatic winds can on occasion come up the slopes of Maunakea, penetrating the inversion layer, bringing with them insects and relatively small volumes of air from the lower elevations. This is likely more frequent at Hale Pohaku because it is closer to the inversion layer elevation."

William P. Kenoi
Mayor

BJ Leithead Todd
Director

Margaret K. Masunaga
Deputy

County of Hawai'i
PLANNING DEPARTMENT
Aupuni Center • 101 Pauahi Street, Suite 3 • Hilo, Hawai'i 96720
Phone (808) 961-8288 • Fax (808) 961-8742

July 7, 2009

University of Hawai'i at Hilo
Office of the Chancellor
200 W. Kawili Street
Hilo, HI 96720-4091

Dear Chancellor Tseng:

Subject: **Draft Environmental Impact Statement**
Thirty-Meter Telescope Observatory Project
Hamākua, South Hilo, and South Kohala Hawai'i
TMK: 4-4-15:9 & 12; 2-4-1:7; and 6-7-2: Undetermined parcel

Thank you for providing us an opportunity to comment on the Draft Environmental Impact Statement for the above project. Our comments are as follows:

1 Please add language in the final draft of the EIS that states the subject property is located within the Coastal Zone Management area (which encompasses the entire County).

If you have any questions, please contact Christian Kay of this department at 961-8136.

Sincerely,

BJ LEITHEAD TODD
Planning Director

CK:cs
\\Coh31\planning\public\wpwin60\CKay\Letters\EISPN RESPONSE\DEIS REPSONSE.UHH.30meter.doc

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1
Thank you for your input; Section 3.10 of the Final EIS has been revised to reflect the fact that the Project area is within the Coastal Zone Management area. The following has been added to the Final EIS: "State Coastal Zone Management (CZM) Program, HRS Chapter 205A. Administered by the Department of Business, Economic Development & Tourism, Office of Planning, the CZM area encompasses the entire state and extends seaward to the limit of the State's police power and management authority to include the territorial sea. The program is the State's resource management policy umbrella, and therefore, the guiding perspective for the design and implementation of allowable land and water uses and activities throughout the state."

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

2009 JUL -9 AM 11:03
UH-HILO
CHANCELLOR'S OFFICE

July 7, 2009

TMT Observatory Project
Office of the Chancellor
University of Hawai'i at Hilo
200 W. Kāwili Street
Hilo, HI 96720-4091

THIRTY METER TELESCOPE (TMT) OBSERVATORY PROJECT
DRAFT ENVIRONMENTAL IMPACT STATEMENT
HĀMĀKUA, ISLAND OF HAWAI'I, HAWAI'I
TAX MAP KEY (3) 4-4-015:009 AND 012; 2-4-001:007; AND 6-7-002

1 We have reviewed the subject Environmental Impact Statement and have no objections as there are no Department of Water Supply facilities in the area.

If you have any questions, please contact Mr. Finn McCall of our Water Resources and Planning Branch at (808) 961-8070, extension 255.

Sincerely yours,

Milton D. Pavao, P.E.
Manager

FM:dfg

copy - Office of Environmental Quality and Control

...Water brings progress...

The Department of Water Supply is an Equal Opportunity provider and employer. To file a complaint of discrimination, write: USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington DC 20250-9410. Or call (202) 720-5964 (voice and TDD)

1
The Thirty Meter Telescope Project appreciates your review.

William P. Kenoi
Mayor

Lono A. Tyson
Director

Ivan M. Torigoe
Deputy Director

County of Hawai'i
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
25 Aupuni Street • Hilo, Hawai'i 96720
(808) 961-8083 · Fax (808) 961-8086
http://co.hawaii.hi.us/directory/dir_envmng.htm

July 6, 2009

TMT Observatory Project
Office of the Chancellor
University of Hawai'i at Hilo
200 W. Kāwili Street
Hilo, HI 96720-4091

RE: Thirty Meter Telescope Observatory Project
Hāmākua, South Hilo and South Kohala
TMK: 4-4-15:9 and 12; 2-4-1:7; and 6-7-2: undetermined parcel

1 We have no comments to offer on the subject sale of leases

Thank you for allowing us to review and comment on this project.

Sincerely,

Lono A. Tyson
DIRECTOR

cc: OEQC

11771B

County of Hawai'i is an Equal Opportunity Provider and Employer.

1
The Thirty Meter Telescope Project appreciates your review.

William P. Kenoi
Mayor

Harry S. Kubojiri
Police Chief

Paul K. Ferreira
Deputy Police Chief

County of Hawaii
POLICE DEPARTMENT
349 Kapiolani Street • Hilo, Hawaii 96720-3998
(808) 935-3311 • Fax (808) 961-8865

2009 JUN -2 AM 10:
UH-HILO
CHANCELLOR'S OFFICE

May 29, 2009

TMT Observatory Project
Office of the Chancellor
University of Hawai'i at Hilo
200 W. Kawili Street
Hilo, HI 96720

Re: Draft Environmental Impact Statement
Thirty Meter Telescope (TMT) Observatory
Maunakea, Hawai'i

1

Staff, upon reviewing the provided documents, does not anticipate any significant impact to traffic and/or public safety concerns.

Thank you for allowing us the opportunity to comment.

If you have any questions, please contact Captain Kenneth Vieira of our S. Hilo Patrol Division, at 961-2214.

DEREK D. PACHECO
ASSISTANT POLICE CHIEF
AREA I OPERATIONS

KV/ST:lli

"Hawai'i County is an Equal Opportunity Provider and Employer"

1
The Thirty Meter Telescope Project appreciates your review.

TMT Draft EIS Public Meeting
Hilo High School Cafeteria
July 17, 2009

Representative Jerry Chang
218 S. Wilder Rd.
Hilo, Hawaii

1 Aloha, and thank you for the opportunity to testify on the proposed Thirty Meter Telescope. I support the project for the Mauna Kea location for the following reasons:

- Hawaii is fortunate to have one of the best geographical sites in the world for the study of astronomy. The state should take full advantage of this asset to secure the Thirty Meter Telescope, which would be the largest optical/infrared telescope in the world.
- The Draft EIS addresses plans to mitigate environmental concerns, and acknowledges the differing concerns on the impact on cultural resources. I believe these issues can be resolved satisfactorily given that the legislature just recently passed HB 1174, giving the UHH the authority to oversee management of the Mauna Kea lands.
- This bill, which is before the Governor for signature. Allows the University to adopt rules to address and reconcile any conflicts on the mountain. The administrative rules governing public and commercial activities on Mauna Kea lands are necessary to provide effective protection of cultural and natural resources from certain public activities and to help ensure public health and safety. The bill sets the stage for the proper management of Mauna Kea in a way that is respectful to all of its users.
- In addition, I support the project because I believe it will bring much needed economic development and opportunities to the Big Island. It will create highly skilled jobs for our young people interested in science, as well as construction and support services. It will attract top scientists from around the world to work and live on the Big Island.
- This is Hawaii's opportunity to show the world that we can support the advancement of science while preserving and respecting our host culture.

Thank you for the opportunity to testify.

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : ARTHUR

Last Name : HOKE

Submission Date : 06/27/2009

1 **Submission Content/Notes :** I am pleased that TMT has apparently chosen to be "open" and "public" in all of the "pre" processes involved to date. Continue to be open and public, solicit mitigation alternatives, and be inclusive of the Hawaiian communities and organizations, but please give preferential regard to the input from those who "Live in the shadows of Maunakea"

Stakeholder Type : Group- KAHU KU MAUNA

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

KAHU KU MAUNA COUNCIL
c/o Ed Stevens
76-6335 Leone Street
Kailua Kona, Hawai`i 96740

July 3, 2009

Office of the Chancellor
University of Hawai`i at Hilo
200 W. Kawili Street
Hilo, Hawai`i 96720-4091

Dear Chancellor,

SUBJECT: Comments on the Draft EIS for the TMT

1 The Kahu Ku Mauna Council, a cultural advisory body to the Office of Mauna Kea Management and the Mauna Kea Management Board, does not agree with the process of approving the Draft Environmental Impact Statement (DEIS) before the Comprehensive Management Plan (CMP) is completely assembled. The Board of Land and Natural Resources (BLNR) in a public hearing on April 9, 2009 approved the CMP with a condition that the four missing elements in the CMP which included (1) a Cultural Resources Management Plan, (2) a Natural Resources Management Plan, (3) a Public Access Plan and (4) a Decommissioning Plan, must be completed and made part of the CMP within one year of the approval date.

To approve the DEIS at this point would be premature, and combined with the approval of the incomplete CMP, would further undermine public confidence in the approving agencies and the land use planning process on Mauna Kea.

Thus, Kahu Ku Mauna cannot support this DEIS until such time that the CMP is made whole, and the impact of the four elements are included in the proposed Environmental Impact Statement.

Thank you for this opportunity to comment on the Draft Environmental Impact Statement for the Thirty Meter Telescope.

Ed Stevens

Ed Stevens (for)
Kahu Ku Mauna
Copy
Office of Environmental Quality Control
MKMB members
OMKM

1
The Thirty Meter Telescope Project has been working diligently to assure the Project will be in compliance with the Comprehensive Management Plan (CMP), the body of which has been available since January 2009. The four required sub-plans have been available as follows: the Natural Resources Management Plan (NRMP) was available in September 2009, the Cultural Resources Management Plan (CRMP) was available in October 2009, and the Decommissioning Plan (DP) and Public Access Plan (PAP) were made available in January 2010. The Management Actions described in the CMP and associated subplans have been incorporated into the Project and are documented throughout the Final EIS. As stated in Section 2.7.4 of the Final EIS, upon decommissioning, the Project will comply with the Decommissioning Plan. The Access Plan is to be implemented by UH and will not have an impact on the Project; the Project is not anticipated to impact access. The BLNR's conditional approval in April 2009 stated that all CMP components are to be completed prior to a project submitting a Conservation District Use Application (CDUA); the Project has not yet submitted a CDUA. Therefore, as required by BLNR's approval of the CMP and in HAR 13-5-24, an approved and complete management plan will be in place prior to BLNR's review of the Project's CDUA.
The Draft EIS is just that - a draft. The only "approval" in the HRS Chapter 343 process is the accepting authority's acceptance of the Final EIS. That acceptance, by the Governor in this case, only illustrates that the accepting authority accepts that Chapter 343 process was complied with and is complete.

'IMILOA
Astronomy Center of Hawai'i

600 'Imiloa Place
Hilo, Hawai'i 96720

(808) 969-9700 tel
(808) 969-9748 fax
www.imiloahawaii.org

7 July 2009

TMT Observatory Project
Office of the Chancellor
University of Hawai'i at Hilo
200 W. Kawili Street
Hilo, HI 96720-4091

'Auhea 'oukou e nā hoa kilo lani,

The 'Imiloa Astronomy Center of Hawai'i serves to unite efforts that advance knowledge and understanding of culture and astronomy, bridging communication between astronomers and the community. In so doing, 'Imiloa seeks to draw more young people into an appreciation and pursuit of science and engineering disciplines. In parallel, 'Imiloa programming reinforces the important educational contributions made by the observatories by highlighting scientific contributions, cultural sensitivity, and the investment of the observatories in the education of the Island's children.

Since its founding in 2006, 'Imiloa has developed exhibits and programming offered in Hawaiian and English to achieve its mission. In these years, 'Imiloa has served over 20,000 Hawai'i Island students and over 150,000 general public visitors. Against the backdrop of a declining economy and limited resources on Hawai'i Island, 'Imiloa seeks to expand its ability to reach all of Hawai'i's youth and families through its educational programs.

'Imiloa was instituted to bring together members of the Hawaiian and astronomy communities to share a common vision for the future. 'Imiloa's educational exhibits and programs celebrate Hawaiian culture and astronomy and show how science and culture can be united to advance knowledge, understanding, and opportunity.

If the Thirty Meter Telescope should come to Hawai'i, there will be even greater public interest in and need for 'Imiloa's exhibits and programs. Moreover, with TMT in place, more visitors will wish to travel to the Maunakea summit, and 'Imiloa plays a role in minimizing astronomy's impact on the mountain by instead attracting visitors to its facility in Hilo for an educational experience.

TMT's presence in Hawai'i will also prompt our youth and communities to seek to understand the astronomy enterprise in order to pursue future employment with the observatories, including TMT. 'Imiloa has an important role to play in building the motivation to study science and providing early learning opportunities that serve as a springboard to further study in astronomy and engineering. An excellent planetarium and astronomy museum, one that connects astronomy with the local culture, helps to develop the early educational experiences that set young people on the path to science careers.

1 TMT's draft EIS outlines its Workforce Pipeline Program and states that 'Imiloa would receive support and active participation from TMT through this program (p. 3-103). We would like to know the nature of the support contemplated and would like to ask for TMT's consideration – should the Thirty Meter Telescope locate to Hawai'i – in supporting 'Imiloa on an ongoing basis. Stable funding would ensure that 'Imiloa's education programs and operations continue developing in cooperation with the University of Hawai'i-Hilo and IfA, local observatories, including TMT, and other community partners to strengthen science and culture offerings in Hawai'i's schools through teacher development, after school programs, field trips for students, capped with follow up family visits. The seed funding for 'Imiloa's programs has been provided in the past by private donors and the US government.

'Imiloa strives to:

1. Increase student interest and participation in STEM disciplines using a cultural foundation
2. Promote and support the proper care for and respect of Maunakea through educational efforts that share the significance of the Hawaiian culture and Maunakea astronomy, including sharing with the world the latest astronomical discoveries from the observatories, including the TMT.
3. Provide a youth development program that exposes our young people to STEM careers and role models in STEM disciplines that are framed in culturally relevant terms.
4. Provide leadership support to efforts by NOAA and Hawaii Volcanoes National Park to integrate science learning and significance in ways that leverage the unique astronomical, marine, and geologic resources of Hawaii Island.

We know that TMT is aware of and recognizes the cultural and environmental significance of Maunakea to the community, particularly to Native Hawaiians, who relate to Maunakea as a significant connection to our ancestral origins. We hope that TMT can play a major role in helping 'Imiloa to fully realize its mission and further increase its outreach to Hawai'i's communities.

Na'u me ka 'oia'i'o,

Ka'iu Kimura
Associate Director
'Imiloa Astronomy Center of Hawai'i

1
The Workforce Pipeline Program (WPP) will be managed as part of the Thirty Meter Telescope Project training and staffing efforts by human resources, and coordinated with the Project's outreach and education programs. TMT began the development of the WPP with a workforce roundtable, which initiated information exchanges and close coordination with current and new programs on Hawai'i Island. Among those organizations with whom TMT is currently working with are: the University of Hawaii at Hilo (UH Hilo), including UH Hilo sciene, technology, engineering and math (STEM) programs; Hawai'i Community College (HawCC); the Workforce Investment Board; other workforce programs that train, retrain, and place trainees in jobs; current observatories; the Department of Education; and charter schools.
Additional details concerning the WPP developed since completion of the Draft EIS are provided in Section 3.9.4 of the Final EIS.
Unfortunately it is not possible to commit to a specific and stable funding mechanism from TMT to Imiloa through the WPP at this time. TMT has endeavored to support Imiloa and will continue to do so.
Beyond the WPP, TMT's outreach office will perform general outreach activities. General outreach activities will include working with Imiloa to develop educational, interpretive, and outreach exhibits and programs, including information materials that explore the connection between Hawaiian culture and astronomy.



KAHEA

THE HAWAIIAN-ENVIRONMENTAL ALLIANCE

PROTECTING

NATIVE HAWAIIAN

CUSTOMARY &

TRADITIONAL RIGHTS

AND OUR FRAGILE

ENVIRONMENT

Office
1149 Bethel Street, Ste. 415
Honolulu, HI 96813

Mailing Address
P.O. Box 37368
Honolulu, HI 96837

toll-free phone/fax
888.528.6288

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

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

July 7, 2009

2009 JUL -9 AM 11:03

UH-HILO
CHANCELLOR'S OFFICE

Chancellor Rose Tseng
University of Hawai'i at Hilo
200 W. Kāwili Street
Hilo, Hawai'i 96720-4091

Aloha Chancellor Tseng,

Mahalo for the opportunity to provide comments on the Draft Environmental Impact Statement (EIS) for the Thirty Meter Telescope (TMT) project. KAHEA: The Hawaiian-Environmental Alliance opposes this project. To be clear, KAHEA is not opposed to astronomy; rather, KAHEA is opposed to building a structure larger than a football stadium on Hawaiian sacred land that is also a state conservation district and the watershed for the island of Hawai'i. We believe it is not prudent to permanently sacrifice these natural and cultural resources for a project that will be obsolete in 50 years. The developers of the TMT have proposed to donate money to the community to help educate young people on Hawai'i Island in exchange for the harms the project will inflict on this sacred and fragile environment. KAHEA believes, however, that the children of Hawai'i Island should not have to let people desecrate their church in order to receive a decent education. We also find it offensive that proponents of the TMT invoke the name of deceased Hawai'ian monarchs in their attempts to win public support. Although King David Kalakaua demonstrated an interest in science and technology, including astronomy, we find it offensive to assume, as TMT supporters do, that King Kalakaua would support the colossal TMT on Mauna Kea.

Please address the following concerns in the final EIS for the TMT project.

1. Please explain how TMT justifies obtaining a conservation district use permit for a project that will continue to produce adverse cumulative impacts when state law prohibits the granting of a permit for projects that have "substantial adverse impact to existing natural resources."

Under Hawai'i Administrative Rules, the Department of Land and Natural Resources should not issue a Conservation District Use Permit for the TMT. The purpose of Hawai'i Administrative Rule § 13-5 is to regulate the use of important natural resources for the purpose of conserving, protecting, and preserving them. The rules

1
As stated in Section 3.10.3, page 3-116, of the Draft EIS, "The Project, an astronomical observatory, is an allowable use within the resource subzone (HAR §13-5-24) of a Conservation District (HRS §205-2), and consistent with the objectives of the resource subzone." In the Final EIS this statement has been corrected to indicate "...an astronomical observatory, is an identified use..."
Uses with potential environmental impacts may be authorized in the conservation district, through the issuance of a Conservation District Use Permit (CDUP), provided those impacts are disclosed in the EIS and are avoided, minimized, and mitigated to the extent practicable. As the Draft and Final EIS discuss in Section 3.16, past and current actions have resulted in substantial, significant, and adverse impacts to certain resources and those impacts would continue to be substantial, significant, and adverse if the Project proceeds. However, as outlined in Final EIS Sections 3.2 through 3.15, the TMT Project individually will not result in any significant and adverse impacts. As stated in Section 3.19 of the Draft EIS, the Project does require a CDUP for its uses within the conservation district and "The CDUP process ... would commence once the Project Final EIS is accepted and the required CMP sub plans had been submitted to the BLNR." Since the completion of the Draft EIS, the four CMP sub plans have been approved by the Board of Land and Natural Resources.

require a Board of Land and Natural Resources permit and management plan to develop a telescope on Mauna Kea. One of the criteria for the board's decision is that the "proposed land use will not cause substantial adverse impact to existing natural resources." The draft EIS, however, acknowledges that telescopes have had substantial cumulative impacts on the natural and cultural resources of the mountain. Given this criteria, on what grounds does the TMT expect to be granted a Conservation District Use Permit?

Interestingly, the TMT report is not the only environmental study that has found that telescopes have caused significant impacts on Mauna Kea. The final EIS created by NASA for its proposed Keck Outrigger Telescopes project found that the development of previous telescopes and other activities on Mauna Kea had desecrated traditional Hawaiian sacred sites and thereby "substantially and adversely affected cultural resources." The statement said that reasonably foreseeable future activities on Mauna Kea, including direct and indirect affects of telescopes, would continue "the substantial adverse impact on cultural resources." We believe that the state cannot ignore this previous EIS when deciding whether to allow the project, particularly when some conclusions are not inconsistent with the current draft EIS.

2 We also believe that the state must adhere to the Hawai'i Environmental Policy Act (HEPA) and other applicable laws when administering the TMT project. The state may argue that the recently passed Act 132 gives the University power to do as it sees fit on Mauna Kea, but that is not true. Notwithstanding the new law, Hawai'i Revised Statutes §304A-B states, "The board of regents may enter into lease agreements for the Mauna Kea lands; provided that the University of Hawai'i shall comply with all statutory requirements in the disposition of ceded lands." These statutory requirements include Hawai'i Revised Statutes § 343, or HEPA, as well as HAR § 13-5. In any event, the University has not yet written rules under Act 132, so there's not yet a way to apply Act 132.

Although the state may wish to ignore HEPA and HAR § 13-5 we urge the TMT to err on the side of caution when making decisions concerning environmental impact statements. Governor Lingle's administration has had difficulty helping large, high-profile projects navigate the environmental regulatory process in the past, and the Administration's mistaken understanding of the law in those cases has created enormous problems for all of the interested parties: proponents, opponents, investors, citizens, etc. We hope that the Administration and University will not ignore or misinterpret the law this time when they consider what they think is required of the TMT project. Given the Administration's previous costly legal errors, committed in the context of a project of even greater public importance than TMT, we think it unwise for TMT to rely solely on the Administration's interpretation of the law.

3 **2. Please explain why the University has not conducted a federal environmental impact statement, despite the fact that federal funding of the TMT project has triggered the National Environmental Policy Act, which requires a federal environmental impact statement.**

2
As clearly outlined in Section 1.2 of the Draft EIS, the Draft EIS and subsequent Final EIS are being prepared pursuant to Hawaii Revised Statutes (HRS) Chapter 343, the Environmental Impact Statement Law, and Hawaii Administrative Rules (HAR) Title 11, Chapter 200, the Environmental Impact Statement Rules.
As addressed in response to a previous comment, the Project will submit an application for the CDUP, as outlined in Section 3.19 of the Draft EIS.

3
The TMT Observatory Corporation has received limited funding from the National Science Foundation (NSF) for the development of technology that can be used on other telescopes. With respect to the construction, operation, or decommissioning of the Thirty Meter Telescope Project, no Federal agency, including the NSF, has provided or pledged funds for such construction, operation, or decommissioning. Nor is TMT required to obtain a permit, license or other approval from the United States prior to the construction or operation of the Thirty Meter Telescope (TMT) Project. Federal funding alone does not trigger an obligation on the part of the United States to comply the National Environmental Policy Act (NEPA) or the National Historic Preservation Act (NHPA). For example, the United States' obligation to undertake an environmental review under NEPA is triggered only if a "major Federal action" may significantly affect the environment. Similarly, the United States' obligation to comply with the NHPA is triggered only if there is a federal "undertaking" which is defined as an activity or project carried out under the jurisdiction of a federal agency. The United States' obligation to comply with NEPA and the NHPA has not been triggered with respect to this Project.

All major federal actions – that is, all actions by federal agencies – significantly affecting the environment must undergo environmental review under NEPA. The National Optical Astronomy Observatory Administration 2008 Annual Report to the National Science Foundation (NSF) reveals that NSF has been funding and will continue to fund the TMT project. By the end of 2008, TMT and the Giant Magellan Telescope, in conjunction, have received $8 million in direct and in-kind federal support from NSF. And, TMT has expressed its desire for continued NSF funding during construction and operations phases.

The 2005 NASA Final EIS for the Outrigger Telescopes clarified that where federal funds are involved, the NEPA process will be followed. As the federal funding source for approximately 20% of all federally supported research at colleges and universities, NSF is a federal agency taking action by funding the TMT project. The Council on Environmental Quality regulation 1508.18 clearly identifies actions that fall under the scope of NEPA to include "projects and programs entirely or partly financed...by federal agencies." Thus, partial financing of the TMT project by NSF triggers NEPA. Because National Science Foundation provides funding to the University for the TMT project, NEPA has been triggered, and the University must complete a federal environmental impact statement.

3. Please explain the University's failure to complete the Mauna Kea Comprehensive Management Plan and, thus, comply with the Land Board's conditional approval of the Plan and the 2007 3rd Circuit decision mandating complete Mauna Kea plans.

4 The Comprehensive Management Plan (CMP) is not yet comprehensive. The Land Board recognized this tragic flaw, when it approved the CMP on April 9, 2009. Thus, the Board's approval was contingent upon the CMP's completion within the next year or before the next telescope proposal, whichever came first.

With the TMT proposal on deck, the CMP must be completed prior to applying for a Conservation District Use permit. As the Land Board pointed out to the University in April, the CMP lacks any subplans for public access, natural resources, cultural resources, and decommissioning- all immense planning issues that must be finalized before moving forward. The complete CMP must address how decisions will be made regarding these fundamental components. And, the University must provide the Board with these subplans in writing and in person prior to submittal of a Conservation District Use Application. As legal overseer of the summit's management, the Board will review the subplans for approval or rejection.

The University's failure to follow the Land Board's order to complete the CMP is particularly egregious in the wake of the 2007 3rd Circuit Court decision that prevented construction of the Keck Outrigger Telescopes due to an incomplete plan. And, with the Land Board ruling on this particular project only a few months back, it is surprising that the University is failing to comply with the ruling nonetheless. The CMP must be completed before any proposal for construction in the Mauna Kea conservation district may proceed.

4
The Thirty Meter Telescope Project has been working diligently to assure the Project will be in compliance with the Comprehensive Management Plan (CMP), the body of which has been available since January 2009 and was approved by the BLNR on April 9, 2009, with conditions. The four sub plans required by CMP approval conditions have become available as follows: the Natural Resources Management Plan (NRMP) was available in September 2009, the Cultural Resources Management Plan (CRMP) was available in October 2009, and the Decommissioning Plan (DP) and Public Access Plan (PAP) were made available in January 2010. All four sub plans were approved by the Board of Land and Natural Resources (BLNR) on March 25, 2010.
The Management Actions described in the CMP and associated sub plans have been incorporated into the Project and are documented throughout the Final EIS. For example, as stated in Section 2.7.4 of the Final EIS: "The TMT Observatory and the extent of the Access Way exclusively used to access the TMT Observatory will be dismantled and the site restored at the end of the TMT Observatory's life in compliance with the Decommissioning Plan for the Mauna Kea Observatories, a Sub-Plan of the Mauna Kea Comprehensive Management Plan."
The Access Plan is to be implemented by UH and will not have an impact on the Project; the Project is not anticipated to impact access.
The BLNR's conditional approval in April 2009 stated that all CMP sub plan components are to be completed prior to a project submitting a Conservation District Use Application (CDUA); the Project has not yet submitted a CDUA but the conditions of the BLNR's approval of the CMP have been fulfilled. Therefore, as required by BLNR's approval of the CMP and in HAR 13-5-24, an approved and complete management plan will be in place prior to BLNR's review of the Project's CDUA and potentially providing the Project with a CDUP.

4. Please explain why the TMT EIS fails to consider the substantial and adverse cultural impacts as identified by NASA in the Outrigger Telescopes EIS.

5 The TMT EIS should incorporate the previously accepted EIS for the Outrigger Telescopes, which identified substantial adverse impacts to the environment, because such information is "pertinent to the decision at hand and has logical relevancy and bearing to the action being considered." Office of Environmental Quality Control Regulation, §11-200-13(B). In taking the requisite hard look at the environmental impacts of the TMT, the EIS should consider all relevant information, particularly those pertaining to adverse and substantial environmental impacts identified- and accepted- in a previous EIS for a similar project in the same location.

6 After all, the Hawai'i Environmental Policy Act states that the environmental review system is desirable for not only enhancing environmental consciousness but also encouraging cooperation and coordination. Haw. Rev. Stat. §343-1. Consideration and incorporation of the accepted NASA EIS is a prime opportunity for cooperation and coordination within the environmental review process for TMT, particularly because the TMT EIS lacks a discussion of relevant, adverse impacts that are addressed in the NASA EIS.

As one example, the TMT EIS lacks a critical assessment of cultural impacts. In contrast, the accepted NASA EIS identified serious cultural impacts. On page 4-73, the NASA EIS explained that "[f]uture activities on the summit of Mauna Kea would continue the substantial adverse impact on cultural resources." In contrast, the TMT EIS only considers cultural practices from the perspective that culture and astronomy can co-exist on Mauna Kea, after acknowledging that another widely held perspective is that Mauna Kea is too sacred for any development. TMT EIS, p. 3-19. Thus, the TMT EIS admits to only considering cultural impacts from the perspective of the TMT proponents. Mentioning, but failing to consider, all cultural perspectives disrespects the ignored views and, in the end, skews the conclusion.

5. Please explain why the TMT EIS lacks a substantive conclusion as to the level of cultural impact.

7 Not only does the EIS assess the level of cultural impact only from the singular aforementioned perspective, but it also fails to identify the level of impact. The EIS reaches the obvious conclusion that mitigation measures would lessen the potential cultural impacts, leaving the reader to wonder, lessen to what level?

As the NASA EIS identified, telescope development on Mauna Kea has a substantial adverse impact on cultural resources, but a lessening of impacts may not minimize the impact enough. Mitigation, by definition, entails a lessening. The important – and absent – part is the level after mitigation. In other words, the impact may still be substantially adverse after mitigation, but the TMT EIS is unwilling to quantitatively assess the cultural impact, as it is legally required to do.

5

The Final Environmental Impact Statement for the Outrigger Telescopes Project, Mauna Kea Science Reserve, NASA, 2005 (Outrigger EIS) was referenced in the Draft EIS as follows: Section 3.2.1, page 3-7; Section 3.2.6, page 3-25; Section 3.5.6, page 3-75; Section 3.7.6, page 3-91; Section 3.8.6, page 3-99; Section 3.9.6, page 3-104; Section 3.12.6, page 3-131; Section 3-13-6, page 3-134; and Section 3.14.6, page 3-140. An additional reference to the the Outrigger EIS has been included in Section 7.0 of the Final EIS. The TMT Chapter 343 EIS is in agreement with the Outrigger NEPA EIS when discussing the level of existing cumulative impact on Maunakea; the level of existing cumulative impact is discussed in Section 3.16.2 of the Draft EIS and identifies cumulative impacts to cultural, archaeological, biologic (in some zones), geologic, and visual resources to be substantial and adverse. When discussing potential project-specific impacts the conclusions in the Outrigger EIS and the TMT EIS may differ because the two project sites, Outrigger on a summit cinder cone and TMT on the northern plateau, are different and, therefore, have differing potential impacts.

6

Section 3.2.3 of the Draft EIS discusses cultural impacts from the perspective of two general opinions without dismissing or failing to consider either one. As discussed in response to comment above, the Draft EIS documents cumulative impacts in the same manner as the Outrigger EIS.
Section 3.16 of the Draft EIS clearly stated that "The existing level of cumulative impact on cultural, archaeological, and historic resources is substantial and adverse."

6. Please identify clearly the accepting authority for the EIS.

8 We understand that UH-Hilo is the proposing agency; the draft EIS states that clearly on the cover. The identity of the accepting authority, however, is less clear. Hawai'i Administrative Rules § 11-200-4 states that the governor or her authorized representative will be the accepting authority when an agency proposes an action that includes state lands. The TMT project fits that category of actions, but it is not clear who the governor has authorized as her representative. Written comments are submitted to the University of Hawai'i at Hilo. Does this mean the University is both the proposing agency and approving agency for the TMT project? Surely this cannot be the case, for it would be inappropriate to let the University be the party that decides the adequacy of the University's EIS. We believe the Department of Land and Natural Resources should be the accepting authority because the department is the agency most qualified to determine the significance of environmental impacts on a conservation district. After all, the DLNR is the agency solely in charge of granting Conservation District Use Permits, which are normally required for activities in conservation districts. For the governor to appoint an agency besides DLNR to be the accepting authority for the TMT EIS would not only be a gross abuse of the governor's discretion, but also make a mockery of Hawai'i's environmental rules.

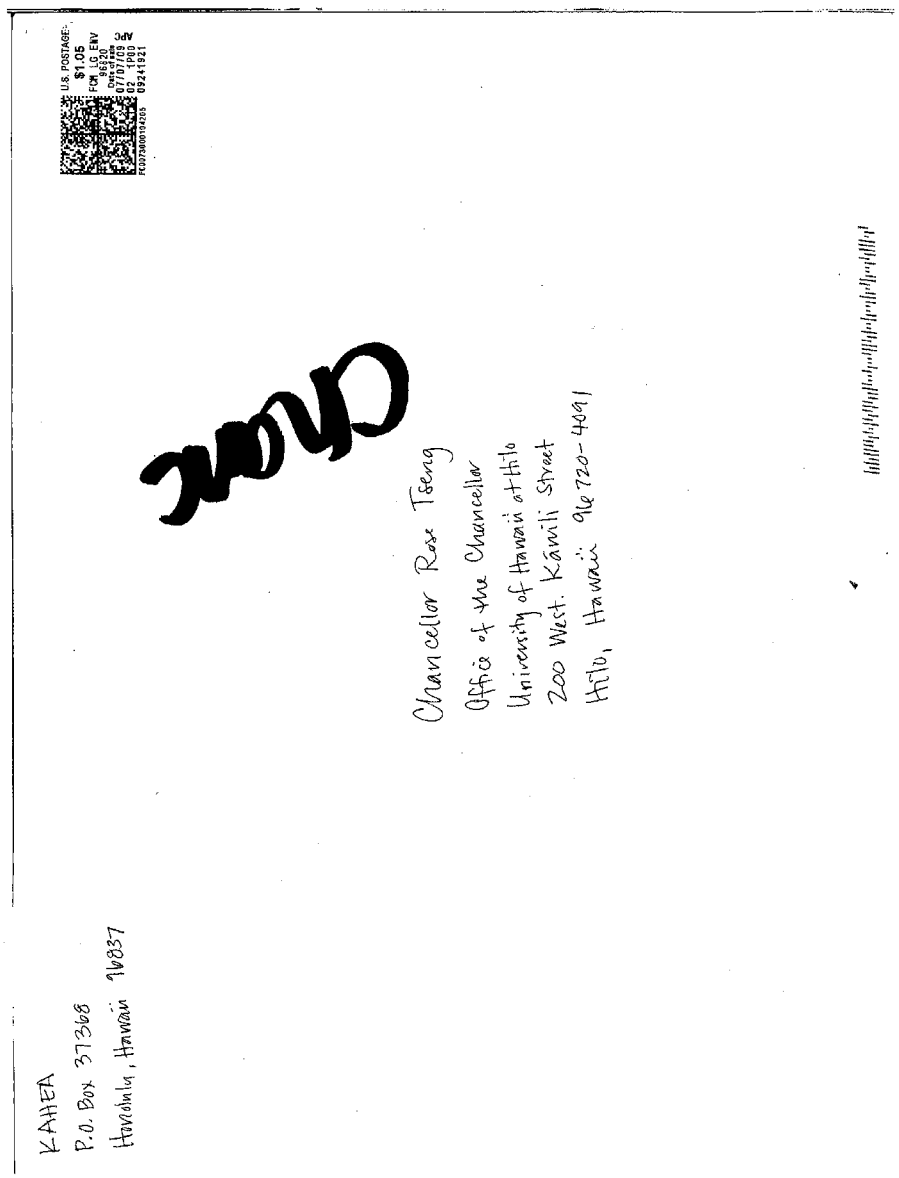
Mahalo for this opportunity to comment. We look forward to your responses.

Sincerely,

Miwa Tamanaha
Executive Director

Marti Townsend
Program Director

7
Section 3.2.3, pages 3-19 to 3-23, of the Draft EIS discussed the Project impact in the context of two board opinions and Section 3.2.2 outlines the thresholds used to determine the level of impact. Sectiion 3.2.5 discusses the level of impact after mitigation. These sections have been refined in the Final EIS as follows:
Section 3.2.2: "In accordance with the significance criteria provided in HAR Section 11-200-12 significance criteria, an action can be determined to have a significant impact if it: (1) involves an irrevocable commitment to loss or destruction of any cultural resource; or (2) substantially affects the cultural practices of the community or State. The first criterion applies to both historic properties as well as cultural practices, while the second addresses primarily cultural practices and beliefs.
"The majority of the historic properties found on Maunakea are man-made sites, such as shrines, ahu, and adze quarry workshops. Significant impacts would occur if those properties were physically altered or disturbed by the action. Historic properties are also discussed in Section 3.3.
"Other historic properties are significant because of their associations with cultural practices or beliefs, such as the three cinder cones recognized by the State as Historic Properties. Those types of historic properties would be significantly impacted if the action were to substantially alter the property or introduce new elements on or in the immediate vicinity of the property that substantially alter the setting in which cultural practices take place. New elements may include, but are not be limited to, visual elements, noise, traffic and human presence.
"Cultural practices would be significantly impacted if an action were to: (1) substantially alter or remove a location where those practices take place; (2) unduly restrict or prevent a cultural practice from taking place; or (3) introduce new elements that substantially alter the setting in which cultural practices take place. New elements may include, but are not be limited to, visual elements, noise, traffic and human presence."
Section 3.2.5: "As stated above, there are diverse opinions concerning the Project's potential impact on cultural resources.
For those of the opinion that any use, development, or disturbance of Maunakea by someone other than a Native Hawaiian is significant and unmitigatible, the Project's impact to the cultural, spiritual, and sacred quality of the summit region will be significant.
"For those who believe nature and Native Hawaiian cultural practices can co-exist with astronomy, through compliance with all applicable governmental laws, codes, ordinances, rules, regulations, requirements and procedures; conformance with UH Management Area planning and management documents and policies (including the 1983 and 2000 Master Plans and the CMP, including all its associated sub plans); and implementation of the identified mitigation measures and management procedures, the Project's potential adverse impacts will be incrementally reduced and be less than significant.
"The Project is not anticipated to result in any substantial or significant adverse effect on the cultural practices of the community or State. The Project's impact on cultural practices and beliefs after considering compliance and the identified mitigation measures will be less than significant pursuant to the significance threshold stated in Section 3.2.2, which is based on the HRS Chapter 343 significance criteria."



8

Section 1.2, page 1-1, of the Draft EIS indicates "Following publication of the Final EIS, the Governor of Hawaii will act on the EIS."
Section 3.19, page 3-196, of the Draft EIS indicates "The acceptance of the EIS pursuant to HRS, Chapter 343 by the Office of the Governor is a requirement of the Project in its entirety."
In the Final EIS Section 1.2 has been edit to read "Following publication, the Accepting Authority, the Governor of Hawai'i, will act on this EIS."
As indicated in the EIS, the Governor is the accepting authority under Hawaii Revised Statutes (HRS) Chapter 343, not the Department of Land and Natural Resources (DLNR) or any other agency. The Governor can seek input from various agencies, including the Office of Environmental Quality Control (OEQC) and DLNR, prior to acting on the EIS. By accepting the EIS the Governor will only be accepting that the EIS meets the requirements of HRS Chapter 343, not approving all aspects of the Thirty Meter Telescope Project.

To: TMT Observatory Project
Office of the Chancellor
University of Hawai`i at Hilo
200 W. Kawili Street
Hilo, Hawai`i 96720-4091

Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawai`i 96813

(Sent via electronic mail and/or U.S. Postal Service Certified-Return Receipt, postmarked 7/7/09)

DATE: July 7, 2009

RE: The Thirty Meter Telescope Draft Environmental Impact Statement

Aloha Pumehana Chancellor, TMT Board Members and Representatives,

Please find enclosed comments regarding the TMT Draft Environmental Impacts State (DEIS) filed on behalf of Ms. Kealoha Pisciotta, Mauna Kea Anaina Hou, Mr. Paul K. Neves, Royal Order of Kamehameha I and Mr. Clarence Kukauakahi Ching. We thank you for your time and consideration.

I. Introduction

Mauna Kea Anaina Hou (MKAH) represented by Ms. Kealoha Pisciotta, The Royal Order of Kamehameha I, Moku O Mamalahoa, Heiau Mamalahoa Helu `Elua (ROOK I) represented by Ali`i Aimoku Ali`i Sir Paul K. Neves, and individual Hawaiian Practitioner Mr. Clarence Kukauakahi Ching (Ching) are dedicated to preserving, protecting and perpetuating Native Hawaiian Traditional and Customary practices, including cultural and religious practices relating to Mauna Kea.

Mauna Kea Anaina Hou (MKAH), The Royal Order of Kamehameha I (ROOK I), Sierra Club (SC), individual practitioner Clarence Kukauakahi Ching (Ching) and others have been actively involved in legal action for the protection and conservation of Mauna Kea since 1995. We participated in two audits called by the State Legislature, recording 30 years of mismanagement on Mauna Kea at the hands of the State' Board of Land and Natural Resources (BLNR) and University of Hawai`i (UH). The State Auditor, found that Mauna Kea's resources had suffered at the expense of unregulated astronomy development, stating in relevant part,

1. **"[T]he University of Hawai'i's management of the Mauna Kea Science Reserve is inadequate to ensure the protection of natural resources, and that the Department of Land and Natural Resources [DLNR] needs to improve its protection of Mauna Kea's natural resources."** (1998 Audit of Management of Mauna Kea and Mauna Kea Science Reserve, P.15.)

We also participated in two major lawsuits in the US. District Court (Hawai`i), and the Third Circuit (Hilo) relating to the conservation of Mauna Kea. The cases were brought against the University (UH), University's Institute for Astronomy (UHIFA), State of Hawai`i's Board of Land and Natural Resources (BLNR), The University of California (UC), The California Institute of Technology (Caltech), the William M. KECK Foundation (KECK) and The National Aeronautics and Space Administration (NASA).

The NASA Federal Environmental Impact Statement (EIS) compelled by the federal court (OHA v. NASA, Civil No. 02-00227 (SOM/BMK), 2003) determined that the cumulative impact of thirty years of astronomy development had resulted in "substantial, adverse, and significant" impacts on the cultural and natural resources of Mauna Kea." (Please see NASA FEIS, 2005, at p. *xxi*).

Last year we provided extensive scoping comments relating to the proposed Thirty Meter Telescope Project (TMT). These comments included concern over TMT's compliance with, among other things, relevant state and federal laws, such as the National Environmental Policy Act as amended 1969

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1
The obligation to evaluate and disclose environmental impacts under the National Environmental Policy Act (NEPA) is triggered by a major Federal "action." A major Federal action, as defined in 40 CFR Section 1508.18, includes actions with effects that may be major and which are potentially subject to Federal control and responsibility, such as:
1. A project funded (including grants and loans) by a Federal agency,
2. A project located on Federal land, and/or
3. The issuance of a Federal permit, license, or other approval.
The Thirty Meter Telescope Project is not a Federal action because it (a) has not received funding or pledges of support from any Federal agency for the physical construction, operation, or decommissioning of any facility; (b) has no facility planned on Federal land; and (c) has not applied for and does not require a Federally-issued permit, license, or approval for the construction, operation, or decommissioning of facilities. Therefore, there is no extant major Federal action, and, thus the United States' obligations under NEPA have not been triggered.
Similarly, Section 106 imposes obligations only on a Federal "undertaking", which is defined as a project, activity, or program carried out under the jurisdiction of a federal agency.
The Project, as defined in Chapter 2 of the Draft EIS, is not a Federal undertaking because it is not being carried out under the jurisdiction of any Federal agency. Thus, Section 106 consultation requirements have not been triggered. The Draft EIS addressed consultations with Native Hawaiians and cultural practitioners through the Cultural Impact Assessment and HRS Chapter 6E Historic Preservation processes, as discussed in Sections 3.2, Cultural Resources, and Section 3.3, Archaeological/Historic Resources. Additional information has been included in these sections in the Final EIS.
The Project will comply with all applicable rules and regulations. A description of the land use plans, policies, and controls is described in Section 3.10 of the EIS.

(NEPA) the National Historic Preservation Act (NHPA), Section 106 (Consultation with Native Hawaiian Organizations), Hawai`i Revised Statutes 183C (HRS 183C), Hawai`i Administrative Rules 13-5 (HAR 13-5) relating to Conservation, HRS 343 and HAR 11-200 (relating to environmental and cultural preservation), Hawai`i State Constitution Article 12, Section(s) 1, 9 (relating to environmental protection and conservation), Section 7 (relating to certain Hawaiian traditional and customary practices).

In our scoping comments we also formally requested that TMT begin NHPA, Section 106 Consultations. The TMT DEIS fails to address the issues previously raised in our scoping comments, therefore, we incorporate by reference our previously filed scoping comments (October 22, 2008).

2

II. GENERAL ISSUES

Wasting public funds, and burdening the courts and the public

To be clear, UC and Caltech were parties (along with NASA and KECK) of the Outrigger Telescope(s) Project proposed for Mauna Kea in the 1990s. The Outrigger Telescope(s) project was opposed and eventually challenged in two courts of law (federal and state). We too were involved those lawsuits and the courts found in our favor in both cases.

The federal court ordered NASA *et al,* to comply with the National Environmental Policy Act (NEPA). The state court vacated the Conservation District Use Permit, for construction of the four to six Outrigger Telescope(s) and ordered a Comprehensive Management Plan (CMP) be competed prior to considering any further development on Mauna Kea. The Outrigger Project was not built here in Hawai`i.

There is no question the TMT Project must comply with both state and federal law. The TMT Project currently is complying with neither. Taking the same path the courts previously rejected is unreasonable.

3

2

As discussed in response to an earlier comment, NEPA and other Federal requirements, such as Section 106, have not been triggered.

3

The TMT Project is in the process of complying with HRS Chapter 343. As disclosed in Section 3.10.3 of the Draft EIS, the Project will comply with applicable land use plans, policies, and controls. In addition, Section 3.1.3 of the Draft EIS lists some of the applicable rules, regulations, and requirements with which the Project will comply. As discussed in response to an earlier comment, NEPA and other Federal requirements, such as Section 106, have not been triggered. If any of these federal requirements are triggered in the future, it will be the United States' obligation to comply with them, which presumably it will do.

Good Science-but at what cost?

TMT Representatives, (particularly UC and Caltech) your institutions are important academic institutions to the nation and the world. You have achieved great academic success. With greatness, comes great responsibility also. This responsibility, we hope includes caring for the land and its people. We have always supported good science. The TMT will produce good science, but, the real question is at what expense.

4 Is it good science to destroy the habitat of plant and animal species found
5 nowhere else on earth—including those on brink of extinction? Is it good science to destroy the landscape used in traditional Hawaiian ceremonies that provided the knowledge for our navigators to traverse, more than 10 million square miles of the Pacific, before the birth of Christ? Is it good science to build such a large
6 telescope atop our temple? Is it good science if the rule of law must be ignored to
7 achieve it? Is it good science, to push to built the TMT in Hawai`i, when you have already identified an environmentally preferred site (a site with less impact then Mauna Kea)—in Chile?

This DEIS is *not* representative of your past academic achievements and we pray, not your future academic achievements.

III SPECIFIC ISSUES

The TMT Draft EIS is filled with inaccuracies, misleading and/or false information and is wholly inadequate

1. TMT claims no federal funding used for Project

The TMT DEIS states,

> Federal rules, such as the National Environmental Policy Act (NEPA), do not apply to the Project, no Federal agency is involved

4
Section 3.4 of the Draft EIS discusses potential impacts on biological resources and Section 3.16 of the Draft EIS discusses cumulative impacts. The Thirty Meter Telescope Project is working with the community and scientists to avoid, minimize and mitigate for potential impacts to plant and animal species. As stated on page 3-42 of the Draft EIS, "There are no currently-listed threatened or endangered species known to occur in the Astronomy Precinct." Section 3.4.1 of the Final EIS, based on comments received during the Draft EIS comment period, has been revised to acknowledge that the endangered Hawaiian Hawk has been observed circling the summit region.
Also, while there are a number of threatened and endangered species potentially present at Hale Pohaku, as stated on page 3-45 of the Draft EIS, "A recent arthropod and botanical survey of the proposed TMT Mid-Level Facility site found no species listed as endangered, threatened, or that are currently proposed for listing under either Federal or State of Hawaii endangered species statutes."
Mitigation measures outlined in the Draft EIS to reduce the potential impact of the Project on threatened, endangered, or other native species include the Invasive Species Prevention and Control Program, outlined in Section 3.4.3, pages 3-48 and 3-49, and Section 3.15.1, pages 3-147 and 3-148. Please see Sections 3.4 and 3.15 of the Final EIS for additional information regarding the Project's potential impacts on biological resources and associated mitigation measures.

5
The Thirty Meter Telescope Project is working with the community and agencies to avoid, minimize, and mitigate potential Project impacts to cultural resources. Section 3.2 of the Draft EIS documents the Project's potential impacts and mitigation measures related to cultural resources. Please see Section 3.2 of the Final EIS for additional details related to cultural resources.

6
As discussed in reponse to previus comments, the TMT Project is in the process of complying with HRS Chapter 343 and will continue to comply with the rule of law.

7
No site was identified as an "environmentally preferred" site in the Draft EIS. Chapter 5 of the Draft EIS discusses the a site in Chile considered by the TMT Observatory Corporation; however, as explained in that Chapter, "it is not considered an 'alternative' for UH because UH cannot approve locating the TMT in Chile."

in the Project, **no Federal Funding is being use for the Project**, and the Project does not use Federal Land."
(TMT DEIS at p. 3-105, emphasis added)

A TMT representative publicly asserted the same during public scoping meetings (http://www.bigislandvideonews.com/maunakea/20081020dawson.htm). The TMT DEIS statements are false. The TMT project has received substantial federal funding from the National Science Foundation (NSF). NSF Award 0443999 confirms this. The NSF Award also confirms that $13 million federal tax dollars where awarded to the TMT and Giant Magellan Telescope (GMT), for *"(1) The Design and development phase for a 30-meter diameter segmented-mirror, optical/infrared telescopes, the Thirty Meter Telescope (TMT)."* Further confirmation of federal funding used by TMT is found in the Executive Summary second paragraph (http://www.noao.edu/dir/spo/GSMT-annual-report08.pdf).

Following NEPA

NEPA is the nation's law for protecting the environment.

The NEPA rules state,

> NEPA is not to generate paper work, even excellent paper work, but to foster excellent action... The NEPA process is intended to help public officials make decision that are based o the understanding of the environmental consequences, and take actions that protect, restore and enhance the environment." (40 CFR § 1500.1, 1502.1)

The National Science Foundation (NSF) funding of the project, constitutes a significant federal undertaking. Neither NSF as the funding agency nor the TMT as the receiving agency has prepared a federal level environmental review document (i.e. an Environmental Assessment (EA) or Environmental Impact Statement (EIS)) pursuant to the National Environmental Act, as amended 1969, relevant federal rules and regulations, and legal precedent (court made law).

Listing the University of Hawai`i at Hilo (UHH)–a state agency, as the proposing agency on the TMT DEIS does not allow the Project to escape federal

8

The TMT Observatory Corporation has received limited funding from the National Science Foundation (NSF) for the development of technology that can be used on other telescopes. With respect to the construction, operation, or decommissioning of the Thirty Meter Telescope Project, no Federal agency, including the NSF, has provided or pledged funds for such construction, operation, or decommissioning. Nor is TMT required to obtain a permit, license or other approval from the United States prior to the construction or operation of the Thirty Meter Telescope (TMT) Project. Federal funding alone does not trigger an obligation on the part of the United States to comply the National Environmental Policy Act (NEPA) or the National Historic Preservation Act (NHPA). For example, the United States' obligation to undertake an environmental review under NEPA is triggered only if a "major Federal action" may significantly affect the environment. Similarly, the United States' obligation to comply with the NHPA is triggered only if there is a federal "undertaking" which is defined as an activity or project carried out under the jurisdiction of a federal agency. The United States' obligation to comply with NEPA and the NHPA has not been triggered with respect to this Project.

9

The obligation to evaluate and disclose environmental impacts under the National Environmental Policy Act (NEPA) is triggered when a federal agency proposes a major federal action that would significantly affect the environment. Neither the University of Hawaii at Hilo (UH Hilo) nor the TMT Observatory Corporation is a federal agency. Further, neither UH Hilo nor the TMT Observatory Corporation has received funding or pledges of financial support from any Federal agency for activities that will or may significantly affect the environment, nor has either entity applied for any federally-issued permit or license. Therefore, the United States' obligations under NEPA have not been triggered.

legal requirements, it means either the UHH will be "federalized" for the purpose of fulfilling NEPA and the NHPA, or will cause UHH to be enjoined in any legal challenges brought against this process.

Following NHPA

10 The TMT is proposing to use Mauna Kea summit lands, which are eligible for listing on the National Historic Register, yet TMT has not begun Section 106
11 consultations under the National Historic Preservation Act (NHPA). Again, we made formal requests in our scoping comments calling for NHPA, Section 106 Consultation to begin. The U.S. District Court (Hawai`i) affirmed,

> NHPA mandates that a federal agency "shall consult... with any Native Hawaiian organization that attaches religious and cultural significance" to properties eligible for the inclusion on the National Register." (OHA v. NASA, Civil No. 02-00227 (SOM/BMK), 2003, p. 18 of 39)

The **State Historic Preservation Office**, TMT DEIS review letter dated June 26, 2009, states:

> Agencies Involved: Section 2.0 states that the TMT Observatory Corporation is a private non-profit partnership. Your memo dated May 28, 2009 notes that the National Science Foundation released the DEIS. There is no mention of the NSF in the DEIS, and we presume that is the case. If the NSF is involved, this project is subject to review under the National Historic Preservation Act, Section 106 (36 CFR 800).
>
> And,
>
> The DEIS and draft archeological Assessment for Area E (Appendix E) does not address impacts to the Mauna Kea Summit Historic District.

TMT representatives appear to understand what federal laws require, yet continue to ignore them. (Please see TMT comments below). The idea that TMT can move forward "independent of anything that happens with the

10
Section 106 of the National Historic Preservation Act (NHPA) imposes obligations on federal agencies, not state or local agencies or private entities. The actions of the National Science Foundation (NSF) to date and the Project, as defined in Chapter 2 of the Draft EIS, is not a Federal "undertaking," as defined by Section 106 and, thus, Section 106 consultation requirements have not been triggered by NSF's actions.
The Draft EIS addressed consultations with Native Hawaiians and cultural practitioners through the Cultural Impact Assessment and HRS Chapter 6E Historic Preservation processes, as discussed in Section 3.2, Cultural Resources, Section 3.3, Archaeological/Historic Resources, and Appendix D. Additional information has been included in these sections in the Final EIS.

11
As discussed in response to previous comment, the Project is not a Federal undertaking; therefore, although scoping comments requested Section 106 consultations be performed, they technically could not be done.
The Draft EIS addressed consultations with Native Hawaiians and cultural practitioners through the CIA and HRS Chapter 6E Historic Preservation processes, as discussed in Sections 3.2, Cultural Resources, and Section 3.3, Archaeological/Historic Resources; Appendix D contains the CIA. Additional information has been included in these sections in the Final EIS to address the comments of the State Historic Preservation Division.

12 Comprehensive Management Plan" is erroneous. The TMT may not move forward without a completed and approved CMP.

> "The federal government, federal agencies, they make that decision. We don't. And what triggers NEPA (National Environmental Protection Act) is a significant federal action," said Michael Bolte, director of California's Lick Observatory and member of the TMT Board of Directors.
>
> Regarding the Mauna Kea Comprehensive Management Plan, "we are an independent process. The legal opinions are that right now we can go forward completely independent of anything that happens with the Comprehensive Management Plan."
>
> Hawaii Tribune-Herald June 17, 2009, at http://www.hawaiitribuneherald.com/articles/2009/06/17/local_news/local03.txt

2. State Law

The TMT DEIS states;

> Today, there are 11 observatories...
>
> (TMT DEIS, p. P-3)

13 In 1983, yhe state set a limit on the size, dimension and number of the
14 *telescopes*. That legal limited has not been changed. There are currently 21 telescopes on Mauna Kea. The TMT DEIS, uses semantics and number games so that the preparers can count the giant twin Keck telescopes as one (because they have a single owner), the Smithsonian Array (which has eight individual six meter telescopes and potential for twelve more placed on 24 individual pads strewn across a half mile in diameter area), and then completely leave the Very Long Baseline Array (VLBA) out of the count.

15 State law requires (HRS 183C, HAR 13-5) an astronomy facility such as the TMT to obtain a Conservation District Use Permit (CDUP) issued by the Hawai`i Board of Land and Natural Resources (BLNR). A CDUP can only be issued after the completion of Comprehensive Management Plan (CMP). The Third Circuit Court in its recent ruling stated in relevant part,

> Hawai`i Administrative Rules (HAR) 13-5 (adopted September 6, 2006), are the rules adopted by the Department of Land and Natural Resources

12
The CMP was approved by the BLNR on April 9, 2009, with conditions. Certain individuals and organizations requested a contested case proceeding for the CMP approval. The BLNR denied the request since a contested case hearing was not required by law and those requesting it did not establish a property interest in the CMP or that the CMP would affect property in which they possessed an interest. In approving the CMP, the BLNR required that UH be responsible for the implementation of the CMP subject to oversight of the BLNR. Failure to comply with the BLNR's conditions of approval of the CMP may result in sanctions. Hence the CMP and its conditions of approval have legal force and effect.

13
There is no set "limit" on the number of telescopes or observatories on Maunakea. The 1983 Master Plan states on page 41, "Based on the RDP [Research Development Plan], the SRCDP [Science Reserve Complex Development Plan] identifies siting areas for a total of thirteen telescopes on the mountain by the end of the century. Although the actual number of facilities which will be realized by the astronomy program at Mauna Kea will depend on the demand and on the role determined for this activity by public policy makers, the University of Hawaii has determined that it is resonable and feasible to project a total of 13 telescopes on the mountain between now and the year 2000." The 1983 Master Plan is silent on the number of observatories that could be built after the year 2000 and overall the number of observatories is left to public policy makers.
The 2000 Master Plan, which is the most current master plan for the UH management areas, does not identify a limit on the number of observatories on Maunakea but does limit the area of future development to within the Astronomy Precinct.

14
An observatory is clearly defined in Section 2.1 of the Draft EIS as follows:
"An observatory includes the telescope(s), the dome(s) that contain the telescope(s), and the instrumentation and support facilities for the telescopes that fall under a common ownership."
By this definition there are 11 observatories and one radio telescope on Maunakea. Various other documents have failed to differentiate between an observatory and a telescope or defined an observatory in a variety of different ways without consistency. The information included in the Draft and Final EIS is meant to provide information about existing observatories and telescopes based on clearly defined parameters, as well as to provide consistency within the document.

15
As disclosed in Section 3.19, page 3-196, of the Draft EIS, the Project requires a CDUP. The BLNR's conditional approval in April 2009 stated that all CMP components are to be completed prior to a project submitting a Conservation District Use Application (CDUA); the Project has not yet submitted a CDUA and the conditions of CMP approval have now been met (completion of the four sub plans). Therefore, as required by BLNR's approval of the CMP and in HAR 13-5-24, an approved and complete management plan will be in place prior to BLNR's review of the Project's CDUA.

(DLNR) applicable to "Conservation Districts." The statutory authority cited in these rules is Hawai`i Revised Statutes (HRS) Chapter 183C...

HAR 13-5-24 (c) (4) states, "Identified land use beginning with the letter (D) (***i.e.* such as Astronomy Facilities**) require a board permit, and where indicated, a management plan." (Emphasis added for clarity)

(Mauna Kea Anaina Hou *et al.*, Civil No. 4-1-397, 2006, p. 2-3)

3. TMT DEIS cites to and relies upon documents that do not exist and/or have no force or effect of law

The TMT DEIS states,

> The operation of the Project, in accordance with the CMP and proposed mitigation measures, would not result in a significant adverse impact....the Project would not significantly increase or reduce the existing level of cumulative impacts do to all past and present activities, which in some cases is significant. The potential impact associated with the Access Way Option 3 is considered significant because it would reshape, of "cut" the TCP of Kukahau`ula, the summit cinder cones. Access Way Option 3 would also displace some "good" Wekiu bug habitat, but in compliance with the CMP, should Access Way Option 3 be chosen, a Habitat Restoration Plan would be prepared and implemented to compensate for this potential impact." (Emphasis added for clarity)
>
> TMT DEIS, at p. S-6

There is no Comprehensive Management Plan

There are a number of problems with the TMT DEIS statement cited above.

16 First, by law the BLNR must prepare and adopt a CMP, because the BLNR, NOT the UH, is the State agency statutorily and constitutionally mandated to oversee all Conservation Districts in Hawai`i. The UH's position has been and continues to be that they, instead of the BLNR can prepare the CMP. This is erroneous. The UH prepared their "Plan" anyways, but it was neither "comprehensive" nor a "management plan." It was incomplete omitting

16
The CMP was approved by the BLNR on April 9, 2009, with conditions. Certain individuals and organizations requested a contested case proceeding for the CMP approval. The BLNR denied the request since a contested case hearing was not required by law and those requesting it did not establish a property interest in the CMP or that the CMP would affect property in which they possessed an interest. In approving the CMP, the BLNR required that UH be responsible for the implementation of the CMP subject to oversight of the BLNR. Failure to comply with the BLNR's conditions of approval of the CMP may result in sanctions. Hence the CMP and its conditions of approval have legal force and effect.

entire sections and failed to provide a cumulative impact evaluation on the resources by further development - the very issue it was supposed to decide. How many telescopes will be located on the summit and where, and at what cost? Not the plan Judge Hara (Third Circuit) ordered.

UH "Plan" not approved

17 Second, while the UH did present their "Plan" to the BLNR, the BLNR agreed it was not comprehensive. The UH "Plan" was NOT approved by the Board of Land and Natural Resources in April, 2009. Environmental and Native Hawaiian groups requested a contested case hearing. When a request is submitted, no decision may be made until the hearing is finished. A judge can not decide a case before the evidence is submitted.

18 Third, while the state is still determining if they will grant a Contested Case Hearing, even if they do not grant the hearing the UH Plan will be challenged by us directly in to the court, because it has provisions that conflict with the state constitution including those that protect environmental and Native Hawaiian rights.

19 Four, the TMT DEIS may not rely on a document that does not exist to claim the Project "would not result in adverse impact."

The UH Master Plan 2000

20 The TMT DEIS repeatedly cites to and relies on the UH Master Plan 2000 (MP2000). This document was never approved by BLNR and therefore has no force or effect of law. Judge Hara of the Third Circuit court affirmed this, stating in relevant part,

> The Board of Regents did adopt a management plan for Mauna Kea in the year 2000. The Regents' management plan was not, however adopted by BLNR. It is clear from the context of the terms of HAR chapter 13-5, that the "management plan" as defined therein as required in order to permit R-3 use is one that must be adopted by the BLNR...The court concludes as a matter of law in construing the requirement of a "management plan" as required by HAR 13-5-24 R-3 that the UH submitted for the project

17
As discussed in response to previous comment, the CMP as approved is currently a valid enforceable plan, regardless of status of challenges.

18
As discussed in response to comment above, the CMP as approved is currently a valid enforceable plan, regardless of potential challenges.

19
As discussed in response to comment above, the CMP as approved is currently a valid enforceable plan. Furthermore, the Draft EIS relies on a number of studies, plans, scientific papers, and other sources to evaluate the Project's potential impacts on the environment.

20
The 2000 Master Plan is referenced throughout the Draft EIS, including Chapter 2 and Section 3.10. Section 3.10.3 of the Draft EIS outlines the Thirty Meter Telescope Project's consistency with land use plans, policies, and controls. The Draft EIS neither states nor suggests that the 2000 Master Plan was approved by the Board of Land and Natural Resources (BLNR). The 2000 Master Plan was prepared by UH through a process that included broad community input as well as coordination with governmental agencies, including the Department of Land and Natural Resources (DLNR). A Draft and Final EIS were prepared and the 2000 Master Plan was adopted by the University of Hawaii (UH) Board of Regents (BOR) and implemented. Although the 2000 Master Plan was not officially approved by the BLNR, the Master Plan is the guiding document for the University of Hawaii at Hilo (UH Hilo), the proposing agency for the Project. Therefore, the 2000 Master Plan, which built on the 1983 Master Plan, is pertinent to the Project. In addition, the wealth of scientific information in the 2000 Master Plan remains valid and valuable. References to the 1983 Master Plan have been included in the Final EIS for the Project where applicable, including Chapter 2 and Section 3.10. Like the 2000 Master Plan, the 1983 Master Plan was never approved by the BLNR.

(NOTE: UH submitted a second plan also) is one that does not meet the requirements of HAR 13-5.

(note added, see Mauna Kea Anaina Hou *et al.*, Civil No. 4-1-397, 2006, p. 4-8)

21 The Astronomy Precinct, the Office of Mauna Kea Management and other UH functionalities are established in the MP2000, which has no force or effect of law. While the UH may make rules and plans governing themselves (for the observatories), they do not have the constitutional and statutory mandate to oversee the Conservation District land. The UH is only renting the land, and a renter does not direct the landlord. The State is the land lord and holds all these lands (as Ceded and Conservation lands) in trust for the people of Hawai`i (specifically Native Hawaiians and the general public). Furthermore, the UH's lease requires the UH to comply with *all* state law, including the constitution.

The TMT DEIS may not rely on documents to evaluate the environmental impacts that have no force or effect of law.

Cumulative Impact

The TMT DEIS fails to adequately analyze cumulative impact the environmental and cultural resource of Mauna Kea.

22 First, on page S-6 the TMT DEIS contends, "The Project would not significantly increase or reduce the existing level of cumulative impacts due to all past and present activities, which in some cases is significant." On page 3-193, however, the DEIS states the opposite, "...the impact of past, present and the Project together with other reasonable foreseeable future actions on cultural resources is substantial, adverse and significant." The above statements are contradictory.

23 Second, the Executive Summary should contain accurate information regarding the cumulative impact the Project will have on the cultural resources, especially since decision makers with time constraints may get through the

21
The TMT Project EIS does not direct DLNR in anyway. The Project EIS was prepared to comply with applicable State laws, specifically HRS Chapter 343.

22
The statement in the summary section of the Draft EIS is general and recognizes that there are existing cumulative impacts, some of which (including cultural) are significant.
The statement in Section 3.16 of the Draft EIS is more detailed and recognizes that the impact of past, present, and the Project together with other reasonable foreseeable future actions (the cumulative impact) on cultural resources is substantial, adverse, and significant.
The two statements are not contradictory as they both come to the same conclusion: the level of cumulative impact to cultural resources is significant.

23
The fact that the cumulative impact to cultural, archaeological, and historic resources is significant and the cumulative impact to other resources has been added to the summary in the Final EIS. The Executive Summary in the Final EIS includes the following:
"Cumulative Environmental Impacts
"From a cumulative perspective, the impact of past and present actions on cultural, archaeological, and historic resources is substantial, significant, and adverse; these impacts would continue to be substantial, significant, and adverse with the consideration of the Project and other reasonably foreseeable future actions.
"The cumulative impact of past and present actions to geologic resources in the astronomy precinct has been substantial, significant, and adverse, primarily due to the reshaping of the summit cinder cones. The cumulative impact to the alpine shrublands and grasslands and mamane subalpine woodlands has also been substantial, significant, and adverse, primarily due to grazing by hoofed animals and establishment of invasive plants. These impacts would continue to be substantial, significant, and adverse with the consideration of the Project and other reasonably foreseeable future actions.
"The magnitude or significance of cumulative impact to the alpine stone desert ecosystem from activities to date is not yet fully determined.
"The cumulative impact of past and present actions to other resources, such as water resources, the sonic environment, and traffic, has been less than significant.
"The cumulative socioeconomic impact has been substantial and beneficial; the substantial and beneficial impact would continue should the Project and other reasonably foreseeable future actions occur.
"In general, the Project will add a limited increment to the current level of cumulative impact. Therefore, those resources that have been substantially, significantly, and adversely impacted by past and present actions would continue to have a substantial, significant, and adverse impact with the addition of the Project. For those resources that have been impacted to a less than significant degree by past and present actions, the Project would not tip the balance from a less than significant level to a significant level and the less than significant level of cumulative impact would continue."

summary as opposed to the entire document. Decision maker cannot make informed decisions without all of the necessary information.

24 Third, while the document acknowledges the Project will have substantial, adverse and significant impacts, it does not adequately describe all the impacts outlined in our scoping comments and cultural impact statement comments. (see below for more details on cultural and environmental impacts not considered in this DEIS).

25 Lastly, the cumulative impact assessment is not correct. The U.S. District Court (Hawai`i) explains more on Cumulative Impact,

> "Cumulative impact" is defined 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 (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from other individually minor but collectively significant actions taking place over a period of time. 40 C.F.R. § 1508.7. NASA's cumulative impacts section, which takes up only three pages in the 125-page EA, does not include an appropriate analysis. First, although the EA recognizes that cumulative impacts "refer to the incremental environmental 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,'" the cumulative impacts analysis section omits any mention or consideration of the effects of past actions. See EA at 123-25 (citing 40 C.F.R.§ 1508.7).
>
> (OHA v. NASA, Civil No. 02-00227 (SOM/BMK), 2003, p. 20-21)

And,

> NASA's own contentions regarding the EA's discussion of cumulative effects suggest that NASA misunderstands the nature of the "cumulative impact analysis" required under NEPA. For instance, NASA contends that "[t]he EA presents a clear snapshot of past, present, and future activities,"...The cumulative impact analysis, however, requires more than a "snapshot" or mere description of past activities or existing environmental conditions. Rather, the EA must should analyze the effects of those activities. No such analysis is to be found in the EA. The EA focuses instead on existing conditions only to address the incremental impact of the outrigger telescopes project. See NASA Opp. at 40 (stating that the EA "reviews existing traffic levels, power usage, socioeconomic conditions

24
Responses are provided to detailed comment below.

25
Cumulative impacts are discussed in detail in Section 3.16 of the Draft EIS. Although the Draft EIS is not a NEPA document it does present a cumulative impact analysis that is consistent with NEPA requirements.

and addresses impacts from the Outrigger Telescopes Project in conjunction with these current conditions" and that the EA "reviews the impact of the Outrigger Telescopes on existing viewscapes through comparison to the current landscape"). The EA, however, should take into account more than the incremental change "in comparison to" the current environment, regardless of whether past changes in the environment are attributable to the agency or not. *Id.*, p. 25-26

Impacts to Mauna Kea

26 Mauna Kea's cultural and religious significance is well documented in oral and written historical archives, as well as in legislative and court records. Stating and/or discussing its significance of Mauna Kea to the Hawaiian people, does not qualify as assessing negative impact, nor does it qualify as mitigation.

Mauna Kea is revered in the same way that other religions revere their churches, temples, synagogues, and mosques. The upper regions of Mauna Kea reside in Wao Akua, the realm of the Akua-Creator. It is considered the Temple of the Supreme Being, and also home of Na Akua (the Divine Deities), Na 'Aumakua (the Divine Ancestors), and the meeting place of Papa (Earth Mother) and Wakea (Sky Father) who are considered the progenitors of the Hawaiian People. Mauna Kea, it is said, is where the Sky and Earth separated to form the Great-Expanse-of-Space and the Heavenly Realms. Mauna Kea in every respect represents the zenith of the Native Hawaiian people's ancestral ties to Creation itself.

27 Mauna Kea, as a Wahi Kapu, is dedicated to life, peace, and Aloha. Anything that is contrary to these mandates impacts the temple and those who worship there. While the Hawaiian (and Polynesian) people's relationship with Mauna

28 Kea dates back many millennia, the Mauna is used by many people today for spiritual practices and recreational enjoyment. What happens to the land and life forms of Mauna Kea impacts us all.

26

Section 3.2.1 of the Draft EIS documents Maunakea's cultural and religious significance. Section 3.2.3 of the Draft EIS discloses potential Project impacts to cultural resources. The Draft EIS does not claim that documenting Hawaiian traditions or beliefs in the EIS are mitigation measures.

27

Section 3.2.3 of the Draft EIS evaluates potential Project impacts to cultural resources, including potential impacts to cultural practices, page 3-20 and 3-21.

28

Potential Project impacts to spiritual practicies (cultural practices) are discussed in Section 3.2.3, pages 3-20 and 3-21, of the Draft EIS. Potential Project impacts to recreational enjoyment are discussed in Section 3.10.3, pages 3-120 and 3-121, of the Draft EIS. Potential Project impacts to land forms (geology) is discussed in Section 3.6.3 of the Draft EIS; and potential Project impacts to life forms (biological resources) is discussed in Section 3.4.3 of the Draft EIS.

29 The Mauna Kea protects all life big and small. When a species becomes extinct, it sets the process of creation unraveling. This impacts our relationship to all living things and our relationships with Akua, Na Akua and Na `Aumakua.

Cultural Impacts not evaluated

The historic properties that are of importance to Native Hawaiians and possess traditional cultural significance derived from associated cultural practices and beliefs (i.e. Traditional and Cultural Properties) of Mauna Kea include but are not limited to the following:

1. The summit region from approximately 6,000 feet elevation to the Kukahau`ula (summit), including burial and burial complexes.

30 The TMT DEIS inaccurately evaluated impacts on the ritual landscape and burial complexes of Mauna Kea.

> The cluster of pu`u (cinder cones) forming the Summit of Mauna Kea have been identified by the State Historic Preservation Division ("SHPD") of the Department of Land and Natural Resources ("DLNR") as a **Historic Property and the summit region of including most of the Mauna Kea Science Reserve has been identified by SHPD as a Historic District**. Both Historic Properties are eligible for listing on the National Historic Register.
>
> Generally a historic district is defined as a historic property that '...possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development. The Mauna Kea Summit as a "cultural landscape" has been determined eligible for the National and State Register of Historic Places under multiple criteria including cultural significance to the native Hawaiian People (cf. letter of D. Hibbard to R. Evans, September 12, 1991). As a result, archaeologists with DLNR-SHPD have referred the summit region of Mauna Kea as a "ritual landscape," with all of the individual parts contributing to the integrity of the whole summit region. (pers. comm. P. McCoy and H. McEldowney; Group 70 meetings of September 10, 1998). *Id* Citing McCoy and McEldowney).

29

Section 3.4 of the Draft EIS discusses biological resources in the Project area and potential Project impacts to those resources. The Project would not result in the extinction of any species.

30

Section 3.3 of the Draft EIS discusses burials and possible burials. As discussed in Section 3.3.1, 26 burials or possible burials have been identified in the 11,288-acre Mauna Kea Science Reserve (MKSR). The Draft EIS, page 3-28, states "None of the sites identified as known or possible burials are within Area E, along the proposed Access Way, or in the Batch Plant Staging Area." Therefore, the Project would not impact any known or suspected burials in the MKSR. Since the completion of the Draft EIS, additional studies have been completed. The Final EIS has been updated to indicate 29 burials or possible burials have been identified in the MKSR; however, it is remains true that none of the site are within Area E, along the Access Way, or in the Batch Plant Staging Area.
Section 3.2.3, pages 3-21 to 3-23, of the Draft EIS disclose the Project's potential impact to the "spiritual and sacred quality of Maunakea." In response to a comment from the State Historic Preservation Division (SHPD), Section 3.3.3 of the Final EIS has been updated to include a discussion of the Project's potential impacts to Kukahauula, a Historic Property, and the Mauna Kea Summit Region State Historic District. The following are some of the additions made:
"Project Effects on Kukahau'ula
"As discussed in Section 3.2.3 and summarized in Table 3-1, the Access Way will disturb approximately 0.6 acre, except Access Way Option 3B which will disturbe approximately 0.4 acres, on the westernmost portion of the roughly 480-acre Kukahau'ula cinder cone complex. Roughly 0.4 acre of this area has been previously disturbed by roads, including a SMA road, the old blocked 4-wheel drive road, and the Mauna Kea Access Road Loop. The Access Way effect will primarily be associated with a 0.2-acre area of new disturbance. In addition, Options 2A and 3B require the construction of a retaining wall and installation of slope facing, respectively, which will affect Kukahau'ula. A roughly 600 foot-long section of the Access Way within Kukahau'ula would also be paved and a guard rail installed on the down slope side of the road.
"The area comprising Kukahau'ula has been significantly modified by previous development activities including eight optical/infrared observatories, a portion of the SMA observatory, and roads. Yet, it is still recognized as a culturally important landscape. Despite the historic physical changes associated with development within the Astronomy Precinct, the area has retained its integrity for some, but not all, native Hawaiians. The Project will alter a minimal portion of 480-acre Kukahau'ula along the Access Way (less than one-tenth of one percent of the area), but it will not substantially affect the overall integrity of the cinder cones. Consequently, the potential physical impacts to the Kukahau'ula from the proposed Project components are anticipated to be less then significant."
"Summary of Effect in Maunakea Summit Region
"The Project will not result in the loss or complete destruction of any historic properties within the Maunakea summit region. The physical impacts on the only historic property physically effected, Kukahau'ula, will be minimal and will not be significant.
"Impacts to the Historic District and its contributing properties will be confined to the impacts on Kukahau'ula and the introduction of the Project components into the Historic District. Although the TMT will be a new structure in the Historic District, it will be isolated in the Northern Plateau and will not be visible from most areas with the district. The district is currently recognized as a significant cultural landscape based on the multitude of historic properties in the area and despite the existence of the modern structures and numerous find spots in the area that may detract from its overall character.
"Because the Project will (a) have certain facilities within a Historic District, (b) affect a Historic Property within the district, and (c) provide treatments/mitigations to address those effects, it has been determined that the Project will result in an 'effect with treatment/mitigation commitments.'
"Because the Project will not result in the loss or complete destruction of any archaeologic/historic resource within the Maunakea summit region, this impact is considered to be less than significant."

The historic district of Mauna Kea incorporates virtually the entire Science Reserve area, and the Natural Area Reserve. The largest of the three traditional and cultural properties, 'Kukahau`ula refers to the cluster of three pu`u that merge and collectively make up the summit of Mauna Kea...The second property, 'Waiau' refers to the small lake and adjacent pu`u situated southwest of the summit and within the Natural Area Reserve. The third property, 'Lilinoe' refers to a pu`u situated southeast of the summit and within the Science Reserve.

2. Many of the Pu`u [cinder cones], associated burials and kinolau;

31 The TMT DEIS fails to address the cumulative impacts to the kinolau (bodily forms of the deities) such those impact to the image of Poliahu seen from the east side of the island.

3. View plane (including mauka-makai and makai-mauka view planes)

32 The TMT DEIS fails to address the cumulative impacts of the practitioners view planes at the summit looking outward (makai-mauka).

The view plans (view scapes) cannot only be evaluated from sea level looking up. The impacts include the practitioners view planes which are view from t Mauna Kea to the sea, to the other islands and to the night sky.

4. Mountain landscape in navigational traditions;

33 The TMT DEIS, fails to evaluate the cumulative impacts on the ritual landscape including impact son solstice, equinox ceremonies and other ceremonies relating to navigation.

34 We wish also to state our objections to the TMT DEIS hearing presentations. The TMT hired people to give a presentation suggesting that modern astronomy is nothing more than and extension of what our ancestors accomplished. This is an unreasonable assertion. The two disciplines may not be reasonable compared; it is like comparing apples and oranges. Our ancestors may not have done what Plato did, but what they did accomplish was amazing. It is righteous to give credit where it is due.

The presentation is based on a book written about our past King, whom supported the construction of a small telescope in Honolulu. Unfortunately the book also claims, the King supported it because it would help prove to the Hawaiian people the earth was round. The

31
Section 3.16 of the Draft EIS discusses cumulative impacts. The Draft EIS does discuss how past actions have resulted in cumulative impacts to the "spiritual and sacred quality of Maunakea" on pages 3-165 and 3-166, and includes a quote from one of the comment authors which discusses how past actions have altered the images of deities because the puu were leveled and telescopes built on top of them. Based on this impact, among others, the Draft EIS states, on page 3-166, that "The existing level of cumulative impact on cultural, archaeological, and historic resources is substantial and adverse."

32
Potential visual impacts are discussed in Section 3.5.3, pages 3-59 through 3-74, of the Draft EIS. The visual analysis in this section indicates, and Figure 3-7 on page 3-61 in particular illustrates that the TMT Observatory would not be visible from the summit of Maunakea (Viewpoint 16; the summit of Kukahauula/Puu Wekiu). The Draft EIS includes a number of photo simulations from populated areas around the island from which the TMT Observatory would be visible.
In response to comments on the Draft EIS, an additional photo simulation of the TMT Observatory has been included in the Final EIS. The new simulation illustrates the view of a person standing near the Keck Observatory and looking toward the TMT Observatory 13N site. In addition to the simulation, the following information has been included in Section 3.5.3 of the Final EIS, "...the TMT Observatory will add a substantial new visual element in the landscape that will be visible from viewpoints along the northern ridge of Kukahauula and by people as they travel within the northern portion of the summit region."

33
Cumulative impacts are discussed in Section 3.16 of the Draft EIS. This section includes, on page 3-165, a discussion of past actions' impacts on cultural practices. The Draft EIS states, "the existing observatories have disrupted the ambiance necessary for Native Hawaiian religious observances." Due to this impact and others, the Draft EIS states, on page 3-166, that, "The existing level of cumulative impact on cultural, archaeological, and historic resources is substantial and adverse."

34
The commentor's views about presentations at the Draft EIS meetings are acknowledged, but do not address the Project's potential impacts on the environment evaluated in the Draft EIS.
For many, including presenters at the public meeting, modern astronomy is an extension of Hawaiian astronomy. By including information related to Hawaiian astronomy in presentations, the Project felt it was giving credit where it was due.

Hawaiian people certainly understood the earth was round- traditional knowledge dating back to before the time of Christ. They understood this because they could not have navigated and peopled 10 million square miles of the oceans and tiny islands without having known this.

The Kupuna (ancestors) understood this because they had identified a celestial equator, using knowledge kept in the traditions (and family mo`oleo) of Mauna Kea, which made the TMT presentations even more egregious. What our Kupuna (ancestors) accomplished was important to Polynesia but is also to the world, contributing to the global knowledge base. The Kupuna should be properly credited for this. Mauna Kea is the land of our history and knowledge—and it requires maximum protection.

5. Lake Waiau and adjacent cinder cone;

35 The TMT DEIS did not adequately address hydrology, hazardous materials and sewage treatment and their impacts to the lake, and the collection of water, ice and snow collected form Mauna Kea for healing, ritual and other ceremonies.

36 TMT must consider and evaluate the impacts from the use, storage and handling of hazardous materials, and sewage upon the Mauna Kea aquifer system (water shed lands of Mauna Kea). Mauna Kea is the principle aquifer and water shed for Hawai`i Island.

37 The waters, ice and snow collected from Mauna Kea are used for Native Hawaiian healing and other ritual and ceremony.There is serious concern also for the protection of the waters of Lake Waiau, and the other Pu`u (cinder cones) that also pool water. The Lake is a Traditional Cultural Property, and is home to deities. Waters are harvested from Lake Waiau, and other pooling waters.

38 During the NASA EIS process, copies of the over 10,000 Material Safety Data Sheets (MSDS) we received by subpoena in the State CCH. The TMT must consider the impacts of these hazardous materials on the TCP and associated Native Hawaiian practices (i.e. collection of snow, ice and snow) and should also consider the watershed conditions after thirty years of sewage and hazardous material release into the ground of Mauna Kea.

According to the Material Safety Data Sheets ("MSDS") received, the following Observatory/Telescope Facilities were found to use "elemental" mercury. The University Of Hawai`i 88 inch or 2.2 meter Observatory ("UH88") (Exhibit F-64), The Canada-France-Hawaii

35

Hydrology and sewage handling is discussed in Section 3.7 of the Draft EIS. Hazardous materials are discussed in Section 3.8 of the Draft EIS. As stated on page 3-84 of the Draft EIS, "Lake Waiau lies roughly 1.5 miles south of the TMT Observatory site, which would be on the opposite flank of Maunakea from the lake. The Project's Batch Plant Staging Area, roughtly 3,000 feet upslope of Lake Waiau, would not be located within the Lake Waiau watershed. As stated on page 3-89 of the Draft EIS, the Project will "install a zero-discharge waste system at the Observatory. Therefore, there would be no discharge of any wastewater, including domestic wastewater and mirror washing wastewater, at the summit. All wastewater would be collected and transported off the mountain for treatment and disposal." Therefore, the Project will not impact water, ice and snow within the watershed of Lake Waiau.
Furthermore, in Section 3.2.3, page 3-18, of the Draft EIS it is indicates the Project will comply with applicable rules, regulations, and requirements - including the CMP - concerning cultural resources and practices. The CMP states, on page 7-7, that "Native Hawaiian traditional and customary practicies shall not be restricted, except where safety, resource managment, cultural appropriateness, and legal compliance considerations may require reasonable restrictions." Therefore, the Project would not restrict the collection of water, ice, and snow from Maunakea for healing, ritual, and other ceremonies. The following discussion has been added to Section 3.2.3 of the Final EIS:
"Collection of Water from Lake Waiau
"Water from Lake Waiau is collected by some cultural practitioners for use in healing and ritual practices. The Project would not affect that practice, nor would it affect the quality of the water in Lake Waiau (see Section 3.7.3 for further discussion of water impacts). There will be no adverse effect associated with the Project on this cultural practice.
"Piko Deposition
"Historically, piko deposition on Maunakea has been associated primarily with the Lake Waiau area of the summit region. The Project would not affect cultural practices at or near Lake Waiau. Some ethnographic studies also indicate that piko deposition may be occurring in other areas of the summit region. The area occupied by the observatory would not be available for future deposition of piko. In addition, individuals may be unwilling to deposit piko in the immediate vicinity of the TMT Observatory due to the new elements introduced in the area as a result of the Project. This would not result in a substantial impact on the cultural practices of the community or State. The vast majority of the MKSR as well as the Mauna Kea Ice Age NAR, including Lake Waiau, would remain unaffected by the Project. Substantial undisturbed areas are present within the summit region that could continue be used for piko deposition."

36

Hazardous materials are discussed in Section 3.8 of the Draft EIS and water resources and wastewater are discussed in Section 3.7. As discussed in response to the previous comment, the Project will install a zero-discharge waste system at the TMT Observatory. The Project would also comply with regulations regarding the management and disposal of hazardous materials. Therefore, no waste, hazardous material, wastewater, or general debris, will be discharged that could impact groundwater.

37

The lack of potential Project impacts to Lake Waiau is discussed in response to previous comments.

38

The lack of potential Project impacts to water, snow, and ice are discussed in responses to comment above. Cumulative impacts including those related to hazardous materials, are discussed in Section 3.16 of the Draft EIS. In Section 3.16.2, page 3-171, it is stated that "It has been shown that the past disposal practices of mirror washing wastewater have not had a significant impact on water quality. On page 3-182, it is stated that "A small number of mercury spills have occurred since observatory operation began; the best available information regarding such occurrences suggests that none of the spills reached the outside environment."

Telescope ("CFHT") (Exhibit F-62), The William M. Keck Observatory I and II ("WMKO") (Exhibit F-61), The NASA Infrared Telescope Facility ("IRTF") (Exhibit F-60), and The United Kingdom Infrared Telescope ("UKIRT").

There have been 3 Mercury spills reported at the William M Keck Telescope. August 10, 1995, September 15, 1995, and November 6, 1995. There have been 7 recorded spills from other facilities over the years.

The Hazardous materials listed below were found to be stored and used at the Observatories/Telescope Facilities they include but are not limited to, the following:
Hydrochloric-Acid (Note: not listed in JCMT Exhibit F-66)
Potassium Hydroxide
Hydraulic, Motor, and Lubricating Oils
Pesticides
Insecticides
Calcium Carbonate
Sulfuric Acid
Diesel, Jet Fuel, and Unleaded Gasoline
Ethylene Glycol
Kerosene
Methyl Ethel Keytone
Toluene
Paints, Thinners and Solvents
Rust Treatments and Inhibitors
Carbon Disulfide
Elemental Mercury (Note: used or stored in amounts beyond that contained in a household thermometer.

Carbon disulfide is currently listed in WMKO MSDS.

Five Telescopes indicated that they stored and used elemental mercury in the amount beyond that stored in a thermometer.

6. Numerous Trail systems.

39 The TME DEIS did not adequately address the cumulative impact on the trail systems of the Mauna Kea, still used today.

7. Snow, ice and water as kinolau—bodily forms of the deities

40 The TMT DEIS did not adequately address the cumulative impacts on the bodily forms of deities (water, ice, snow etc.) with sewage, and or toxic spills.

39

Trails are discussed in Section 3.2.1, page 3-15 and 3-16, of the Draft EIS. A discussion to cumulative impacts to the trail system have been added to Section 3.16.2 in the Final EIS as follows:
"As discussed in Section 3.2.1, traditional accounts suggest that some ancient trails were present in the summit region. In some instances in other areas of Hawai'i island, Hawaiian trails have been preserved and are archaeological features. It is unknown if the current trails in the summit region follow the same route as the ancient trails. In general, over the years the trails have been improved to accommodate visitors to the region, including realignment of certain trails (Table 3-20). In some cases, roads have also been built that intersect or replace short sections of trails. These activities may have impacted the ancient trails; alternatively the ancient trails followed different routes and have been impacted by natural erosive processes. In either case, there is no remaining physical evidence of ancient Hawaiian trails in the region."

40

Cumulative impacts are discussed in Section 3.16 of the Draft EIS. Impacts to the environment related to sewage are discussed in Section 3.16.2 on page 3-171 and in Section 3.16.4 on page 3-184.
Toxic spills are discussed in Section 3.16.2 on pages 3-171 and 3-172 and in Section 3.16.4 on pages 3-184 and 3-185.
Through compliance with applicable rules and regulations, water, ice, and snow will not be impacted by sewage or toxic spills.

8. Wekiu Bug and other rare, threatened and endangered species

41 The TMT did not adequately address the cumulative Impacts on the rare, threatened and endangered species of Mauna Kea. As stated previously Mauna Kea represents life, peace and Aloha. The life forms of Mauna Kea are to be protected. The Wekiu bug mitigation measures offered in the TMT DEIS (i.e. destroying habitat, and creating artificial habitat, hoping the bugs will survive) is untested and not based in science. It is equivalent to the Center for Disease Control providing untested vaccines, so that if the vaccine does not work and people die, they will know it does not work.

9. Cultural and Socio-economic impacts

The TMT DEIS does not adequately evaluate the social impacts that disproportionately impact Native Hawaiian health, safety and welfare.

42 There are over 93 Astronomical Observatories and Observatory complexes around the world in which to do world class astronomy. Mauna Kea is already considered a world premier site for astronomy work, and houses the largest and most advanced observatories in the world. However, **TMT must consider that Mauna Kea represents the only place on earth where the special and unique Native Hawaiian ritual and ceremonies are conducted**. TMT must consider the impacts to the Native Hawaiian Communities cultural and religious practices.

43 The TMT must also consider the socio-economic impacts this project will have on the Hawaiian Community. Health reports establish that there are approximately 6000 pure blooded Hawaiian people left in the world today, and their projected survival is only to 2044. Health statistic also indicate approximately 54% of native Hawaiian people (those with 50% or more blood), make less than $9000 dollars per year.

Mitigating Impacts to the Environment—not a ballot question

44 We wish the recorded to reflect, that giving scholarships (or establishing a pipeline program) do not mitigate the impacts on the landscape, environmental and cultural resources of Mauna Kea. NEPA is about protecting the environment. Giving to underprivileged communities is a good thing, but the gifts should not have strings attached. We were shocked to see young adults and children at the EIS hearings (in the news paper) wearing buttons, tee-shirts and holding signs that read, "YES TO THE EIS". The environmental review process is for establishing impact to the environment; collecting and recording comments--it is **not a ballot question**. You should support the children, not use to further your own political agenda—this is not pono.

41

Cumulative impacts to biologic resources, including the Wekiu bug and other species, is discussed in Section 3.16 of the Draft EIS.
Section 3.4.3 of the Draft EIS discussed potential impacts to biological resources. On page 3-41 it is stated that "Although the [Access Way] Option 2 or 3 impact is evaluated to be less than significant, to comply with the CMP (Management Action FLU-6), the Project would prepare and implement a Habitat Restoration Plan to compensate for the loss of Type 3 Wekiu bug habitat...". CMP Management Action FLU-6 states "Incorporate habitat mitigation plans into project planning process."
Based on comments received during the Draft EIS public review period and the issues associated with the feasibility and effectiveness of any habitat restoration approach, the planned mitigation measure for the loss of sensitive habitat has been modified. The Project will no longer prepare or implement a Habitat Restoration Plan as outlined in the Draft EIS. As detailed in Section 3.4.3 of the Final EIS, the Project is in comliance with Management Action FLU-6 through (a) Project planning to avoid impacts, (b) monitoring of arthropod activity in the region of the Access Way's disturbance of cinder cone habitat prior to, during, and for two years following the construction of that portion of the Access Way, and (c) working with OMKM on the development and implementation of a habitat restoration study.

42

Section 3.2.3 of the Draft EIS discusses potential Project impacts to cultural resources, including cultural practices. This has been discussed in detail in response to previous comments. Additional discussion has been added to Section 3.2.3 of the Final EIS, as discussed above, including the following:
"Pilgrimage, Prayer, Shrine Construction and Offerings
"The summit region, which includes the Mauna Kea Summit Region Historic District and Kukahau`ula, is a sacred area in Hawaiian culture and serves as a site for individual and group ceremonial and spiritual practices. These practices include prayer, shrine erection and the placement of offerings. The area to be occupied by the TMT Observatory structure would not be available for future cultural practices of this nature. In addition, for some individuals, the introduction of new elements associated with the Project in the area of the northern plateau would adversely affect the setting in which such practices could take place.
"Data collected during a series of archaeological surveys indicate that modern shrine construction occurs primarily in areas outside of the Astronomy Precinct. Approximately 90 percent of the over 300 find spots that have been interpreted to be modern shrines occur in areas away from the vicinity of the Astronomy Precinct. A modern shrine is present near the end of the 4-wheel drive road in Area E and this shrine would be displaced by the TMT Observatory. Repeated archaeological inventory surveys in the area indicate that the shrine was erected in the early 2000s (Section 3.3.1); interviews and research conducted has not revealed who constructed this modern shrine. The CRMP states that Kahu Ku Mauna, in consultation with other Native Hawaiian organizations, will develop protocols that will consider which kinds of features and locations are appropriate, and address the issue of whether a review process should be instituted, consistent with CMP Management Action CR-7. Based on the research conducted to date, the shrine is not eligible for consideration as a historic property because it is less than 50 years old. Dismantling Relocating the one new shrine is considered an adverse but limited impact.
"Although the Project may decrease the desirability of the northern plateau area for shrine construction, this is not anticipated to result in a substantial effect on shrine construction within the MKSR. The majority of the areas within the MKSR currently used for shrine construction would not be affected by the Project. To some individuals, the Project could represent a decrease in the suitability of the northern plateau area for spiritual observances and offerings. However, this would not result in a substantial adverse impact on the cultural practices of the community or State. The majority of the areas with the MKSR where observances and rituals are believed to occur would not be affected by the Project. Further, while the introduced elements associated with existing observatories may have had an effect on the perceived quality of the observances conducted, or may have caused some practitioners to conduct their observances further away from the vicinity of the observatories, there is no evidence suggesting that the presence of the existing observatories has prevented or substantially impacted those practices. Similarly, the Project is not anticipated to result in substantial additional adverse effects on those practices."

In Aloha we remain,

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TMT Draft EIS Comments,
Submitted via electronic mail and U.S. Postal Service Certified-Return Receipt,
Post marked July 7, 2009

Kealoha Pisciotta, President
Mauna Kea Anaina Hou
P.O. Box 5864
Hilo, Hawai`i 96720
Tel: 808.968.7660

Clarence Kukauakahi Ching
64-823 Mamalahoa Hwy
Kamuela, Hawai`i 96743
Tel: 808.769.3828

Paul K. Neves, Ali`i Aimoku
The Royal Order of Kamehameha I, Moku O Mamalahoa, Heiau Mamalahoa
Helu `Elua
381 Nahale-a Avenue
Hilo, Hawai`i 96720
Tel: 808. 935.9656

43

Potential socioeconomic impacts of the Project are discussed in Section 3.9 of the Draft EIS. Job opportunities will be available for the local Hawaiian community and a Workforce Pipeline Program will be implemented to ensure that today's keiki have the education and training to fill these job opportunities. These jobs will have annual salaries well in excess of $9,000 a year.

44

The EIS does not indicate that the Workforce Pipeline Program is a direct mitigation measure for potential Project impacts on natural or cultural resources. Rather, the Project will develop the program because it will help prepare local students for job opportunities generated by the Project and other high technology opportunities, and increase the Project's benefit to the island community.

Na Kupuna O Moku O Keawe Resolution in Oppostion to TMT

Resolution in Opposition to Thirty Meter Telescope (TMT), as amended, was adopted at the duly convened November 15, 2008 meeting of Na Kupuna O Moku O Keawe ("Na Kupuna") held at Kapa'au, North Kohala, Island of Hawai'i

WHEREAS, Na Kupuna state that the Hawaiian Kingdom was and remains a neutral independent nation, was a member of the Family of Nations until removed under false representation by the united states, and has Treaties with many major nations of the world, including the u.s., France and Great Britain. Here we list for the record those Treaties, Conventions, and other International Agreements of the Hawaiian Kingdom:

United States of America, December 23rd, 1826 (Treaty)
Great Britain, November 13th, 1836 (Lord E. Russell's Treaty)
France, July 17th, 1839 (Captain LaPlace's Convention)
France, March 26th, 1846 (Treaty)
Great Britain, March 26th, 1846 (Treaty)
Denmark, October 19th, 1846 (Treaty)
Hamburg, January 8th, 1848 (Treaty)
Agreement Touching Consular Notices (Danish and Hamburg Treaties), January 25th, 1848
United States of America, December 20th, 1849 (Treaty)
Sweden and Norway, July 1, 1852 (Treaty)
Tahiti, November 24th, 1853
Bremen, March 27th, 1854 (Treaty)
France, September 8th, 1858 (Treaty)
Belgium, October 4th, 1862 (Treaty)
Netherlands, October 16th, 1862 (Treaty)
Italy, July 22nd, 1863 (Treaty)
Spain, October 9th, 1863 (Treaty)
Swiss Confederation, July 20th, 1864 (Treaty)
Russia, June 19th, 1869 (Treaty)
Japan, August 17th, 1871 (Treaty)
New South Wales, March 10th, 1874 (Postal Convention)
United States of America, January 30th, 1875 (Reciprocity Treaty)
German Empire, 1879-80 (Treaty)
Portugal, May 5, 1882 (Provisional Convention)
United States of America, December 6, 1884 (Supplementary Convention)
Hong Kong, December 13th, 1884 (Money Order Regulations)
Universal Postal Union, March 21st, 1885 (Additional Act of Lisbon)
Japan, January 28th, 1886 (Convention)
Universal Postal Union, November 9th, 1886 (Ratification)
Samoa, March 20th, 1887 (Treaty)

WHEREAS, Na Kupuna state that the Hawaiian Kingdom continues to exist - as recognized by the Permanent Court of Arbitration at the Hague, Netherlands, that

entertained the case of Larsen vs. Hawaiian Kingdom, an arbitration that the u.s. refused to participate in for fear of being cited by the Permanent Court of Arbitration as a belligerent occupier of Hawaii;

WHEREAS, Na Kupuna - in the absence of an operating government of the Hawaiian Kingdom, and in the absence of a line of succession to a monarch (Hawai'i is a constitutional monarchy) - states henceforth that as recognized under international law, the elders of descendants of Hawaii subjects are among the next in line of lawful authority having sole lawful jurisdiction over Hawai'i island. This is an adjunct of Hawaiian Kingdom law - that continues - although the present u.s./state of Hawaii regimes ignore international laws of occupation by applying their own fabricated laws rather than the laws of the occupied Hawaiian Kingdom. The current situation reflects intentional misrepresentation, deceit and fraud by the u.s./state of Hawaii;

1 WHEREAS, Na Kupuna state that the so-called "ceded lands" are lands unlawfully taken from the Hawaiian Kingdom in 1893 and unlawfully "ceded" to the u.s. as part of the unlawful annexation of Hawaii to the u.s. in 1898;

WHEREAS, Na Kupuna state that the so-called annexation of Hawaii to the u.s. in 1898 is a myth - as the attempt was made by a "resolution" of the u.s. Congress - a domestic document having no legal significance outside of the boundaries of the sponsoring nation, the u.s. - and not by legally accepted treaty. Hawai'i was and remains a foreign nation to the u.s.;

2 WHEREAS, Na Kupuna state that the republic of Hawaii that allegedly "ceded" the Hawaiian Kingdom National lands to the u.s. had no title to those lands. There is no "chain of title" giving any degree of good and legal title to the Republic of Hawaii;

WHEREAS, Na Kupuna state that the Mauna Kea Science Preserve – upon which numerous astronomical observatories have been built - is part of the so-called "ceded lands" of the state of Hawaii;

ADDITIONALLY, following current u.s. law - a law that Na Kupuna disagree with -- under Section 5(f) of the Admissions Act (1959) – the so-called "ceded" lands were transferred to the so-called "state" of Hawaii "in trust," among other things, for the benefit of Native Hawaiians;

WHEREAS, Na Kupuna claim lawful jurisdiction and authority over these so-called "ceded" lands;

RECOGNIZING, the u.s. congress, in u.s. Public Law 103-150, dated November 23, 1993, states: Whereas, the indigenous Hawaiian people never directly relinquished their claims to their inherent sovereignty as a people or over their national lands to the United States, either through their monarchy or through a plebiscite or referendum;

WHEREAS, Na Kupuna suggests that the time line offered by TMT's sponsors, allowing

1
The Admission Act (Pub.L. 86-3) established the State of Hawaii as the 50th state to be admitted into the Union. Resolving claims and issues around the various acts that resulted in Hawaii becoming a State is beyond the scope of this EIS.

2
Resolving claims that the ceded lands were wrongfully taken by the United States, that the State's title to ceded lands is clouded or void, or that ceded lands should be returned (or compensation provided) to a class defined by race or ancestry, is beyond the scope of this EIS. This EIS assumes that the State of Hawaii lawfully owns those portions of Maunakea where physical improvements for the Thirty Meter Telescope Project are anticipated.

3 7-years for construction of the facility is grossly understated. Na Kupuna notes that litigation based on the Conservation District Use Application for the Keck Observatories Outrigger Telescope Project is on-going (7 years at the moment). Na Kupuna predicts a probable timeline for the TMT project of: litigation taking place on the Comprehensive Management Plan (CMP) that is in progress (estimated at 7 years), litigation on the TMT EIS (estimated at another 7 years - which will NOT take place concurrently with the CMP litigation), construction of TMT (if the project survives the 14 years of predicted litigation - of another 7 years) and 3 years for decommissioning. The total of 24 years - added to the present date of 2008 moves us into the year 2032 - leaving 1 year for operation of the TMT before termination of University of Hawaii's general lease of the Science Reserve that terminates in 2033;

THEREFORE, Na Kupuna states that the $1.1 Billion budget for TMT, combined with costs of litigation, payment of Plaintiffs' attorneys fees, etc., will increase total costs for the TMT to over u.s. $5 Billion. This figure enormously exceeds any practical cost/benefit;

WHEREAS, Na Kupuna state that, in recent years, as part of the process for permitting the Keck Observatories Outrigger Telescopes, that NASA generated an EIS that concluded that "past, present and 'reasonably foreseeable' future astronomical activities at the summit of Mauna Kea have had a substantial and adverse cumulative impact on the mountain's cultural resources.";

4 FURTHERMORE, while TMT attempts to disengage its project from the conclusions of the NASA EIS by stating that it is not a "federal agency" and thus not affected by conclusions of the NASA EIS - it is. TMT is a "federal agency" as it has applied for federal operational funds, or is expected to do so in the future;

5 FURTHERMORE, even if TMT were not a "federal agency," Na Kupuna believe that any EIS generated by TMT MUST, when considering the same or similar issues as the NASA EIS, come up with the same or similar conclusions;

FURTHERMORE, Na Kupuna believe that even if TMT is not a "federal agency," that BLNR (so-called "state" of Hawai'i Board of Land and Natural Resources), no matter what the conclusion of a proposed "state" EIS might be - that any and all incremental impacts attributed to the TMT would add further substantial impacts to the conclusions of the NASA EIS of "substantial and adverse cumulative impact ...," and MUST reject such an application for conservation use permit;

MOREOVER, in the event that the proposed TMT EIS results in a conclusion substantially different from NASA's EIS - Na Kupuna believe that the conclusion of NASA's EIS (of substantial and adverse cumulative impact) would be the effective determining factor that would attach to all present and proposed astronomy activities on Mauna Kea, including the proposed TMT permit application;

FURTHERMORE, Na Kupuna believe that, in the case above, there is no alternate

3
The time line in the Draft EIS, Table 2-1 on page 2-22, does not include potential litigation. It is not possible to know if litigation will take place or how long it may take to resolve. Only the estimated time to complete the known approvals and construction are included in the time line. The commentor's concerns regarding litigation and costs are noted, but those concerns do not address the Project's potential impacts on the environment evaluated in the Draft EIS.

4
The TMT Observatory Corporation has received limited funding from the National Science Foundation (NSF) for the development of technology that can be used on other telescopes. With respect to the construction, operation, or decommissioning of the Thirty Meter Telescope Project, no Federal agency, including the NSF, has provided or pledged funds for such construction, operation, or decommissioning. Nor is TMT required to obtain a permit, license or other approval from the United States prior to the construction or operation of the Thirty Meter Telescope (TMT) Project. Federal funding alone does not trigger an obligation on the part of the United States to comply the National Environmental Policy Act (NEPA) or the National Historic Preservation Act (NHPA). For example, the United States' obligation to undertake an environmental review under NEPA is triggered only if a "major Federal action" may significantly affect the environment. Similarly, the United States' obligation to comply with the NHPA is triggered only if there is a federal "undertaking" which is defined as an activity or project carried out under the jurisdiction of a federal agency. The United States' obligation to comply with NEPA and the NHPA has not been triggered with respect to this Project.

5
The Final Environmental Impact Statement for the Outrigger Telescopes Project, Mauna Kea Science Reserve, NASA, 2005 (Outrigger EIS) was referenced in the Draft EIS as follows: Section 3.2.1, page 3-7; Section 3.2.6, page 3-25; Section 3.5.6, page 3-75; Section 3.7.6, page 3-91; Section 3.8.6, page 3-99; Section 3.9.6, page 3-104; Section 3.12.6, page 3-131; Section 3-13-6, page 3-134; and Section 3.14.6, page 3-140. An additional reference to the the Outrigger EIS has been included in Section 7.0 of the Final EIS. The TMT Chapter 343 EIS is in agreement with the Outrigger NEPA EIS when discussing the level of existing cumulative impact on Maunakea; the level of existing cumulative impact is discussed in Section 3.16.2 of the Draft EIS and identifies cumulative impacts to cultural, archaeological, biologic (in some zones), geologic, and visual resources to be substantial and adverse. When discussing potential project-specific impacts the conclusions in the Outrigger EIS and the TMT EIS may differ because the two project sites, Outrigger on a summit cinder cone and TMT on the northern plateau, are different and, therefore, have differing potential impacts.

method to handle such potentially conflicting conclusions, but to adopt the conclusion (of the NASA EIS) that best protects the cultural resources, cultural practices, and environmental protections on Mauna Kea;

WHEREAS, Na Kupuna and its individual representatives (of the several districts of Hawai'i island) maintain their cultural beliefs in the sacredness of Mauna Kea;

WHEREAS, the principals of TMT Corporation, the sponsor of this proposed telescope with a proposed budget of $1.1 Billion (u.s.) to be potentially situated on Area E of the Mauna Kea Science Preserve – are the California Institute for Astronomy, the University of California and the Association of Canadian Universities for Research in Astronomy;

WHEREAS, Na Kupuna object to the involvement of the Association of Canadian Universities for Research in Astronomy, as it is a foreign-based organization of a nation (Canada) that is a participant in the RIMPAC Naval Exercises held periodically in and around Hawai'i, where in the past, it has taken part in the bombardment of Hawaiian island targets, which actions Kupuna Council continues to condemn;

FURTHERMORE, Na Kupuna further object to the involvement of the Association of Canadian Universities for Research in Astronomy, as it is a foreign-based organization of a nation (Canada) that does not support Indigenous Peoples (such as the Hawaiian people of Hawai'i) by refusing to vote in support of the recently passed UN Declaration of the Rights of Indigenous Peoples, which it now wants to use, in its hypocrisy, Hawaiian Indigenous lands - the so-called "ceded" lands - to build its telescope on;

6 FURTHERMORE, Na Kupuna object to the TMT being sited on Area E of the Mauna Kea Science Reserve as it will begin (and result in) the degradation of a pristine area of sacred Mauna Kea by necessarily building new roads and extending various pernicious infrastructure;

7 ADDITIONALLY, Na Kupuna believe that initiating construction in the currently pristine Area E will set a precedent for opening up this area to further construction of future observatories that will desecrate an increasingly larger area of the sacred temple;

8 FURTHERMORE, Na Kupuna believe that the power requirements of TMT will substantially squander the increasingly deficient power capacity of Hawai'i island - eventually mandating construction of new generating system capacity that will result in increasing the cost of citizens' electric bills, pro rata or otherwise;

9 ADDITIONALLY, Na Kupuna believe that situating the TMT where it is proposed, with its expected (approximately) 360 feet diameter dome (the ten meter Keck lenses have domes with a diameter of 120 feet), will be very detrimental to the observation and
10 enjoyment of the natural beauty of Mauna Kea. This is especially so for observers from the South Kohala/Waimea area - where this dome - approximately three (3) times the diameter of the individual Keck domes - will be an extreme eyesore. The existing, and much smaller observatories on Mauna Kea already create an excessively ugly scene that

6
As discussed in Section 2.5.1 of the Draft EIS, the Thirty Meter Telescope Project is complying with the 2000 Master Plan in the placement of the TMT Observatory in Area E on the northern plateau of Maunakea. At similar elevations, roughly 13,000 feet, there are large areas of undisturbed land. For example, the entire east slope of Maunakea is undeveloped and outside of the Astronomy Precinct and, therefore, will not be developed in the future.
In addition, while it is often thought that the 13N site in Area E is undisturbed land, as discussed in Sections 2.5.1 and 3.4.3 of the Draft EIS there is already a road leading to the TMT Observatory 13N site and a roughly 0.5-acre portion of the site has been disturbed by the road and former presence of site testing equipment dating back to the mid-1960s.

7
Area E is part of the 525-acre Astronomy Precinct and was identified in the 2000 Master Plan as the preferred location for the future development of a Next Generation Large Telescope (NGLT); the TMT Observatory fits the description of a NGLT. Aside from the Project as described in Section 2 of the Draft EIS, any future development in Area E is beyond the scope of this EIS; however, as discussed in Section 3.16.3, there are currently no other foreseeable actions within Area E.

8
Section 3.12 of the Draft EIS provides an analysis of power and communications infrastructure and the Thirty Meter Telescope Project's potential impact on these resources. Based on discussions with HELCO, and as stated on page 3-131 of the Draft EIS, the Project will "not require additional capacity"; as stated in Section 3.12.1 of the Final EIS, "HELCO has the generating capacity of 288 MW, resulting in a reserve margin of 45 percent over the latest system peak." Furthermore, the Project will be a customer of HELCO in the same manner as other customers and will not directly affect electricity rates for any consumers.

9
The TMT Observatory dome will not be 360 feet in diameter as the commentor suggests. As stated in Section 2.5.1, page 2-13, and Section 3.5, page 3-73, the TMT Observatory dome diameter will be 216 feet and the maximum height will be 180 feet above the ground. The Keck domes have a diameter of 121 feet and a maximum height of 111 feet above the ground.

10
The visual analysis presented in Section 3.5.3 of the Draft EIS recognizes that the potential visual impact would be greatest for observers in the Waimea area, where the TMT Observatory would be within the direction of the primary view. However, the overall impact to those in the resident viewer group would be less than significant because the observatory would not block their view of Maunakea. Figures 3-9 through 3-15 of the Draft EIS provide simulations of the TMT Observatory in the view from Waimea.

is directly responsible for degrading the natural beauty of Mauna Kea;

11 WHEREAS, Na Kupuna state that the Mauna Kea lands are "conservation" lands of the so-called state of Hawaii, and are administered and managed with priority as conservation lands;

12 WHEREAS, Na Kupuna believe that no comprehensive studies of the Insecta, Aves and Mammalia classes on Mauna Kea have been done. Members of Na Kupuna, for instance, have knowledge that there are other insects, other than the Wekiu bug, that, at times, inhabit Mauna Kea, including a number of spiders, lady bugs, etc. Members of Na Kupuna also suggest that the Hawaiian Hoary Bat (Lasiurus cinereus semotus) may be a visitor to the summit areas (the Science Reserve) of Mauna Kea. In addition, there is the report by Kealoha Pisciotta that at a ceremony held outdoors on the summit (a number of years ago when she was an employee on the mountain), that she observed a Hawaiian Hawk or 'Io (Buteo solitarius) circling directly above the summit;

13 WITH CONCERN, Na Kupuna inquire about the possible use of insecticides/pesticides in and around a possible TMT at Mauna Kea;

14 WHEREAS, Na Kupuna state that astronomy, whose participants enthusiastically consider their activity to be superior to all other uses on Mauna Kea, is, by law, only a sub-use of the conservation lands on Mauna Kea, not THE major use of Mauna Kea;

15 WHEREAS, Section 171 of Hawaii Revised Statutes requires that fair market rent be paid for the lease of any of the so-called "ceded" lands;

WHEREAS, Na Kupuna has serious objections to past and present practices that allows lease rent paid by the University of Hawaii (lessee - hereinafter "u.h.") of the so-called "ceded" lands from the state of Hawaii (lessor) for $1 per year;

16 HOWEVER, Na Kupuna state that if TMT wants to maintain a "legal and lawful" project under Section 171 of Hawaii Revised Statutes in the highest ethical and legal standards, then, even if not required by u.h. - a fair market lease rent should be voluntarily paid to the Board of Land and Natural Resources ("BLNR") as agent for the state of Hawaii (to whom the rent is owed);

17 WHEREAS, Na Kupuna believe that - While public lands are often set aside to public agencies for use in serving the public, subsequent transfer to 3rd parties outside of Hawaii government, especially when the benefits go to foreign nations that are obtuse to the Indigenous peoples of Hawai'i, are, or should be, subject to fair market rents. This is especially so as fair market rents are statutorily mandated by Hawaii Revised Statutes;

18 HOWEVER, Na Kupuna suggest that a fair market lease rent be 120% of proposed rents and viewing times that TMT would pay for a similar site in Chile. The additional 20% would make up for detriments (such as deficiencies for currency transactions, access to

11
As discussed in Section 3.10 of the Draft EIS, the lands of the summit region on Maunakea are classified by the State of Hawai'i as a conservation district, resource subzone, and is managed by the Department of Land and Natural Resources (DNLR) Office of Conservation and Coastal Lands (OCCL). The Thirty Meter Telescope Project has been coordinating with the DLNR-OCCL in regards to land use within the conservation district. Hawai'i Administrative Rules (HAR) Chapter 13-5-13 provides, "The objective of [the conservation district resource] subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas." HAR Chapter 13-5-24 specifically includes "R-3 Astronomy Facilities; (D-1) Astronomy facilities under an approved management plan." as one of the "identified land uses in the resource subzone."

12
Comment acknowledged; biological resources are discussed in Section 3.4 of the Draft EIS. The Project is aware of insects other than the Wekiu bug and other species that are known to inhabit or visit the summit area; they are discussed in Section 3.4 and Appendix G of the Draft EIS. It is unlikely that the Hawaiian Hoary Bat or Hawaiian Hawk inhabit or visit the summit area with any frequency due to the lack of food items for them, among other considerations. Nonetheless, based on comments received, the Final EIS has been updated to reflect reports of Hawaiian Hawk being observed above the summit region as follows: "However, in a comment on the Draft EIS, it was reported that an 'io (Buteo solitaries), the endangered Hawaiian Hawk, has been observed circling above the summit region on occasion. 'Io are known to use a broad range of forest habitats and are not frequent visitors to elevations greater than roughly 7,000 feet, and do not reside in the summit region; however individuals can be observed in the area occasionally."
No threatened or endangered species are known to inhabit the summit area. The Wekiu bug is the focus of the discussion in the EIS because it has been identified as the species most dependent on a specific habitat within the summit area - the alpine cinder cone habitat. Based on studies conducted for the Project by knowlegable biologists, the Project would have a less than significant impact on the Wekiu bug and other species that inhabit or visit the summit region.

13
The Thirty Meter Telescope Project may use limited quantities of over-the-counter herbicides and pesticides to control or eliminate potentially invasive species, as outlined in the Invasive Species Prevention and Control Program described in Section 3.4.3 and 3.15.1 of the Draft EIS. The storage and use of such materials would be in compliance with applicable rules and regulations, and would also fall under procedures to be outined in the Materials Storage/Weste Management Plan discussed in Section 3.8.3 of the Draft EIS. Generally, the use of such materials would be limited and performed by appropriately trained individuals.

14
The Project is aware of the range of other uses on Maunakea and does not consider astronomy above any other use. As discussed above and in Section 3.10 of the Draft EIS, astronomy is an identified land use within the conservation district, resource subzone. The Project has and will continue to coordinate with other land uses, and will not proceed with any development until receiving a Conservation District Use Permit (CDUP).

15
State law (HRS §171-95) authorizes the BLNR to lease state land to government agencies at such rent and on such other terms and conditions as the BLNR may determine. It is common for BLNR to negotiate leases with nominal or no rent to governmental entities, including UH. For example, portions of the present UH Hilo campus are covered by state leases through BLNR at nominal or no rent.
The 1968 MKSR lease between DLNR and UH provide the terms of the master lease; those terms could be renegotiated as part of a discussion between UH and DLNR before the expiration of the existing lease. HRS section 304A - 1902 provides that the UH may charge a fee for the use of Maunakea lands and may enter into lease agreements provided it complies with all statutory requirements in the disposition of ceded lands.

site, travel time, language, schools for employee children, standard of living, utilities, TV, shopping, site amenities such as wind flow and lower altitude, cultural differences, transportation difficulties, living communities, etc.) that a Chilean location would necessitate;

WHEREAS, while BLNR continues to complain of not having sufficient budget for the management and administration of Mauna Kea - Na Kupuna believe that the statutory fair market lease rents could go far to remedy the financial straight-jacket that BLNR is currently saddled with, particularly in this time of u.s. and Hawai'i state financial instabilities;

WHEREAS, Na Kupuna also object to other foreign-nation telescopes built on its sacred lands, including the Japan National Telescope and the Canada-France Telescope. All telescopes built on Mauna Kea burden the Hawaiian Nation culturally and (by subsidy) economically by paying an insulting rent of $1 a year;

WHEREAS, Na Kupuna believe that the foreign-nation telescopes built on our sacred temple constitutes further unlawful occupation of our national lands and these telescopes should be deconstructed and rebuilt on the subject nations' own national lands;

19 THEREFORE, Na Kupuna believe that the Association of Canadian Universities for Research in Astronomy should join other similar agencies and/or organizations - to pursue astronomical facilities and projects in it's own country;

FURTHERMORE, Na Kupuna state that the Hawaiian community, through the Hawaii state Office of Hawaiian Affairs ("OHA"), is benefited by 20% of the $1 annual rent (from each observatory) - amounting to 20 cents per year;

FURTHERMORE, Na Kupuna state, with 13 observatories currently on Mauna Kea, that OHA's income from astronomy activities amounts to the ridiculous sum of a mere $2.60 per year;

20 WHEREAS, Na Kupuna state that with the inclusion of adaptive optics and interferometry - the twin Keck telescopes having an equivalent resolution of approximately 8 times the lens' effective diameter – or 80 meters - which when compared with the TMT (of a "single" lens of only 30 meters) - has almost 3 times TMT's resolving power. Other than TMT's light gathering ability - the resolution of the TMT is inferior when compared to the adoptive optic- and interferometry-assisted Keck telescopes and therefore have cost-effective issues;

21 MOREOVER, Na Kupuna believe that the cost/benefit ratio of TMT, when compared to such telescopes as the Keck's, is skewed to the side of inefficiency;

WHEREAS, Na Kupuna observe that Mauna Kea is positioned over one of the major aquifers of Hawai'i island and MUST be conserved and protected to insure that the life-giving water from this aquifer remains pure for future generations of Hawaii island;

16

As discussed above, the Project has elected to implement the proposed Workforce Pipeline Program and Community Benefits Package (discussed in Section 3.9 of the Draft EIS), providing benefits directly to the community and to address other comments with further mitigation. The Final EIS provides updated information regarding the sublease between UH and the TMT Observatory Corporation, including that the sublease may include a term similar to: "Sublease rent that will commence upon the TMT Observatory's first scientific observations and continue for the term of the sublease or until observatory decommissioning, whichever is sooner. The lease rent shall consist of an annual payment, to be deposited into the Mauna Kea lands management special fund and used for the purposes set forth in HRS § 304A-2170. This dollar amount may be adjusted annually using an appropriate inflation index (the baseline from when the inflation index will be applied will be the subject of negotiation and specified in the sublease)." Although the amount of sublease rent has not been negotiated, it is anticipated that the sublease rent will amount to a large portion of the OMKM operating budget.

17

Addressed above in previous response.

18

The proposed rent and viewing times that TMT would have paid Chile are not material to the Project lease payment or proposed Project benefits in Hawaii.

22 WHEREAS, Na Kupuna believe that all water and chemicals taken to the summit of Mauna Kea in support of TMT's telescope operation, and all human wastes and trash produced, must be taken back down the mountain and disposed of properly. What goes up, must come down;

23 WHEREAS, as the term "Sustainable Astronomy" has been used relative to public relations materials supporting the construction of TMT – Na Kupuna request a full and comprehensive definition for the term "Sustainable Astronomy";

24 WHEREAS, Na Kupuna believe that it is a matter of u.s. policy, that the American Indian Religious Freedom Act applies to Hawaiians' use of Mauna Kea and that in due respect and compliance, TMT must comply with its requirements;

"It is the policy of the United States, in furtherance of the policy established in the joint resolution entitled "Joint Resolution American Indian Religious Freedom", approved August 11, 1978 (42 U.S.C. 1996), to protect and preserve the inherent right of any Native American to believe, express, and exercise his or her traditional religion, including, but not limited to, access to any Native American religious site, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites." NATIVE AMERICAN FREE EXERCISE OF RELIGION ACT OF 1993

Senate Bill 1021
Item Key: 4770

Introduced to 103rd Congress
May 25, 1993

* * *
American Indian Religious Freedom Act Amendments of 1994
A BILL

To assure religious freedom to Native Americans.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

* * *
SEC. 2.

It is the policy of the United States, in furtherance of the policy established in the joint resolution entitled "Joint Resolution American Indian Religious Freedom", approved August 11, 1978 (42 U.S.C. 1996), to protect and preserve the inherent right of any Native American to believe, express, and exercise his or her traditional religion, including, but not limited to, access to any Native American religious site, use

19
Acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

20
As stated in Section 2.2 of the Draft EIS, "When used with an AO system, the TMT would provide sharper images than the most capable existing optical/infrared observatories by a factor of three, and greater sensitivity by a factor of ten or more."
Keck does utilize a retrofitted adaptive optics (AO) system; however, the Project will be designed from conception to use an advanced AO system which will result in much better resolution than and be superior to Keck.

21
The superiority of the TMT compared to all existing observatories will make it attractive to astronomers involved in research that will benefit from the TMT advancements.

and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites.

SEC. 3. DEFINITIONS.

For the purposes of this Act, the following definitions shall apply:

(1) AGGRIEVED PARTY.

--The term "aggrieved party" means any Native American practitioner, Native American traditional leader, Indian tribe, or Native Hawaiian organization [including Na Kupuna] as defined by this Act.

* * *

(8) LAND.--The terms "land", "lands", or "public lands" mean surface and subsurface land within the jurisdiction of the United States or the respective States, including submerged land of any kind or interest therein and all water and waterways occupying, adjacent to, or running through the land.;

WHEREAS, Na Kupuna recognize that Native Hawaiians, especially the elderly, suffer very serious health issues relative to the general population of Hawai'i;

25 WHEREAS, Na Kupuna - on behalf of all kupuna (elders), Native Hawaiians and the general populace of Hawai'i island, and the so-called state of Hawaii - suggests that, if TMT is eventually permitted to build (after meeting all legal requirements and cultural concerns), although, hopefully, in an area other than Area E, that it's Canadian partner, Association of Canadian Universities for Research in Astronomy, advocate for and participate in a program to import pharmaceuticals from Canada - where pharmaceuticals can be acquired for a substantially lesser expense than in the u.s. - to be sold, by licensed participating pharmacies for a set (minimal) markup, thereby significantly benefiting citizens' in their necessary healthcare;

26 NOW, THEREFORE, Na Kupuna O Moku O Keawe - Opposes the permitting and construction of the TMT and any other telescopes on the sacred mountain of Mauna Kea, Hawai'i island, so-called state of Hawaii. We also call for the removal of all telescopes and related equipment on the sacred mountain of Mauna Kea as these were never intended for Hawaiian cultural or religious practices.

DATED: November 15, 2008, at Kapa'au, North Kohala, Hawai'i Island,

_____

Jessica Lindsey
Secretary
Na Kupuna O Moku O Keawe

22

As discussed in Section 3.7.3, page 3-89, of the Draft EIS, "TMT would ... install a zero-discharge waste system at the Observatory. ... All wastewater would be collected and transported off the mountain for treatment and disposal."

23

Environmental stewardship and the concept of sustainability planning for operations of the oberservatory are both areas of focus for the TMT Observatory Corporation and their partnering institutions. To achieve this, various energy conservation measures are being implemented such as ride-sharing program for TMT Observatory employees (Section 3.11.4 of the Draft EIS), using energy-conserving lighting, appliances, and systems (Section 3.12.4 of the Draft EIS), and conducting an energy audit annually (Section 3.12.4 of the Draft EIS). Additionally, TMT will comply with any requirements set forth in the CMP for integrating sustainability into the Project.
Based on comments received on the Draft EIS additions have been made to Section 3.12 of the Final EIS outlining additional TMT commitments to sustainability in design and operation of its facilities, including:
"As part of TMT's design work there is an active program to analyze the environmental heat loads and energy usage in the telescope enclosure and supporting facilities. Appropriate energy saving designs will be employed into all aspects of the buildings and facility design including: high R-rated insulation panels, radiant exterior barriers, high performance window glazing, and air infiltration sealing, for example.
"Energy saving devices will be incorporated into Project facilities; plans include: solar hot water systems, photo voltaic power systems, energy efficient light fixtures controlled by occupancy sensors, efficient Energy Star rated electrical appliances at all facilities, and design with local knowledge to maximize the use of natural ventilation and lighting at the Headquarters."

24

The American Indian Religious Freedom Act does not impose any specific obligations on any non-governmental entity or federal agency or department. Therefore, there are no requirements for the Thirty Meter Telescope Project to comply with.
However, the Draft EIS does not suggest that the Project or other groups or individuals will constrain cultural practices or access, including gathering of cultural resources, in the summit region. The Draft EIS, in Section 3.2.3, page 3-18, indicates the Project will comply with applicable rules, regulations, and requirements - including the CMP. The CMP states, on page 7-7, that "Native Hawaiian traditional and customary practicies shall not be restricted, except where safety, resource managment, cultural appropriateness, and legal compliance considerations may require reasonable restrictions."

25

Thank you for your input; however, the Thirty Meter Telescope Project is not at liberty to import prescription medications from Canada to the U.S. for resale.

26

Acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

Sierra Club
Hawai`i Chapter
PO Box 2577, Honolulu, HI 96803
808.538.6616 hawaii.chapter@sierraclub.org

July 7, 2009

TMT Observatory Project
University of Hawaii at Hilo
Office of the Chancellor
200 W. Kawili St.
Hilo, HI 96720

Office of Environmental Quality Control
235 South Beretania St. Ste. 702
Honolulu, HI 96813

Sierra Club Comments Regarding Thirty Meter Telescope Project Draft EIS
Pursuant to Hawaii Revised Statutes Chapter 343, Island of Hawaii
TMK 4-4-15:9, 4-4-15:12, 4-4-15:1, 6-7-2, undetermined parcel

Submitted by: Deborah Ward and Nelson Ho, Co-Chairs–Mauna Kea Issues Committee,
Sierra Club, Hawaii Chapter

Deborah J. Ward Nelson Ho

Aloha. Sierra Club recognizes the unparalleled observational opportunities that the Thirty Meter Telescope (TMT) represents to the astronomical world. We are mindful that this scientific instrument may herald a new epoch of cosmological exploration. Many Club members whole-heartedly support smart advancements in astronomy and believe these advancements must be done in balance with conservation of cultural and natural resources.

In sum, Sierra Club is an advocate for the responsible management of all of Hawaii's resources, natural and cultural. The Club includes residents of Hawaii who regularly visit Mauna Kea for hiking, viewing and enjoying open spaces, and other forms of recreation, including wildlife observation, aesthetic enjoyment, educational study, and spiritual contemplation. We are also mindful of the black eye that international astronomy got when the Mt. Graham International Observatory (University of Arizona) controversy erupted in the 1980's - 90's over cultural/spiritual issues and the loss of federally protected endemic species habitat for more telescope development. Our Arizona Sierra Club members were at the forefront of that debate as well.

Recycled
Content

For Mauna Kea today, TMT means TOO MANY TELESCOPES. Unfortunately this telescope proposal continues to advance towards the summit, despite Sierra Club conversations of specific land mismanagement issues with Dr Jean-Lou Chameau President of California Institute of Technology (TMT BOD Member), Dr. Henry Yang, Chancellor of UC Santa Barbara (Chair, TMT Board) and Dr. Michael Bolte, Director of University of California (UC) Observatories (TMT BOD Member). We are disappointed that they and their team, did not heed our warnings nor Consultant Peter Adler's, whose honest appraisal outlined the controversy in a report to Gordon Moore (Co-founder of Intel Corp. Contributed around $300 million to TMT) titled Assessment of Risks for Siting the Thirty Meter Telescope on Mauna Kea, October 26, 2007. (See Sierra Club Comments Appendix A-Adler)

We are deeply disappointed with the contents of the proposed TMT draft EIS. A better EIS would have acknowledged Mauna Kea's history and the present controversy, and attempted to mitigate thirty-five years of land mismanagement. Our comments cite some of the Insufficiencies, Inadequacies, Errors of Omission and Misrepresentations contained in the draft EIS.

1

I. TMT BOD Decision-making Diminishes Environmental Review Process

1.) Sierra Club was told that the TMT Corporation Board of Directors will be meeting July 20, 2009 to decide on whether to locate the TMT at Chile or Mauna Kea. The comment deadline to the Hawaii proposed TMT draft EIS is July 7, 2009. Finalization of the EIS and ultimate acceptance by the Governor of Hawaii is some months in the future. Further, the Comprehensive Management Plan for Mauna Kea, mandated by court order for the state Department of Land and Natural Resources (DLNR) to undertake, has not been completed, and remains subject to unresolved legal challenges. No applications for new development will be accepted for consideration by DLNR in the foreseeable future.

2.) Informed decision-making is a cornerstone of the environmental review process, and while this TMT BOD timeline is not illegal, it suggests a cavalier approach to a billion dollar decision. The TMT board decision on site location will not fully reflect the findings of the finalized EIS nor the recommendations and requirements of the incomplete Comprehensive Management Plan (CMP). It appears that informed decision-making is NOT the key component of the TMT planning process. Please discuss in Final Environmental Impact Statement (FEIS).

II. Inadequate Discussion of National Environmental Policy Act Environmental Review

2

3.) The type of decision making agencies/organizations and the sources of funds are two key triggers in the arena of environmental review procedures. The draft EIS (DEIS) identifies the proposing agency of the TMT as the University of Hawaii at Hilo. The partners pursuing and funding the project are not identified as the proposing agencies.

4) The sources of funding omitted include the University of California (UC), California Institute of Technology (CalTech), Association of Canadian Universities for Research in Astronomy (ACURA) and the National Astronomical Observatory of Japan (NAOJ) identified in Chapter 2. In addition, the Gordon Moore Foundation and National Science foundation (NSF) among

1

On July 21, 2009 the TMT Observatory Corporation selected Maunakea as its preferred site for the location of the Thirty Meter Telescope, after several years of review and meticulous research on sites in both the northern and southern hemispheres. The process was not cavalier in its approach. The timing of the Hawaii environmental review process was determined by Hawaii law and requirements. If the Project was not proposed to be located in this state, the Hawaii environmental review process would not have been triggered and an EIS would not be necessary. Many, if not most, decisions to site projects in Hawaii are made prior to commencement of the environmental review process since the review process itself requires a substantial commitment of time and resources.
The Hawaii environmental review process integrates environmental concerns with existing state and county planning processes, alerts state and county decision makers to significant environmental effects, and allows public participation. It is not intended for use by private entities such as the TMT Observatory Corporation for independent corporate decision making.

2

As indicated in the EIS, the University of Hawaii at Hilo (UH Hilo) is the proposing agency. HRS Chapter 343 imposes obligations on State and local agencies. The TMT Observatory Corporation is not a State or local agency – it is a California nonprofit public benefit corporation. UH Hilo is an instrumentality and body corporate of the State of Hawaii. UH Hilo is the proposing agency because it holds the lease on the State land being considered for the TMT Observatory and potential Mid-Level Facility. UH Hilo is also the permittee and applicant of current Conservation District Use Permits (CDUPs) for the Mauna Kea Science Reserve (MKSR).

3 others are not identified as proposing partners. Please include list of funders and discuss issue in FEIS.

4 5.) The title page indicates that the draft is prepared pursuant to State of Hawaii HRS 343, and yet Sierra Club believes that there are a number of triggers identified in this document that would indicate that NEPA environmental review has not been adequately analyzed and discussed. The triggers may include the following:

- The recognition of Mauna Kea as a Traditional Cultural Property. Sierra Club believes this triggers Native American Graves Protection and Repatriation Act (NAGPRA) Section 106 consultation with Native Hawaiian organizations and individuals
- The eligibility of Mauna Kea for listing as an a National Register of Historic Places
- The prioritization of TMT as a Decadal project with national priority by the National Academy of Science in 2001. (2.0 Project Description)
- Significant funding from the National Science Foundation for design of the TMT

Please discuss whether any of the factors listed trigger a federal environmental review process.

5 6.) There is inadequate discussion of the role of the TMT as the pioneer of the next generation of Extremely Large Telescopes. Please disclose more details of what other proposals are being considered for the reasonably foreseeable future. Is the TMT the "test bed" for further telescopes with mirror sizes of 50 meter, 80 meter, 100 meter or larger?

6 Should this proposal not be accepted, are there other proposals that could, in time, accomplish all the benefits of the TMT on Mauna Kea? Please discuss.

7 7.) Is it true that the TMT Observatory Corporation/partners have received federal design funding that will be applicable to the TMT? More funding could come from the National Science Foundation in the future. Please disclose all sources of current and reasonably foreseeable future funding for design and construction for the purpose of determining whether a federal review process should be undertaken. Please discuss whether these funding sources already trigger the environmental review process.

> "The California institutions have already garnered initial financial support of $35 million (U.S.) from a foundation set up by computing pioneer Gordon Moore (think Moore's Law). With an American tradition of philanthropists underwriting major telescopes, astronomers there are hoping for several hundred million more from the Moore foundation to actually build TMT. The rest of the U.S. share would come largely from the National Science Foundation, a federal government research-funding agency. " (Peter Calamai.Toronto Star, May 14, 2006)

3
As fully disclosed in Section 2.1, page 2-1, of the Draft EIS, the TMT Observatory Corporation is a non-profit partnership of the University of California (UC), the California Institute of Technology (Caltech), and the Association of Canadian Universities for Research in Astronomy (ACURA).
The sources of funding are not relevant to the Thirty Meter Telescope Project's potential impacts on the environment evaluated in the Draft EIS. The University of Hawaii at Hilo (UH Hilo) is the proposing agency, not the non-profit TMT Observatory Corporation or its funders, because UH Hilo holds the lease on the State land being considered for the TMT Observatory and potential TMT Mid-Level Facility, and is the permittee and applicant of current Conservation District Use Permits (CDUPs) for the Mauna Kea Science Reserve (MKSR).

4
The obligation to evaluate and disclose environmental impacts under the National Environmental Policy Act (NEPA) is triggered when a federal agency proposes a major federal action that would significantly affect the environment. Neither the University of Hawaii at Hilo (UH Hilo) nor the TMT Observatory Corporation is a federal agency. Further, neither UH Hilo nor the TMT Observatory Corporation has received funding or pledges of financial support from any Federal agency for activities that will or may significantly affect the environment, nor has either entity applied for any federally-issued permit or license. Therefore, the United States' obligations under NEPA have not been triggered.

5
The Thirty Meter Telescope Project is the construction, operation, and future decommissioning of a 30-meter telescope and associated infrastructure, as defined in Chapter 2 of the Draft EIS. The TMT Observatory is not a test bed or prototype for a telescope with a larger mirror size. There are no plans to design, build, or operate a telescope with a primary mirror larger than the proposed 30-meter mirror of the Project on Maunakea.

6
There are currently no other plans to build a next generation large telescope (NGLT) in the northern hemisphere. As discussed in Section 4.2.2, page 4-9, of the Draft EIS, there are two other NGLTs in the design phase and both of them are planned for the southern hemisphere.
The only foreseeable actions on Maunakea are those outlined in Section 3.16.3 of the Draft EIS. None of those foreseeable actions have the potential to accomplish all the benefits of the TMT on Maunakea.

7
As addressed in a response to a previous comment, NEPA review of the Project has not been triggered - the Project, defined in Chapter 2 of the Draft EIS, is not a major Federal action.
In addition, while the TMT Observatory Corporation has received limited funding from the National Science Foundation (NSF) for the development of technology, that technology can be used on other telescopes. No Federal agency, including the NSF, has provided or pledged funds for the construction, operation, or future decommissioning of the Thirty Meter Telescope (TMT) Project, the "Project" or action as defined in Chapter 2 of the Draft EIS. Nor is TMT required to obtain a permit, license, or other approval from the United States prior to the construction, operation, or future decommissioning of the TMT Project. Therefore, the United States' obligation to comply with the NEPA has not been triggered with respect to the Project.

III. Segmentation of Project and Funding Misses Proper Environmental Review Process

8.) In a letter from Senator Daniel Inouye to UH President David McClain, May 13, 2008, Inouye states:

"...both telescope projects hope the NSF will cover their operation and maintenance costs. As our federal budgetary outlook continues to weaken, the likelihood that NSF will be able to cover the costs for both telescopes is nil. In fact NSF's astronomy budget would have to double to cover the TMT's operations and maintenance costs". (See Sierra Club Comments Appendix B-Inouye)

8 9.) In the reasonably foreseeable future, if a Federal agency decides to fund expensive instrumentation development or contributes to maintenance and operational expenses, would that action trigger a NEPA environmental review process? Please discuss.

9 10) Please disclose and discuss if further federal funding is a possibility in the reasonably foreseeable future. If it is a possibility, would this be considered segmentation of a federal project to avoid having to trigger NEPA at the earliest possible time?

IV. If Cultural Respect Is Important, Where are NAGPRA Section 106 Consultations?

10 11.) The Mauna Kea Summit region is eligible for listing in the National Register of Historic Places. The district is listed in the State Inventory of Historic Places (SIHP no. 50-10-23-26869). The determination of eligibility was established in 2000 and is referenced in the University of Hawaii 2000 Mauna Kea Science Reserve Master Plan (UH 2000 MP). This eligibility affects the requirement to complete a NEPA EIS, Native American Graves Protection and Repatriation Act (NAGPRA) Section 106 consultation process with native Hawaiian cultural practitioners, and evaluation of summit-wide cumulative impacts, among others. Traditional Cultural Properties and Proposed Historic District (3.2 Cultural Resources)

11 UH 2000 Master Plan states in Appendix F:

Within the historic district, the effect of a project on the historic district as a whole needs to be assessed as well as the project's effects on individual historic properties...The effect on the historic district must be addressed even if no individual historic properties are found within or immediately adjacent to the project area.

12 12.) The presence of Traditional Cultural Properties (TCP) triggers NAGPRA Section 106 consultation with Native Hawaiian organizations and individuals. Has that occurred? Please discuss.

V. Inadequate Disclosure Of The Incoherent Management Policy Infrastructure

13 13.) What is the basis for continued telescope facility development, and accommodation of this proposal on the summit? Please discuss the policy framework which allows the development of any further facilities on Mauna Kea. (2.5.1 TMT Observatory)

8

Whether the NEPA environmental review process will be triggered in the future will depend on whether a federal agency proposes a "major federal action" that will or may have a significant effect on the environment. It is impossible to determine if an agency's obligation to conduct a NEPA review is triggered without knowing what action the agency is proposing to take, and it would not be appropriate to speculate as to what actions might be undertaken by the federal government.

9

The TMT Project is not a "federal project", and thus, no segmentation of a "federal project" has occurred or can occur. The possibility of federal funding for an action at some point in the future does not trigger an obligation to comply with NEPA. Whether the United States' obligation under NEPA will be triggered in the future, based on events that occur in the future, calls for speculation. If and when the facts change, the United States will determine if the new facts and circumstances trigger its obligation under NEPA. The Project does not know if NSF or another Federal agency will provide any funds for any part of the Project as defined in Chapter 2 of the EIS.

10

The Maunakea summit region has been designated as a Historic District by the State Historic Preservation Division (SHPD) and has been evaluated by SHPD to be eligible for listing as a National Historic District; however, no National application for such a designation has yet been made. Similarly, the "Traditional Cultural Properties" have been designated as State Historic Properties, under criterion "e" and have been evaluated by SHPD to be eligible for Federal designation as Traditional Cultural Properties (TCPs); however, no Federal application for designation as such has yet been made. Sections 3.2 and 3.3 of the Final EIS have been updated to reflect this information., including the following addition to Section 3.3.1: "During the preparation of the 2000 Master Plan and draft Historic Preservation Plan (HPP) in 1999-2000, SHPD determined that Kukahau'ula and two others cinder cones on Maunakea met the "e" criteria for designation as Historic Properties. As discussed in Section 3.2.1, the two other cinder cones are Pu'u Lilinoe in the MKSR and Waiau in the Mauna Kea Ice Age NAR, but the Project facilities are not near these two properties. ... Properties on the registry because they meet criterion "e" are commonly referred to as 'traditional cultural properties (TCPs)' or 'legendary properties.'" Section 106 imposes obligations on Federal agencies for Federal undertakings. The construction, operation, or future decommissioning of the TMT Project, which is the "Project" described in Chapter 2 and evaluated throughout Chapters 3 and 4 of the Draft EIS, is not a Federal "undertaking" as defined by Section 106 of the National Historic Preservation Act (NHPA), and thus, Section 106 consultation requirements do not apply. The Project and the Draft EIS addressed consultations with Native Hawaiians and cultural practitioners through the Cultural Impact Assessment and HRS Chapter 6E Historic Preservation processes, as discussed in Sections 3.2 and 3.3 of the Draft EIS. Additional information about these consultations has been included in these sections of the Final EIS.

14.) Telescope development on Mauna Kea has exceeded the carrying capacity identified and permitted in the 1983 Mauna Kea Science Reserve Complex Development Plan, approved by the Board in 1985 and amended in 1987 and in 1995. Since then, The University developed the UH 2000 Master Plan, approved by the UH Board of Regents, but never submitted it to Department of Land and Natural Resources (DLNR) for approval. Third Circuit Judge Glenn Hara affirmed that the UH 2000 MP was not a BLNR- approved comprehensive management plan as required in HAR 13-5-24, in his decision to rescind the DLNR permit for the Keck Outrigger Telescopes.

14 15.) Authors of this TMT DEIS confuse UH 2000 MP with the previous DLNR approved development plans. The UH 2000 MP has no legal standing before the DLNR and only highlights the deficiencies and shortcomings of the UH version of the CMP. In its April 9, 2009 hearing to consider the UH CMP, BLNR specifically did not vote on, discuss or approve the UH 2000 MP. The UH 2009 "CMP does not address development plan issues related to future observatories"(CMP p. 7-54). The CMP author, Dawn Chang repeatedly stated that the CMP has no provisions for, and leaves unresolved, further telescope development. Please discuss the implications of this fatal flaw in the FEIS.

15 Reference to the Mauna Kea Comprehensive Management Plan for UH Management Area is incomplete. Proponents admitted that the plan was "not perfect, not complete, inadequate, just a start," etc.) The plan does not address new telescope development.

16 This document is not final, for two reasons: 1) several petitioners have requested a contested case, and 2) the Board determined that four more plans must be submitted; Natural Resource, Cultural, Access and Decommissioning (and financial) management sub-plan components. If the contested case goes forward, or litigation commences, the outcome cannot be predicted. In any case, the sub-plans will not be developed or considered for approval for a least one year. Without these plans, no applications for development can be submitted to the Board for consideration. Without these plans, any EIS document cannot address the provisions in the sub-plans that must be addressed. Please review and discuss in FEIS.

17 16) Reference in the DEIS to an "Astronomy Precinct" is inaccurate. No legally defined astronomy precinct has been approved by the Board of Land and Natural Resources (BLNR). This is an artifact of the UH 2000 MP. Please acknowledge that DLNR has yet to approve the UH 2000 MP with its Astronomy Precinct designation in FEIS.

17.) Policy documents defining the roles of various entities within the UH system betray an ongoing and unresolved schism between the University of Hawaii at Manoa Institute for Astronomy (IfA) and the University of Hawaii at Hilo, which hosts the Office of Mauna Kea Management (MKMB). The UH 2000 MP and the UH CMP both allege that the IfA, based at UH Manoa, conducts state of the art astronomical research, astronomy education, and in the development and management of the observatories on Haleakala and Mauna Kea. IfA oversees the conduct and coordination of astronomical research in (MK) Science Reserve, including long-term planning and visioning. "The IfA has responsibility for managing the observatories and their operations, but is not a land manager." While UH Hilo is not mentioned specifically as the land management entity, but the document states "The acceptance of the 2000 MP by the UH Board of Regents prompted the creation of OMKM, the MKMB, and Kahu Ku Mauna. The MKMB serves in an advisory capacity to the UH Hilo Chancellor...OMKM ...is responsible for the day-

11

Section 3.3 of the Final EIS has been updated to include an assessment of the Project's potential impacts on the State Historic District. The discussion includes the following in Section 3.3.3 of the Final EIS:
"Summary of Effect in Maunakea Summit Region
"The Project will not result in the loss or complete destruction of any historic properties within the Maunakea summit region. The physical impacts on the only historic property physically effected, Kukahau'ula, will be minimal and will not be significant.
"Impacts to the Historic District and its contributing properties will be confined to the impacts on Kukahau'ula and the introduction of the Project components into the Historic District. Although the TMT will be a new structure in the Historic District, it will be isolated in the Northern Plateau and will not be visible from most areas with the district. The district is currently recognized as a significant cultural landscape based on the multitude of historic properties in the area and despite the existence of the modern structures and numerous find spots in the area that may detract from its overall character.
"Because the Project will (a) have certain facilities within a Historic District, (b) affect a Historic Property within the district, and (c) provide treatments/mitigations to address those effects, it has been determined that the Project will result in an 'effect with treatment/mitigation commitments.'
"Because the Project will not result in the loss or complete destruction of any archaeologic/historic resource within the Maunakea summit region, this impact is considered to be less than significant."

12

Three State Historic Properties are commonly referred to as "traditional cultural properties (TCPs)" because they were found eligble for the State Inventory of Historic Places under criterion "e". However, these properties have not been designated TCPs at the Federal level, where such a designation exists. The State does not have a separate TCP designation or rules that apply to these properties separately from any other State Historic Property types.
As discussed above, Section 106 imposes obligations on Federal agencies for Federal undertakings and the Project, as defined in Chapter 2 of the Draft EIS, is not a Federal "undertaking," as defined by Section 106 of the National Historic Preservation Act (NHPA), and thus, Section 106 consultation has not been triggered.
Nonetheless, the Project has consulted with native Hawaiians and cultural practitioners through other processes as discussed in Sections 3.2 and 3.3 of the Draft EIS and will continue to consult with them. Additional information about these consultations has been included in these sections in the Final EIS.

to-day management of the cultural and natural resources of the UN Management Areas. OMKM is housed within and funded by the UH-Hilo, and OMKM staff report directly to the Chancellor of UH Hilo. (see CMP 3.3 Management Responsibilities)

18 If IfA is the developer and manager of telescopes, and UH Hilo is responsible for management of cultural and natural resources why is UH Hilo the proposing agency for the TMT? Please discuss in FEIS.

VI. Inadequate Disclosure of Management Responsibilities and Funding Required

18.) The $100 million funding shortfall identified in FY 2010 and 2011 by University of Hawaii President David McClain on July 1, 2009, caused by the dramatic decline of the Hawaii's tourist-based economy, is not anticipated to reverse the trend in the near future. (See Sierra Club Comments Appendix C-McClain.)

19.) The University has not designated new staffing positions for management of the summit, and currently operates the OMKM with an interim director, a secretary and five roving rangers. A minimum of two new full-time OMKM positions will be necessary to develop the natural resources management program: a natural resources manager and at least one field biologist. Currently there are no dedicated natural resources management personnel within OMKM. Funding has not been committed, and is not expected during this budget crisis. The Board of Regents did not make a commitment of funds when it approved the University version of the
19 CMP, and no commitment has been made in the future. Does the TMT Corporation accept responsibility to fund natural resource management on Mauna Kea? (3.21 Unresolved Issues)Please discuss.

20 20.) The sublease consideration (benefits package) does not identify funding for natural and cultural resource protections, inventories, monitoring and research. Higher education initiatives, community education, and observing time do not mitigate the cumulative impact of telescope construction and related activity, and do not fund the appropriate studies, nor management of resources required to protect the elements of the conservation district for the people of Hawaii in perpetuity. (3.21 Unresolved Issues) Please discuss.

21 21.)The payment of $1 a year in lease rents telescopes on the summit has not been sufficient to fund appropriate management, Years of mismanagement have led have led to calls for removal (not replacement) of telescopes as they become obsolete, just compensation for use of ceded lands, and greater community involvement in an independent management authority for Mauna Kea. Please discuss.

22 22.) Sierra Club asserts that BLNR violated its fiduciary duties under Section 5(f) of the Hawaii Admission Act and its statutory duty under HRS § 171-33(5) by disposing of the Section 5(b) lands on Mauna Kea without a proper appraisal and at less than their independently appraised fair-market value. DLNR, by not collecting payment of lease rents at fair-market value, places an unacceptable burden on Hawaii taxpayers, who must subsidize international astronomy. Please discuss.

13
Land use plans, policies, and controls are discussed in Section 3.10 of the Draft EIS, with the discussion of the Project's consistency with these plans, policies, and controls on pages 3-116 to 3-120. The Project will comply with all applicable land use plans and policies.
The Mauna Kea Science Reserve (MKSR) is classified as a resource subzone of a conservation district; astronomy facilities are an identified use in the resource subzone. As discussed in Section 2.5.1 of the Draft EIS, the 2000 Master Plan identified Area E as the appropiate location of a Next Generation Large Telescope (NGLT); TMT fits the definition of a NGLT. In addition, the Comprehensive Management Plan (CMP), including its sub plans, has been approved by the Board of Land and Natural Resources (BLNR). Together these provide a policy framework within which the TMT Observatory could be allowed to develop in Area E on Maunakea.
The discussion in Sections 2.5.1 and 3.10 have been expanded in the Final EIS to address consistency with the 1983 Master Plan. However, similar to the 2000 Master Plan, the 1983 Master Plan was never approved by the BLNR, the BLNR only approved the Management Plan portion of the 1983 Master Plan. Additions related to the 1983 Master Plan include the following in Section 2.5.1: "The same general area is identified in the 1983 Master Plan as Area D. Area D in the 1983 Master Plan is generally similar to Area E in the 2000 Master Plan, but encompassed a larger portion of the northern plateau. The 1983 Master Plan states Area D is 'very suitable for future optical/infrared telescopes. Three to four telescopes can be accommodated on the flatter portions within the area, with some flexibility in choice of sites based on technical site selection criteria such as laminar wind flow and obscuration.' The 1983 Master Plan identified similar potential benefits of siting observatories on the Northern Plateau instead of on the summit ridge, including fewer potential impacts to cultural/archaeological resources, fewer potential impacts to arthropods, and better geotechnical conditions."
As outlined in Section 8.1 of the Final EIS for the 2000 Master Plan, the carrying capacity of Maunakea for observatory development is large but difficult to define precisely. Existing Master Plans and Management Plans provide for observatory development to well less than the carrying capacity of Maunakea; therefore, the carrying capacity is not a relevant point of discussion for the TMT Observatory and does not address the Project's potential impacts on the environment evaluated in the Draft EIS.
Furthermore, there is no set "limit" on the number of telescopes or observatories on Maunakea. The 1983 Master Plan states on page 41, "Based on the RDP [Research Development Plan], the SRCDP [Science Reserve Complex Development Plan] identifies siting areas for a total of thirteen telescopes on the mountain by the end of the century. Although the actual number of facilities which will be realized by the astronomy program at Mauna Kea will depend on the demand and on the role determined for this activity by public policy makers, the University of Hawaii has determined that it is resonable and feasible to project a total of 13 telescopes on the mountain between now and the year 2000." The 1983 Master Plan is silent on the number of observatories that could be built after the year 2000 and overall the number of observatories at any point in time is left to public policy makers.
The 2000 Master Plan, which is the most current master plan for the UH management areas, does not identify a limit on the number of observatories on Maunakea but does limit the area of future development to within the Astronomy Precinct.

VII. Data Gaps Diminish Value Of Environmental Review Process

23 23.) The Office of Mauna Kea Management, in conjunction with its Environment committee members, who are scientists working in the fields of biology, geology and environmental management on the Island of Hawaii, have worked for several years to identify data gaps in the knowledge base and seek resources to begin to fill the gaps. A culmination of this effort was the development of a pre-final report Natural Resources Management Plan for the UH Management Areas on Mauna Kea complied by Sustainable Resources Group International, Inc (SRGII), and submitted for review to the Environment Committee in February 2009, and to the Mauna Kea Management Board in March 2009. The recommendations, commissioned by OMKM, independent of the CMP development, were later intended to be a substantial and significant component of the UH CMP, but were withheld by the UH legal advisors at the last minute for reasons not clear to the Environment Committee participants. Members of this committee include Sierra Club members, including Deborah Ward, co-author of this letter. Sierra Club believes that this document is so significant that it should be reviewed and incorporated in the context of the Final EIS for the TMT. Appended below are some of the highlights of this 400-plus page document.

Science-based natural resource management requires quality data about the status of biological and physical resources, provided by inventory, monitoring and research. The baseline inventory, or initial survey, establishes the status of the area under management at the beginning of a natural resources management program. Many of the decisions and paths taken by the management program will follow from the results of the baseline inventory. Long-term monitoring begins after the completion of the baseline inventory and tracks selected resources over time. Decisions on what resources to monitor over the long term will be based on the results of the baseline inventory and the objectives of the management program. Research programs may begin after the baseline inventory is completed, or at any time during long-term monitoring. The purpose of the research component is to answer questions and fill data gaps that are beyond the scope of the inventory and monitoring program but that are necessary to understand and manage the resources and advance the body of knowledge.

24 To date, only limited baseline data has been collected on natural resources in UH management areas. Complete baseline inventories must be completed for all abiotic and biotic resources prior to any specific future land use in each area proposed for development. Physical resources that could be adversely affected by development should also be inventoried. Baseline
25 inventories should be conducted for the high priority natural resources identified. Detailed, site-specific inventories shall be required for any future changes in land use, such as new
26 development. Long-term monitoring shall occur for a selected subset of resources included in the baseline inventories, depending on perceived need and the status of the resources at the time of the baseline inventory.

27 Detecting the impacts of climate change will require monitoring of changes in climate and natural resource abundance and distribution. Monitoring climate change is a global, collaborative effort to which OMKM could contribute by collecting weather data at Hale Pohaku and in the Science Reserve and providing it as a public resource for use in climate change modeling and other studies. Please discuss.

One of the most efficient ways of preserving a sensitive ecosystem is to limit future development in the area. An additional measure of protection for sensitive habitats within the Astronomy Precinct can be achieved by prohibiting development of any currently undeveloped

14
The 2000 Master Plan is referenced throughout the Draft EIS, including Chapter 2 and Section 3.10. Section 3.10.3 of the Draft EIS outlines the Thirty Meter Telescope Project's consistency with land use plans, policies, and controls. The Draft EIS neither states nor suggests that the 2000 Master Plan was approved by the Board of Land and Natural Resources (BLNR). The 2000 Master Plan was prepared by UH through a process that included broad community input as well as coordination with governmental agencies, including the Department of Land and Natural Resources (DLNR). A Draft and Final EIS were prepared and the 2000 Master Plan was adopted by the University of Hawaii (UH) Board of Regents (BOR) and implemented. Although the 2000 Master Plan was not officially approved by the BLNR, the Master Plan is the guiding document for the University of Hawaii at Hilo (UH Hilo), the proposing agency for the Project. Therefore, the 2000 Master Plan, which built on the 1983 Master Plan, is pertinent to the Project. In addition, the wealth of scientific information in the 2000 Master Plan remains valid and valuable. References to the 1983 Master Plan have been included in the Final EIS for the Project where applicable, including Chapter 2 and Section 3.10. Like the 2000 Master Plan, the 1983 Master Plan was never approved by the BLNR.

15
The CMP was approved by the BLNR on April 9, 2009, with conditions. The four sub plans, which were the conditions of CMP approval, have been completed and approved by the BLNR. Therefore the CMP is complete.
The CMP does not directly address new telescope development because it is a management plan, not a master plan. The CMP does provide Management Actions for Facility Planning, Management Action FLU-1 through FLU-7. The Project is complying with these Management Actions, where applicable.

16
The CMP was approved by the BLNR on April 9, 2009, with conditions. Certain individuals and organizations requested a contested case proceeding for the CMP approval. The BLNR denied the request since a contested case hearing was not required by law and those requesting it did not establish a property interest in the CMP or that the CMP would affect property in which they possessed an interest. In approving the CMP, the BLNR required that UH be responsible for the implementation of the CMP subject to oversight of the BLNR. Failure to comply with the BLNR's conditions of approval of the CMP may result in sanctions. Hence the CMP and its conditions of approval have legal force and effect.
The four sub plans have been submitted and approved by the BLNR.
The Draft EIS referenced the CMP throughout and references to the four sub plans, which became available following the completion of the Draft EIS, have been added throughout the Final EIS, as appropriate. These references include the following in Section 2.7.4: "The TMT Observatory and the extent of the Access Way exclusively used to access the TMT Observatory will be dismantled and the site restored at the end of the TMT Observatory's life in compliance with the Decommissioning Plan for the Mauna Kea Observatories, a Sub-Plan of the Mauna Kea Comprehensive Management Plan (UH, 2010a)."
The four sub plans built on the Management Actions in CMP, therefore, by addressing the CMP Management Actions, the Draft EIS was able to address the sub plan provisions. Furthermore, the Project was not altered following the completion of the Draft EIS solely due to provisions in the sub plans that became available after the completion of the Draft EIS.

17
The Astronomy Precinct is discussed throughout the Draft EIS, including Chapter 2 and Section 3.10. As addressed in responses to previous comments, the 2000 Master Plan is the plan approved by the proposing agency, and as such, the proposing agency has been and will continue to adhere to the Master Plan objectives and policies, including limiting observatory development to designated areas within the Astronomy Precinct.
The 2000 Master Plan has not been approved by the BLNR, and this fact is noted in Section 3.10 the Final EIS as follows: "The UH BOR accepted the Mauna Kea Science Reserve Master Plan in June 2000. Similar to the 1983 Master Plan, the 2000 Master Plan was not adopted nor approved by BLNR."

pu'u at the summit. However, there may be additional unique biological communities and physical resources within the Astronomy Precinct that are not protected from development by this prohibition. Using information obtained from baseline surveys, efforts should be made to delineate and protect areas of high native diversity or unique communities within the Astronomy Precinct.

28

All proposed new land uses (such as development) that will damage or permanently destroy sensitive habitats should address the need for mitigation and propose suitable mitigation activities.

29

All future developments in the Science Reserve and at Hale Pohaku should include mitigation plans for preventing or repairing damage to sensitive habitats caused by construction and development activities. Any habitat that will be permanently removed should be replaced on at least a one-to-one basis, through either creation of new habitat, restoration of degraded existing habitat, or by permanent protection of similar unique habitats. Mitigation plans should be paid for and prepared by the project proposer, but should be reviewed and approved by OMKM If the disturbed habitat contains protected species or other critical habitats, mitigation plans may also have to be approved by state and federal agencies. Mitigation projects should include a minimum of two to five years follow-up monitoring, to assess the results of the project. The length of time that monitoring must occur will depend on the scale of the project and the organisms for which the habitat is being mitigated. Mitigation projects on the summit should focus on creation of new wekiu bug habitat. Mitigation projects conducted at Hale Pohaku should focus on restoration or enhancement of existing mamane woodlands. Please review full document and discuss the above ideas in the FEIS.

24.) **DATA GAPS**—A full assessment of environmental impacts can only be undertaken when data is available to review. In the case of Mauna Kea, the inventories and monitoring mandated as conditions in the 1983 MRSRCDP (referenced earlier) were not funded by the University, and as a result, information required to manage and protect this fragile ecosystem from industrial development and visitor impact is missing or woefully incomplete.

An incomplete list of data gaps examples includes the following (taken from SRGII's Pre-Final NRMP: 4.1 Natural Resources Inventory & Research Protection).

Geology

Baseline Inventory of surface features and soil resources to identify locations and cause of accelerated erosion sites (High priority)

Climate and Weather

Precipitation data has not been collected consistently since 2000. No single database houses the meteorological data. For NR mgt, monitoring and recording weather at representative locations to identify trends, climate monitoring, etc. Wind patterns and their obstructions, and global climate change may affect arthropod communities

Air Quality and Sonic Environment

Dust introduced into the airshed has potential impacts on biological resources, human health, habitats, and astronomy.

18

As indicated in the EIS, the University of Hawaii at Hilo (UH Hilo) is the proposing agency. HRS Chapter 343 imposes obligations on State and local agencies. The TMT Observatory Corporation is not a State or local agency – it is a California nonprofit public benefit corporation. UH Hilo is an instrumentality and body corporate of the State of Hawaii. UH Hilo is the proposing agency because it holds the lease on the State land being considered for the TMT Observatory and potential Mid-Level Facility. UH Hilo is also the permittee and applicant of current Conservation District Use Permits (CDUPs) for the Mauna Kea Science Reserve (MKSR).

19

Responsibility for natural resource management within the UH Management Areas lies with UH and DLNR, not the Project. TMT will make lease payments to UH, and as outlined in Section 3.10.3 of the Final EIS: "Sublease rent that will commence upon the TMT Observatory's first scientific observations and continue for the term of the sublease or until observatory decommissioning, whichever is sooner. The lease rent shall consist of an annual payment, to be deposited into the Mauna Kea lands management special fund and used for the purposes set forth in HRS § 304A-2170. This dollar amount will be adjusted annually using an appropriate inflation index (the baseline from when the inflation index will be applied will be the subject of negotiation and specified in the sublease)." Although the amount of sublease rent has not been negotiated, it is anticipated that the sublease rent will amount to a large portion of the OMKM operating budget.
As outlined in Section 3.4 of the Draft EIS, the Project is committed to implementing a Cultural and Natural Resources Training Program, an Invasive Species Prevention and Control Program, and a Ride-Sharing Program, among others, to reduce and mitigate potential Project impacts on natural resources.

20

As discussed in the response above, sublease rent will be "deposited into the Mauna Kea lands management special fund and used for the purposes set forth in HRS § 304A-2170." It is stated in Section 3.10.4 of the Final EIS that because the funds will be spent in accordance with HRS § 304A-2170, "the TMT sublease rent, could be utilized to fund OMKM and its implementation of the CMP."
The Community Benefits Package (CBP) is not designed to mitigate or fund mitigation of cumulative impact to environmental resource impacts; additional details regarding the CBP are in Section 3.9.4 of the Final EIS.

21

State law (HRS §171-95) authorizes the BLNR to lease state land to government agencies at such rent and on such other terms and conditions as the BLNR may determine. It is common for BLNR to negotiate leases with nominal or no rent to governmental entities, including UH. For example, portions of the present UH Hilo campus are covered by state leases through BLNR at nominal or no rent.
The 1968 MKSR lease between DLNR and UH provide the terms of the master lease; those terms could be renegotiated as part of a discussion between UH and DLNR before the expiration of the existing lease. The Thirty Meter Telescope Project is committed to an agreement whereby the Project will benefit the larger community despite the current lease agreement. This issue is part of the impetus for the Workforce Pipeline Program and Community Benefit Package (discussed in Section 3.9 of the EIS) proposed by TMT - programs that would benefit the larger community.
As discussed in response to previous comments, TMT's sublease rent will be "deposited into the Mauna Kea lands management special fund and used for the purposes set forth in HRS § 304A-2170", including implementation of the CMP.

Plants

No quantitative studies of plant communities have been conducted at HP, Access Road or MKSR (last surveys in 1982, 1990). No botanical surveys of any sort have been conducted between HP and MKSR, even though there are populations of endangered and threatened species there. (High priority)

Invasive plants are becoming more abundant in the subalpine and alpine regions of MK. Monitoring for invasive vegetation for early detection of new species, new populations, expansion or contraction of ranges, prioritization for control, monitor response to control efforts. High priority. Research on control methods is a high priority.

Invertebrates

Very little is known about arthropods (other than the wekiu bug) at the summit, and relatively little information is known about arthropod communities at HP or the Access Road. Recent work has disclosed numerous introduced invasive alien invertebrates at HP, Lake Waiau, and MKSR summit that may well put native species and habitats at risk. The baseline line inventory, monitoring and research are a high priority, for native pollinators, summit arthropods, and invasive species.

Birds

There have been no quantitative bird surveys conducted in HP, SAR or MKSR. The last bird surveys at HP were in 1979 and 1985. Information needed on the abundance and distribution of protected species and species of concern (palila, apapane, I'iwi) also petrel. High priority

Mammals

Mammal monitoring to determine the abundance and distribution of invasive mammals, including herbivores, predators, and seedeaters. Bat survey at HP. High priority

Human Use

Impacts of human presence on alpine and subalpine natural resources is not documented, and impacts of human use on erosion, pollution, spread of invasive plants and insects, and habitat loss isn't well understood. High priority

Landscape level

Cumulative impacts of perturbations to ecosystems that occur through human use and effects of biotic and abiotic threats such as invasive species, and climate change, must be studied on a landscape scale. As natural resource attributes are altered, changes in viewshed can result. Viewshed conditions will also be altered as a result of changes to facility footprint, shape of cinder features as a result of addition or removal of buildings.

Hydrology

The hydrology for the summit region has not been thoroughly investigated, Main data gaps include hydrologic connection and contribution of recharge to underlying aquifers; contribution of past and potential contaminant discharges form summit facilities to Lake Waiau, and to aquifers;

22

The commentor's assertions do not address either the Project or the Project's potential impacts on the environment evaluated in the Draft EIS. Nonetheless, the following information is provided.

As discussed above, State law (HRS §171-95) authorizes the BLNR to lease State land to government agencies at such rental and on such other terms and conditions as the BLNR may determine.

UH subleases portions of its leased area to various observatories. UH collects sublease consideration from those observatories in order to manage and support astronomy on Maunakea in the form of observing time. In addition, the observatories share infrastructure and maintenance costs by contributing monetarily to an association managed by UH. The commentor's assertion that Hawaii taxpayers are subsidizing international astronomy is not correct.

The Project's effects on socioeconomic conditions were evaluated in Section 3.9.3, pages 3-102 and 3-103, of the Draft EIS. As summarized on page 3-103: "Overall, the Project would result in a beneficial socioeconomic impact by directly and indirectly generating new revenues for state and local economies, contributing to the state's gross domestic product, and generating new employment opportunities for local residents and the state." In addition, the measures discussed in Section 3.9.4, on pages 3-103 and 3-104, of the Draft EIS would further increase the Project's benefit to the island community and the State.

hydrology of Lake Waiau, water quality an water budget (High Priority) DEIS asserts it reviewed data but provides no documentation. Please append it the FEIS.

30 Please review full document and discuss gaps in data in the FEIS. (3.0 Environmental Setting, Impact and mitigation)

VIII. Policy Framework Does Not Support Additional Telescopes

31 25.) The document obfuscates the number of telescopes by stating the number of
32 observatories. The only approved management plan limits the number of telescopes and is silent on the number of observatories. That allowed number is thirteen, comprised of eleven major and two minor telescopes; construction of the TMT would exceed the allowed limit of 13 telescopes. This exceeds the number allowed in the only approved management plan that addresses telescope development and carrying capacity, called 1983 Complex Development Plan for the Mauna Kea Science Reserve and Related Facilities, approved in part by BLNR is 1985 and 1987. Please discuss and provide rationale for changing telescopes into observatories. (2.5.1 TMT Observatory)

33 26.) The planning master process began in the 1970's, when the community expressed alarm at the growing number of telescopes on the summit, when the lease allowed one.
The incremental expansion of the astronomy footprint on Mauna Kea over time has caused the community to intervene, to express their concerns about further expansion, and has led to litigation. Please reference these concerns in the FEIS.

34 27.) Kepa Maly noted in an executive summary for a compilation of oral history compiled for the Office of Mauna Kea Management about Mauna Kea:

> Also, of importance in discussions regarding modern astronomy on Mauna Kea, the narratives cited in this collection provide readers with first-hand accounts—from archival documents and oral history interviews—of the early days of astronomy on the mountain, including the thoughts and recommendations of the pioneer scientists, responsible agencies, and community members on the island of Hawai'i, in regards to use and limitations of Mauna Kea. An example of the kind of **information recorded by the early scientists and community on the island of Hawai'i, between 1964 to 1980, was that development of telescope facilities on Mauna Kea should be carefully limited— by 1980, the recommended number being six observatories.**

Please review and incorporate in FEIS.

28.) 1983 Complex Development Plan for the Mauna Kea Science Reserve and Related Facilities. In the introduction (on pages 3 and 4), regarding the motivation for the limit, the plan states:

> "Public attention was drawn to astronomy development when the University of Hawai'i began construction of its first telescope in 1967. A conceptual plan for the area was prepared by the University of Hawai'i in 1975, however, **the public was concerned that astronomy interests might completely take over the mountain . . . In response, the Department of Land and Natural Resources (of the State of Hawai'i) initiated a**

23
Information about the CMP and its Management Actions, which have been available since January 2009, was included in the Draft EIS. Information regarding the four required sub plans, the last of which was made available in January 2010, has been included in the Final EIS as appropriate.

24
Baseline surveys, studies, and monitoring have been conducted at the TMT Observatory and Access Way sites, as discussed in Section 3.3 (archaeology), 3.4 (biology), 3.6 (geology), and Section 3.16 (Wekiu bug monitoring) in the Draft EIS, as well as within the UH Management Area is general, as discussed in the 2000 Master Plan and previous master plans. The studies, surveys, and monitoring performed are sufficient to support the characterization of the Project's impacts. The 2000 Master Plan delineated development areas, including Area E, within the Astronomy Precinct in order to protect areas of high native diversity or unique communities, as your comment suggests. The delineation of Area E and its selection for a next-generation large telescope (NGLT) by UH during the 2000 Master Plan is discussed in Section 2.5.1, pages 2-8 to 2-10, of the Draft EIS.

25
As mentioned above and documented in the Draft EIS, baseline surveys and monitoring have been performed at the TMT Observatory and Access Way sites, both by the Project and UH over the years.
As presented above, Section 3.10.3 of the Final EIS contains information regarding the Project's anticipated sublease and deposit of rent payments into the Mauna Kea lands management special fund and used for the purposes set forth in HRS § 304A-2170.

26
As presented above, Section 3.10.3 of the Final EIS contains information regarding the Project's anticipated sublease and deposit of rent payments into the Mauna Kea lands management special fund and used for the purposes set forth in HRS § 304A-2170.
In addition, as described in Section 3.4.3 of the Final EIS, "the Project will monitor arthropod activity in the vicinity of the portion of the Access Way that will impact the sensitive, Type 3 wekiu bug alpine cinder cone habitat. Monitoring will be performed prior to, during, and for at least two years after construction in this area."

27
Climate change is addressed in Section 3.16.4, Climate, Meteorology, Air Quality, and Lighting subsection, pages 3-187 to 3-188, of the Draft EIS.
One of the most cited and useful climate change resources is air quality and weather data from the Mauna Loa Observatory monitoring station at an elevation of 11,140 feet, which is operated by the U.S. Department of Commerce's National Oceanic and Atmospheric Administration (NOAA). This data is discussed in Section 3.14.1 of the Draft EIS.
Additional data from Hale Pohaku would likely be redundant in light of the availability and quality of the Mauna Loa monitoring station data and the similarity between the two locations (Maunaloa and Maunakea).

> **comprehensive planning process for Mauna Kea to allay their fears.** Since that time four plans specifically related to guiding and controlling development on Mauna Kea have been prepared . . ."

The four plans are then listed—**the DLNR Mauna Kea Plan, the 1980 DLNR Hale Pohaku Complex Development Plan, the UH Research Development Plan for the Mauna Kea Science Reserve and Related Facilities (adopted by the Board of Regents in January 1982 and later referred to as the UH RDP) and the Complex Development Plan for the Mauna Kea Science Reserve and Related Facilities (the 1983 plan, which they refer to as the SRCDP or "Science Reserve Complex Development Plan").**

It goes on to say . .

> "The general purpose of this fourth plan, the SRCDP, was to development a physical plan to guide the implementation of all proposed astronomy development within the Mauna Kea Science Reserve and related facilities (as set forth in the UH RDP) to the year 2000, and to present a management plan and implementation strategy for managing and monitoring the various uses of the mountain from Hale Pohaku to the summit." Then, regarding the specific limitation, on page 42 of the same 1983 plan:
>
> "**The development plan is based on a mix of telescopes assumed in the UH RDP**, however, various combinations of optical/infrared and millimeter wave telescopes were considered in evaluating potential telescope locations. The **SRCDP, therefore, allows for flexibility as long as the number of major telescopes at the summit does not exceed eleven (a total of thirteen when two smaller telescopes** are included), any combination of optical/infrared and millimeter-wave telescopes is acceptable . . ."

35 Please review this document and discuss in FEIS.

IX. Insufficient Documentation of TMT Size and Comparison with Other Facilities

36 29.) Assertions are made about the insignificant contribution of incremental footprint impacts. What are the other footprints of the current telescopes buildings on the mountain? What are the heights of their domes? Above and below-ground footprint? Please a tabular and graphic representation the relative size of all telescopes (footprint, height, disturbed area and infrastructure trenches and rights of way disturbed areas. Please incorporate a cumulative analysis of the incremental expansion of the telescopes' footprint over time in the FEIS. (2.51. Project Location and Design)

37 30.) Keck I and Keck II are individual observatories with their own control rooms, each with a Conservation District Use Permit, and should be listed as two, not one. Examination of their schedules over an annual period would demonstrate that most of the time each operation is independent. Please incorporate that information and correct the misstatements in the FEIS.

X. 2033 Lease Extension Process: Lease Extension Failure A Possibility

38 31.) Proponents have stated that the facility will require a lease extension. The possibility of a failed lease extension will affect the viability of the project. Expectations are high among local proponents of the TMT, that major financial concessions would be required of the TMT Corporation at the time of any lease extension. (3.16.5 End of Lease) Please discuss.

28

As addressed in a response to a previous comment, baseline surveys and monitoring have been conducted at the TMT Observatory and Access Way sites, as discussed in Section 3.3 (archaeology), 3.4 (biology), 3.6 (geology), and Section 3.16 (Wekiu bug monitoring) in the Draft EIS, as well as within the UH Management Area is general, including the Astronomy Precinct, as discussed in the 2000 Master Plan and previous master plans. Based on these studies, the Project area does not harbor a higher native diversity or unique community of natural resources in comparison with the surrounding area that will not be disturbed by the Project.
Section 3.4.4 of the Draft EIS outlined mitigation measures and the Final EIS commits to the following mitigation measures in Section 3.4.4:

- "implementation of a Cultural and Natural Resources Training Program"
- "implementation an Invasive Species Prevention and Control Program"
- "arthropods will be monitored in the area of the Access Way prior to, during, and for two years after construction on the alpine cinder cone habitat"
- "The Access Way Options have been designed to reduce the impact to wekiu bug habitat by including the steep slopes of Option 2 and modifying Option 3 to a single lane configuration, even though these designs are not desirable from an observatory operation standpoint"
- "TMT will work with OMKM on the development and implementation of a habitat restoration study"
- "The Project will work with OMKM and 'Imiloa to develop exhibits for the VIS and 'Imiloa regarding natural resource"
- "TMT will plant two new mamane trees for each mamane tree directly impacted (i.e. removed or pruned to reduce canopy by more than half) by possible Project activities at the potential TMT Mid-Level Facility"
- "TMT will implement a Ride-Sharing Program, described in Section 3.11.4"

29

As described in Section 3.4 (biology) and 3.6 (geology) of the Draft EIS, the TMT Project areas do not contain any unique or critical habitats or features in which protected species dwell, other than the possible exception of portions of Access Way Options 2 and 3.
In Sections 3.4.3 and 3.4.4 of the Draft EIS, a Habitat Restoration Plan was proposed should Access Way Options 2 or 3 be selected. Access Way Option 1 is not longer being considered due to conflicts with the Submillimeter Array (SMA) observatory operations. Therefore, Option 2 or 3 will be selected. Based on comments received during the Draft EIS public review period and the issues associated with the feasibility and effectiveness of any habitat restoration approach, the planned mitigation measure for the loss of sensitive habitat has been modified. The Project will no longer prepare or implement a Habitat Restoration Plan as outlined in the Draft EIS. As detailed in Section 3.4.3 of the Final EIS and discussed above, the Project is in comliance with Management Action FLU-6 through Project planning to avoid impacts, monitoring of arthropod activity to be performed in the region of the Access Way prior to, during, and for two years following construction, and development and implementation of a habitat restoration study with OMKM..
In Section 3.4.4, page 3-52, of the Draft EIS it was indicated that either a Habitat Restoration Plan or funding for the palila recovery effort would be implemented. The Project refined its Mid-Level Facility plans and therefore the potential impacts and mitigation measures since the publication of the Draft EIS, and Section 3.4.4 of the Final EIS now proposes that, "TMT will plant two new mamane trees for each mamane tree directly impacted (i.e. removed or pruned to reduce canopy by more than half) by possible Project activities at the potential TMT Mid-Level Facility. This effort, if necessary, will include monitoring and caring for new plantings for a period of two years to ensure the new trees become established."

XI. Inadequate Discussion of Decommission Phase at Lease End

39 32.) The incomplete CMP does not address any conditions for decommissioning and site restoration. The BLNR directed that decommissioning and site restoration be addressed before the incomplete UH 2009 CMP could be implemented, and the CMP itself is still in contest. Therefore required conditions cannot be addressed appropriately in this premature draft EIS. (2.7.4 Decommissioning)

Concerns include

- the specifics of site cataloging for future restoration
- the funding/bond required as a set-aside for decommissioning/restoration
- the nature and level of the site restoration

Please discuss.

XII. Lack of Inclusion and Discussion of Pertinent Documents

33.) References missing in this DEIS, (3.1 Environmental Setting, Impact and Mitigation,)and pertinent to this document include the following;

40 Mauna Kea Science Reserve Complex Development Plan 1983 (BLNR approved management plan that stipulates the number of allowed telescopes—2 minor and 11 major in 1985/87). No other Board approved document addresses the carrying capacity.

41 1995 Revised Management Plan for the UH Management Areas on Mauna Kea (DLNR 1995)The plan refers all astronomy uses to the 1985 plan. Until another plan is approved (and complete), this remains the operant plan.

42 Legislative Auditor's Report (February 1998) revealed many inadequacies with UH and DLNR policies and practices that led to the degradation of environmental and cultural attributes of Mauna Kea. **The Auditor reported that management of Mauna Kea fails to adequately ensure protection of our natural resources.**

In the Summary of Findings the auditor noted that

1. The University Of Hawaii at Manoa's management of the Mauna Kea Science Reserve is inadequate to ensure that natural resources are protected.
2. Implementation of new technology has impacted development within the Mauna Kea Science Reserve.
3. The Department of Land and Natural Resources' efforts to protect Mauna Kea's natural resources need improvement.

43 Final Environmental Impact Statement W. M. Keck Outrigger Telescopes Project (NEPA EIS, NASA 2005) This document outlines the cumulative impact of 30 years of telescope development on Mauna Kea, and addresses the significant, adverse and substantial impact of astronomy uses on the natural and cultural resources of the summit region.

44 Assessment of the Risks for Siting the Thirty Meter Telescope on Mauna Kea
October 26, 2007, by Keystone Group, conducted by Peter S. Adler, PhD,
President and Janesse Brewer, Senior Associate, for the Gordon and Betty Moore Foundation.

45 Report on long-term development of observatory sites on the summit of Mauna Kea, by Rolf-Peter Kudritzki, Director, Institute for Astronomy, University of Hawaii, December 1, 2006 Report to the Legislature. "If all facilities discussed in the 2000 Master Plan were built, the number of observatories would increase from 12 to 15 and two of the existing ones would be expanded." (Sierra Club Comments Appendix D-Kudritzki)

Please review and discuss these documents' relevance to the TMT proposal.

XIII. Inadequate and Insufficient Discussion of Visual Impacts

46 34.) It is not useful to the discussion, to make an assertion that Kahu Ku Mauna, and other native Hawaiian organizations, will develop protocols for the development of new cultural features consistent with CMP management action CR-7. Cultural and spiritual practitioners must not be constrained in their practice in this sacred place, especially by groups and individuals who are not practitioners. (see Visual impact of Manmade Structure , also 3.5 Visual and Aesthetic Resources)

47 35.) Exceptionally egregious, is the statement that "Though compliance with the 2000 MP, the visual impact to the spiritual and sacred quality of the summit area would be limited in the view of those who believe cultural practices and astronomy can co-exist". Culture and astronomy not only can, but do, co-exist. The fact that they co-exist does not imply no impact to cultural, spiritual and recreational practice when a view plane is irrevocably harmed.

48 36.) The view plane is integral to the use of the sacred space by spiritual, cultural, and ceremonial practitioners, and must not be abridged. Development of six acres of industrial infrastructure ("new visual element on the northern plateau") on the last remaining unobstructed view plane facing Haleakala will significantly negatively affect the numerous cultural, spiritual, and recreational practices. Please discuss.

49 37.) The intention of the UH Board of Regents, advised by the Office of Mauna Kea Management, to close the trail to Pu'u Wekiu to "everyone" may mean that practitioners may be limited to areas not restricted by new "rules". If they are not allowed to walk to the summit, what designated areas will they be allowed to use? The impacts of restricted access may include view planes that are less than ideal for carrying out spiritual practice, and further obstruction of view planes by additional telescope(s) is unacceptable. Please discuss.

50 38.) Employees in the Northern Plateau

Fifty additional employees is discussed, but not the expected increase in tourists visiting the site, as outlined in the EIS hearings. How many of the expected 500,000 visitors would also be moving through the view plane, and what effect would this have on the cultural and spiritual practice of those seeking a sacred experience? Please discuss.

51 39.) The mitigation measure described as "The furnishing of project facilities with items to provide a sense of place and remind personnel of Mauna Kea's cultural sensitivity and spiritual quality" begs the question: what is the basis for the assertion that this is an effective mitigation strategy?

30

The following is specific information provided:
Geology is discussed in Section 3.6 of the Draft EIS.
Climate and weather are discussed in Section 3.14 of the Draft EIS.
Air quality is discussed in Section 3.14 of the Draft EIS.
Sonic environment is discussed in Section 3.13 of the Draft EIS.
Plants, invertebrates, birds, and mammals are discussed in Section 3.4 of the Draft EIS.
Human use is discussed in Section 3.10 of the Draft EIS.
Hydrology is discussed in Section 3.7 of the Draft EIS.
Cumulative climate or landscape level impacts are discussed in Section 3.16 of the Draft EIS.
The data available and information documented in the Draft EIS is fully sufficient to identify the potential significant impacts of the TMT Project.

31

An observatory is clearly defined in Section 2.1 of the Draft EIS as follows:
"An observatory includes the telescope(s), the dome(s) that contain the telescope(s), and the instrumentation and support facilities for the telescopes that fall under a common ownership."
By this definition there are 11 observatories and one radio telescope on Maunakea. Various other documents have failed to differentiate between an observatory and a telescope or defined an observatory in a variety of different ways without consistency. The information included in the Draft and Final EIS is meant to provide information about existing observatories and telescopes based on clearly defined parameters, as well as to provide consistency within the document.

32

There is no set "limit" on the number of telescopes or observatories on Maunakea. The 1983 Master Plan states on page 41, "Based on the RDP [Research Development Plan], the SRCDP [Science Reserve Complex Development Plan] identifies siting areas for a total of thirteen telescopes on the mountain by the end of the century. Although the actual number of facilities which will be realized by the astronomy program at Mauna Kea will depend on the demand and on the role determined for this activity by public policy makers, the University of Hawaii has determined that it is resonable and feasible to project a total of 13 telescopes on the mountain between now and the year 2000." The 1983 Master Plan is silent on the number of observatories that could be built after the year 2000 and overall the number of observatories is left to public policy makers.
The 2000 Master Plan, which is the most current master plan for the UH management areas, does not identify a limit on the number of observatories on Maunakea but does limit the area of future development to within the Astronomy Precinct.

33

The master lease between DLNR and UH does not limit the number of observatories or telescopes that could be developed on Maunakea within the UH lease area. Past litigation of other projects is not material to disclosing the potential impacts of the proposed TMT Project. TMT has engaged the community and encouraged the community to express its concerns regarding the proposed Project through a number of community meetings and other venues, as enumerated in Section 1.6 of the Draft EIS. Information about additional engagement with the community following the publication of the Draft EIS is described in Section 1.7 of the Final EIS.

34

The work done by Kepa Maly has been reviewed and is referenced in Section 3.2, page 3-25 (references to Kumu Pono work products), of the Draft EIS. Kumu Pono's report Mauna Kea-Ka Piko Kaulana o ka 'Aina has been added to the Final EIS as Appendix F. Over the years many have expressed their opinions concerning the appropriate number of observatories on Maunakea, as documented in Kumu Pono reports. The information referenced by the commentor presents an individual opinion. However, this individual opinion is neither a Board of Land and Natural Resources (BLNR) nor UH Board of Regents approved land use policy or regulation that would apply to the Project.

52 40.) The visual impact of the TMT from the summit on residents, recreational users, sightseers and cultural practitioners is not adequately addressed. Show a visual depiction of the Area before development, and a depiction of the development, from the summit, and various vantage points looking toward the northern plateau, for example, standing with Gemini, Keck, SMA at the back of the viewer. (3.5 Visual and Aesthetic Resources) Please revise in FEIS.

XIV. Inadequate Recognition and Respect for the Unique and Fragile Ecosystem

53 41.) Errata: Section 3.4 Biologic Resources

The reference to the genus Styphelia is outdated.

The repeated misspelling of talus as "talas" is incorrect.

Omission: In the University Park site, D Ward has personally witnessed flyovers by "ope'ape'a" Hawaiian hoary bat in 2004. Please correct the FEIS.

54 42.) Please disclose and discuss the impacts of TMT telescope development for the Mauna Kea Ice Age Natural Area Reserve (MKIANAR) for the TWO portions of the NAR. The MKIANAR does not have a management plan. There is no discussion of the proposed TMT's contribution to the impacts on Lake Waiau and the adjacent MKIANAR section immediately adjacent to Area 13 N. The Legislative Auditor noted the absence of a management plan. Please discuss mitigation of human use impacts on the MKIANAR, which will be exacerbated by increased visitors to the TMT and other projects. (Closing off the road to the public is not an appropriate mitigation.)

55 43.) The below surface depth of construction and impact on the substrate is at least 6-25 feet deep with 96,000 cubic yards of excavated material. (See 3-141). How deep will the substrate be impacted, and if the rubble is unconsolidated under the lava surface, how will the drainage characteristics of the site be addressed? There is no diagram of the drainage outflow of runoff materials. Runoff could have an impact on natural and cultural resources beyond the site. (2.5 Project Design) Please discuss.

56 44.) Omitted from this discussion are specific impacts of accidental introduction of non-native and /or invasive species into the fragile summit area or NAR, resulting in species or habitat displacement. An example includes Meriola spider introduction from a high altitude site, presumably on equipment transported from that site. The impact of such accidental or deliberate introductions has not been studied; as a result, the impact of non-native predators on the unique native species, such as Wekiu bug, cannot be estimated without funded study. This data gap must be addressed. (3.4.3 Mitigation Measures) Please discuss.

57 45.) Discussion of wekiu habitat restoration is speculative, as no restoration activity has ever been attempted, and none can be successfully demonstrated. Please discuss.

XV. Inadequate Discussion Of Energy Consumption And Impacts

46.)The TMT Operations Concept Document < http://www.tmt.org/foundation-docs/OCD-CCR7-Observatory-Concept-Document.pdf> states the following:

35

The 1983 Mauna Kea Science Reserve Complex Development Plan (1983 Master Plan) is cited on page 6 of the Environmental Impact Statement Preparation Notice (EISPN) and in Section 7.0, page 7.1, of the Draft EIS. In response, additional references to and discussions of the 1983 Master Plan have been included in Section 3.10 of the Final EIS, including the following subsection of 3.10.3:

"1983 Master Plan

"The Project is an optical/infrared telescope facility that will be located in an area identified as Area D in the 1983 Master Plan. The Master Plan states "Area D is highly suitable for future major optical/infrared telescopes. It can accommodate three to four telescopes, on the flatter portions, with some flexibility in choice of sites based on technical site selection criteria such as laminar wind flow and obscuration." The plan indicates the following development considerations for projects in Area D:

- "Due to geotechnical concerns, telescopes should be located at least 100 feet from the boundary between two lava flows.
- "Future observatory sites must be carefully planned to minimize disturbance to a variety of lichens.
- "If observatories are sited in close proximity to two archaeological sites in the northern portion of Area D, then archaeological mitigation, as specified by the State Historic Preservation Officer, will be required.
- "The access road in the area should be improved and paved and necessary utilities placed underground.

"The TMT Observatory will be located more than 800 feet from the boundary between lava flows, has been planned to minimize disturbance to lichens (Section 3.4.3), and is located at least 200 feet from the archaeological sites (Section 3.3.3). The TMT Access Way will improve the existing road and place necessary utilities underground; however, only a portion of the Access Way will be paved. A portion of the Access Way will not be paved because since the preparation of the 1983 Master Plan policy makers have preferred leaving lesser-traveled roads unpaved."

There is no set "limit" on the number of telescopes or observatories on Maunakea. The 1983 Master Plan states on page 41, "Based on the RDP [Research Development Plan], the SRCDP [Science Reserve Complex Development Plan] identifies siting areas for a total of thirteen telescopes on the mountain by the end of the century. Although the actual number of facilities which will be realized by the astronomy program at Mauna Kea will depend on the demand and on the role determined for this activity by public policy makers, the University of Hawaii has determined that it is resonable and feasible to project a total of 13 telescopes on the mountain between now and the year 2000." The 1983 Master Plan is silent on the number of observatories that could be built after the year 2000 and overall the number of observatories is left to public policy makers.

The 2000 Master Plan, which is the most current master plan for the UH management areas, does not identify a limit on the number of observatories on Maunakea but does limit the area of future development to within the Astronomy Precinct.

36

The size of the TMT Observatory is compared to the Keck Observatory in Section 3.5.4, pages 3-73 to 3-74, of the Draft EIS. The cumulative area of disturbance to Wekiu bug Type 2 and 3 habitats is also fully disclosed in Section 3.16.2, on page 3-168, of the Draft EIS (63 acres).

Chapter 2 of the Draft EIS discloses information regarding the TMT Project, including the size of the TMT Observatory. The size and footprint of existing observatories are at least partially, but not completely responsible for the cumulative impact of the existing facilities. The cumulative impact of the existing facilities is disclosed in Section 3.16.2 of the Draft EIS. The cumulative effects of the TMT Project are fully evaluated in Draft EIS Section 3.16.4.

The additional information requested, pertaining to the footprints and other details of existing facilities on Maunakea, is not necessary to disclose the Project's potential impacts on the environment as discussed in the EIS. Nevertheless, Table 3-6, which summarizes the height of each existing observatory, has been added to Section 3.5.1 of the Final EIS.

58 [REQ-1-OCD-1125] Consideration shall be given to the use of energy sources other than fossil fuel. Sierra Club requests that wherever possible this additional energy requirement be fulfilled with renewable energy resources.(3.12 Power and Communications) Please describe and discuss the options in the FEIS. Also, can an increment of power from a renewable resource be funded by the developers?

59 47.) The distance from these power generating facilities to the summit, and the concomitant reduction in output at the receiving end due to friction resistance (line loss) in the transmission lines is not discussed. The total amount of power generated to service this facility should be disclosed. What is the total amount of power at peak demand for all the facilities in the MKSR? What incremental increase will the proposed TMT have? Any incremental increase in the electrical power demand has a cumulative impact, and puts a burden on those residents living and going to school in proximity to a power plant. Pollution from particulates in the air has significant health impacts for those with respiratory issues. Please discuss.

60 48.) When an incremental new demand comes on line, the capacity (more than maximum demand) must be increased. This requires planning for additional capacity generation, and new facilities are paid for by all residents. The rate structure for the development is not discussed, but in general, high demand users such as this one would pay less for a unit of power, in which case the burden of paying for additional capacity is borne by the residential ratepayers. This has significant cumulative impact. Please discuss.

XVI. Inadequate Discussion and Mitigation of Impacts to Hale Pohaku Mid Level Facility

61 49.) Has a formal environmental review of Hale Pohaku been conducted since the 1980 DLNR Hale Pohaku Complex Development Plan? If there is one, please review and reference it. If not, Sierra Club believes a supplemental HEPA document may be necessary. This may be yet one more example of the segmentation of policy and mitigation. (Section 2.5.3 TMT Mid-Level Facility)

62 50.) Archaeological sites have been identified within the Hale Pohaku Tax Map Key boundaries, yet there is no mention of review and approval of the draft by SHPD. Please address.

63 51.) Displacement of one acre of mamane forest is significant, and should be mitigated with out-planting efforts to restore palila habitat. A provision in the University of Hawai'i's lease requires that any project that involves planting vegetation be approved by the BLNR prior to implementation. Please incorporate in FEIS.

64 52.) Hale Pohaku is not an appropriate site for vehicle washing, as alien seeds/organisms deposited in the substrate at this facility could be detrimental to the subalpine zone, and could be transported subsequently to higher elevations. (Section 2.6 Construction Areas) Please see and discuss the recommendations in DEIS Volume Two Appendix G. Biological Assessment regarding recommendations 11, and 12. Among others, this includes "This cleaning should be done in baseyards in Hilo or Waimea before continuing up Saddle Road."

37

As addressed in a response to a previous comment, an observatory is clearly defined in Section 2.1 of the Draft EIS. Per that definition, the Keck I and Keck II telescopes are both part of the Keck Observatory, and this information has been correctly and consistently provided in the Draft EIS.

38

Thank you for your participation in the process. However, the comment does not address the Thirty Meter Telescope Project's potential impacts on the environment evaluated in the Draft EIS.

Information about the lease is provided in Section 3.10.3, page 3-120, of the Draft EIS as follows: "It is very probable that TMT, along with the existing observatories, would request UH seek a lease extension beyond 2033." It is not within the scope of this EIS to speculate on the nature or outcome of those future lease negotiations, which would include a master lease negotiation between DLNR and UH and the subsequent sublease negotiation between UH and TMT.

XVII. DEIS Unreasonably Minimizes Significant, Adverse, Substantial Existing Impact

53.) Cumulative Impact is defined by the National Environmental Policy Act ("NEPA") as:

> The impacts on the environment which result from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from other individually minor but collectively significant actions taking place over a period of time.

The Executive Summary section on page S-6 states:

"The Project would not significantly increase or reduce the existing level of cumulative impacts due to all past and present activities, which in some cases is significant."

65 The statement establishes that the cumulative impacts are significant, but then detaches the TMT project from the previously established cumulative impacts. If cumulative impacts are defined as the sum of the impacts when added to other incremental impacts, it is not reasonable to assert that "The operation of the Project...would not result in a significant adverse impact..."

Please discuss and revise in the FEIS.

66 54.) The statement that "it is unknown if they directly altered or removed a location where cultural practices once took place" is not correct. Please request UH IFA letter in which UH IfA Associate Director Robert McLaren acknowledged with an apology the removal of cultural property of practitioner Kealoha Pisciotta on more than one occasion. Nelson Ho was present when DLNR State Historic Preservation Division (SHPD) officer noted there was direct impact to cultural site at VLBA; stone shine was disturbed. A Smithsonian Institution's Submillimeter Array telescope base was built on the slope of the Pu'u Poliahu, a Traditional Cultural Property..Several bases, placed in error, had to be relocated, causing substrate alteration adjacent to, and harming the view plane of Pu'u Poliahu.

Please discuss these and other changes in the cultural and historic properties.

67 55.)The DEIS states that the drainage patterns on the summit have been minimally impacted by past development, yet the MK Access road must be graded three times a week, some of which is required due to erosion and runoff.

68 56.) Currently there are a total of eight septic systems at the summit, and three cesspools at the summit. Spills of wastewater have been documented at the summit by Stone and Howarth. Please discuss.

69 57.) There are four septic tank systems at HP and three unlined cesspools Hale Pohaku. Spills such as the spill in March 2008 have discharged directly into the ground (see UH CMP Table 6-2.) Please discuss.

39

Decommissioning of the TMT Observatory is fully discussed in the Draft EIS.
In Section 2.7.4, Decommissioning, on pages 2-23 and 2 -24, it is stated that the Thirty Meter Telescope Project will comply with the Management Actions SR-1, SR-2, SR-3, and FLU-3 outlined in the approved CMP.
Decommissioning is also discussed in Section 3.10.4 of the Draft EIS, page 3-119, and Section 3.15 of the Draft EIS, in particular page 3-143 of that section. These sections address site cataloging for future restoration, funding of future decommissioning and restoration, and the process that will be used to select the level of site restoration, among other details.
Since the publication of the Draft EIS, the Office of Mauna Kea Management (OMKM) has prepared and published the Decommissioning Plan, one of the required sub plans of the CMP. Additional information decommissioning details and references to the Decommissioning Plan have been added to Sections 2.7.4, 3.10 and 3.15 of the Final EIS as appropriate, including the following within Section 2.7.4:
The TMT Observatory and the extent of the Access Way exclusively used to access the TMT Observatory will be dismantled and the site restored at the end of the TMT Observatory's life in compliance with the Decommissioning Plan for the Mauna Kea Observatories, a Sub-Plan of the Mauna Kea Comprehensive Management Plan (UH, 2010a). "Deconstruction and site restoration efforts will be managed by TMT with oversight by OMKM. A process similar to the MKMB-approved Project Review Process will be established to review, guide, and recommend the disposition of a site, including site restoration. Reviewers will include OMKM, Kahu Ku Mauna, and the MKMB Environment Committee, with MKMB approval required."
"The SRP will present specific targets for site restoration and describe the methodology for restoring disturbed areas after the demolition/construction activities described in the SDRP are completed. The Decommissioning Plan (UH, 2010a) states that the two primary objectives of site restoration are (1) restoring the look and feel of the summit prior to construction of the observatories, and (2) providing habitat for the aeolian arthropod fauna.
"The level of restoration to be performed and the potential impact of the restoration activities on natural and cultural resources during and post-activity must be carefully evaluated in the SRP. Specific factors that need to be considered during the development of the SRP include cultural sensitivity."
"Upon the completion of site restoration, monitoring of the restoration activities will begin and continue for at least three years. Results of monitoring activities will be submitted to OMKM."

40

The 1983 Mauna Kea Science Reserve Complex Development Plan (the 1983 Master Plan) is referenced on page 6 of the EISPN/EA and Section 7.0, page 7-1, of the Draft EIS. As addressed in responses to previous comments, references and information about the 1983 Master Plan have been included in Sections 2.5.1 and 3.10.3 of the Final EIS.

41

As addressed in responses to previous comments, the CMP was approved by the BLNR on April 9, 2009, with conditions. The CMP is a valid enforceable plan; the four CMP sub plans have been completed and approved; and the TMT Project Draft and Final EIS reference the approved CMP throughout, and not the older 1995 Management Plan.

42

The comment does not address the Project's potential environmental impacts evaluated in the Draft EIS. The Legislative Auditor's report, which is over 10 years old, is not material to assessing and disclosing potential Project impacts. The report is not a master plan, management plan, or other plan applicable to the Project, furthermore, it does not include any requirements that the Project will have to comply with.

70 58.) The DEIS states that past disposal practices of mirror washing wastewater discharged into cinder substrate at the summit have not had a significant impact on water quality. Please cite the sources that support this assertion and include in FEIS.

71 59.) The DEIS states that the "best available information" suggests that spills of hazardous materials, generator fuel, lubricants, hydraulic fluid, glycol coolants, acids and mercury documented in the Keck NEPA EIS, and in Table 3-11 of the pre-final NRMP, have not "reached the outside environment". Since many of these materials vaporize, please discuss the sources for your information and conclusions.

72 60) The summit would be silent if there was no development at all. It is not silent. The noise of observatory air conditioning, blowers, generators, associated vehicles and industrial activity is present and disturbing to those who expect the pristine silence of wilderness in the highest point in the Pacific. The cumulative incremental increase in noise over silence is significant. Please reflect this in the FEIS.

73 61.) The effect of development adjacent to the Mauna Kea Ice Age Natural Area Reserve cultural properties must also be specific. Please discuss why eligibility for listing in the register of national historic places does not trigger the federal environmental review process.

74 62.) The existing level of cumulative impact on cultural, archaeological, and historic resources is significant, substantial and adverse. Any incremental increase does not mitigate the impact, it magnifies it. Please discuss.

75 63.) Absent from the text on biological resources is a similar statement, and it should be noted that the NEPA EIS document for the Keck Outriggers did find significant, substantial and adverse cumulative impact to natural resources. Please discuss.

76 64.) Clearly, seven years of construction and ensuing years of operation of this telescope will add substantially to the cumulative impacts. Yet the Draft EIS consistently refers to the major impacts being due to human visitation to the mountain by tourists, recreational users and others. This bias is an attempt to both minimize the direct impacts of telescope construction and operation, and to shift the onus to causes other than the telescope itself. Please discuss.

77 65.) The number of visitors has grown exponentially over time since the lease, and if the road is paved and visitors are allowed to go the TMT gallery as part of a tour, a significant incremental increase can be expected. The "likely" reduction in impact to cultural resources is highly speculative and unfounded. How many additional visitors would be arriving at the summit as guests of TMT or their contracted tour operators? Please discuss.

78 66.) The integrity of the TCPs is impacted by the disturbance to the view plane, and is irrevocable should development take place. Recreational users are impacted by the loss of pristine wilderness visual values as well. Please discuss.

43

The Final Environmental Impact Statement for the Outrigger Telescopes Project, Mauna Kea Science Reserve, NASA, 2005 (Outrigger EIS) was referenced in the Draft EIS as follows: Section 3.2.1, page 3-7; Section 3.2.6, page 3-25; Section 3.5.6, page 3-75; Section 3.7.6, page 3-91; Section 3.8.6, page 3-99; Section 3.9.6, page 3-104; Section 3.12.6, page 3-131; Section 3-13-6, page 3-134; and Section 3.14.6, page 3-140. An additional reference to the the Outrigger EIS has been included in Section 7.0 of the Final EIS. The TMT Chapter 343 EIS is in agreement with the Outrigger NEPA EIS when discussing the level of existing cumulative impact on Maunakea; the level of existing cumulative impact is discussed in Section 3.16.2 of the Draft EIS and identifies cumulative impacts to cultural, archaeological, biologic (in some zones), geologic, and visual resources to be substantial and adverse. When discussing potential project-specific impacts the conclusions in the Outrigger EIS and the TMT EIS may differ because the two project sites, Outrigger on a summit cinder cone and TMT on the northern plateau, are different and, therefore, have differing potential impacts.

44

The comment does not address the Project's potential environmental impacts evaluated in the Draft EIS. The Keystone Group report is not material to assessing and disclosing potential Project impacts. The report is not a master plan, management plan, or other plan applicable to the Project, furthermore, it does not include any requirements that the Project will have to comply with.

79 67.) The DEIS states that "the project and others...would not result in a negative cumulative impact on biological resources...because...1)any future development would have to replace sensitive habitat, and 2)all staff and visitors would be educated..."!

This statement belies demonstrated introduction and naturalization of invasive alien arthropods, introduction of and displacement by invasive plants, removal of 40 feet of cinder from a nanatak, prime habitat for wekiu, severe decline in palila populations, and more. Please discuss.

80 68.) What is the meaning of "replacement of sensitive habitat"? Can you document successful replacement of habitat on Mauna Kea? Please cite your sources.

81 69.) Can you demonstrate that education of staff and visitors will mitigate all cumulative impact? Please cite your sources.

82 70.) Can you document that **current** policies to control or eliminate feral ungulates have the potential to reverse the historical impact of managed and feral animals? Please provide documentation that shows the historical and current feral animal populations on Mauna Kea, and the impact of feral animals on mamane forests and palila habitat, and evidence that current policies have reversed the impact. Please cite your sources.

83 71.) The DEIS cites the presence of the Douglas bladder fern, a species of concern, in the areas contemplated for development. Please discuss consultations with USFWS and their recommendations for protection of this species.

84 72.) The discussion of habitat restoration is speculative; there is no experimental evidence to demonstrate successful restoration at this time. Please discuss.

85 73.) The statement "It is assumed that the CMP and its components could be adjusted to address potential conflicts resulting from improved access. Therefore, the cumulative effect related to land use plans, policies, and controls would be less than significant."
This statement betrays a complete lack of understanding of the desire by cultural practitioners, residents and visitors to have access to the summit, and the highly inflammatory nature of policies designed to limit that access.. Please review and address in FEIS.

86 74.) The statement that potential impacts to cultural, archaeological, and historical resources (omitting biological and natural) would cease upon decommissioning (to the extent practicable) is illogical. No decommissioning project will restore the cultural and natural landscape that has been altered. The impact is irrevocable. Please discuss.

XVIII. Forerunner of the Next Generation of Extremely Large Telescopes?

87 75.) The TMT website discussed this project in the context of a pilot project for the 100-200 meter telescope to be built in the future. If this is the pilot for what is hoped to come, it should be discussed. (3.16.3 Reasonably Foreseeable Future Actions)

45
The comment does not address the Project's potential environmental impacts evaluated in the Draft EIS. The IfA Director's report is not material to assessing and disclosing potential Project impacts. The report is not a master plan, management plan, or other plan applicable to the Project, furthermore, it does not include any requirements that the Project will have to comply with.

46
CMP Management Action CR-7 is referenced in Section 3.2.3, Cultural Practices subsection, page 3-21, of the Draft EIS. CMP Management Action CR-7 indicates "Kahu Ku Mauna shall take the lead in determining the appropriateness of constructing new Hawaiian cultural features." The Draft EIS does not make any assertion that TMT or other groups or individuals will constrain cultural practices in the summit region. On the contrary, the Draft EIS, in Section 3.2.3, page 3-18, states that the Project will comply with applicable rules, regulations, and requirements - including the CMP. The CMP states, on page 7-7, that "Native Hawaiian traditional and customary practices shall not be restricted, except where safety, resource management, cultural appropriateness, and legal compliance considerations may require reasonable restrictions."

47
The statement referred to by the commentor is in Section 3.2.3, Visual Impact of Man-made Structure subsection, page 3-23, of the Draft EIS, and neither states nor implies that no impact to cultural, spiritual and recreational practices will occur. Rather, the statement infers that an impact does occur, but compliance with the 2000 Master Plan, specifically, siting the TMT in Area E, will lessen that impact when compared to the potential impact of siting the TMT on the summit ridge or other location with greater visibility.

XIX. Evaluation of Project Alternatives Given Short Shrift

88 76.) The selection of an adequate (and apparently excellent) site in the high elevation desert of Cerro Armazone, Chile is called the No Action Alternative. Chile is willing to commit 1,400 plus acres to the TMT project. **The Sierra Club recommends selection of this alternative.**

Please send responses to SC Proposed TMT Comments to Nelson Ho 198 Hoku St. Hilo, HI 96720. Mahalo for the opportunity to provide comments to the proposed TMT's draft EIS.

ATTACHMENTS

The reviewers bring more than 15 years each of experience in advocating for responsible resource protection and land management for Mauna Kea.

- Sierra Club, Hawaii Chapter, is the local chapter of the national Sierra Club, one of America's oldest grassroots environmental organization, with 700,000 members joined together to protect and preserve natural ecosystems and work against degradation from a variety of causes.
- There are over 5,000 members of the Sierra Club, Hawaii Chapter. They include residents of Hawai'i Island who regularly use Mauna Kea for hiking, viewing and enjoying open spaces, and other forms of recreation, including wildlife observation, aesthetic enjoyment, educational study, and spiritual contemplation.
- The Moku Loa Group (Hawaii Island) of Sierra Club actively spoke against the urbanization and industrialization of the summit in the 1970's and its members co-discovered the Wekiu bug on the summit of Mauna Kea.
- Ward and Ho were the Sierra Club representatives who, along with a team of Club members, participated in the contested case hearings for the Keck 6 Outrigger Telescope CDUP. They all participated in the subsequent successful District and Intermediate Court of Appeals litigation.
- Deborah J. Ward, a natural resource scientist, has participated on the OMKM Environment Committee since 2000. Ward led the Club team that, in 1996, discovered that the Subaru Telescope had, without permission filled in high quality inner cinder cone of Pu'u Hau Oki (wekiu bug habitat) and trenched (for optical and electrical cables) into the outer cone.
- Nelson Ho served on UH President Kenneth Mortimer's Mauna Kea Advisory Committee (1998-2000), which wrote the UH 2000 Master Plan. Ho first appeared before the BLNR to speak on Mauna Kea matters in 1995 when that Management Plan was adopted. Ho brought to IfA's attention the unacceptable amount of observatory trash being blown over the stark summit landscape.

48

The visual impact to cultural practices is discussed in Section 3.2.3, Visual Impact of Man-made Structure subsection, pages 3-22 and 3-23 of the Draft EIS. Overall visual impacts are discussed in Section 3.5.3 of the Draft EIS. The analysis presented in these sections of the Draft EIS indicates that the TMT Observatory would not be visible from the summit of Maunakea (Kukahauula/Puu Wekiu), Lake and Puu Waiau, or Puu Lilinoe.
In response to comments received on the Draft EIS, a visualization of the TMT Observatory from a viewpoint near the Keck Observatory, looking toward Haleakala has been included in the Final EIS in Section 3.5.3. Also, the Final EIS discusses that "In addition to residents within the TMT viewshed, the TMT Observatory will be visible to other island residents and visitors when they travel within the TMT viewshed (Figure 3-7), including travel along roads and stops at viewpoints. The Project's visual impact is perceived by some to be significant; however, in the context of the existing observatories and the fact that the TMT Observatory will not block or substantially obstruct the identified views and viewplanes of the mountain, which is the applicable significance criteria in §11-200-12 of the HAR, the Project's visual impact will be less than significant."
In addition, the following discussion has been added to Section 3.2.3 of the Final EIS:
"The summit region, which includes the Mauna Kea Summit Region Historic District and Kukahau`ula, is a sacred area in Hawaiian culture and serves as a site for individual and group ceremonial and spiritual practices. These practices include prayer, shrine erection and the placement of offerings. The area to be occupied by the TMT Observatory structure would not be available for future cultural practices of this nature. In addition, for some individuals, the introduction of new elements associated with the Project in the area of the northern plateau would adversely affect the setting in which such practices could take place."
"Although the Project may decrease the desirability of the northern plateau area for shrine construction, this is not anticipated to result in a substantial effect on shrine construction within the MKSR. The majority of the areas within the MKSR currently used for shrine construction would not be affected by the Project. To some individuals, the Project could represent a decrease in the suitability of the northern plateau area for spiritual observances and offerings. However, this would not result in a substantial adverse impact on the cultural practices of the community or State. The majority of the areas with the MKSR where observances and rituals are believed to occur would not be affected by the Project. Further, while the introduced elements associated with existing observatories may have had an effect on the perceived quality of the observances conducted, or may have caused some practitioners to conduct their observances further away from the vicinity of the observatories, there is no evidence suggesting that the presence of the existing observatories has prevented or substantially impacted those practices. Similarly, the Project is not anticipated to result in substantial additional adverse effects on those practices."

49

Comment acknowledged; however, Puu Wekiu is not within the Project area and the Project, as defined in Chapter 2 of the Draft EIS, would have no direct impact on the trail to the summit of Puu Wekiu. Furthermore, as discussed above and in Section 3.5.3 of the Draft EIS, the TMT Observatory would not be visible from the summit of Puu Wekiu.

50

As clearly addressed in Section 3.16.4, Cultural, Archaeological, and Historic Resources subsection, page 3-178, of the Draft EIS, "The Project and other foreseeable actions may attract visitors to the summit region to see the observatories. ... However, because Maunakea will continue to be a remote destination, these increases are likely to be slight relative to the existing level of visitors and employees." The presence of additional visitors, including those seeking a "sacred experience," is a potential indirect and cumulative impact to viewplanes; as stated in the Draft EIS, page 3-178, "With existing programs and the implementation of the concepts presented in the CMP, including the ranger program and increased education programs, the impact to cultural resources by visitors and employees is likely to be reduced relative to current (cumulative) conditions."
Since the completion of the Draft EIS, the TMT Project has re-evaluated the number of employees that will work regularly at the observatory. The Final EIS, in many sections including 2.7.3, states "It is expected that an average of 24 employees will work at the TMT Observatory during daytime operations, with a minimum of 15 and a maximum of 43 possible depending on activities. Each night, approximately 6 system operators will be present at the TMT Observatory, while observers and support astronomers will observe remotely from the Headquarters."

Sierra Club Comments Appendix A-Adler

THE Keystone CENTER

Assessment of the Risks for Siting the Thirty Meter Telescope on Mauna Kea

October 26, 2007

I. Introduction and Background

This document reports on The Keystone Center's (Keystone) independent risk assessment regarding a possible siting of a Thirty Meter Telescope (TMT)[1] on Mauna Kea on the Island of Hawaii. All findings, conclusions, and options for consideration in this report are solely the opinions of Keystone and do not reflect the views of The Gordon and Betty Moore Foundation, the TMT Observatory Corporation, or anyone other than Keystone. The Keystone Center, founded in 1975, exists for two interrelated purposes: to help solve today's most pressing, science-intensive environment, energy, and public health problems and, simultaneously, to help prepare the next generation to take the reins and do better than their predecessors. Keystone takes no position on the issues it becomes involved in but seeks to help analyze, design, and facilitate discussions when requested and when appropriate. Detailed information about Keystone is available at www.keystone.org. This analysis was conducted by Peter S. Adler, PhD, President and Janesse Brewer, Senior Associate.

The Gordon and Betty Moore Foundation is dedicated to advancing environmental conservation and cutting-edge scientific research around the world. The Foundation is a funder of the development stage of the Thirty Meter Telescope project and a potential funder for the construction of the telescope. In late June 2007, the Foundation asked The Keystone Center to undertake an independent assessment of the feasibility of siting the Thirty Meter Telescope on Mauna Kea in Hawaii. More specifically, the Moore Foundation asked that the assessment consider the environmental, economic, scheduling, and political risk factors for a TMT project in Hawaii, and that Keystone suggest one or more approaches for how TMT might work with interested stakeholders for the potential siting of the TMT in Hawaii should it go forward (Attachment A).

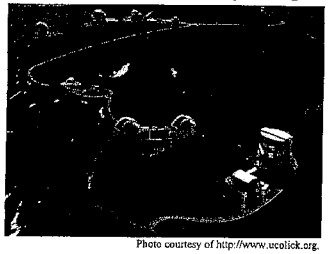

Photo courtesy of http://www.ucolick.org.

II. Method

After designing an interview protocol, Keystone conducted a set of interviews with Hawaii state regulators, political and community leaders, environmental NGOs, Native Hawaiian thought leaders, educators, members of the business community, and others who might help inform the assessment. Keystone identified the initial set of interviewees through its contacts in Hawaii and by using a rolling "snowball" method. In total, Keystone talked to over 60 stakeholders. While it was impossible to talk with every potential stakeholder, Keystone sought a diverse sample of perspectives including known

[1] This report uses TMT interchangeably to represent the telescope, the project, and the non-profit TMT Observatory Corporation.

51

Section 3.2.4, page 3-24, of the Draft EIS states that one of several proposed mitigation measures is to furnish Project facilities with items to provide a sense of place. The furnishings will serve to remind TMT personnel of the cultural sensitivity and spiritual quality of Maunakea. This measures describes TMT's commitment to confront those who enter its facilities not just with science, but also with the culture. In addition, the furnishings will provide a continuous refresher and reminder of the cultural and spiritual sensitivity of Maunakea learned by personnel at the annual Cultural and Natural Resources Training.

project opponents, known proponents, political "gatekeepers" and decision makers, and individuals who did not seem aligned with any specific position but who are reasonably knowledgeable of the mountain and its issues. The list of interviewees is located in Attachment B.

We characterized our initial telephone conversations as a set of "shallow dives." These were phone interviews from Colorado to Hawaii that usually lasted an hour or less for each person. The calls helped to orient Keystone, identify prospective interviewees, refine the method, and provide a preliminary sense of different stakeholder perspectives regarding Mauna Kea telescope issues. "Deep dive" interviews took place in person at meetings held on Oahu and Hawaii from August 24–September 9, 2007. These interviews delved into much greater detail on potential hurdles, flash points, delays, and showstoppers should TMT decide to pursue a site on Mauna Kea.

Additionally, The Keystone Center asked most interviewees with a working knowledge of Mauna Kea issues to do a simple "probabilistic analysis" of their views on the likelihood of different scenarios coming to pass. The question posed was, "What do you think will happen, as opposed to what you may hope, fear, or want to have happen?" While this analysis was presented in a somewhat whimsical format as a series of "bets," the methodology is grounded in prediction theory and provides a rough quantitative sense of how different stakeholders view TMT's risks and probabilities should they go forward with a Mauna Kea site (Attachment C).

III. Caveats

We do not offer this report as a definitive picture or analysis of all risks. It is a snapshot constrained by a short time frame, a limited cross-section of persons interviewed, and by events taking place in real-time even as the interviews were underway. With additional time, there are many other people we would have sought to meet with and interview. Our intent throughout the process was to courteously but intentionally go to the heart of the issues that TMT would encounter should it pursue a Mauna Kea site. We apologize to the many good people we would have liked to have spoken to but could not because of the press of schedules. We are especially appreciative to Mr. Sam Callejo and Ms. Stephanie Nagata for their assistance in coordinating and scheduling some of our meetings on Oahu and Hawaii.

IV. Findings

1. **The "Bets."** Our small and very limited probabilistic analysis device of asking interviewees what they think will happen (as opposed to what they want to have happen) yielded interesting results, as follows:

	Bet Question	Betting $100 for	Betting $100 against
1	The revised Comprehensive Management Plan will be completed by May 1, 2008.	N = 12 (34.3%)	N = 23 (65.7%)
2	The revised Comprehensive Management Plan will be a solid document and not be further challenged through appeals or litigation.	N = 4 (12.5%)	N = 28 (87.5%)
3	A new lease for the summit will be successfully negotiated and put in place by June 2008.	N = 10 (29.4%)	N = 24 (70.6%)

52

Potential visual impacts are discussed in Section 3.5.3, pages 3-59 through 3-74, of the Draft EIS. The visual analysis in this section indicates, and Figure 3-7 on page 3-61 in particular illustrates that the TMT Observatory would not be visible from the summit of Maunakea (Viewpoint 16; the summit of Kukahauula/Puu Wekiu). The Draft EIS includes a number of photo simulations from populated areas around the island from which the TMT Observatory would be visible.
In response to comments on the Draft EIS, an additional photo simulation of the TMT Observatory has been included in the Final EIS. The new simulation illustrates the view of a person standing near the Keck Observatory and looking toward the TMT Observatory 13N site. In addition to the simulation, the following information has been included in Section 3.5.3 of the Final EIS, "...the TMT Observatory will add a substantial new visual element in the landscape that will be visible from viewpoints along the northern ridge of Kukahauula and by people as they travel within the northern portion of the summit region."

53

The following information has been included in Section 3.4 of the Final EIS in response to comments received, including:

- References to the genus Styphelia have been updated to Leptecophylla,
- Misspellings of talus have been corrected, and
- The report that Ms. Debra Ward saw a Hawaiian hoary bat or 'ope'ape'a (Lasiuruscinerus semotus) in the University Park area in 2004 has been added to Section 3.4.1.

	Bet Question	Betting $100 for	Betting $100 against
4	The University of Hawaii and the State of Hawaii will agree to distribute ceded land payments from the Mauna Kea observatories by April 2008.	N = 12 (35.3%)	N = 22 (64.7%)
5	A robust and culturally appropriate consultation process can be set up between members of the Native Hawaiian community and the TMT project.	N = 28 (82.4%)	N = 6 (17.6%)
6	The TMT can create new educational opportunities for Native Hawaiians and others on Hawaii Island.	N = 31 (93.9%)	N = 2 (6.1%)
7	The potential environmental impacts of the TMT can be satisfactorily mitigated.	N = 28 (84.8%)	N = 5 (15.2%)
8	The visual impacts of the TMT can be satisfactorily mitigated.	N = 21 (68.8%)	N = 13 (38.2%)
9	A satisfactory environmental impact statement that is not appealed or litigated will be completed by June 2010.	N = 17 (48.6%)	N = 18 (51.4%)
10	A Conservation District Use Permit will be approved by April 2011.	N = 25 (75.8%)	N = 8 (24.2%)

We offer the following specific cautions on these results. First, this was not meant to be a highly-rigorous, scientifically-calibrated survey, but rather it was intended to provide further insight as to where our interviewees would "put their money" regarding the various risks TMT might encounter were it to proceed. Second, it is a very small sample of people. Third, if we were revising the questionnaire, we would probably alter some of the questions. For example, the use of the word "can" in questions 5–8 may have given us slightly different data than if we had asked whether there was "confidence in" or even if we had said "will be" or "is/are likely to be." In walking through the questions many participants remarked, "Well sure it *can* be done. It is possible. Whether I have confidence that it will be is a different question." Finally, question 9 probably should have been broken into two questions to determine whether interviewees felt that any environmental impact statement (EIS) would be appealed or litigated and, second, whether an EIS conducted by TMT could be logically completed by June 2010. It is unclear if the results would have been different by de-coupling those concepts.

With those caveats in mind, we think the bets do offer more calibrated echoes of what we heard in the conversations and have summarized below.

2. **The Interviews.** Our interviews produced many thoughtful comments, perspectives, and ideas. Five major themes emerged:

   A. **A Sour History and Heavy Baggage.** Unfailingly, almost every interviewee we spoke with, even those who are great proponents of placing observatories on Mauna Kea, acknowledge a complex and, for many, a bad history on the mountain. Hawaiians, both Native and non-Native, speak of poor planning, bureaucratic bumbling, broken promises, technocratic arrogance, and a persistent failure to engage the Native Hawaiian community in meaningful and appropriate ways. Some of this has been reported in two legislative audits. While there are many fine individual efforts underway to rectify long-running problems, the situation remains contentious and confusing. Should TMT decide to pursue a Mauna Kea site, it will

54

As discussed in Section 2.5.3 of the Final EIS, electrical service from the transformer compound, at Hale Pohaku, to the summit region will be upgraded. The existing conduit is located approximately 50 feet west of the Maunakea Access Road within UH Management Areas for portions of the distance to the summit area, but in areas the electrical conduit is located along a former access road alignment that is now within the Mauna Kea Ice Age Natural Area Reserve (Ice Age NAR); see Figure 2-10 in the Final EIS. Because the electrical conduit follows a former access road alignment, the area has been previously disturbed. The Thirty Meter Telescope Project will not cause any additional disturbance to the Ice Age NAR, as the local utility company will only need access to the existing pull boxes to install the new cable in the existing conduit.
Further, as illustrated in figures contained in the Draft EIS, the TMT Observatory site at 13N is located more than 2,000 feet (more than one-third of a mile) east-northeast of the Puu Pohaku portion of the Ice Age NAR and there are no trails leading to the Puu Pohaku portion of the Ice Age NAR for the vicinity of the 13N site. Therefore, no increase in human use impacts is anticipated.
The Batch Plant Staging Area is the Project area nearest the Ice Age NAR. The following mitigation measure has been added to Section 3.15.2 of the Final EIS: "In addition to the NPDES BMP plan that will require flagging of the planned limits of disturbance, the location of nearby property boundaries will be surveyed to ensure that the limits of disturbance do not encroach on neighboring parcels. This will be done at the Batch Plant Staging Area to prevent encroachment on the Ice Age NAR, at the potential TMT Mid-Level Facility area, if constructed, and at the Headquarters construction site."
Also, Project areas are outside the Lake Waiau watershed and, as described in Section 3.7.3 of the Draft EIS, all wastewater generated by the Project would be collected and transported off the mountain for treatment and disposal and will not affect Lake Waiau.
As clearly addressed in Section 3.16.4, page 3-178, of the Draft EIS, "The Project and other foreseeable actions may attract visitors to the summit region to see the observatories. ... However, because Maunakea will continue to be a remote destination, these increases are likely to be slight relative to the existing level of visitors and employees." Furthermore, those who visit the summit region solely to see the TMT Observatory would likely be less inclined to visit the Ice Age NAR than those attracted to the summit region for other reasons.
Management of the Ice Age NAR is the responsibility of the Department of Land and Natural Resources (DLNR), not the University of Hawaii at Hilo (UH Hilo) or the Project. Recently, a joint agreement was signed between UH Hilo and DLNR so that the UH rangers can assist in the management of the Ice Age NAR and vice versa.
Management Actions in the CMP and associated subplans prepared by UH include actions to educate visitors regarding potential impacts to natural and historic resources due to human use activities in the summit region - which includes both the Mauna Kea Science Reserve (MKSR) and Ice Age NAR. The implementation of those management actions by UH, supported partially through funding by the Project and other observatories, together with the training received by Project personnel would mitigate potential impacts to resources in both the MKSR and the Ice Age NAR by Project visitors and personnel.

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The substrate will not be impacted below the area excavated and graded for the TMT Observatory and Access Way. The lava flow beneath the TMT Observatory 13N site has a high permeability and the annual precipitation is low (15.5 inches, mostly as snow as discussed in Section 3.14.1 of the Draft EIS). As stated in Section 3.7.3, page 3-88, of the Draft EIS "new impervious area at the TMT Observatory would be roughly 1.4 acres, which accounts for the dome and support buildings. The parking areas would not be paved and would remain pervious allowing rain to percolate naturally." Most precipitation falls as snow and would not stick to the observatory dome. The snow would accumulate around the dome as it slides off, and, as the snow slowly melts, the water would percolate into unpaved ground area around it and migrate to the underlying groundwater aquifer as it does today. The rate of snow melt is gradual enough and permeability of the soil in the parking area and surrounding lava high enough that, in the rare event that storm water discharged to the lava flow, the water would not flow very far. Stormwater from the site would not impact any historic resources, the nearest of which is over 200 feet away. There are no natural resources that would be adversely impacted by the potential small increase in stormwater percolation to the ground in the area surrounding the TMT Observatory site.

inherit the anger, fear, and great mistrust generated through previous telescope planning and siting failures and an accumulated disbelief that any additional projects, especially a physically imposing one like the TMT, can be done properly. One interviewee said of future development, "It can be less objectionable, but it can't be alright."

B. **Land Use, Not Astronomy.** In our discussions with a number of Native Hawaiians, we were repeatedly told that the objections that have been brought up over many years are not to astronomy but to land use practices on a mountain that is revered and sacred. Hawaiians were, and are, great astronomers. What we think of and often dichotomize as traditional "Native Science" and "Western Science" sit very comfortably for most Native Hawaiians. The 'Imiloa Astronomy Center is a fine example of this. Most objections are not to science but to the way science has been conducted on the mountain. There is a long litany of perceived problems that includes poor master and management planning, placing telescopes on inappropriate sites, poor disposal of rubbish and waste, the failure to consult Native Hawaiians in management decisions, and inadequate access for cultural and spiritual practices. We make no judgment as to the veracity of these concerns, but note that they will be an inevitable part of any future interactions should the TMT proceed.

C. **Legal Confusions and Bureaucratic Ambiguity.** Considerable jurisdictional, legal, and bureaucratic wrangling remains as to which agencies actually control what actions on the mountain. There are at least two large and ambient sets of tensions. One has to do with the role of the Board of Land and Natural Resources (BLNR, the land owner) and the other with the University of Hawaii (UH, the lessee). The first is, in part, a legal problem as to who actually has what authorities to write and enforce rules. The second tension is within the University of Hawaii itself and its many moving parts: the University of Hawaii's Board of Regents, the system office (the president and his administration), the Institute for Astronomy (IFA), the University of Hawaii at Hilo, the Office of Mauna Kea Management (OMKM), and a number of key vice presidents and advisors to the president. Embedded in this second tension are questions as to which campus and community on which island, Oahu or Hawaii, really leads and controls. People want to know who, in effect, holds the cards. Many of these inter-island and inter-campus strains are old and continuing issues played out against the newer tapestry of Mauna Kea questions. They have now come to a head in the wake of Judge Hara's order requiring that a Comprehensive Management Plan (CMP) be done for the mountain as a precursor to any further development. However, the continuing confusions and wrangling over the University's different faces, voices, and roles creates potential delays for TMT should it decide to proceed.

D. **Leadership Vacuum.** One function of having so many people in charge of so many different related, overlapping, and connected functions is that no one actually appears to be in charge. One respondent characterized the situation as "multiple layers of advisers to advisers to advisers to nobody." In the past, the IFA appeared to be the key leader for both the vision of astronomy on Mauna Kea as well as the critical point of contact for policy issues, management problems, and cultural frustrations. As well intentioned as they are, we were told by many different individuals that the IFA has failed in its interactions with non-university communities of interest. Individually, the astronomers associated with IFA are liked and respected. Collectively, they have lost their effectiveness and are the wrong group to lead Mauna Kea strategies or be the face and voice for UH interactions on the Science Reserve. Many of these long-running frustrations led to the 2000 Master Planning process and the development of the Office of Mauna Kea Management, which was expected to have greater authority and nimbleness in its responsiveness. While OMKM enjoys a solid relationship with many on Hawaii Island, many still perceive that UH-Manoa is in charge and

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Threats from invasive, non-indigenous species are discussed in the Draft EIS in Section 3.4.3, pages 3-50 and 3-51, and Section 3.15, pages 3-147 and 3-148. As discussed in the Draft EIS, the Thirty Meter Telescope Project will implement an Invasive Species Prevention and Control Program during both construction and operation. The program will include a number of measures, including materials control and reduction, washing/cleaning, inspections, monitoring, control, and education/training.
A number of disparate, and sometimes conflicting, suggestions concerning the details of the Invasive Species Prevention and Control Program were received in comments on the Draft EIS. The Program will be refined during the Conservation District Use Application (CDUA) process the Project must undergo in order to receive a Conservation District Use Permit (CDUP). This process will include further coordination with the Department of Land and Natural Resources (DLNR), and the Invasive Species Prevention and Control Program will be available for review during the process.

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Section 3.4.3 of the Draft EIS discusses potential impacts to biological resources. On page 3-41 it is stated that "Although the [Access Way] Option 2 or 3 impact is evaluated to be less than significant, to comply with the CMP (Management Action FLU-6), the Project would prepare and implement a Habitat Restoration Plan to compensate for the loss of Type 3 Wekiu bug habitat...". CMP Management Action FLU-6 states "Incorporate habitat mitigation plans into project planning process."
Based on comments received during the Draft EIS public review period and the issues associated with the feasibility and effectiveness of any habitat restoration approach, the planned mitigation measure for the loss of sensitive habitat has been modified. The Project will no longer prepare or implement a Habitat Restoration Plan as outlined in the Draft EIS. As detailed in Section 3.4.3 of the Final EIS, the Project is in comliance with Management Action FLU-6 through (a) Project planning to avoid impacts, (b) monitoring of arthropod activity in the region of the Access Way's disturbance of cinder cone habitat prior to, during, and for two years following the construction of that portion of the Access Way, and (c) working with OMKM on the development and implementation of a habitat restoration study.

that OMKM does not have the weight and independence to negotiate solutions to local concerns. OMKM must continually "run things up the flagpole" when it comes to most issues.

We were surprised at the lack of strong and assertive leadership from other parts of the political map as well, whether it be the Board of Regents, the Governor, BLNR and the Department of Land and Natural Resources (DLNR), the legislature, or the president of the university. There are indications that this could change in the very near future if President McClain's involvement becomes more evident and prominent. As many interviewees suggested, and Judge Hara's August 6, 2006 ruling indicated, there is a need for more active leadership by BLNR. The former chairman of BLNR, Peter Young, was highly engaged on Mauna Kea development issues and by several accounts was bridge-building with the most vociferous of opponents towards the end of his term. However, given the recent changes at DLNR and Laura Thielen's short time on the job, it is too early to tell what level of BLNR leadership will be applied toward Mauna Kea issues.

E. **Continuum Politics: Hard on the Edges, *Kanalua* in the Middle.** As with many controversial issues in Hawaii, there is a hard core of proponents at one end of the political continuum who believe science should always trump culture and, at the other, an equally strident core that believes culture should always supersede science. More towards the middle are many people who, at least at this moment, are *kanalua* ("dubious" or "skeptical") that the legacy of contention over Master Plans, management practices, and the Outriggers project can be overcome. We spoke with a number of individuals, including a number of Native Hawaiians, who would love to support a culturally sensible and environmentally sensitive science industry on Hawaii Island, but who cannot do so at the moment. Sentiments against further telescope development are strong. Should TMT choose to proceed, it will need to reach out extensively to the skeptics and critics as well as to those supporters who remain publicly quiet. Much of the burden for this does not lie within TMT's control and maybe not even within its influence. The burden sits squarely with the University of Hawaii and the State of Hawaii. One respondent put it this way, "The university needs a catalyst that will ignite the silent majority of Native Hawaiians who really care deeply about both science and Mauna Kea, and who do not believe one automatically forecloses the other."

3. **The Gauntlet.** After more than 60 interviews, we have an increased understanding of the "gates," hurdles, and tripwires that a potential project will need to pass through. That being said, it is not an understatement to say that there are a multitude of interpretations and confusions that will need to be sorted out in the process. To succeed at a Mauna Kea site, TMT must run a gauntlet that entails a number of potential challenges, not all of which are of TMT's making and some of which could be potential showstoppers if TMT's schedule and timing do not have great flexibility. One opponent described this gauntlet as potential opponents having "fifty bites at the apple." Our interviews tell us the following:

A. **Comprehensive Management Plan.** The path the CMP must travel is complicated, poorly-marked, and subject to potential showstoppers if TMT's timeline remains tight. Prior to the legal challenge brought by *Anaina Hou et. al. v. Board of Land and Natural Resources*, OMKM had initiated work on a cultural and biological plan that would guide its own efforts on the mountain regarding the stewardship of natural and cultural resources. Sections of this plan are being drafted now. Judge Hara's ruling on August 6, 2006 effectively put further telescope development in abeyance pending a completed CMP and instantly placed OMKM's work in a legally and politically more volatile context. Unfortunately, Judge Hara gave no guidance as to what must be in the CMP and the conservation district rules do not offer much

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The energy consumed by the Thirty Meter Telescope Project will be provided by the HELCO island-wide electric grid, roughly 40 percent of which comes from renewable sources. The Project does not have any involvement in where or how the energy provided by HELCO is generated (renewable vs. otherwise). However, Section 3.12.4 of the Final EIS has been updated to include the following:
"Energy saving devices will be incorporated into Project facilities; plans include: solar hot water systems, photo voltaic power systems, energy efficient light fixtures controlled by occupancy sensors, efficient Energy Star rated electrical appliances at all facilities, and design with local knowledge to maximize the use of natural ventilation and lighting at the Headquarters."

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Power demand and generation related to the Project is discussed in Section 3.12 of the Draft EIS. In Section 3.12, page 3-129, of the Draft EIS the following information is provided "The existing peak demand load documented by HELCO at the substation, including all observatories and the Hale Pohaku facilities is 2,230 kW, approximately less than half of the capacity of the substation." On page 3-130 the power demand of the TMT Observatory is discussed, indicating that peak demand will be 2,400 kW but the average power usage will be similar to the average 350 kW power usage at the Keck observatory. In response to the comment, TMT discussed the issue of line friction losses with HELCO. HELCO reported that the transmission lines along Saddle Road were sized to transport power from their Hilo power plants to major load centers in West Hawaii and are adequate to transport bulk power from their power plants to Hale Pohaku substation with minimal friction resistance or power loss. Therefore, the peak and average power usage discussed in the Draft EIS represent the needed generation capacity.
Cumulative impacts are discussed in Section 3.16 of the Draft EIS, power is discussed on page 3-186 and air quality is discussed on pages 3-187 and 3-188. Additional information has been included in these sections in the Final EIS to provide an update, including "As discussed in Section 3.12.1, HELCO currently has generating capacity equivalent to 45 percent over recent system peak usage and 40 percent of their generating capacity is from alternative renewable sources. Communication with HELCO has indicated that the Project and other foreseeable actions would not result in a need to increase generating capacity by adding a new generating unit or by significantly increasing the operation of an existing unit." Therefore, the small increment of power use by the Project and the foreseeable actions would not significantly increase the level of pollution from particles in the air near those generating units. The fossil fuel burning HELCO generating units are closely monitored and in compliance with permit conditions issued by the State of Hawaii Department of Health (HDOH).

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As addressed in the response to the previous comment, the Project and the foreseeable future actions discussed in the Draft EIS would not result in a need to increase generating capacity by adding a new generating unit. While the rate for power charged by HELCO does not address the Project's potential impacts on the environment evaluated in the Draft EIS, no rate increase related to additional generating units would be required. The rate structure for the Project has not been discussed with HELCO, but is anticipated to be similar to that of other customers.

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Hale Pohaku expansion was discussed in the 1983 Master Plan and the 2000 Master Plan. The CMP and previous Management Plans also apply to Hale Pohaku as it is within the UH Management Area. References to the CMP and 2000 Master Plan appear throughout the Draft EIS as well as in Chapter 7, References, of the document. Reference to the 1983 Master Plan is included in Chapter 7 of the Draft EIS; additional references to the 1983 Master Plan have been included in the Final EIS, as appropriate.

help or direction.

As of this writing, a proposed plan is being developed by various authors within the UH system (OMKM and consultants to UH's VP for Legal Affairs). It is unclear whether this plan will need approval by the UH Board of Regents. There has been little or no consultation with CMP stakeholders, including those opponents who litigated the matter in Judge Hara's court. That also may change as UH has secured the services of a reputable Hawaiian consultant team to assist with the CMP and other Mauna Kea-related issues.

We understand any new CMP must ultimately be brought to BLNR for approval because the conservation district rules for obtaining a conservation district use permit (CDUP) require an approved management plan for all astronomy projects. Should that be the case, it is unclear whether BLNR could act on a draft CMP or choose to not act on it until they actually have a conservation district use application (CDUA) in front of them for a new telescope project. Finally, should the CMP embody any new development features (number, placement, and timing of telescope development), as opposed to pure management practices, it could trigger administrative litigation in the form of a contested case hearing and possibly an EIS.

B. **Master Plan.** The 1983 Complex Development Plan, of which BLNR approved only the Management section (and not those portions dealing with future development or the number of telescopes), references a 1982 Research Development Plan which the Board of Regents approved. That Research Development Plan allows for up to 13 telescopes. Our interviews lead us to believe that the university intends to take at least two older telescopes down, but there is no clarity yet as to: (a) which telescopes would come down; (b) by when (since leases run until 2033); (c) who has the authority to remove them; and (d) who, if anyone, might need to consent to removal. Further, some respondents believe that the Master Plan might need to be amended should any new telescope require a new site to be disturbed and developed or should it include new statements about the number and longevity of telescopes. While the Master Plan did indicate the future development of the site commonly referred to as "13 North," there may be other developments or redevelopments that may call for amendments to the Master Plan. Additionally, while previous DLNR interpretations were that BLNR did not need to approve the Master Plan, some believe that Judge Hara's ruling indicates a desire for DLNR to increase its oversight of all plans affecting development and management of the Mauna Kea Science Reserve.

C. **Lease Negotiations.** The University of Hawaii holds the Master Lease for the Science Reserve from the State of Hawaii. Similar to many other state leases, UH pays one dollar a year for their lease. The Master Lease expires in 2033. Dollar-a-year leases of land zoned for conservation are a sensitive issue in Hawaii, especially so for the Mauna Kea Science Reserve, which involves long-standing cultural conflicts. Should TMT require a new lease as a condition for pursuing a Mauna Kea site early next year, and should legislative approval be required, a lease may need to be renegotiated by January or February of 2008 in time for the next legislative session. One very politically seasoned respondent who is not aligned nor positioned on Mauna Kea issues believes that a new lease will be the single-most challenging issue on the gauntlet described in this report.

D. **Ceded Lands.** The Science Reserve sits on ceded lands, another long-standing and highly contentious issue. The manner and amount of ceded land payments that should be made from the State to one or more Hawaiian entities for all such lands has never been negotiated at a global level, though discussions have been ongoing for many years. Nor is it likely to be in the near future. This problem adds additional complexity to the lease questions discussed

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Archaeological sites are discussed in Section 3.3 of the Draft EIS, with existing conditions at Hale Pohaku discussed on pages 3-30 and 3-31 and potential impacts discussed on page 3-32. As disclosed in the Draft EIS, there are no historic properties within 200 feet of the potential Thirty Meter Telescope Project's Mid-Level Facility area; therefore, no historic properties would be affected.
The State Historic Preservation Division (SHPD) reviewed the Draft EIS and the Archaeological Assessment Report for Hale Pohaku. Their review comments are included in Chapter 8 of the Final EIS. Section 3.3 of the Final EIS and the Archaeological Assessment Report, Appendix H of the Final EIS, have been updated to address SHPD's comments.
Potential construction phase impacts are disclosed in Section 3.15.1 of the Draft EIS; on page 3-145 of the Draft EIS it is clearly stated the "Per the 2000 Master Plan and CMP, a buffer would be maintained between Project construction activities within the MKSR and Hale Pohaku and archaeological resources." A number of items are then presented in the Draft EIS that would be implemented to achieve this protection.

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Biological resources are discussed in Section 3.4 of the Draft EIS. In Section 3.4.3, page3-47, of the Draft EIS it is indicated that "All of the roughly 3.2 acre TMT Mid-Level Facility area has previously been disturbed by construction activities for other observatories. A few mamane trees and other species exist within or around the parameter of the area." On page 3-49 it is stated that "less than one acre of mamane subalpine forest could be displaced by the TMT Mid-Level Facility." And in Section 3.4.4, page 3-52: "TMT would either (a) prepare and implement a Habitat Restoration Plan to compensate for the minimal loss of mamane subalpine forest displaced by the TMT Mid-Level Facility development, or (b) help fund the palila recovery effort."
While it is unlikely that any mamane trees will be removed, in response to the comment, the Project refined its mitigation measures since the publication of the Draft EIS. Section 3.4.4 of the Final EIS now proposes that, "TMT will plant two new mamane trees for each mamane tree directly impacted (i.e. removed or pruned to reduce canopy by more than half) by possible Project activities at the potential TMT Mid-Level Facility. This effort, if necessary, will include monitoring and caring for new plantings for a period of two years to ensure the new trees become established."

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Vehicle washing during the operation period is addressed in Section 3.4, page 3-51, of the Draft EIS. In Section 3.15, page 3-142, of the Draft EIS it is stated that "The Hale Pohaku Staging Area would be used for parking, vehicle washing and inspection..." Washing during the construction period is also addressed in Section 3.15, page 3-148, of the Draft EIS. The reference to washing at Hale Pohaku has been removed from Section 3.15 of the Final EIS, which now states "The Hale Pohaku Staging Area may be used for parking, vehicle inspection and cleaning prior to proceeding up to the observatory site, and construction staging." Information has been included in both Section 3.4 and 3.15 of the Final EIS to indicate that this washing is to occur at lower elevation baseyards, prior to proceeding above Saddle Road, including the following in Section 3.15.1, "Materials and clothing will be washed or otherwise cleaned prior to proceeding above Saddle Road. This will be done at lower elevation baseyards, such as the Port Staging Area".

above. In our interviews, we heard estimates that the real currency among telescopes and astronomers is observation time, which one person estimated to have an annual $10 million value. It is unclear if this is based on an audited number. Hawaiians routinely talk of a 20% ceded land payment. President McClain's recent Convocation speech indicates a substantial increase in educational aid for Native Hawaiians, but there is no specific nexus to Mauna Kea.

E. **Visual Impact.** Should the TMT proceed with a Mauna Kea site, it will be the largest structure on the mountain. It will be physically imposing and visible from Waimea on the north side of the island if it is sited at or around test site 13 North. Sheer size will draw criticism and controversy, and questions about how to mitigate its visibility are inevitable.

F. **Environmental Impact Statement.** TMT will need to undertake a thorough impacts analysis that arrays alternatives, addresses disturbances, and identifies mitigations as appropriate. While NEPA is not formally triggered unless a federal agency becomes involved in the TMT proposal, TMT is required to perform a State EIS, which must be approved by the Governor and has the potential for litigation. Traditionally, EIS documents are a battleground for development projects and it would seem likely that TMT will be a magnet for litigation, especially if the prior issues (CMP, lease, ceded land payments, visual issues) have not been meaningfully addressed and resolved. Both the PanSTARRS and ATST environmental impact statements are currently behind schedule.

G. **Context and Timing.** It is important to note the context and the timing of TMT's interest in pursuing a Mauna Kea site. The halting of the Outriggers project is attributed by some to NASA budget cuts and by others to victory by the plaintiffs in *Anaina Hou et. al. v. Board of Land and Natural Resources*. The PanSTARRS EIS, telescope issues on Haleakala, unsettled clean-up issues on Kaho'olawe, EIS concerns for the Superferry on Kauai and Maui, disputes over depleted uranium shells, and the realignment of the Saddle Road on Hawaii Island may fuel environmental issues related to TMT.

H. **Consultation.** The history of poor or no consultations with Hawaiians, both Native and non-Native, was chronicled repeatedly in our conversations as a serious problem. None of this is TMT's fault, but all of it will be inherited. We heard many criticisms in our interviews, among them the following. As before, we make no comment on the veracity of these statements and simply report them as major themes from the interviews.

i. Benefits. The Native Hawaiian community derives little to no benefit from the Science Reserve. In contrast, the State of Hawaii, the University of Hawaii, UH scientists, and the Hawaii Island business community derive much benefit, none of which seems to flow back in the form of cash, education, and community enhancement for Native Hawaiians. If there is some trickle-down effect for the greater Native Hawaiian community, it is invisible.

ii. Discouragement. The long-running history of disputes on Mauna Kea has been disappointing for many who are deeply supportive of both Native Hawaiian culture and a solid Hawaii Island science industry. Moreover, possibilities for a successful reconciliation of the two are, for many, diminishing. "It is the wrong mountain at the wrong time by the wrong people," one interviewee told us. "It might have been right 20 years ago, but not today. They've broken our hearts." Alternatively, we also heard the

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Cumulative impacts are evaluated in detail in Section 3.16 of the Draft EIS, on pages 3-159 through 3-194. The statement in the summary indicates that the existing level of cumulative impact to certain resources is already adverse and significant and the Project and the foreseeable actions would not significantly increase or reduce this existing level of cumulative impact. Resources that have been significantly and adversely impacted by past actions will continue to be significantly and adversely impacted should the Project proceed. Similarly, resources that have been impacted to an extent that is currently at a less than significant level, would continue to be impacted to an extent that is less than significant should the Project proceed. In both cases, the Project, and other foreseeable actions, would add an increment to the level of cumulative impact on the various resources evaluated in the Draft EIS, but that increment would not tip the level of impact from significant to less than significant, or vice versa.

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The statement in Section 3.16.2, page 3-165, of the Draft EIS indicates that it is unknown if cultural practices were taking part at these locations in modern times. As pointed out in the comment, it is known that certain cultural, archaeological, and historical resources are known to have been impacted; this is acknowledged and disclosed in Section 3.16.2, page 3-166, which says "The existing level of cumulative impact on cultural, archaeological, and historical resources is substantial and adverse."
However, it is not known that prior to development of the existing observatories there were cultural practices taking place exactly in those locations in recent times. This information has been clarified in the Final EIS.
In addition, the comment incorrectly identifies Puu Poliahu as a "Traditional Cultural Property." Puu Poliahu has not been designated a Historic Property or Traditional Cultural Property at the State or Federal level, although it is within the Mauna Kea Summit Region Historic District. As discussed in Section 3.2.1, page 3-11, of the Draft EIS, the name Poliahu was only attached to this puu in 1892; the name is not derived from native Hawaiian traditions.

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In Section 3.16.2, page 3-171, of the Draft EIS it is stated that "There are numerous points of discharge along the road and the rates of discharge at each are fairly small, so the resulting erosion and deposition of materials are minor." The primary reason the road is graded frequently is related to "washboarding" and other wear related to vehicles traveling up and down the steep dirt road.

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Section 3.16.2, page 3-170, of the Draft EIS discusses the cumulative impacts related to wastewater. The past impacts have been discussed in other documents in detail and the overall information is disclosed in the Draft EIS. In a statement consistent with previous assessments, including the cumulative impact evaluation in the Outrigger EIS, the Draft EIS states, "The existing level of cumulative impact on water quality is negligible and less than significant."
As clearly stated in the Draft EIS, the Project will not use either a septic or a cesspool system, and instead its wastewater will be trucked off the mountain, so the precise number of existing septic and cesspool systems does not address the Project's impacts on the environment evaluated in the Draft EIS.

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See response above.

following from another knowledgeable interviewee, "The community is winnable, but it is far from automatic and by no means guaranteed."

iii. Patterns of Practice. Some of our interviewees do not believe the history on Mauna Kea is an accident of miscommunications. They described the situation as "a pattern of practice," of not doing things that the public wants and that, in some cases, the law requires. As we probed these comments, we came to understand them as a kind of cumulative comment on the making of long-term plans for the mountain and a surrogate for issues regarding past telescope construction and operation, poor cultural and environmental management, and, most especially, the failure to consult. Most prior attempts at consultation, we were told, have been led by well-intentioned scientists from IFA in the face of specific proposed new telescopes. OMKM was praised for being more knowledgeable and sensitive to local consultation, but criticized for having no meaningful authorities or resources to make real and implement real policy and management decisions. One interviewee put it this way, "Letting the scientists lead has created a cultural disconnect of epic proportions."

iv. Mutual Disconnect. Native Hawaiians repeatedly told us they feel "run around" by state officials. Interestingly, some state officials and astronomy proponents have very similar feelings of being sent in circles to talk to different Hawaiian groups and organizations, only to see those conversations hijacked by the shrillest and most strident opponents while actual supporters stay silent. A few people quietly told us they do not know who among Native Hawaiians they should seek reliable guidance from nor how. "One Native Hawaiian says talk to *kupuna*. Another says speak with young people. Others say talk to well-known cultural practitioners from hula *halau*, while others say they are the wrong people. Some tell us to conduct consultations through public meetings. Others tell us it is a waste of time. Who do we believe?"

I. **Conservation District Use Permit.** Should TMT decide to pursue a Mauna Kea site, a CDUP will be required. This final "license to operate" will require a satisfactory EIS and may also prove to be a final point of contest should many of the previous issues not be resolved.

V. Keystone's Conclusion

Should TMT decide to proceed, it will face serious "headwinds" as described in the findings above. There are also some potentially favorable "tailwinds" if some of the problems described above can be confronted and meaningfully resolved, first by the University of Hawaii, then by the Board of Land and Natural Resources, and then by the TMT itself.

However, we believe there will be no fast track to bringing the TMT to Mauna Kea. Potential funders and supporters of the project must be prepared to be extremely patient and pay a premium in social, political, and legal transaction costs. There are serious risks to TMT's proposed schedule. Even those who support additional development on the mountain told us that it will be a lengthy process and one that cannot be rushed. The hard reality is that it will need to proceed on timelines and deadlines established in Hawaii by different groups and agencies, most of whom are not presently coordinated and some of whom are antagonistic to further telescope development. Furthermore, we believe that having a tight timeframe and a simultaneous development project like TMT in the works makes it even more difficult to have the broad community conversations that are necessary for drafting a satisfactory CMP and working through issues related to leases and ceded land payment questions.

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Section 3.16.2, page 3-171, of the Draft EIS states "It has been shown that the past disposal practices of mirror washing wastewater have not had a significant impact on water quality." This statement is consistent with the assessment in the Outrigger EIS, which included a study of the subject by R. E. Arvidson of Washington University dated 2002. This study is referenced in Section 3.7.6 of the Draft EIS. This reference, and others, has been included in Section 3.16.7 of the Final EIS.

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The statement referenced by the commentor is the one in Section 3.16.2, page 3-172, of the Draft EIS and concerns past mercury spills. Mercury typically is not volatile at the temperatures present in the summit region. To clarify, this information has been revised to read "impacted soil or groundwater" in the Final EIS instead of "reached the outside environment."

72

In response to the comment, additional information regarding the cumulative noise impacts on Maunakea has been added to Section 3.16.2 of the Final EIS as follows: "While construction activities create intermittent, though sometimes significant disruptions, the existing ambient noise levels remain low and fully within the applicable noise standards of 55 dBA during daytime hours and 45 dBA during nighttime hours, except within the immediate area of certain observatory HVAC systems and/or their exhaust. Noise measurements at various locations in the summit region indicate that although the applicable noise standards are sometimes exceeded in the vicinity of observatory HVAC systems and/or their exhaust, noise levels are unlikely to exceed the noise standards at identified noise sensitive locations. Thus, the overall level of cumulative noise impact is less than significant."

73

The obligation to evaluate and disclose environmental impacts under the National Environmental Policy Act (NEPA) is triggered when a federal agency proposes a major federal action that would significantly affect the environment. Neither the University of Hawaii at Hilo (UH Hilo) nor the TMT Observatory Corporation is a federal agency. Further, neither UH Hilo nor the TMT Observatory Corporation has received funding or pledges of financial support from any Federal agency for activities that will or may significantly affect the environment, nor has either entity applied for any federally-issued permit or license. Therefore, the United States' obligations under NEPA have not been triggered.

74

The existing level of cumulative impact on cultural, archaeological, and historic resources is discussed in Section 3.16.2, pages 3-164 to 3-166, of the Draft EIS. It is stated in this section that "The existing level of cumulative impact on cultural, archaeological, and historical resources is substantial and adverse."
Potential cumulative impacts to cultural, archaeological, and historic resources related the Project and the foreseeable actions are evaluated in Section 3.16.4, pages 3-177 to 3-179, of the Draft EIS. It is stated in this section that "The addition of the Project and other foreseeable actions to the existing environment would have a small incremental impact; however, the level of cumulative impact on cultural, archaeological, and historic resources would continue to be substantial and adverse." In the Final EIS the statement "small incremental impact" has been replaced by "limited incremental impact".
Nowhere in the Draft EIS is it suggested that the existing level of cumulative impact is not substantial and adverse or that incremental impact related to the Project would mitigate the impact.

Given the present political climate, we believe there is a high probability that litigation will occur that will negatively affect TMT's schedule of pending telescope permitting and construction, so far as we understand that schedule. Based on our interviews, we believe that the CMP, possible Master Plan revisions should those be needed, and lease negotiations will be particularly sensitive and open up junctures for legal and political contests. If we were asked to make bets (as we asked our interviewees to do), we would place our wagers on further litigation, first regarding the CMP, then regarding the lease, and finally over TMT's EIS. While rulings can and often do differ from judge to judge, there is precedent for an active and engaged Hawaiian Judiciary on controversial issues that involve EISs (see, for example, the Hawaii Supreme Court's 106-page Superferry decision). Furthermore, given the high-profile nature of issues related to Mauna Kea, there is always the possibility that the legislature could choose to become more involved. Such action could potentially bog matters down further unless the legislature is unified enough to take a positive leadership role.

VI. Options for Consideration

As stated previously, all findings, conclusions, and options for consideration in this report are solely the opinions of Keystone and do not reflect the views of The Gordon and Betty Moore Foundation, the TMT Observatory Corporation, or any of the individuals and groups we met with. In fact, should a decision be made to proceed, many aspects of a successful siting will be out of the control of TMT, the Moore Foundation, and any other potential funders. However, the Moore Foundation's significant interest in funding a Thirty Meter Telescope project ensures that it is an important stakeholder with significant influence. We suggest the following ideas for consideration:

1. **Insist on high-level leadership from the university.** The confusions and ambiguities within the UH system and between UH and BLNR create a decision-making vacuum. Fresh leadership is now essential. Given the long-standing history of distrust, increased and high-level political attention is needed on Mauna Kea matters. This will require direct meetings with some of the most respected senior Native Hawaiian voices on the Island of Hawaii, managing the many internal offices within the UH system, and interacting with the Office of Hawaiian Affairs (OHA), DLNR, and the Governor's office. One person with the fullest possible negotiating authorities should serve as a key point of contact on matters pertaining to the lease, the Master Plan, the trajectory of the CMP, and overall relations with the Hawaiian community. If that person is from Oahu, it may inevitably exacerbate the long-running push-pull between Oahu and Hawaii. If that person is from Hawaii, they may not have the fullest access to the many state level entities and individuals who must play a role in solving the problems discussed in this report. Regardless of where it comes from, without this more singular leadership, TMT will likely flounder in a continuing morass of different agencies, offices, organizations, and the continuing concerns of those who favor or oppose telescopes on Mauna Kea. Mistakes have been made in the past regarding UH's interactions with the Native Hawaiian community vis-à-vis policy formation, management, and telescope development planning. While we believe that none of these was intentional, they were mistakes nonetheless and the current result is great mistrust.

2. **Request an early role-clarification meeting between UH, DLNR, and TMT.** Should TMT decide to pursue a Mauna Kea location, we strongly urge that the key decision-making and "gate-keeping" entities involved in such a decision come together to develop a common pathway for the CMP, coordinate if and how the Master Plan may need to be revised, discuss any proposed new leasing arrangements, and further discuss any possible ceded land obligations. Legal counsel for each of the agencies should be engaged in these meetings or be available on-call for clarification of legal issues

75

The existing level of cumulative impact on biological resources is discussed in Section 3.16.2, pages 3-166 through 3-169, of the Draft EIS. The discussion evaluates the three ecosystems in the summit region: alpine stone desert, alpine shrublands and grasslands, and mamane subalpine woodlands. For the alpine stone desert ecosystem it is stated in Section 3.16.2 of the TMT Draft EIS that "human activity has not had a significant cumulative impact on species that dwell in these other habitats [alpine stone desert habitats other than the cinder cones], such as lichens, mosses, and vascular plants. ... Based on the available information it is not possible to determine the magnitude or significance of past human activity on Wekiu bugs or other biological resources that inhabit the alpine cinder cone ecosystem." Related to the alpine shrublands and grasslands and mamane subalpine woodlands, it is stated that "the cumulative impact on these ecosystems has been significant and adverse." The conclusions presented in the Draft EIS concur with those reported in the Outrigger NEPA EIS (Section 4.2.4, pages 4-74 to 4-83, of the Outrigger EIS).

76

The direct impacts of the Project are discussed in detail in Section 3.2 through 3.15 of the Draft EIS. The Project's incremental contribution to cumulative impacts is discussed in Section 3.16.4, along with the potential impacts of the foreseeable actions. Since the potential impacts of the Project are evaluated in detail in the earlier sections (3.2 through 3.15), it is not repeated again in Section 3.16.4. Nonetheless, in response references to Sections 3.2 through 3.15 have been added to Section 3.16.4 as appropriate. The commentor's assertion that the Draft EIS refers to impacts as those related to human visitation is not correct; the Draft EIS evaluates potential Project impacts (see Sections 3.2 through 3.15 of the Draft EIS), not only impacts exclusively related to human visitations. Also please refer to responses to previous comments.

77

TMT would not operate any regular tours or contract with any tour operators. TMT visitors/guests who would venture to the summit region would be limited in number and will primarily be visiting astronomers and other scientists.
Impacts related to the gradual increase in the number of visitors to the summit area are discussed as appropriate in Section 3.16 of the Draft EIS. In Section 3.16.4, page 3-186, of the Draft EIS the following information is provided: "Paving the road would also increase the accessibility to the summit region. Visitors are the most likely to take advantage of this accessibility; however, it is not known if this project [paving the road] would result in rental car companies lifting their restrictions of their vehicles travelling beyond Hale Pohaku. Maunakea would continue to be a remote destination requiring a large part of the day to visit."
The CMP Management Actions are designed to increase awareness and, thereby, reduce impact to environmental resources. As part of the CMP, a Public Access Plan (PAP) has been prepared that addresses overall access to the summit area. With the implementation of the principles of "adaptive management" laid out in the PAP and education plans called for in the CMP, impact due to increased access would not significantly increase the impact on resources in the summit area. Similar programs have been implemented at other sites with some success, for example Hanauma Bay on Oahu and Puukohola Heiua National Historic Park on Hawaii Island.

and precedents. Once this group of stakeholders has a common set of understandings, it will be helpful to expand these discussions to include others from the Native Hawaiian community on Hawaii Island as well as OHA. Some of the questions that might be taken up by initial and/or expanded discussions include:

The CMP

- What are the working assumptions about what the CMP needs to entail?
- What is the flowchart of "gates" and the "approval chain" for the CMP?
- Can the CMP be approved internally by DLNR, or does the CMP need to be approved by BLNR?
- Is the CMP contestable? If so, how, when, and where?
- Will there be opportunity to provide public comment?
- Can the CMP be approved independent of a CDUP application?

Master Plan

- Does the present Master Plan need to be approved by BLNR?
- What is the flowchart of "gates" of the "approval chain" for any revised Master Plan?
- If the CMP consultations result in necessary amendments to the Master Plan, how will this occur?
- Can the sequencing of a revised Master Plan and CMP be concurrent?
- Is a revised Master Plan contestable?
- Will there be opportunity to provide public comment?

Lease and Ceded Lands

- What is the flowchart of "gates" or the "approval chain" for a new lease or revisions to the existing lease between DLNR and UH?
- Does the legislature ultimately need to approve a new lease or revise this lease? If so, what is the timing to ensure this is handled in the appropriate legislative session?
- Can a different entity (other than UH) apply for the Science Reserve lease?
- Can a different entity (other than UH) lease a potential TMT site independently of the rest of the Science Reserve?

EIS Requirements

- If a TMT proposal proceeds, who is the responsible party for developing an EIS?
- What level of analysis for the State EIS will be done and by whom?
- How do you go about choosing a good EIS preparer given the baggage of past EIS processes?
- What kind of public engagement can stakeholders anticipate?

CDUP

- If a proposal for TMT proceeds, what is the flowchart of "gates" or the "approval chain" for a new lease or revisions to the existing lease between DLNR and UH? We understand that the Office of Mauna Kea Management Board has developed this material, but it should be reviewed and understood by each of the entities involved.
- Is this contestable?

78

Project impacts to Historic Properties are discussed in Section 3.3, Archaeological/Historic Resources, of the Draft EIS. The "TCPs" are State Historic Properties. A discussion of the Project's potential effect on Kukahauula, a State Historic Property, has been included in Section 3.3 of the Final EIS as detailed in responses to previous comments. A discussion of the Project's and foreseeable actions' potential impacts due to disturbance of the viewplane has also been included in Section 3.16.4, Cultural, Archaeological, and Historic Resources, in the Final EIS, which states: "As discussed in Section 3.5.3, the TMT Observatory and Access Way will not be visible from the summit of Kukahau'ula, Pu'u or Lake Waiau, or Pu'u Lilinoe, which are identified as State Historic Properties and are where many cultural practices occur. Pan-STARRS design would reduce the visual impact relative to the existing UH 2.2m observatory, which is visible from the summit of Kukahau'ula. The decommissioning of the CSO, which is visible from Pu'u Waiau, would also reduce the visual impact."
In Section 3.10.3, page 3-120, of the Draft EIS the following information is provided: "Recreational and commercial uses would not be significantly impacted by the Project. No hiking trails would be affected and the TMT Observatory and Access Way are outside of snow play areas." Further, Section 3.5 of the Draft EIS discusses visual impacts, and Section 3.16 discusses cumulative impacts related to the loss of habitat and visual presence of the observatories, both existing and foreseeable. Impact to recreational users is contained in the impact to those resources evaluated in the EIS.

- Will there be opportunity to provide public comment?

3. **Organize a meeting with a high-level Native Hawaiian delegation.** If UH is serious about creating a new and enduring relationship with the Native Hawaiian community, which they appear to be, they must seek out a series of substantive conversations with representative Hawaiian organizations early in this process and conduct them at an appropriate site. The focus should be on disentangling past issues and creating new understandings of what it would mean for UH, DLNR, the Gordon and Betty Moore Foundation, the TMT Observatory Corporation, and others with long-term science interests to be "good neighbors" with Native Hawaiians and others who deeply treasure Mauna Kea for values other than advancing science. The conversations must go slow and not focus on the TMT. As one person told us, undertaking relationship building while simultaneously pursuing a specific project like TMT is akin to flying an airplane while you are trying to build it.

4. **Find a Hawaii-based attorney that can advise on the legal implications for various issues.** Given the complexity of the issues and the decision paths for the CMP, Master Plan, lease, ceded lands, and a CDUP, we highly recommend that TMT find a Hawaii-based legal counsel who understands the legal issues and their precedents in Hawaii's courts. Legal counsel should particularly advise on implications regarding the lease, which many have stated is one of the major potential tripwires.

5. **Consider pulling together a "lessons learned" roundtable.** The Subaru and Gemini telescope teams were both cited by some of our interviewees as having reasonably positive ongoing relationships with local communities. The Japanese-owned Subaru telescope may have an important perspective as they know and understand old cultures, sacred mountains, and native peoples. Gemini has an extensive and well-staffed outreach program that enjoys community recognition and good, independent working relationships. The 'Imiloa Astronomy Center's consultation process sought to find a special balance between culture and astronomy, and most believe they have succeeded in a remarkable way. The Center will have important lessons learned to share with UH, TMT, and others seeking pathways for honoring the mountain while maintaining a thriving astronomy program.

6. **Undertake both broad and deep consultations with Native Hawaiians.** Should TMT decide to proceed, discussions with the Native Hawaiian community will be imperative. In partnership with UH and DLNR, we recommend that the Moore Foundation and TMT perform the broadest possible range of consultations with the widest possible range of stakeholders in the Native Hawaiian community on Hawaii Island. Avoid fancy public relations splashes and glossy media campaigns and hire Hawaii talent, those with Hawaii Island roots, and those who are trusted by everyone to pave the way and provide guidance. Additional on-island meetings and outreach with non-Native Hawaiians will also be important. Again, it will be important to acknowledge the long and difficult history that has taken place before the proposed TMT project.

   In our interviews on Hawaii Island, stakeholders also emphasized the importance of appropriately weighting the input of Native Hawaii Island stakeholders, most especially those with direct lineal connections to the mountain. While Mauna Kea is a sacred treasure for all Native Hawaiian people, people on Hawaii Island have, in the past, resented their input being weighed equally with the opinions of Hawaiians from other islands. Each island has its unique communities and these distinctions are important, understood, and respected by Native Hawaiians from other islands.

7. **Start by confronting the toughest issues raised by the most vociferous opponents.** Even though many people remain *kanalua* and undecided about the future of science on Mauna Kea, there is a small but vociferous opposition to any further telescope development. The tendency in many consultative processes, especially if litigation is in the air, is to not talk with opponents. We take an opposite view and would urge that they be at the proverbial negotiating table when solution-oriented

79

The quote by the commentor comes from Section 3.16.4, page 3-179, of the Draft EIS. This section discusses the potential incremental cumulative impacts of the Project and the foreseeable actions, while cumulative impacts related to past actions that the comment refers to is discussed in Section 3.16.2 of the Draft EIS.
The CMP and the Project include measures to prevent the introduction of invasive species. There are measures spelled out in the Draft EIS to control or eliminate the spread of invasive species; these measures are discussed in Section 3.4.3, pages 3-50 and 3-51, and Section 3.15, pages 3-147 and 3-148 of the Draft EIS. Further, these measures have been refined in the Final EIS based on comments received on the Draft EIS.

80

The replacement of sensitive habitat is discussed in Section 3.16.4, page 3-179, of the Draft EIS. The CMP Management Action FLU-6 requires incorporating habitat mitigation plans into the project planning process and on page 7-14 of the CMP it is stated that "All proposed new land uses (such as development) that will damage or permanently destroy sensitive habitats should address the need for mitigation and propose suitable mitigation activities."
There have been no intentional sensitive habitat restoration projects implemented on Maunakea. As addressed in responses to previous comments, in response to comments received during the Draft EIS public review period and the issues associated with the feasibility and effectiveness of any habitat restoration approach, the planned mitigation measure for the loss of sensitive habitat has been modified. The Project will no longer prepare or implement a Habitat Restoration Plan as outlined in the Draft EIS. As detailed in Section 3.4.3 of the Final EIS, the Project is in comliance with Management Action FLU-6 through project planning to avoid impacts; monitoring of arthropod activity to be performed in the region of the Access Way prior to, during, and for two years following construction; and working "with OMKM on the development and implementation of a habitat restoration study". These measures replace the previously proposed habitat restoration plan.

81

Nowhere in the Draft EIS it is either stated or suggested that education of the Project's workers, staff, and visitors to understand Maunakea's environmental resources will mitigate all cumulative impacts. As with the principal foundation of all educational programs, it is anticipated that the knowledge and understanding about a given subject has a beneficial effect and value; and that the understanding of the uniqueness and value of the Maunakea's resources would help reduce potential future impact on those resources.

82

It is stated in Section 3.16.4, page 3-179, of the Draft EIS that "Overall, the current policies to control or eliminate feral ungulates in large areas, such as the MKSR, Ice Age NAR, and Mauna Kea Forest Reserve, have the potential to begin reversing the historical impact of both managed and feral animals." These policies include fencing to restrict feral animal access and hunting to eliminate feral animals within the area. These methods have been demonstrated to protect native forests and allow for the natural restoration of habitat.
There have been many studies that have documented elimination of feral pigs has resulted in the ability of native vegetation to recover (Jacobi, 1976; Katahira, 1980; and Higashino and Stone, 1982). The Nature Conservancy also issued a press release concerning this issue on July 23, 2009, which documented dramatic native plant recovery after pigs and goats were removed from the Waikamoi Preserve on the north slope of Haleakala. The statement in the Draft EIS clearly states the current policies have the potential to begin to reverse the historic cumulative impact on Maunakea. It does not state or suggest that this potential has as yet been reached, only that there is potential to begin such reversal.

discussions begin. We understand there to be three big issues that must ultimately be discussed: (1) future telescope development on Mauna Kea; (2) fair payment for the use of the mountain and good accompanying benefits for the community; and (3) the creation of an independent and involved management authority with decision-making powers. These are discussions that must be undertaken, not just by UH, but with other telescope operators, any prospective TMT team, and others. In consultation with Native Hawaiians, TMT will want to look for ways to create a wider range of benefits for Native Hawaiians at all levels of the education system and seek new mechanisms for local cultural oversight on the mountain.

8. **Consider a three-pronged approach to public consultation and community engagement.** In our interviews, we found there was much confusion about who the legitimate "community" is that should be consulted on Hawaii Island. Everyone agrees that the Native Hawaiian community should be consulted. However, there is no broad agreement on exactly who can speak for the community or how best to understand overall community sentiment. A number of people we spoke with referenced a large "silent majority." It is unclear as to why the silent majority stays quiet and, if they felt free to speak, precisely what they would say. Possible reasons we heard for the silence are: (1) they feel their issues are already properly represented by those more vocal in the debates; (2) they are intimidated to speak out against others in their identified cultural groups; (3) they do not care one way or another or have no knowledge of the issues that allows them to fully participate; or (4) they are simply fatigued by the poor dialogue and want to get on with something one way or another.

   For these reasons, Keystone recommends that TMT, should it decide to go forward, work in concert with UH and DLNR to undertake a simultaneous, three-pronged approach that can really triangulate issues and options.

   A. Hold public meetings. While not conducive to problem-solving, these meetings are necessary and important for disseminating information, answering factual questions, gathering public comments, and helping to identify the issues that are on people's minds at the moment. These meetings must be preceded by a careful, quiet run-up (i.e., one-on-one meetings in each community to set the stage for public gatherings and understand how local meetings are best sponsored and conducted).

   B. Create a well-constructed, randomized community survey. On the theory that public meetings tend to draw people with strong and usually negative views, this mechanism attempts to gauge the views of the greater community-at-large, and particularly the "silent majority," on the issues identified at public meetings. TMT should work carefully with experts (and potentially other stakeholders) to develop and conduct the survey. Given the high expense of surveys, TMT would need to be strategic about the right moment for conducting such a survey. This will vary depending on what questions are of highest concern.

   C. Convene an expert stakeholder advisory group. Over the past 30 years, we have had good, and sometimes extraordinary, results with a small but diverse group of stakeholders who are pulled together to try to fashion solutions to the issues raised in public meetings and further understood through surveys. Sometimes these are called "Working Groups." Sometimes we call them "Dialogues," "Roundtables," or "Forums." A TMT group of this sort would seek to understand, explore, and help formulate possible solutions to critical issues that might become solutions acceptable to all or at least a preponderance of stakeholders. This group might particularly help TMT scope EIS issues and perhaps develop new and innovative approaches to community EIS consultation. Representatives could include TMT, UH, DLNR, OHA, Native Hawaiian groups (associations, civic clubs, etc.), community-at-large

83

Section 3.4, in various locations on pages 3-38 to 3-44, of the Draft EIS indicates that the Douglas' bladder fern was observed and is known to be present in the area. As noted in the comment, the fern is a "species of concern" – it is not listed as a threatened or endangered species.
No Federal agency, including the NSF, is funding the construction, operation, or future decommissioning of the TMT Project, the "Project" as described in Chapter 2 of the Draft EIS. Therefore, the Project does not require any Federal agency to consult with the U.S. Department of the Interior (DOI) per Section 7 of the Endangered Species Act (ESA). Nonetheless, the Project has consulted with the U.S. Fish and Wildlife Service (USFWS) regarding the status of species in the Project area for evaluation of Project potential impacts on biological resources, which are documented in Section 3.4.3 of the Draft EIS. The Project has also consulted with the Department of Land and Natural Resources (DLNR) regarding State-designated status of species in the Project area. These agencies have not provided any specific input regarding the Douglas' bladder fern.

84

Section 3.4.3 of the Draft EIS discusses potential impacts to biological resources. On page 3-41 it is stated that "Although the [Access Way] Option 2 or 3 impact is evaluated to be less than significant, to comply with the CMP (Management Action FLU-6), the Project would prepare and implement a Habitat Restoration Plan to compensate for the loss of Type 3 Wekiu bug habitat...". CMP Management Action FLU-6 states "Incorporate habitat mitigation plans into project planning process."
Based on comments received during the Draft EIS public review period and the issues associated with the feasibility and effectiveness of any habitat restoration approach, the planned mitigation measure for the loss of sensitive habitat has been modified. The Project will no longer prepare or implement a Habitat Restoration Plan as outlined in the Draft EIS. As detailed in Section 3.4.3 of the Final EIS, the Project is in comliance with Management Action FLU-6 through (a) Project planning to avoid impacts, (b) monitoring of arthropod activity in the region of the Access Way's disturbance of cinder cone habitat prior to, during, and for two years following the construction of that portion of the Access Way, and (c) working with OMKM on the development and implementation of a habitat restoration study.

85

The quote by the commentor comes from Section 3.16.4, page 3-185, of the Draft EIS, which discusses the potential impacts of the Project and the foreseeable actions, one of which is the paving of the Maunakea Access Road.
The Project is unaware of any "inflammatory" access policies included in the CMP. As part of the CMP, a Public Access Plan (PAP) has been prepared that addresses overall access to the summit area. The CMP states "Access to areas on Mauna Kea and the right to engage in traditional and customary practices is not only accepted and supported, it is a right protected under the Hawaii constitution." None of the CMP Management Actions are designed to limit access, they are designed to provide access yet minimize potential impacts to environmental resources in the summit region.

86

The reference by the commentor appears to relate to Section 3.16.5 of the Draft EIS, which discusses the end of the lease and site decommissioning. The words "to the extent practicable" clearly indicate that no decommissioning project will restore the natural and cultural landscape completely and precisely to the exact same former condition. A certain level of impact is irrevocable, and these impacts are evaluated and disclosed in the Draft EIS.

87

The Thirty Meter Telescope Project is the construction, operation, and future decommissioning of a 30-meter telescope and associated infrastructure, as defined in Chapter 2 of the Draft EIS. The TMT Observatory is not a test bed or prototype for a telescope with a larger mirror size. There are no plans to design, build, or operate a telescope with a primary mirror larger than the proposed 30-meter mirror of the Project on Maunakea.

representatives (not Native Hawaiian), commercial vendors using Mauna Kea, the business community, rangers, 'Imiloa Astronomy Center, legislative staff, and others.

VII. A Final Thought

If TMT decides to proceed, coordination with UH, OHA, BLNR, and many different local communities on Hawaii will be essential. Struggles lie ahead, especially with the Comprehensive Management Plan and the lease. It is very important for UH and TMT to do advance thinking about what advice they each will want, from whom, and for what purposes. OHA, Native Hawaiians, and others on Hawaii Island must become part of the conversation. As a rule, The Keystone Center urges groups like TMT not to ask for advice if they are not prepared to first hear it and to then reciprocally enter into principled negotiations that respond to the requested advice when it involves criticisms and concerns. We would offer this same counsel to anyone else, including the agencies and communities involved in this most complex and challenging set of issues. If early hurdles can be overcome, TMT has a chance to model a new kind of dialogue with Native Hawaiians and others involved in, affected by, or interested in the future of Mauna Kea.

88

The No Action alternative, as clearly described in Section 4.2.1 of the Draft EIS, is not a Chile location; the Cerro Armazones site in Chile is not an "alternative" for the proposing agency, the University of Hawaii Hilo (UH Hilo). As stated in the Draft EIS, "Pursuant to this alternative [No Action], TMT would not fund construction, installation, or operation of the TMT Observatory and its supporting facilities at Maunakea. However, the 36-acre Area E is identified for development of a Next Generation Large Telescope (NGLT) in the Mauna Kea Science Reserve Master Plan. Therefore, it is possible that absent the proposed Project, another observatory could be developed within Area E pursuant to the Master Plan. ... Since Area E is designated for a NGLT facility, it is likely that a possible future observatory would be similar in size and scope to the TMT."
We appreciate your input; however, as indicated in the Final EIS, "The selected alternative is the Project described in Chapter 2.0. The 13N site, detailed in Section 2.5.1, has been selected as the TMT Observatory site and other Project components will support that selection."

ATTACHMENT A



July 17, 2007

Peter S. Adler, PhD
President & CEO
The Keystone Center
1628 Sts. John Road
Keystone, Colorado 80435

Dear Dr. Adler,

The Gordon and Betty Moore Foundation is dedicated to advancing environmental conservation and cutting-edge scientific research around the world. In advancement our mission, we request that The Keystone Center undertake an independent assessment of the feasibility of siting the Thirty Meter Telescope (TMT) on Mauna Kea in Hawaii. This assessment will consider the environmental, economic, scheduling, and political risk factors in siting the Thirty Meter Telescope at Mauna Kea.

As part of this exercise, we ask that Keystone conduct a discrete set of interviews with Hawaii state regulators, political and community leaders, environmental NGOs, Native Hawaiian thought leaders, educators, members of the business community, or others who might help inform the assessment. These interviews will seek to: 1) further flesh out the risk factors in TMT pursuing Mauna Kea as a site; and, 2) test and refine one or more approaches for how TMT might work with interested stakeholders for the potential siting of the TMT in Hawaii.

After completion of the interviews, Keystone will provide an analysis of the risk factors and best advice to the Gordon and Betty Moore Foundation. After reviewing the final report, the Moore Foundation intends to make this report publicly available.

The Gordon and Betty Moore Foundation is a funder of the development stage of the TMT project, and a potential funder of the construction of the telescope. The Gordon and Betty Moore Foundation will use this analysis as one of the factors for determining whether Mauna Kea is a viable site.

Very truly yours,

Jim K. Omura, PhD
Technology Strategist
The Gordon and Betty Moore Foundation

Gordon and Betty Moore Foundation The Presidio of San Francisco P.O. Box 29910 San Francisco, CA 94129-0910
Tel. 415.561.7700 www.moore.org Fax 415.561.7707

THE Keystone CENTER

ATTACHMENT B

Mauna Kea Interviews

	Name	Affiliation
1.	Anelle Amaral	Former State Legislator
2.	Billy Bergen	Waimea Resident, and former Board of Regent, UH
3.	Mike Bolte	Thirty Meter Telescope Board Member
4.	Sam Callejo	VP for Administration, University of HI
5.	Dawn Naomi S. Chang	Principal, Ku iwalu
6.	James Chang	Legislative Assistant for Judiciary and Environment, Senator Inouye's Office
7.	Roberta Fujimoto Chu	Senior VP & Manager, Bank of Hawaii. President of HI Economic Development Board (HIEDB)
8.	Linda Colburn	Facilitator, Where Talk Works
9.	Paul Coleman	Astrophysicist, IFA
10.	Moses Crabbe	Hawaiian Language Teacher, Community Member
11.	Sandy Dawson	Thirty Meter Telescope Team
12.	Rockne Freitas	Chancellor, Hawaii Community College
13.	James Gaines	Vice President for Research, UH
14.	Peter Giles	Executive Director, Imiloa
15.	Sam Gon	The Nature Conservancy
16.	Richard Ha	President, Hamakua Springs Country Farms. Member, HIEDB
17.	Mike Hamnett	Research Corporation of UH
18.	Masa Hayashi	Director, Subaru Telescope
19.	Hon. Clayton Hee	HI State Senate
20.	Walter Heen	Trustee, Office of Hawaiian Affairs
21.	Paula Z. Helfrich	CEO, Economic Development Alliance of HI
22.	Arnold Hiura	MBFT Media (Reporter who regularly wrote on issues regarding Mauna Kea)
23.	Lea Hong	HI Trust for Public Lands (formerly with Alston, Hunt, Floyd, and Ing)
24.	Julie Hugo	Realtor and Community Leader
25.	Herring Kalua	Supervisor, State Dept. of Transportation Highways Division and Mauna Kea Management Board
26.	Harry Kim	Mayor, Hawaii County
27.	Larry Kimura	Assistant Professor in the Hawaiian Language & Hawaiian Studies, UH Hilo and member of Kahu Ku Mauna Council
28.	Hon. Russell Kokubun	State Senator
29.	Rolf-Peter Kudritzki	Director, IFA
30.	Sam Lemmo	DLNR

	Name	Affiliation
31.	Darolyn Lendio	VP for Legal Affairs – UH
32.	Jim Lee	NASA
33.	Robert Lindsey	Trustee, Office of Hawaiian Affairs
34.	Ted Liu	Director, Department of Business, Economic Development and Tourism
35.	Kawica Lovell	Research Corporation of UH
36.	Kem Lowry	Department of Urban and Regional Planning
37.	Kepa Maly	Cultural Historian & Resource Specialist, Kumu Pono Associates LLC
38.	Robert Masuda	Special Assistant – UH
39.	Harold Matsumoto	Manoa High Technology Center
40.	David McClain	President, UH
41.	Robert McClaren	Associate Director, IFA
42.	Mark McGuffie	HI Economic Development Board
43.	Jeff Melrose	Island Planning
44.	Clyde Namuo	Office of Hawaiian Affairs
45.	Stephanie Nagata	Associate Director, Office of Mauna Kea Management
46.	Tetsuo Nishimura	Associate Director, Subaru Telescope
47.	Sean Naleimaile	Kahu Ku Mauna Council
48.	Francis Oda	Group 70
49.	Gary Ostrander	VP for Research – UH
50.	Tom Peek	Community Member
51.	Kealoha Pisciotti	Mauna Kea Anaina Hou
52.	Cha Smith	Kahea
53.	Kapua Sproat	Richardson School of Law
54.	Ed Stevens	Kahu Ku Mauna Council
55.	Bill Stormont	Director, Office of Mauna Kea Management
56.	William Tam	Alston, Hunt, Floyd, and Ing (Law Firm representing Plaintiffs in the Outrigger Case)
57.	Barry Taniguchi	President, KTA Super Stores
58.	Ron Terry	OMKM Board & Principal Scientist, Geometrician Associates
59.	Laura Thielen	Chairman, Board of Land and Natural Resources
60.	Rose Tseng	Chancellor, UH at Hilo
61.	W. Mapuana Waipa	Ke Ana La ahana PCS and Community Member
62.	Deborah Ward	Sierra Club
63.	Harry Yada	Property Manager, County of HI, Department of Finance
64.	Peter Young	Former Chairman of DLNR

THE Keystone CENTER

PREDICTION EXERCISE

As part of our assessment for The Gordon and Betty Moore Foundation, we are interested in the predictions knowledgeable people might make about various issues related to the Thirty Meter Telescope. Individual names are not important and will not be reported to anyone. All information will be aggregated by Keystone and the collective results made fully available to those who participate.

You have $1,000 available to make ten different bets of up to $100 each. If you win the most bets, it means your experience, knowledge, and political acumen is better than everyone else's.



One Thousand Keystone Bucks! Not Negotiable or Available for Deposit.

Example

"The new Hawaii Superferry will force one or more of Hawaii's three carriers (Hawaiian, Aloha, Go) out of business within two years of startup."

_____*I bet $100 for.*
_____*I bet $100 against.*

#1 - The revised Comprehensive Management Plan will be completed by May 1, 2008.

___I bet $100 for.
___I bet $100 against.

#2 - The revised Comprehensive Management Plan will be a solid document and not be further challenged through appeals or litigation.

___ I bet $100 for.
___ I bet $100 against.

#3 - A new lease for the summit will be successfully negotiated and put in place by June 2008.

___I bet $100 for.
___I bet $100 against.

#4 - University of Hawaii and State of Hawaii will agree to distribute ceded land payments from the Mauna Kea observatories by April 2008.

___I bet $100 for.
___I bet $100 against.

#5 - A robust and culturally appropriate consultation process can be set up between members of the Native Hawaiian community and the Thirty Meter Telescope project (TMT).

___I bet $100 for.
___I bet $100 against.

#6 - The TMT can create new educational opportunities for Native Hawaiians and others on Hawaii Island.

___ I bet $100 for.
___ I bet $100 against.

#7 - The potential environmental impacts of the TMT can be satisfactorily mitigated.

___ I bet $100 for.
___ I bet $100 against.

#8 - The visual impacts of the TMT can be satisfactorily mitigated.

___I bet $100 for.
___I bet $100 against.

#9 - A satisfactory Environmental Impact Statement (EIS) that is not appealed or litigated will be completed by June 2010.

___ I bet $100 for.
___ I bet $100 against.

#10 - A Conservation District Use Permit will be approved by April 2011.

___ I bet $100 for.
___ I bet $100 against.

- Sierra Club Comments Appendix B-Inouye

DANIEL K. INOUYE
HAWAII

APPROPRIATIONS
Subcommittee on Defense—Chairman
COMMERCE, SCIENCE AND TRANSPORTATION
CHAIRMAN
COMMITTEE ON INDIAN AFFAIRS
DEMOCRATIC STEERING AND COORDINATION
COMMITTEE
COMMITTEE ON RULES AND ADMINISTRATION
JOINT COMMITTEE ON PRINTING

United States Senate
SUITE 722, HART SENATE OFFICE BUILDING
WASHINGTON, DC 20510-1102
(202) 224-3934
FAX (202) 224-6747

PRINCE KUHIO FEDERAL BUILDING
ROOM 7-212, 300 ALA MOANA BOULEVARD
HONOLULU, HI 96850-7212
(808) 541-2542
FAX (808) 541-2549

101 AUPUNI STREET, NO. 204
HILO, HI 96720
(808) 935-0844
FAX (808) 961-3103

May 13, 2008

David McClain, Ph.D.
President
University of Hawaii
Bachman Hall
Honolulu, Hawaii 96822

Dear President McClain:

I wanted to report to you about an excellent meeting I had in Washington, D.C. regarding the Thirty-Meter Telescope (TMT) with Dr. Henry Yang, Chancellor, University of California at Santa Barbara, Dr. Jean-Lou Chameau, President, California Institute of Technology, Dr. Rose Tseng, Chancellor, University of Hawaii at Hilo, and Dr. Rockne Freitas, Chancellor, Hawaii Community College. The meeting was productive and informative.

I thanked both Dr. Yang and Dr. Chameau in their capacities as Chair and Vice Chair of the TMT Selection Committee for their willingness to seriously consider Mauna Kea as a site for the TMT, rather than to simply locate the telescope in Chile. Chile may be "easier" because of some of the community issues surrounding Mauna Kea. However, it would not bode well for us as a nation, and could very well signal an end to any major astronomy investment on American soil. We would indeed appear quite hypocritical to lament the loss of excellence in math and science, and then "export" this opportunity to Chile without doing everything we can to keep the TMT in the United States.

In this regard, we discussed the race between the TMT and the Giant Magellan Telescope (GMT) for both support and funding. This matter will most certainly heat up as both telescope projects hope that the National Science Foundation (NSF)

will cover their operation and maintenance costs. As our federal budgetary outlook continues to weaken, the likelihood that NSF will be able to cover the costs for both telescopes is nil. In fact, NSF's astronomy budget would need to double to cover the TMT's operations and maintenance costs.

Both Drs. Yang and Chameau expressed their commitment to work with the Big Island community to hopefully enhance educational opportunities. Having been involved with the formation of Aha Ku Mauna, and later with NASA in urging them to undertake an Environmental Impact Statement for the Keck Outriggers initiative, it is clear to me that if the TMT initiative is to succeed, there must be broad educational opportunities offered, and meaningful career pathways developed on the Big Island. It needs to be simple, foundational and far-reaching.

As I understand it, preliminary discussions about a possible mitigation measure are underway involving both the Native Hawaiian languages leadership at the University of Hawaii (UH) at Hilo and the Hawaii Community College (HawCC). A simple, over-arching mitigation measure could be that Native Hawaiians be provided scholarships to attend school at either campus. Existing scholarship funds could then be re-invested to support other disadvantaged groups. In fact, this may be a good way to get better traction on the University's Native Hawaiian scholarship program, funded out of your research overhead, which you announced at the recent commencement exercises. It would serve as a precursor to the larger potential TMT scholarship initiative.

With additional mitigation funds, important investments could be made strategically from the Imiloa Astronomy Center, the UH Hilo Hawaiian Language College, the technical/vocational trades program at HawCC, to an increase in the science and math offerings at both schools. The underlying premise should be, however, to beckon as many Native Hawaiian students into higher education as possible, irrespective of a stated interest or major.

As I understand it, the University continues with its Comprehensive Master Plan process. Once completed, many are hopeful that it will provide a blueprint for Mauna Kea's future. If TMT is to be part of this future, parallel discussions and processes are necessary. As such, having a unified team of UH Hilo and HawCC leading the effort is most important to keep a healthy community dialogue ongoing

which will hopefully result in a meaningful mitigation plan. At the appropriate time, technical discussions involving the Institute for Astronomy will be important, particularly as the issues of viewing time and mitigation funding are raised.

I hope I can count on your continued support for this initiative. Your putting the University's resources behind the Big Island team will indeed be most helpful. I will keep you informed of developments on my end, and I trust you will do the same. At the appropriate time and assuming all continues to progress positively forward, let's plan to bring the parties together for a meeting. The window for action is fairly narrow, but it is one for which we must lean forward and work to achieve for the sake of astronomy in Hawaii and in our nation.

Aloha,

DANIEL K. INOUYE
United States Senator

DKI:jsd

cc: Dr. Rose Tseng
Dr. Rockne Freitas
Dr. Rolf Kudritzki

Sierra Club attachments Appendix C - McClain

Subject	**Budget Situation Update for the UH 'Ohana**
From	owner-announce-uh-plus-rcuh-scopis@HAWAII.EDU ; on behalf of; President David McClain <announce@HAWAII.EDU>
Date	Wednesday, July 1, 2009 5:19 pm
To	announce@HAWAII.EDU

Members of the UH 'Ohana:
As you know, the budget restrictions imposed by Gov. Lingle on June 1 for the next two fiscal years coupled with the budget passed by the legislature and signed into law earlier this week by the governor mean that we will have $76 million fewer general funds in FY10 and $78 million fewer general funds in FY11. Were it not for the offset of $22 million in federal stimulus funds in each year, the general funds budget cuts would amount to $98 million and $100 million, with slightly less than half ($46 million) by the legislature, and slightly more than half ($52 and $54 million) coming from the governor's action in the wake of the May 28 Council of Revenues downgrade of its economic forecast.

This amount is more than 20% of the general funds received each year by UH, net of payments of such items as fringe benefits, interest payments on bond indebtedness and the like. On a campus-by-campus basis, the University Budget Office has estimated the annual general funds restrictions break down for FY10. Their breakdown appears with this message on my webpage - http://www.hawaii.edu /offices/op/speeches.html - along with a downloadable file of my testimony on these developments and their implications for the university at a joint hearing of the Senate and House Higher Education Committees on June 30. (Download the testimony directly at http://www.hawaii.edu/offices/op/2009/0630legislative.pdf)

In that testimony and during the Q&A afterward between legislators, the chancellors of our baccalaureate campuses and our community colleges vice president, I stated that the university will not be imposing furloughs of the magnitude employed by the governor. I went on to give my assessment of the situation, that some form of compensation reductions, achieved either via furloughs or via the collective bargaining process as salary reductions, would need to be part of the university's solution to the budget situation because of the sheer magnitude of the problem. There are a number of additional considerations that shape the context in which we must address our budgetary challenges.

June 30 marked the end of our six-year contract with the University of Hawai'i Professional Assembly. This contract provided significant compensation increases in its final three years of, respectively, 5%, 9% and 11%, with UH itself paying for, respectively, 1%, 3% and 3% of those increases from our tuition revenues. We're pleased that we've been able to elevate the competitiveness of our faculty's compensation, but we now believe that the economic situation and budget realities call for some downward adjustment for the next couple of years.

UHPA believes that Article XXX of the contract is an "evergreen" clause, implying that the contract continues in force after June 30. We support expedited arbitration of this question and anticipate a resolution by mid-July.

Tomorrow, Judge Sakamoto of the State Circuit Court will take up the question of whether furloughs can be implemented outside of the process of collective bargaining. If it is found that furloughs are an option we could employ, I believe, based on discussions with the chancellors and other university constituencies, that the most sensible use of this instrument would be during the winter break between semesters, the spring break and the Friday after Thanksgiving. Taken together, 13 furlough days would amount to a 5% reduction in compensation and - applied to those faculty and staff members paid with general or special funds, including our executives - would save the university more than $23 million per year. Such an approach would permit us to continue to deliver our educational services to our growing student population with minimal disruption of the academic calendar. Almost everyone I have consulted also recommended that the university system adopt a single approach to any
furlough program rather than varying by campus or unit.

Though there are arguments on both sides of this issue, for a furlough plan of this magnitude (13 days per year), I would not support having those paid with federal funds - except our executives in that category - take a furlough. Researchers paid on "soft" funds are true entrepreneurs, assuming the risk that their grants will not be funded, and represent a powerful stimulative force in Hawai'i's economy. Indeed, in the fiscal year concluded June 30, UH scholars brought in more than $412 million in research and training grants and contracts, an increase of nearly 20%.

Frankly, we would prefer to achieve these savings through the collective bargaining process, and we hope we will be able to do so. Even with these salary savings, though, we have another $30 million in reductions to address to meet the $52 million requirement imposed by the governor's restriction.

I reviewed our FY10 and FY11 budget and the status of collective bargaining today with our chancellors at the monthly Council of Chancellors meeting. The chancellors were unanimous in their desire to be given a budget reduction target to manage to, and not to be subject to any more stringent freeze requirements than those already put in place by the governor last fall. I concur with their desired approach once we're clear on how much of the budget restriction will be handled by compensation reductions achieved by collective bargaining or, perhaps, furloughs.

The chancellors and I agreed that there are some systemwide measures that can be taken to address the remaining budget challenge. For example, we intend to close our campuses during the winter and spring breaks, except for essential services, thereby saving noticeably on electricity and other expenses and reducing our carbon footprint.
Though our Centennial Campaign concluded yesterday 10% above our goal, now that the campaign is over we will certainly revisit our $3 million annual contribution to the University of Hawai'i Foundation ($1 million comes from the system, $2 million from the campuses). The strategic use of attrition will be important, and, perhaps with legislative support, early retirement incentives could have a role to play. On the revenue side, though the anticipated FY10 increase in tuition of $20 million is already allocated by the campuses, we know that tuition revenues step up by $20 million each year in FY11 and FY 12.

I will continue to be in touch with you as the situation evolves. Should Judge Sakamoto render a decision tomorrow, the losing party may appeal. The governor earlier this week announced a record number of bills that she may veto, increasing the likelihood that the legislature will come back into session July 15.

I continue to appreciate your patience in this difficult time and your commitment to our students and our community.

With best wishes and Aloha,
David McClain

--

This message was sent on behalf of President David McClain.
Please do not reply to this message.
It was sent from an address that cannot accept incoming email.

Announcement ID number: 1246502913-7048
Announcement distribution:
- All faculty, staff, and students at all campuses

2009 JUN -9 AM 11:17
UH-HILO
CHANCELLOR'S OFFICE

TMT Observatory Project

Office of the Chancellor

University of Hawaii at Hilo

200 W. Kawili Street

Hilo, Hawaii 96720—4091

In an undated boiler plate letter that is cold, antiseptic and without adequate contact information (for example there is no eMail contact address for the Chancellor's office) you inform me about the Draft EIS for the TMT Observatory Project. I suppose I should thank you—which, of course, I do.

1 I have asked Mr. Jim Kent of JKA Associates to review the Draft EIS and to comment in detail on the community benefits package segment which must be binding on successors and must not be just a namby-pamby effort designed to "placate the natives." Mr. Kent will review the community benefits package in its entirety and submit his comments, including proposals for extending and tightening what is in your Draft, on our behalf.

Jim Anthony, Ph.D. [drjant@aol.com]

Executive Director, Hawai'i—La'ieikawai Association, Inc.

P.O. Box 629, Ka'a'awa, Hawai'i 96730

June 8, 2009

c: Jim Kent, Esq.

tmtobservatoryproject.060809

1
Mr. Kent's comments have been received and responses are included in Chapter 8 of the Final EIS. The Community Benefit Package (CBP) will not be a "sublease consideration" as outlined in Section 3.10.3 of the Draft EIS. The CBP is detailed in Section 3.9.4 of the Final EIS, which states: "The CBP will be funded by the TMT Observatory Corporation and will be administered via The Hawai'i Island New Knowledge (THINK) Fund Board of Advisors. The THINK Fund Board of Advisors will consist of local Hawai'i Island community representatives. The CBP funding will commence upon the start of Project construction and continue throughout the TMT Observatory's presence, so long as the CDUP is not invalidated or construction stayed by court order. As part of the CBP, the TMT Observatory Corporation will provide $1 million annually during such period to the THINK Fund; the dollar amount will be adjusted annually using an appropriate inflation index (the baseline from when inflation index will be applied will be the date of start of construction). It is envisioned that THINK Fund purposes could include:

- "Scholarships and mini-grants,
- "Educational programs,
- "College awards,
- "Educational programs specific to Hawaiian culture,
- "Educational programs specific to astronomy,
- "Educational programs specific to math and science, and
- "Community outreach.

"Educational initiatives will focus on K-5, 6-8, 9-12, and college. The program could include support for students to visit 'Imiloa, TMT, and other observatories."



JAMES KENT ASSOCIATES

Date: July 1, 2009

To: TMT Observatory Project
Office of the Chancellor
University of Hawai`i at Hilo
200 W. Kawili Street
Hilo, Hawai`i 96720-4091

Copy to: Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawai`i 96813

Copy to: Dr. James Anthony, Executive Director
Hawai`i—La`ieikawai Association, Inc.
P.O. Box 629
Ka`a`awa, Hawai`i 96730

RE: Draft EIS Comment on the Community Benefits Package

Submitted To: TMT Observatory Project and Office of the Chancellor, University of Hawai`i at Hilo

Submitted By: Dr. James A Kent, President, James Kent Associates in behalf of Hawai`i—La`ieikawai Association, Inc., Ka`a`awa, Hawai`i

Dr. James A. Kent is an authority on Community Benefit Packages (CBP) and Social Impact Management Systems that are developed to mitigate with the people the impacts that major projects such as TMT have on their physical, biological, social, cultural and economic environments. The author of this response to the Draft EIS is working from what is contained in the written document. He recognizes that many local people and groups concerned with the community benefits that could be generated by this project have had input into this EIS process. My comment then is to give some organizational thought to how the proponents can express the details of a CBP and how it will be carried out and enforced from beginning construction to the ending when dismantling takes place.

Community Benefit Package

Community Benefit Packages (CBP) are a commitment by a project proponent to address in a positive manner the contribution that can be made to the individuals, families and communities as a result of development such as the TMT Observatory Project. The CBP is the place where the project can be humanized and dehumanization prevented by fully involving citizens who deserve to know specifically what the impacts of the project are and the potential benefits from the project. The degree to which explicit detail is developed is the degree to which transparency and clarity is accomplished in a manner that the action can be trusted and relied upon by the people, the local community

organizations, the institutions of higher education, the business community and the government.

Clarity

All projects represent an external intrusion into the cultural and natural resource environments that involve changes in the landscapes and the people. It is up to the proponent to recognize and mitigate the impacts of such an intrusion in a manner that creates health of the land and well being of the people and communities. A CBP is an excellent tool to use to bring enhancement and harmony to the invaded environment especially if implemented with a social impact management system to insure that issues are being resolved and benefits are being accomplished over the life of the project.

1 It is incumbent upon the project proponent to decide what they explicitly mean when they say they want a CBP and a Higher Education Package (HEP) (page 180 of the Draft EIS).
2 After those declarations in the Draft document the discussion falls into random statements that are not organized and create confusion as to what is meant. The statements seem to contain good content but no organization or detail involving a disciplined CBP concept is presented. There are many statements made that create a sense of "false generosity", i.e. "we" the proponents are considering doing these things "for" the community. There is no mention of how working "with" the community could give necessary detail to a vital CBP. The remarks in the document turn out to be random thoughts about what might or could happen, while missing the opportunity to make explicit how such contributions will be made and enforced so that this and the next generations of citizens on the island of Hawai'i know what to expect out of the investment in this TMP project.

Current Lease Termination Date

3 While below I set out a series of recommendations for a CBP it is important to discuss the lease arrangement under which this TMT project is proceeding. The Draft EIS discusses that the lease for the site under which TMT will be bound expires in 2033. There is reference that it is anticipated that the lease will be renewed. This is high risk. It is stated that the construction period will be 8 years and the lease termination for this site in 2033 at which time the project must be dismantled. This time sequence produces a linear time unreality about what is possible. If this project can begin to be constructed by 2011, adding 8 years puts completion of the telescope at 2019. That leaves 14 years of operation if nothing goes wrong—the time between 2019 and 2033. This short time span makes it impracticable to create new curriculums or that a new Engineering School (page 163) at the University of Hawai`i, Hilo could be created with such a short time of lease reliability. It is critical to understand, address and resolve this issue before vast resource commitments are made based on promissory statements that the "lease is anticipated to be renewed."

The project proponent must be risk averse in that, unless this project has a long term life of at least 50 years (or two generations of human potential), there is no reason to risk the

1
The commentor's stated reference to "(page 180 of the Draft EIS)" was determined to have been intended as a reference to Section 3.9.3, page 3-120, of the Draft EIS.
In addressing comments on the Draft EIS, the Project has further developed the Community Benefits Package (CBP). The CBP is no longer a "sublease consideration" as discussed in Section 3.10.3 of the Draft EIS. The CBP is now discussed in Section 3.9.4 of the Final EIS, which indicates: "The CBP will be funded by the TMT Observatory Corporation and will be administered via The Hawai'i Island New Knowledge (THINK) Fund Board of Advisors. The THINK Fund Board of Advisors will consist of local Hawai'i Island community representatives. The CBP funding will commence upon the start of Project construction and continue throughout the TMT Observatory's presence, so long as the CDUP is not invalidated or construction stayed by court order. As part of the CBP, the TMT Observatory Corporation will provide $1 million annually during such period to the THINK Fund; the dollar amount will be adjusted annually using an appropriate inflation index (the baseline from when inflation index will be applied will be the date of start of construction). It is envisioned that THINK Fund purposes could include:

- "Scholarships and mini-grants,
- "Educational programs,
- "College awards,
- "Educational programs specific to Hawaiian culture,
- "Educational programs specific to astronomy,
- "Educational programs specific to math and science, and
- "Community outreach.

"Educational initiatives will focus on K-5, 6-8, 9-12, and college. The program could include support for students to visit 'Imiloa, TMT, and other observatories."

2
The comment is acknowledged, but does not address the Project's potential impacts on the environment evaluated in the Draft EIS.
However, the Project has, and will continue to, work closely with the community in the development and management of the CBP. One example of how TMT is working with the community is that an organizing body has been formed to establish the framework and governance that will guide the CBP. The organizing body will be charged with developing the structure, governance and mission for The Hawaii Island New Knowledge (THINK) Fund. It will also select THINK's founding Board of Advisors, which will consist of local Hawaii Island community representatives. The THINK Fund, which will be funded in full or part by TMT's CBP funds, will be administered and managed by the Board of Advisors. Additional details, such as this, have been included in Section 3.9.4 of the Final EIS as presented in response to previous comment.

3
The comment does not address the Project's potential impacts on the environment evaluated in the Draft EIS. Information about the lease is provided in Section 3.10.3, page 3-120, of the Draft EIS as follows: "It is very probable that TMT, along with the existing observatories, would request UH seek a lease extension beyond 2033." It is not within the scope of this EIS to speculate on the nature or outcome of those future lease negotiations, which would include a master lease negotiation between DLNR and UH and the subsequent sublease negotiation between UH and TMT. The length of the lease does not address the Project's potential impacts on the environment evaluated in the Draft EIS.

physical, biological, social, cultural and economic consequences of development for a 14 year window.

From a Community Benefits Package perspective and I would anticipate for the whole project, the lease problem (termination of the lease in the year 2033) is a fatal defect unless corrected. The community cannot trust that in good faith this lease will be renewed. This is a legal issue that can have complicated consequences if the negotiation is not done now to renew well past the 2033 date. There is much mischief that can take place at the time of land lease negotiations.

4 *It is our great concern that this lease be re-negotiated between this Draft EIS and the Final EIS, or that the Final EIS be delayed until a new lease negotiation that extends no less than 58 years is completed.*

5 If this issue cannot be resolved, then the whole project fails because none of the CBP/Higher Education Benefits Package can be undertaken except for the Workforce Pipeline Program for construction. This scenario suggests that it does not seem reasonable for the people to give permission for this TMT Observatory Project for only 14 years beyond construction.

CBP Recommendations

There is great opportunity to be had from a project that would last at least 50 years in which there is enough time to think in terms of two generations to carry out the social impact mitigations which include educational enhancements.

1) Benefits are Binding

6 There must be much more detail provided on the CBP and enforcement mechanisms built in so that the benefits are binding for the entire length of the project—from beginning of construction to the dismantling of the project. CBP is not a one shot, point in time commitment, but is intended to contribute to sustainable rural social, cultural and economic development of the individuals and families of the island of Hawai'i long into the future of this project. The whole CBP area once developed needs enforceable teeth built into the permit for building TMT.

2) Discussions with the Citizens

7 Before the Final EIS comes out the project proponents must sit down with geographic communities of interest and discuss with the citizens what should make up a CBP. This contact can be done in small chat sessions where the proponent can really understand in a face-to-face setting how the people desire to benefit. This intimate contact is needed in order to avoid the potential of an institutional loose-fitting, non-compliant approach to CBP as the language reflects in the current document. Large scale meetings are to be avoided for this exercise in favor of individual and small

4
Thank you for your participation in the process. However, the comment does not address the Thirty Meter Telescope Project's potential impacts on the environment evaluated in the Draft EIS.
Information about the lease is provided in Section 3.10.3, page 3-120, of the Draft EIS as follows: "It is very probable that TMT, along with the existing observatories, would request UH seek a lease extension beyond 2033." It is not within the scope of this EIS to speculate on the nature or outcome of those future lease negotiations, which would include a master lease negotiation between DLNR and UH and the subsequent sublease negotiation between UH and TMT.

5
The comment is acknowledged, but does not address the Project's potential environmental impacts evaluated in the Draft EIS. Nevertheless, the following information is provided in response. Implementing the Workforce Pipeline Program (WPP) and Community Benefits Package (CBP), both of which would commence once the Project starts construction (scheduled for 2011, page 2-22 of the Draft EIS), for a period of 22 years will constitute a large investment in the community, not a failure.
Additional details concerning the WPP and CBP since publication of the Draft EIS are provided in Section 3.9.4 of the Final EIS.

6
The comment does not address the Project's potential environmental impacts evaluated in the Draft EIS. Nevertheless, in following is provided in response. As discussed above and in Section 3.9.4 of the Final EIS, the Community Benefit Package (CBP) is no longer being considered as a sublease consideration as it was presented in the Draft EIS. Currently there is no mechanisms to make the CBP enforceable as the commentor suggest. It is unknown at this time if the CBP will become a condition of a Conservation District Use Permit (CDUP), which is required as discussed in Section 3.19 of the Draft EIS. If it become a condition of the CDUP it would be enforceable through that permit. However, the TMT Observatory Corporation is committed to the CBP and has incorporated the CBP into its operations budget.

7
As addressed in the response to an earlier comment, the Project will provide CBP funds to the THINK Fund. The THINK Fund will be administered and managed by the THINK Fund Board of Advisors, which will consist of local Hawaii Island community representatives. TMT will encourage the Board to work with the community as the commentor suggests.

neighborhood kitchen table and coffee shop gatherings where people are free to talk in a non-intimidating informal atmosphere.

3. Lock into Specific Details

8 All references to "local purchasing", its benefits and strategy for carrying out the program should be locked in as to specific detail. The same must be done with the construction workforce. There is mention of 150 construction jobs but no mention of building workforce housing on site or affordable housing in the community. Is this not something to consider and mitigate as a community benefit?

4. Multiplier Effect

9 What we are interested in is seeing a presentation of the "multiplier effect" of the project dollars spent which is essential for a credible CBP. In other words we want to know what the multiplier is for every dollar spent. We know that dollars spent locally can have a significant multiplier effect of creating 2, 3 or 4 turnover of dollars in the communities before they exit. We want to know what that number can be and how it can be optimized. The higher the multiplier-- the more benefits accrue to the community. We also want to know what dollars are spent that immediately exits the community. To the degree that the multiplier is diminished--benefits to the community are diminished substantially. Social and cultural health depends on the former being the economics of the day (high multiplier) and not the latter (low multiplier).

5. Citizen Participation vs. Community Outreach

10 The Community Outreach* needs to be thought through in great detail. Just the word "Outreach" symbolizes that the information flows from the project to the citizens. Citizen Participation is a totally different concept than Outreach and should be considered as the driving force for the CBP. Citizen participation is a "bottoms-up" approach to communication and understanding where information is exchanged on an equity basis with citizens. Once this change in focus from "doing to" to "doing with" citizens is recognized then the following questions need to be considered. How many people or what type of structure is actually needed to insure that the CBP is being carried out in harmony with project commitments? Where will the people involved in this effort be located? If there are offices where will the offices be located and under whose auspices will they operate?

11 * There seems to be confusion on this aspect of the program. On page 163 there is specific reference to filling two (2) full time positions while on page S—12 the document talks about one (1) full time position for Community Outreach. This type of inconsistency reappears throughout this section which affects the reliability, predictability and credibility about what exactly a CBP will cover and how it will be operated, monitored and enforced.

8

Purchasing good and services locally is discussed in Section 3.9.3, pages 3-102 and 3-103, and Section 3.15.1, page 3-152, of the Draft EIS. As disclosed in Section 2.7.2, page 2-23, of the Draft EIS: it is estimated that the construction crew at the TMT Observatory site would average 50 to 60 workers, with a crew of more than 100 during certain phases; not 150. As disclosed in Section 2.5.3, page 2-17, of the Draft EIS: the TMT Mid-Level Facility will be utilized to support the construction phase staff, including dormatories. Based on the size of the construction staff it is not deemed necessary to provide additional housing to support the construction phase of the Project.

9

It is not clear if the comment refers to a multiplier related to the CBP funds exclusively or the Project overall. Section 3.9.3 of the Draft EIS discusses economic impacts of the Project as a whole. As disclosed in Section 3.9.3, the Project will contract with local firms, pay local taxes, pay utility bills, and pay its employees, who will reside in the community, for a total annual operating cost of up to $25.8 million. The Project has no ability to effect the multiplier effect once it has spent its operating budget on outside services and labor. Furthermore, it is not possible at this time to establish what percentage, if any, of the operating budget will immediately exit the community; this is due to a number of factors such as not knowing the ownership of the various businesses the Project will contract with to provide services.
Addressing the CBP funds, The THINK Fund Board of Advisors will be local representatives and have control of how all CBP funds are spent in the community. As above, it is not possible to know the multiplier effect once the funds are provided to the THINK Fund or what percentage of the funds would immediately exit the community; however, being that the THINK Fund will be a locally-administered operation it will likely endeavor to maximize community benefit.

10

As addressed in the response to the previous comment, TMT is working with the community to form an organizing body to establish the framework and governance that will guide the CBP. The organizing body will be charged with developing structure, governance and mission for THINK Fund. It will also select THINK's founding Board of Advisors. The THINK Fund, which will be funded in full or part by TMT's CBP funds, will be administered and managed by the THINK Fund Board of Advisors, which will consist of local Hawaii Island community representatives. Additional details concerning the CBP developed since publication of the Draft EIS are provided in Section 3.10.3 of the Final EIS and was provided in a response to a previous comment.

11

The Project's outreach efforts are separate from the CBP. The reference to "at least two full-time positions would be established for community outreach" appears in Section 3.9.4, page 1-103, of the Draft EIS, not page 163. The information provided in the summary on page S-12 of the Draft EIS refers to a "Community Outreach office with at least one full-time person dedicated" to the WPP, but does not state the total number of people in the outreach office. The outreach office will be comprised of two TMT employees - one engaged in community and scientific outreach activities and one dedicated to the WPP. Neither of the TMT community outreach employees will be involved in managing the CBP; the CBP will be managed by THINK Fund group as discussed above.

6. Citizen Action Groups

12 Should we have Citizen Action Groups (CAG) responsible for monitoring and overseeing the various parts of the CBP? These CAGs are made up of specific talent from the community that can oversee what is going on with the various project elements. For instance: Science Education. Involving select citizens in this creative manner through a CAG builds in a continued humanization of the project and creates an environment where corrections and opportunities can be recognized and acted upon in very short time cycles. This immediacy enhances the community benefits throughout the complete life cycle of the project—from beginning to end.

7. Enormous Opportunity

13 The opportunity to really make a difference in many young lives is enormous. This whole area of science enhancement must be discussed and organized in greater detail than is referenced in this document. There is so much that is possible in this arena from scholarships, internships, on the job learning, commitment to long term development of indigenous scientists, talent scouting for graduate schools, and bringing scientists home to work from the mainland and other countries. A "coming home" project so to speak. This is considered a "value added" element where local families are supported by having members of their family return to work in the island environment where they were raised. Building the telescope offers incredible opportunities for learning, training and development of local engineering skills including maintenance skills that can keep the telescope in operation. The sky is the limit in this arena and the Draft EIS is woefully inadequate in detailing how these great opportunities are accomplished.

8. Ethical and Transparent Grounds

14 The proponents must clarify the CBP on ethical and transparency grounds. In order to move forward the proponent must set forth in the Final EIS what they are going to accomplish in a CBP. We suggest the following project organization to reach the Final EIS. For the CBP the proponent must clearly set out their:
1) Mission, 2) Goals, 3) Objectives, 4) Element Detail, 5) Strategy and 6) Implementation Commitments they will follow from the very beginning of building the project to the dismantling of the project.

Summary

It is beyond time in which Community Benefit Packages with their attendant Social Impact Management Systems (designed to carry out the elements of the CBP) are set out in detail in the Final EIS. This is necessary so that the citizens, the developer, governments, organizations, businesses, non-profit corporations, etc. know as much about the social and culture impacts and mitigations as they do about road access or endangered species mitigations. In fact without a Community Benefit Package that has teeth, meaning, enforcement and pro-active management throughout the projects life--citizens

12

As addressed in the response to the previous comment, the CBP will be administered the the THINK Fund, which will be administered and managed by a local, well-established foundation.
Members of THINK's organizing body and Board of Advisors will be residents of Hawaii Island and be required to follow best practices to prevent any self dealing and conflicts of interest.
Related to funding, TMT will fund $1 million per year (inflated annually to the consumer price index) to the THINK Fund over the lifetime of any lease for the TMT Observatory's 13N site on Maunakea.
It is the intention that THINK's organizing body and Board of Advisors operate as a Citizen Action Group (CAG), as the commentor suggests.

13

The Project proponents agree with the commentor that the opportunities are enormous. The CBP and WPP have been developed, and will continue to be focused through community input, to realize the potential that exists. However, at this time it is premature to commit the CBP or WPP to any set arena of activity. The arena will continue to diversify as the programs mature, times change, and more input is received.
Additional details concerning the CBP and WPP, developed since publication of the Draft EIS, are provided in Section 3.9.4 of the Final EIS as provided in a response to a previous comment.

14

The Community Beneft Package (CBP) is one of TMT's committements to the island community. Section 3.9.4 of the Final EIS describe the CBP as: "The CBP will be funded by the TMT Observatory Corporation and will be administered via The Hawai'i Island New Knowledge (THINK) Fund Board of Advisors. The THINK Fund Board of Advisors will consist of local Hawai'i Island community representatives. The CBP funding will commence upon the start of Project construction and continue throughout the TMT Observatory's presence, so long as the CDUP is not invalidated or construction stayed by court order. As part of the CBP, the TMT Observatory Corporation will provide $1 million annually during such period to the THINK Fund; the dollar amount will be adjusted annually using an appropriate inflation index (the baseline from when inflation index will be applied will be the date of start of construction). It is envisioned that THINK Fund purposes could include:

- "Scholarships and mini-grants,
- "Educational programs,
- "College awards,
- "Educational programs specific to Hawaiian culture,
- "Educational programs specific to astronomy,
- "Educational programs specific to math and science, and
- "Community outreach.

"Educational initiatives will focus on K-5, 6-8, 9-12, and college. The program could include support for students to visit 'Imiloa, TMT, and other observatories."
It is intended that the CBP be part of a larger pool of funds from other astronomy, public, and private sources that would make up the THINK Fund to extend community reach.
At this early stage in the formation of the THINK Fund it is premature to have all of the programming, strategies, implementation, and measurements in place. The following preliminary information is provided to illustrate some of the ideas and directions discussed this far.
On an on-going basis it is estimated that 25% of THINK will be directed to endowment and 75% to yearly programming.

will become marginalized. The project therefore contributes to the people's demise instead of their growth and enhancement. In the end it is people who are becoming endangered by unmanaged intrusive events. It does not have to be so.

This project can set the bar of high standards in the State of Hawai'i with the development of a complete Community Benefits Package and a Social Impact Management System for implementation. This is the opportunity to have criteria set for Hawai'i projects concerning CBPs and this TMT Observatory Project is perfect for such an accomplishment.

Respectfully submitted,

Dr. James A. Kent
President, JKA Group

PO Box 1267 ◆ Basalt, CO 81621 ◆ 970/ 927-4424 ◆ FAX 970/ 927-4607 ◆ international@jkagroup.com
PO Box 3493 ◆ Ashland, OR 97520 ◆ 541/ 601-4797 ◆ FAX 541/ 552-9683 ◆ national@jkagroup.com
P.O. Box 1214 ◆ Kailua-Kona, HI 96740 ◆ 808/443-9445 ◆ FAX 808/324-4543 ◆ pacificrim@jkagroup.com
www.jkagroup.com
Enhancing Productive Harmony between Human and Natural Environments

RECORD DETAIL

First Name :	Leimomi
Last Name :	Khan
Submission Date :	07/07/2009

Submission Content/Notes : The Association of Hawaiian Civic Clubs has reviewed the draft environmental impact statement (EIS), Volume 1, Thirty Meter Telescope Project (TMT), Island of Hawaii and offer the following comments:

1. Maunakea is a culturally significant historical site: The EIS recognizes that Maunakea is of profound importance in Hawaiian culture. In Hawaiian culture, natural and cultural resources are one and the same. These traditions explain that all forms of the natural environment, from the oceans to the mountain peaks and the valleys and plains in between, are believed to be embodiments of Hawaiian gods and deities. Maunakea is also the first born of these islands and is known as the "ka piko o ka moku", meaning the navel of the island. Within the Maunakea Science Reserve, there are 222 historic properties, including 147 ancient shrines, and also burials. The cultural attachment to the environment and nature bears direct relationship to the beliefs, practices, cultural evolution and identity of a people.

2. Cultural Practices: The EIS lists the following cultural practices (pages P-1, 2, and S-4):

- Performance of prayer and ritual observances important for the reinforcement of an individual's Hawaiian spirituality
- Collection of water from Lake Waiau for a variety of healing and other ritual uses
- Deposition of piko (umbilical cords) at Lake Waiau and the summit peaks of Maunakea
- Use of the summit region as a repository for human remains by means of releasing ashes from cremation
- Practices associated with the belief in that the upper mountain region of Maunakea, from the Saddle area up to the summit, is a sacred landscape, personifying the spiritual and physical connection between one's ancestors, history, and the heavens
- Practices associated with the unspecified traditional navigation practices and customs
- Adze makers
- 222 historic properties, including 147 ancient shrines; three areas as Traditional Cultural Properties

3. Purpose, Need, and Objectives of the TMT Project: Addressing Cultural Practices: The EIS purpose and objectives and its proposed mitigation plans fail to include sound objectives and mitigation measures to address the impact the Project has on cultural resources and inclusion of Native Hawaiians in on-going discussions.

The proposed Project's overall purpose is to provide a 30-meter ground-based telescope, which was identified in the 2001 National Academy of the Sciences Decadal Survey for Astronomy as the most critical need for ground-based astronomy. Such a telescope would be a critical part of future astronomy facilities planned for 2015 and beyond." Among the project's primary objectives that address culture is to "Integrate science, culture, sustainability, and education. The Project would help develop science, technology, engineering, and math (STEM) proficiencies among members of the local communities in collaboration with the local public, charter, and private K-12 schools, UH Hilo , and Hawaii Community College (HawCC). The TMT partner institutions are also committed to proper environmental stewardship and the concept of sustainability planning for operations of the observatory."

This objective falls short of addressing the cultural significance of Maunakea. Table ES-1, Summary of Potential Environment Impacts and Mitigation Measures, subject: Cultural Resources (Section 3.2, page 3-6) lists the following as a potential environmental impact: "For the purposes of this discussion, the range of opinions regarding cultural impacts have been parsed into two broad views concerning the Project's potential impact on cultural resources: (1) that Hawaiian culture and astronomy can co-exist on Maunakea and potential impacts can be mitigated; and (b) any development on Maunakea would result in a significant adverse impact that could not be mitigated. Specific Project impacts include potential impacts related to Access Way Option 3, which would result in a significant impact due to impacts to the integrity of the Kukahau'ula cinder cone, a Traditional Cultural Property (TCP)."

The Compliance and Mitigation Measures, states: "A mandatory Cultural and Natural Resourcs Training Program would be implemented to educate employees to understand, respect, and honor Maunakea's cultural landscape and cultural practices. A Ride-Sharing Program would reduce traffic, dust, noise, and general movements in the summit region. Appropriate signage may be placed to guide visits. The Project facilities would be furnished with items to provide a sense of place and acknowledge the cultural sensitivity and spiritual attributes of Maunakea." The Level of Impact After Mitigation, states, "In the view of those who believe cultural practices and astronomy can co-exist, the implementation of the identified mitigation measures would lessen the potential Project impacts."

The summary on page S-4 recognizes the Maunakea Comprehensive Management Plan for UH Management Areas, January 2009 and states, "For the Hawaiian people Mauna Kea is their cultural connection or piko (umbilical cord) to Papa and Wakea, it is the beginning and the end. For the astronomical community Mauna Kea is the scientific umbilical cord to the mysteries of the universe." It further states, "The CMP also explains that its goal is for "these two cultures (to) coexist in such a way that is mutually respectful and yet honors the unique cultural and natural resources of Mauna Kea." The 2000 Master Plan 'provides the policy framework for the responsible stewardship and use of University-managed lands on Mauna Kea through the year 2020.

While the Maunkea Comprehensive Plan received preliminary approval

in April 2009, BLNR called for the development of and approval of their office within one year, several subplans, including: public access, natural resources, and cultural resources. As such, the EIS cannot address the critical components of these plans that bear upon the protocol of Maunakea.

4. RECOMMENDATIONS:

1 a. Given the cultural significance of Maunakea to Hawaii, and for that matter, to the world, the project purpose, need, and objectives statement should be broadened to include: To embrace and support the Native Hawaiian culture in preserving the lands of Maunakea and to adopt as part of the cultural values of the institution the cultural values of the host culture in protection and sustainability of the 'aina, including the earth and the sky.

2 b. While the Maunkea Comprehensive Plan received preliminary approval in April 2009, BLNR called for the development of and approval of their office within one year several subplans, including: public access, natural resources, and cultural resources.

As such, the EIS cannot address the critical components of these plans that bear upon the protocol of Maunakea. The EIS should contain a statement that recognizes this and contain a mitigation plan that describes the action leaders of this project will take to comply with the components of those plans when issued.

Page S-6 of the EIS states, "The potential Project impacts are evaluated within the framework of compliance with all applicable rules, regulations, and requirements for the project type and location. Within the MKSR and Hale Pohaku, this includes the CMP and upcoming sub plans required by BLNR conditions." However, the EIS does not indicate how TMT will comply with the upcoming subplans in its evaluation.

3 c. The "mitigation measure" referenced above falls short of the larger picture, that of embracing the views of the Native Hawaiian community, in assuring that the two cultures can coexist in such a way that is mutually respectful and yet honors the unique cultural and natural resources of Mauna Kea. The EIS should be amended to include such measures as, "To include a representative of Kahu Ku Mauna on any policy group of TMT", or "To provide an orientation to the community, including on-site initial tours of the facility, to foster co-existence and support for the project, and to meet at least quarterly with cultural practitioners, such as Kahu Ku Mauna, to review any cultural impact issues, such as access to nearby facilities or areas."

We note that the EIS, Chap 3, para 3.2 Cultural Resources, provides that a "Cultural Impact Assessment (CIA) process is on-going for the

1

It is stated in Section 2.3 of the Draft EIS, page 2-4, under the "Outreach and Community" objective of the Project that: "To integrate science and education with culture and sustainability in the Project is also a core objective of the Project." The Project is a scientific project and although a certain level of integration with the Hawaiian culture is an objective, it is not a purpose or need of the Project.

The Project has included a number of mitigation measures to help achieve this integration. These measures were discussed in Section 3.2.4 of the Draft EIS and have been refined and expanded based on comments received; the current measures include those listed in Sections 3.2.4 and 3.3.3 of the Final EIS. These measures include:

- "TMT will support, through financial contributions and the utilization of its outreach staff, cultural training and annually host a cultural event or training. Examples of how this measure will be implemented include activities such as a star gazing program at the annual Makahiki festival, workshops on stone adze making, or on how to recognize archaeological sites and their importance. This measure was partially developed based on input from participants in the CIA for the Project.
- "Through its outreach office and in coordination with OMKM and 'Imiloa, support the development of exhibits regarding cultural, natural, and historic resources that could be used at the VIS, 'Imiloa, TMT facilities, or other appropriate locations. Exhibits will include informational materials that explore the connection between Hawaiian culture and astronomy.
- "Contribute to the funding of translating modern astronomy lessons into Hawaiian language for use at Hawaiian language charter schools. This measure was partially developed based on input from participants in the CIA for the Project."

2

The Thirty Meter Telescope Project has been working diligently to assure the Project will be in compliance with the Comprehensive Management Plan (CMP), the body of which has been available since January 2009 and was approved by the BLNR on April 9, 2009, with conditions. The four sub plans required by CMP approval conditions have become available as follows: the Natural Resources Management Plan (NRMP) was available in September 2009, the Cultural Resources Management Plan (CRMP) was available in October 2009, and the Decommissioning Plan (DP) and Public Access Plan (PAP) were made available in January 2010. All four sub plans were approved by the Board of Land and Natural Resources (BLNR) on March 25, 2010.

The Management Actions described in the CMP and associated sub plans have been incorporated into the Project and are documented throughout the Final EIS. For example, as stated in Section 2.7.4 of the Final EIS: "The TMT Observatory and the extent of the Access Way exclusively used to access the TMT Observatory will be dismantled and the site restored at the end of the TMT Observatory's life in compliance with the Decommissioning Plan for the Mauna Kea Observatories, a Sub-Plan of the Mauna Kea Comprehensive Management Plan."

The Access Plan is to be implemented by UH and will not have an impact on the Project; the Project is not anticipated to impact access.

The BLNR's conditional approval in April 2009 stated that all CMP sub plan components are to be completed prior to a project submitting a Conservation District Use Application (CDUA); the Project has not yet submitted a CDUA but the conditions of the BLNR's approval of the CMP have been fulfilled. Therefore, as required by BLNR's approval of the CMP and in HAR 13-5-24, an approved and complete management plan will be in place prior to BLNR's review of the Project's CDUA and potentially providing the Project with a CDUP.

4 Project to gather community input and assist in the identification of cultural resources in the vicinity of the TMT Observatory and TMT Mid-Level Facility and that an initial CIA report is provided in Appendix D. The results of their consultations and interviews, and recommendations reflecting community input, will be documented in a final CIA report and the final EIS. Accordingly, our concerns as expressed above should be considered along with the results of the CIA in determining the information contained in the final EIS.

5 5. MAUNAKEA ON CEDED LANDS: The EIS provides that, "The building and operation of the TMT Observatory on Maunakea would require a sublease from UH, which leases this ceded land from the DLNR. If TMT chooses Hawaii as the site, they would be required to negotiate a sublease agreement with UH. The sublease would be submitted to approval first by the UH BOR followed by approval by the BLNR. The sublease consideration would likely include benefits for the Island of Hawaii , as well as observing time for UH. The current UH lease expires in 2033 and the TMT Observatory would be required to be decommissioned and restore the site at that time, unless a new lease or a least extension is obtained from the BLNR." RECOMMENDATION: As revenue from the ceded lands support the betterment of the conditions of Native Hawaiians and to assure that the intent of the lease of these lands to the University remains, we strongly recommend that the Office of Hawaiian Affairs be included in any negotiations of a sublease agreement let by the University of Hawaii.

6 6. SCARS ON MAUNAKEA: In the eventual decommissioning of the TMT, we are concerned about the possible scars on Maunakea. What plans are in place that would assure no scars are left on Maunakea?

Mahalo for the opportunity to provide these comments.

LEIMOMI KHAN

President

Stakeholder Type : Group - Association of Hawaiian Civic Clubs

3

The TMT Observatory Corporation firmly believes the two cultures can coexist and be mutually respectful. As such, the commentor's ideas have been incorporated into Section 3.2.4 of the Final EIS as follows:

•"Have an open door policy so that TMT's outreach management can be contacted by the Native Hawaiian "community to discuss issues.
•Initial and then annual or as-needed tours of the TMT Observatory will be provided, with the Native Hawaiian community invited at least two weeks prior to the tour.
•"TMT will request permission to attend, on a quarterly basis, meetings of the Kahu Ku Mauna Council. A TMT representative will be available to review cultural impact issues, should there be any, related to the Project."

TMT considered having a Kahu Ku Mauna representative on policy groups; however, we believe it will be more beneficial to have them review and comment on policies drafted by TMT, as required by many management actions outlined in the CMP.

4

Your comments, together with the CIA, which has been completed and included in Appendix D of the Final EIS, have been considered in the prodution of the discussion in Section 3.2 of the Final EIS.

5

Thank you for the recommendation. The Project and UH feel it is important to include OHA in discussions related to actions and leases on Maunakea. Should a new lease be sought by UH, OHA would be considered a stakeholder in the process and would be consulted during negotiations.

6

Decommissioning of the TMT Observatory is discussed in Sections 2.7.4 and Section 3.15 of the Draft EIS. As stated in Section 3.15, page 3-143, "In compliance with CMP Management Action FLU-3 and in order to aid in the eventual restoration of the area, the TMT Observatory site would be documented prior to the start of construction. This would be accomplished with high-resolution surface and aerial photography to document existing and natural conditions." Also, as stated in Section 2.7.4, page 2-24, "included in the design of the TMT Observatory and Access Way (is the) storing of 99 percent of excavated material on those sites for reuse during site restoration."
The design of the TMT Observatory and Access Way has been refined since the completion of the Draft EIS. This has resulted in changes to the volume of cut and fill required, but the balance of cut and fill has been maintained to allow reuse during restoration.
Section 2.7.4, page 2-23 and 2-24, state that "The level of restoration to be done at the TMT Observatory would be determined at a later time and would be determined based on an environmental cost/benefit analysis overseen by OMKM, Kahu Ku Mauna, and other stakeholders."
Therefore, it is not known what level of decommissioning will be employeed, but mitigation measures (the photo documentation and storage of material for reuse) will be employeed so that the restoration could result in as small a visible mark on Maunakea as possible following site decommissioning.

HAWAIIAN CIVIC CLUB
OF KONA · KUAKINI

July 3, 2009

University of Hawaii at Hilo
Office of the Chancellor
200 W. Kawili Street
Hilo, Hawaii 96720-4091

RE: **Thirty Meter Telescope Draft EIS Comment**

Aloha!

1 Kuakini Hawaiian Civic Club wholeheartedly supports the Thirty Meter Telescope project looking to build atop Maunakea. Our members understand the importance of such a project, not only to our island, but to the State of Hawaii and the entire nation.

Studying the stars, known to many as astronomy, but to Native Hawaiians, 'oihana kilokolo is our link to the past. It is how we arrived here. And it is what connects us to our ancestors.

We are responsible for what we leave our keiki for generations to come. Within Kuakini Hawaiian Civic Club, we strive each year to fund a scholarship for island keiki who want to go on to college. We know that higher education will provide each generation more opportunities for better careers. TMT's community benefit of $1 million dollars a year toward education programming for Big Island keiki is wonderful and we applaud you for it.

Regarding the archaeological and cultural sections of the DEIS, it is good that the proposed site has no ancient sites within the proposed TMT area or within 200 feet of areas that might be disturbed by the project. We see this as being culturally responsible and we support this.

2 The Final EIS needs to have more interviews with Native Hawaiians. There were not enough people interviewed to give you a fair opinion of how we as Hawaiians see culture and science thriving together on Maunakea. If you need, our club members would participate in cultural interviews.

We wish this project all the best because of what it can bring to Hawaii. Science, education, jobs for our people and the opportunity to have the world's most advanced telescope on Maunakea would please our kupuna. King Kalakaua certainly agreed. His foresight as a leader and bringing 'oihana kilokolo to Hawaii certainly serves as an example for all of us to follow.

Mahalo,

Gene Leslie, President

75-5815 Mamalahoa Highway • Holualoa, Hawaii 96725

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

2
Since the completion of the Draft EIS, the Thirty Meter Telescope (TMT) Project has continued to work on and develop the Cultural Impact Assessment (CIA) through additional interviews with community members and review of past studies. This work is documented in Section 3.2 and Appendix D of the Final EIS.

MALAMA O PUNA
P. O. Box 1520
Pahoa, Hawai 'i 96778
(808) 965-2000
www.malamaopuna.org * malamaopuna@yahoo.com

Preserving Hawai 'i's precious natural heritage

June 18, 2009 Testimony on
30 Meter Telescope for Mauna Kea

I am testifying today as President of Malama O Puna, a Hawai'i nonprofit environmental corporation with approximately 1,450 member households. I will not be commenting on the Native Hawaiian issues, which are many, and leave that to those more competent and affected than I.

On Feb. 12, 1984 the BLNR gave the UH permission to pave the access road and establish a power line to service the observatories (pl) already there. This permission was based on the condition that the UH provide a plan for approval to manage the various recreational and scientific uses of the mountain. Note that there were already observatories up there and the UH had no plan in place at the time. As a matter of fact, it was not until the beginning of this year that the Comprehensive Mgmt. Plan was adopted – and it is unarguably flawed. Even the BLNR agreed it was flawed and added conditions. It took 25 years for our university to come with a flawed plan! The shame of it!

1 "Currently there are 11 observatories and 1 separate telescope within the Mauna Kea Science Reserve." All were allowed by the UH to be built without a CMP. Repeated audits by Marion Higa have pinpointed problems, inconsistencies and outright violations by UH in its management of the summit, and these still have not been addressed. UH has either downplayed them, denied them or ignored them. So why should we believe that a CMP or an EIS that vests authority for the summit in the UH
2 will adequately protect the valued cultural and environmental resources there? Why should we believe that impacts will really be mitigated? Why should we believe that compliance requirements will be effective and enforced? Why should we believe that future negotiations regarding the carrying capacity of the mountain, benefits to the community, decommissioning and site restoration requirements will be acceptable to the public as opposed to the astronomy community? And why should we NOT believe that this series of meetings are only being held because they are required by law, while the decision to build the 30 meter telescope here has already been approved behind closed doors? Your credibility is sorely lacking.

1
UH Hilo and the Thirty Meter Telescope Observatory Corporation understand there is a long history of what some have termed "mismanagement" of Maunakea. These views are acknowledged, but they do not address the Project's potential impacts on the environment evaluated in the Draft EIS.
UH and the Office of Mauna Kea Management (OMKM) have prepared the Comprehensive Management Plan (CMP) and it has been approved by the Board of Land and Natural Resources (BLNR). UH and OMKM are committed to implementing this CMP and the Project is committed to complying with it, as detailed in the Draft EIS. The CMP has been prepared to improve management of Maunakea.
In addition, as outlined in Chapter 1 of the Draft EIS, the TMT Project has worked hard to complete the HRS Chapter 343 process in a transparent manner providing many opportunities for community input.

2
The commentor's views are acknowledged, but they do not address the Project's potential impacts on the environment evaluated in the Draft EIS.
The Draft EIS outlined numerous proposed mitigation measures. The Final EIS outlines refined and additional measures the Project has committed to based on comments received during the Draft EIS comment period. These mitigation measures will be enforceable to the extent that they will become conditions of the Project's Conservation District Use Permit (CDUP) and requirements included in the sublease agreement. The Project has not been approved behind closed doors. The public meetings conducted during the Draft EIS comment period were not required by law, but the Project chose to hold the meetings to facilitate the collection of comments and to discuss the Project with the community.

3 The cover page of the DEIS states that it has been prepared pursuant to HRS Ch. 343. However, there is federal money (National Science Foundation) involved in the project, which should trigger a National Environmental Policy Act (NEPA) EIS, which is much more stringent and comprehensive than a State EIS. Therefore, the current DEIS under discussion tonight is illegal and this alone could be the subject of a contested case hearing or even a lawsuit.

4 For example: this DEIS only briefly refers to decommissioning of telescopes and site restoration, but not in any substantive way – it only puts the details off into some 5 nebulous future time when, of course, public input will not be required. There have been no studies to determine a carrying capacity for the summit, and this critical issue is totally 6 missing. Similarly, the environmental analyses for the mid-level areas are only discussed 7 in a minor degree. A NEPA EIS would require considerably more detail. In listing the supposed benefits of the project to our community, nowhere is a dollar figure given for rent or for the various educational programs – we are told that these will not be available 8 until the Final EIS, when it will be too late for us to comment. Compliance requirements and penalties for noncompliance are also not spelled out, but left for the university to negotiate at some future time. If contractors are to use Best Available Control Technology (BACT) to reduce impacts – what if this is insufficient to achieve the desired level of "acceptable" impacts? What is "acceptable"? The DEIS is silent on this as well.

And yet, the document tells us: "The Project would not significantly increase or reduce the **existing level of cumulative impacts due to all past and present activities, which in some cases is significant** [emphasis mine]." In other words, it admits that there are significant cumulative impacts caused by none other than the UH which has mismanaged the summit for all these 25+ years and has now been given the opportunity to REALLY botch things up.

9 The DEIS lists a whole array of impacts expected during the construction phase alone, yet claims that these are only temporary (8 years) and "less than significant". If the cumulative impacts of all past and present activities are significant, then how can adding another bunch of impacts day in and day out for 8 years be "less than significant"? This defies logic and common sense!

10 Nowhere in the entire document is there a list of words and terms used and definitions given – unlike what is normally found in a NEPA EIS. Thus, throughout this DEIS is found the phrase "less than significant" repeatedly. What does this mean? What does the UH consider to be significant? Would Big Islanders define it the same way? This seems to be more of a wishful-thinking value judgment than a well-defined and statistically-based scientific evaluation. How much less is 'less than significant'? Just a little bit less? A lot less? How much is 'significant'? We are not told. The phrase is therefore totally meaningless gobbledygook, inserted frequently to make the reader comfortable with the project. But of course, constant repetition does not make something true. This is another one of the many flaws in the document.

3
The TMT Observatory Corporation has received limited funding from the National Science Foundation (NSF) for the development of technology that can be used on other telescopes. With respect to the construction, operation, or decommissioning of the Thirty Meter Telescope Project, no Federal agency, including the NSF, has provided or pledged funds for such construction, operation, or decommissioning. Nor is TMT required to obtain a permit, license or other approval from the United States prior to the construction or operation of the Thirty Meter Telescope (TMT) Project. Federal funding alone does not trigger an obligation on the part of the United States to comply the National Environmental Policy Act (NEPA) or the National Historic Preservation Act (NHPA). For example, the United States' obligation to undertake an environmental review under NEPA is triggered only if a "major Federal action" may significantly affect the environment. Similarly, the United States' obligation to comply with the NHPA is triggered only if there is a federal "undertaking" which is defined as an activity or project carried out under the jurisdiction of a federal agency. The United States' obligation to comply with NEPA and the NHPA has not been triggered with respect to this Project.

4
Decommissioning of the TMT Observatory is discussed in Section 2.7.4, pages 2-23 to 2.24, of the Draft EIS. As stated in that section, the Thirty Meter Telescope Project will comply with the Management Actions SR-1, SR-2, SR-3, and FLU-3 outlined in the approved CMP. Decommissioning is also discussed in Section 3.10.4 of the Draft EIS, page 3-119, and Section 3.15 of the Draft EIS, in particular page 3-143 of that section. These sections address site cataloging for future restoration, funding of future decommissioning and restoration, and the process that will be used to select the level of site restoration, among other details.
The CMP states that "The decision as to which level [of decommissioning and restoration] is executed will be determined after careful analysis of the impacts of each level and shall be approved by OMKM, DLNR, University, and the observatory."
Based on comments received during the Draft EIS review period, Section 2.7.4 of the Final EIS has been updated to indicate "TMT is committed to preparing the necessary plans, such as the SDP, SDRP, and SRP, in accordance with the general timeline presented in the Decommissioning Plan and providing an opportunity for the public to comment on the plans."

5
As outlined in Section 8.1 of the Final EIS for the 2000 Master Plan, the carrying capacity of Maunakea for observatory development is large but difficult to define precisely. Existing Master Plans and Management Plans provide for observatory development to well less than the carrying capacity of Maunakea; therefore, the carrying capacity is not a relevant point of discussion for the TMT Observatory and does not address the Project's potential impacts on the environment evaluated in the Draft EIS.

6
The TMT Mid-Level Facility and/or Hale Pohaku is discussed in Sections 3.2 through 3.14 of the Draft EIS. As discussed in Section 1.5 of the Draft EIS, in accordance with HAR 11-200, "the emphasis of the environmental analysis in this Draft EIS is placed on the TMT Observatory and Access Way below the summit of Maunakea due to this area's rare and unique resources ... Other areas that would be affected, such as areas within and near Hale Pohaku ..., are also discussed, but to a lesser degree unless a potential significant impact is identified."
As discussed above, NEPA has not been triggered by the Project.

11 We are told that Access Way Option 3 would also displace some "good Wēkiu bug habitat, but, if selected, a Habitat Restoration Plan would be prepared and implemented to compensate." Note that this Habitat Restoration Plan, like all the others mentioned, is at some future unspecified time. We don't know if such a plan is even possible – if the bugs could be moved and still thrive in another area, if such an area
12 could conceivably be restored so that the bugs can succeed. This is an endangered species we're talking about, found nowhere else on earth but on the summit of Mauna Kea, and they are talking about the possibility of doing construction in the middle of their critical habitat on the off chance that they could do so without violating the Endangered Species Act, that they understand enough of the bug's biology and have sufficient skill in restoring this type of habitat (which has never been done before, so they have no experience at all and only, perhaps, some intellectually satisfying computer simulations). This is not only incredible hubris, but a real twisting of reality. It insults our intelligence.

13 As a matter of fact, the entire DEIS reads more like a Madison Avenue sales promo than a scientific study. That, in itself, is a major flaw. It should therefore be rejected out of hand and a NEPA EIS be commissioned and executed by a neutral competent party before proceeding any further. Or just move the project to Chile where you won't have to deal with rules, truth, community opposition and other such pesky inconveniences.

Disrespectfully submitted,

René Siracusa
President
MALAMA O PUNA

7
Appropriate sections of the Final EIS, including Sections 3.9 and 3.10, have been updated to provide the details available regarding the lease and benefit packages discussed in the Draft EIS. However, the only package with a set monitary input is the Community Benefit Package (CBP), which is discussed in Section 3.9.4 of the Final EIS. An annual monitary threshold for the Workforce Pipeline Program (WPP) has not been established because it is likely to vary, depending on oportunities, projects, and Project needs. In addition, the negotiation of the sublease between TMT and UH has not been completed, and will not be completed until the Project obtains a Conservation District Use Permit (CDUP).
The commentor's views about "compliance requirements and penalties" are acknowledged; but they do not address the Project's potential impacts on the environment evaluated in the Draft EIS.

8
As stated in Section 3.15, page 3-144, of the Draft EIS, "The potential construction and decommissioning phase impacts are evaluated within the framework of compliance with all applicable rules, regulations, and requirements." The rules, regulations, and requirements would include requirements in the CMP and permits obtained by the Project, including the Project's CDUP. The various rules, regulations, and requirements contain criteria that generally identify what is "acceptable." If best management practices (BMPs) being employed are not sufficient to achieve compliance, they will be modified and improved so that the Project does comply with applicable rules, regulations, and requirements.

9
Construction phase impacts, which are short-term relative to operation-phase impacts, are discussed in Section 3.15 and cumulative impacts are discussed in Section 3.16. The cumulative impacts are assessed based on long-term, operational-phase impacts, which, for the Project, are discussed in Sections 3.2 through 3.14. Section 3.16.6, page 3-193, of the Draft EIS states "In general, the Project would add a small increment to the level of cumulative impact, but would not tip the balance of any specific cumulative impact from a less than significant level to a significant level." Therefore, where a significant adverse cumulative impact exists today, related to cultural resources for example, the cumulative impact would remain a significant adverse cumulative impact should the Project proceed. Similarly, where a less than significant cumulative impact exists today, related to water resources for example, the cumulative impact would remain a less than significant cumulative impact should the Project proceed.

10
The term "significant" is defined for each discipline discussed in Chapter 3 (Sections 3.2 through 3.14) in a subsection titled "Threshold Used to Determine Level of Impact." That subsection (Section 3.2.2, for example) provides a threshold for significance, based on significance criteria listed in HAR 11-200-12. A "less than significant" impact is any level of impact below the threshold outlined and a "significant" impact is any level of impact greater than the threshold.

11

Section 3.4.3 of the Draft EIS discusses potential impacts to biological resources. On page 3-41 it is stated that "Although the [Access Way] Option 2 or 3 impact is evaluated to be less than significant, to comply with the CMP (Management Action FLU-6), the Project would prepare and implement a Habitat Restoration Plan to compensate for the loss of Type 3 Wekiu bug habitat...". CMP Management Action FLU-6 states "Incorporate habitat mitigation plans into project planning process."

Based on comments received during the Draft EIS public review period and the issues associated with the feasibility and effectiveness of any habitat restoration approach, the planned mitigation measure for the loss of sensitive habitat has been modified. The Project will no longer prepare or implement a Habitat Restoration Plan as outlined in the Draft EIS. As detailed in Section 3.4.3 of the Final EIS, the Project is in comliance with Management Action FLU-6 through (a) Project planning to avoid impacts, (b) monitoring of arthropod activity in the region of the Access Way's disturbance of cinder cone habitat prior to, during, and for two years following the construction of that portion of the Access Way, and (c) working with OMKM on the development and implementation of a habitat restoration study.

12

As stated in Section 3.4 of the Draft EIS, on page 3-42, "One species that is currently a candidate for listing, the Wekiu bug...", therefore, it should be noted that the Wekiu bug is not listed as a threatened or endangered species.

Page 3-42 continues, "Wekiu bugs were not found in Area E during studies for the Project, but were found during Project studies in the Spring of 2009 in Type 3 habitat along Access Way Options 2 and 3. Wekiu bugs are known to occur on a number of cinder cones above an elevation of 11,700 feet; they are most common in Type 2 habitat but are also known to frequent Type 3 habitat." The Project is, therefore, not "talking about the possibility of doing construction in the middle of their critical habitat".

Refinement in Project design since the publication of the Draft EIS indicates that the Project will, at most, impact approximately 0.23 acre of Wekiu bug Type 3 habitat. Please see Section 3.4.3 of the Final EIS for additional details regarding potential Project impacts on biological resources.

13

Acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

Wednesday, June 17, 2009

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(Hawaiian language transcribed phonetically where necessary.)

MR. FERGERSTROM: I'm Hanalei Fergerstrom from Puna, on the Big Island. I am a spokesperson for the Temple of Lono, and we're the ancient religious practitioners. I'm not really sure where to start.

Mauna Kea is a temple. It's one of the most sacred spots in Hawaii, the Temple of Lono. It is the transfer station for the gods. It's the transfer point between heaven and earth. It is the responsibility of the Temple of Lono to care for that area.

We have been engaged in testimony regarding the development of Mauna Kea for twenty-something years now. It seems to be almost absurd that no matter how we posture ourselves and how we try to explain ourselves, it seems to fall on deaf ears, or at least it falls on ears that are unconcerned as to what our position is.

1 This projected Thirty Millimeter Telescope has additional problems relating to our religion. And that has to do with what is known as a view plane. And this is illustrated in the PASH decision. This view plane is a very hard one to describe because you'd have to be part of the religion to really understand the depth of it.

1
Potential visual impacts are discussed in Section 3.5.3, pages 3-59 through 3-74, of the Draft EIS. The visual analysis in this section indicates, and Figure 3-7 on page 3-61 in particular illustrates that the TMT Observatory would not be visible from the summit of Maunakea (Viewpoint 16; the summit of Kukahauula/Puu Wekiu). The Draft EIS includes a number of photo simulations from populated areas around the island from which the TMT Observatory would be visible.
In response to comments on the Draft EIS, an additional photo simulation of the TMT Observatory has been included in the Final EIS. The new simulation illustrates the view of a person standing near the Keck Observatory and looking toward the TMT Observatory 13N site. In addition to the simulation, the following information has been included in Section 3.5.3 of the Final EIS, "...the TMT Observatory will add a substantial new visual element in the landscape that will be visible from viewpoints along the northern ridge of Kukahauula and by people as they travel within the northern portion of the summit region."

But it's a view plane that leads from Mauna Kea. The view plane goes from that northeast slope -- or actually northwestern slope of Mauna Kea that goes across to the island of Kauai and up to the island of Nihoa. And they have to do with the tracings of the sacred waters.

2 We stand in objection to the proposed TMT as well as the Comprehensive Management Plan created by the University of Hawaii as it is certainly very clear that it's self-serving and self-rewarding and takes very little consideration as to the impacts that was identified to the NASA EIS, that was done, I think it was, about seven years ago. Where that EIS made it very clear that there was significant and very damaging, adverse impacts happening on Mauna Kea as it is. And any further developments there will just add to the cumulative impact of the devastation that's already up there.

Now, for me it's very very difficult because I have an appreciation for science also. In fact, the Hawaiian people themselves are very very much into astronomy. We were navigating the largest body of water on earth while the Europeans were still falling off the edge. And I don't mean that to be funny. I mean it to be a point of reality that the sciences that we have here have been here for a long time, a lot longer than Western

2
The Final Environmental Impact Statement for the Outrigger Telescopes Project, Mauna Kea Science Reserve, NASA, 2005 (Outrigger EIS) was referenced in the Draft EIS as follows: Section 3.2.1, page 3-7; Section 3.2.6, page 3-25; Section 3.5.6, page 3-75; Section 3.7.6, page 3-91; Section 3.8.6, page 3-99; Section 3.9.6, page 3-104; Section 3.12.6, page 3-131; Section 3-13-6, page 3-134; and Section 3.14.6, page 3-140. An additional reference to the the Outrigger EIS has been included in Section 7.0 of the Final EIS. The TMT Chapter 343 EIS is in agreement with the Outrigger NEPA EIS when discussing the level of existing cumulative impact on Maunakea; the level of existing cumulative impact is discussed in Section 3.16.2 of the Draft EIS and identifies cumulative impacts to cultural, archaeological, biologic (in some zones), geologic, and visual resources to be substantial and adverse. When discussing potential project-specific impacts the conclusions in the Outrigger EIS and the TMT EIS may differ because the two project sites, Outrigger on a summit cinder cone and TMT on the northern plateau, are different and, therefore, have differing potential impacts.

man has been playing with these sciences.

The very thought that another culture, the Western culture, can come in and suddenly make itself to be of a greater service to mankind or of having a larger charge is almost -- it's unfathomable.

When the Hawaiians look into the heavens, they can identify every star that you see in the sky. They already have names for them. Those names have been there for hundreds of years. Now there are names of stars that you don't, or Western man hasn't even identified yet. Like they haven't yet found the Third Dipper. We always talk about the Big and Small Dippers. But there's a third one that we know of. And actually I guess you'd find it quite amazing that those who seem to be looking to answer scientific questions don't look to ask those who already have.

It's very disheartening to have to come to these hearings year after year after year. I've been working on Mauna Kea for twenty-something years now. I grew up on the mountain. I grew up when there was nothing up there. I grew up when there were sheep up there that people went up and hunted for food. They were eliminated for some preposterous idea of the Paliva(phonetic) Bird. But really what it was was to get people off the mountain so we couldn't see what was going

on up there.

Mauna Kea is of such great importance not only to the Hawaiian people, but to the world. And even these types of hearings that they have, the idea that you would actually expect some kind of intelligent testimony be put out in three minutes is preposterous. I don't know anybody who can identify anything that they're talking about in three minutes on any subject, quite frankly, let alone something as important and as deep and traditional as this.

And yet this seems to be the tone that has been with all the hearings that they've had regarding Mauna Kea. But it's not just Mauna Kea. It's the way the whole state has been moving. We'll have these hearings and we'll have three-minute testimonies and we'll count how many people are in the room and then we'll divide it by X amount of people and say so many were for it and so many were against. I have never yet seen testimony I see used in simple statistics.

So I am greatly offended that the state and the TMT has gone so far as to actually take out, or has actually taken to the public to ask their opinion on the sanctity of the mountain when it's -- this is not a popularity contest. It has to do with what is sacred to somebody and what is not. And to persons like myself it

3
As discussed in Section 1.2 of the Draft EIS, the Thirty Meter Telescope Project is complying with HRS Chapter 343 and HAR Title 11, Chapter 200. The commentor's views regarding the time allowed for comments at public meetings are acknowledged, but do not address the Project's potential impacts on the environment evaluated in the Draft EIS.
In an effort to provide further information to the commentor, HRS Chapter 343 and HAR 11-200 do not require "testimonial" style meetings be held to collect public comments. The Project held the scoping and Draft EIS review meetings to provide greater opportunity for the public to provide input and comment on the Project, even though such an effort was not required. During the 30-day scoping period and 45-day Draft EIS comment period there were multiple ways to submit input and comment on the Project, including:

- The website comment feature;
- The toll-free hotline where comments could be recorded;
- Direct mail to the chancellor of UH-Hilo; and
- Public meetings where the public oral comments were either captured by facilitators (during the scoping period) or recorded privately and written comments were collected.

Please refer to Sections 1.6 and 1.7 of the Draft EIS for more details regarding the input and comment opportunities.

4
The Draft EIS discloses potential environmental impacts pursuant to HRS Chapter 343. Section 3.2 of the Draft EIS discloses that some feel Maunakea is a sacred place and that the Project would have an impact on those that hold these beliefs.

is extremely sacred.

I'd like to say something a little bit more about that too. When other matters such as things like the Akaka bill is being discussed and Kau Inoa, the sign-up part, when they talk about Hawaiians, they talk about all the Hawaiians. They want to take this not only nationwide, they want to take it internationally, so we have the opinion of all the Hawaiians. But here we talk about the most sacred spot in the Pacific, and limit that thought to think that only people on the Big Island are concerned about it. Like nobody else has ever been concerned about Mauna Kea or has anything to say about it.

There is a termination period for the so-called science precinct up at Mauna Kea that is only about fifteen years away. And just economically speaking, it doesn't make economic sense to put up such a monstrosity at such great expense for such a short life unless it is clearly, and I believe it is clearly their intent to somehow extend their lease beyond what was permitted in the first place.

We have to believe that. Because when we first started this, this deal with Mauna Kea, there was one telescope. And then it became three. Now we're looking at thirteen. They still want to describe eleven. But

5
Announcements regarding the publication of the Project's Draft EIS were placed in a number of publications that reached beyond the State of Hawaii, including the OEQC Bulletin, newspapers, and the OHA newsletter. The Project did receive comments from people on the U.S. mainland and Europe.

6
Thank you for your participation in the process. However, the comment does not address the Thirty Meter Telescope Project's potential impacts on the environment evaluated in the Draft EIS.
Information about the lease is provided in Section 3.10.3, page 3-120, of the Draft EIS as follows: "It is very probable that TMT, along with the existing observatories, would request UH seek a lease extension beyond 2033." It is not within the scope of this EIS to speculate on the nature or outcome of those future lease negotiations, which would include a master lease negotiation between DLNR and UH and the subsequent sublease negotiation between UH and TMT.

we're looking at thirteen. And we have I think thirty-six more in the line.

Now, I certainly understand and am very dismayed to know that TMT and even the Keck telescopes, the satellites, are only a large part of a flood gate that once released, can open the mountain up to all sorts of terrible things.

I do think that the TMT representatives are far more open to dialogue with the community than has been previously seen with other telescopes, but there's still some very very big problems here. First of all, there's a trust relationship going on here. I'm a Hawaiian. And because I'm a Hawaiian, believe it or not, through racial profiling, I get to be the ward of this thing, and everybody else gets to be the master. And so how do I protect what is mine when the master says or the trustee says that he can do as he pleases? He can even break the law. Like he can desecrate without recourse.

There are matters like the First Amendment that come to mind to me, religion matters and free speech matters. And it also brings up another great big ponder, and that's equal protection of the law. How am I, a lowly Hawaiian, a person, one of few, who practices the ancient religions, how am I protected? How am I afforded redress when it's becoming a popularity contest according

to how much money we can throw around and how many guys you can get out to wear your little badges? Because that's what's happening.

You have all your science programs. They have all these great Expos. They've got -- I mean, they've even got buttons made for everybody. But not one thing about why we continually protest for twenty years. I don't think anybody likes to have that feeling that even after twenty years, you don't really make a difference. It's a hard thing to take. It's a very hard thing to take. Especially when you see the most sacred spot on earth being destroyed at the will of men.

There is nothing, absolutely nothing that cannot be found in the universe, that cannot be found that's from up there, higher than Mauna Kea, such as the Hubble. The amount of money they spent for the last twenty years fighting us they could have put up three more Hubbles. So whatever he tells me about the value of it from a scholastic standpoint, I'd go, well, it's fine if it was just scholarly things that we're pursuing. But that's not what's really happening here.

7 These are private economic concerns that are using public trust lands for personal gain. And that is illegal. The way we have been treated, and I say that from experience, because I was involved with the Keck

7
As discussed in Section 3.10 of the Draft EIS, the lands of the summit region on Maunakea are classified by the State of Hawai'i as a conservation district, resource subzone, and is managed by the Department of Land and Natural Resources (DNLR) Office of Conservation and Coastal Lands (OCCL). The Thirty Meter Telescope Project has been coordinating with the DLNR-OCCL in regards to land use within the conservation district. Hawai'i Administrative Rules (HAR) Chapter 13-5-13 provides, "The objective of [the conservation district resource] subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas." HAR Chapter 13-5-24 specifically includes "R-3 Astronomy Facilities; (D-1) Astronomy facilities under an approved management plan." as one of the "identified land uses in the resource subzone."

telescopes and the opposition to it, as Kealoha Pishodi stated earlier. Her and several of us were the contestants against Keck. And we fought NASA in court. And so for ten years we've won every battle. Doesn't stop anybody from doing anything. And this is the problem. I mean where is the justice? Where is the Equal Protection Act?

I mean, we've even fought NASA, and they've lost. So why are we on this page now? Again and again and again. You know, people like myself, we don't have money. We don't have these millions of dollars to throw around and make bumper stickers for everybody and have lunch and everything else because we don't have that kind of money. We can't even afford rent. But we have to figure out a way to come down and give our three-minute testimonies. And there's been times when I've driven six hours to give fifteen-minute testimony. Not exactly a good scorecard.

8 I would like to think that this is the end of it. That if the TMT were to come in, that it would be the door and it's closing for any more development on Mauna Kea. That would make it a little more palatable for me. But I don't see any of that being talked about. I don't see any of those stopgap measures being put in. I see only the lure of money and for the immediate gain

8
The Thirty Meter Telescope Project is the construction, operation, and future decommissioning of a 30-meter telescope and associated infrastructure, as defined in Chapter 2 of the EIS. Any development aside from the Project is out of the scope of this EIS process. Nevertheless, the following information is provided to address the comment: The management and development within the Mauna Kea Science Reserve (MKSR) is the responsibility of University of Hawaii (UH) and the Board of Land and Natural Resources (BLNR). UH has prepared a number of master plans and management plans over the years and the BLNR has approved a number of Conservation District Use Permits (CDUPs). The Project is complying with the 2000 Master Plan through its location within Area E identified as the future location of a next generation large telescope (NGLT) in the 2000 Master Plan. The 2000 Master Plan also established the Astronomy Precinct and potential development areas within the precinct, including A, B, C, D, E, and F.

by the construction people. Sure they get a few jobs, you know.

There's a lot of talk about how much has happened since the Office of Mauna Kea Management, which is part of the University of Hawaii, has done since they've been there. And I can tell you one of the things that has been clearly observable is that there's thirty thousand more people up there than necessary since they've come there. So I'm glad everybody thinks they're doing such a great job. But it is because of them that Mauna Kea is more exploited now than it had been in the past.

And for me, that is the dangerous thing. It's when you have every Tom, Dick, and Harry, who has absolutely no business in these sacred areas, walking around because they have a ticket, because they paid admission or they rented a car or they got somebody's permission to go up there in places you're not supposed to be. It's kind of like telling me that, you know what, let's put a Buddhist temple on top, or let's put up a monastery on top of Mount Fuji, or let's do some Buddhist temple. You follow what I'm trying to say? It's the absurdity that because of a few who have many, who have much, can afford to exploit those who do not, they do at great peril.

So anyway, once again, I'm in opposition to the Thirty Millimeter Scope, and I'm in certain opposition to the Comprehensive Management Plan created by the Office of Mauna Kea Management and the University of Hawaii. I believe that there are many laws that are being broken simultaneously, and that it is not that anybody is not aware of it. It is that we are not being afforded equal protection under the law. And therefore, I cannot support further desecration of the most sacred place on earth.

9

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Acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

Statement of
The
Royal Order of Kamehameha I
Heiau O Mamalahoa

Aloha Napo`e O Hawaii ka pae aina and Malahini o Amelika

Greetings and Salutations of Aloha and Aloha Aina from my Ali`i Aimoku Ali`i Sir Paul Neves K.G.C.K., of The Royal Order of Kamehameha I. My name and rank are Alihikaua Ali`i Sir Kalikolehua Kanaele K.C.K., Senoir adviser for Ali`i Aimoku Ali`i Sir Paul Neves K.G.C.K.

The Royal Order of Kamehameha I by its commissioners Mauna Kea Anaina Hou and by public Statements, at contested case and court hearings have declared no more development on/in Mauna Kea.

1 The previous Federal EIS have stated irreparable harm and damage, done and more damage and harm will be continued by more development of Mauna Kea. We don't believe that the EA called the State EIS findings are correct, like its previous counter part EA for the Keck outriggers have considerable exaggerations, misrepresentation, which showed up when a real Federal EIS was done, forced by the Federal court.

2 There have been approximately over Hundreds of millions of damage to Mauna Kea by development already and more monetary damages will be forthcoming. The Royal Order of Kamehameha I, with other Aloha aina will be contesting the development of TMT and the payment of damages of harm to our sacred Mountains and lands.

Again Aloha and aloha aina to all

Alihikaua Ali`i Sir kalikolehua Kanaele K.C.K.
HCR 3 BOX 13124
KEAAU HAWAIIAN Kingdom

1
The Final Environmental Impact Statement for the Outrigger Telescopes Project, Mauna Kea Science Reserve, NASA, 2005 (Outrigger EIS) was referenced in the Draft EIS as follows: Section 3.2.1, page 3-7; Section 3.2.6, page 3-25; Section 3.5.6, page 3-75; Section 3.7.6, page 3-91; Section 3.8.6, page 3-99; Section 3.9.6, page 3-104; Section 3.12.6, page 3-131; Section 3-13-6, page 3-134; and Section 3.14.6, page 3-140. An additional reference to the the Outrigger EIS has been included in Section 7.0 of the Final EIS. The TMT Chapter 343 EIS is in agreement with the Outrigger NEPA EIS when discussing the level of existing cumulative impact on Maunakea; the level of existing cumulative impact is discussed in Section 3.16.2 of the Draft EIS and identifies cumulative impacts to cultural, archaeological, biologic (in some zones), geologic, and visual resources to be substantial and adverse. When discussing potential project-specific impacts the conclusions in the Outrigger EIS and the TMT EIS may differ because the two project sites, Outrigger on a summit cinder cone and TMT on the northern plateau, are different and, therefore, have differing potential impacts.

2
Acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

RECORD DETAIL

First Name : Vivian
Last Name : Landrum
Submission Date : 07/06/2009
Submission Content/Notes : July 6, 2009

TO: University of Hawai'i at Hilo
Office of the Chancellor
200 W. Kawili Street
Hilo, Hawai'i 96720-4091

FROM: Kona-Kohala Chamber of Commerce

SUBJECT: Support of Proposed Thirty Meter Telescope on Hawaii's Big Island

Aloha,

My name is Vivian Landrum, President/CEO of the Kona-Kohala Chamber of Commerce (KKCC). KKCC represents over 650 business members and is the leading business advocacy organization on the west side of Hawai`i Island. KKCC also actively works to enhance the environment, unique lifestyle and quality of life in West Hawai`i for both residents and visitor alike.

1 KKCC wishes to express our support for the Thirty Meter Telescope on Hawaii's Big Island. This venture will create exciting educational opportunities for our children; support our local economy with much-needed jobs, not only with short term construction, but also long-term high tech positions; and add another component to the allure and prestige of our island.

The TMT promises to bring economic opportunities to our island. The construction phase alone will employ local workers and could last for up to ten years. The project office will require engineers, administration, project management, financial, information technology and service technicians. Operation of the TMT will utilize approximately 130 employees. This will bring a much-needed boost to our local economy.

Opportunities for educational connections between our local community and the TMT are boundless. Support for, and the opportunity for participation in, STEM studies would be tremendous. The placement of another world-class telescope on this island could only raise our reputation as an outstanding destination for both visitors and residents alike.

Opponents of the project have voiced their concerns regarding the visual impact the telescope may have. We believe these concerns have been adequately addressed with the overall design and physical placement of the telescope. Utilizing reflective materials and natural components in the construction will help ease the telescopes appearance while the anticipated placement should allow for little visibility from the majority of the island. While cultural concerns need to be recognized and addressed, it is felt there is a place for both to coexist on Mauna Kea.

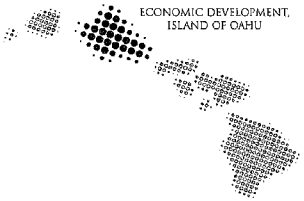
Mahalo for the opportunity to comment on this exciting project.

Mahalo,

Vivian Landrum
President/CEO

Stakeholder Type : Group - Kona-Kohala Chamber of Commerce

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.



June 25, 2009

HAND DELIVERED

Sandra Dawson
TMT Site Studies Manager
TMT Observatory Corporation
1200 East California Boulevard
Mail Code 102-8
Pasadena, California 91125

REF: Support for the Thirty Meter Telescope and the Draft Environmental Impact Statement

Aloha Mrs. Dawson!

Enterprise Honolulu, the O'ahu Economic Development Board, enthusiastically supports the Thirty Meter Telescope (TMT) project to be sited here in Hawai'i, and commends the TMT organization for the conscientious progress that is being made with the Draft Environmental Impact Statement and the commitment shown toward community engagement locally.

The project's objective is to advance human understanding and knowledge, to see where and what humankind has never seen before. The magnitude of this project is placed at the highest level of national importance for discovery of new science and fresh perspectives of the cosmos, origins and destiny.

1 The direct benefits of the proposed TMT project in Hawai'i are immense, primarily related to education and employment opportunities and direct contributions to the local and state economies. Providing TMT is sited here in Hawai'i, the project will create a positive multiplier effect of two to three times the investment made into the local economy, plus additional ancillary clean high technology industries and intellectual property opportunities supporting the TMT project.

Just two days ago, approval was reached by the Board of Geographic Names to return the rightful name to the summit of Maunakea namely: ***Pu'u Kūkahau 'ula*** – this is yet another positive step of the progress being made to make things right for this special place.

Our investors, contributors and Board of Directors are comprised of many of the largest statewide organizations, corporations and employers and believe strongly in the future of innovation in our state. Astronomy in Hawai'i, has the distinction of being the finest in the world, yes, we do have the finest site.

We ask that the Thirty Meter Telescope Board of Directors make the right choice and agree to site the TMT project here in Hawai'i.

Mahalo a nui loa

'O wau nō me ka ha'aha'a

Mark McGuffie

cc: Board of Directors



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737 Bishop Street, Suite 2040, Honolulu, Hawaii 96813 • 808-521-3611
Fax: 808-536-2281 • info@enterprisehonolulu.com • www.EnterpriseHonolulu.com

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

Hawai'i Island Chamber of Commerce

106 Kamehameha Avenue
Hilo, Hawai'i 96720
Phone: (808) 935-7178
Fax: (808) 961-4435
E-mail: exec@hicc.biz
www.hicc.biz

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July 7, 2009

Comments in Support of the Thirty Meter Telescope Draft Environmental Impact Statement

Dear Chancellor Tseng:

The Hawai`i Island Chamber of Commerce supports the Thirty Meter Telescope (TMT) Draft Environmental Impact Statement (EIS). It is thoroughly researched, respectful of cultural and archeological concerns and careful in its consideration of the environmental effects of putting a telescope on Maunakea. The proposed action was created after extensive efforts to communicate with representatives from all walks of life and truly reflects an effort to unite cultural, scientific, economic and environmental interests.

I am the Executive Officer of the Hawai'i Island Chamber of Commerce, an organization comprised of over 360 businesses and 730 member representatives. Our Chamber strongly supports the TMT coming to Hawai`i Island. Our members see the TMT as an important part of our island's business community to ensure the strength of our economy. We believe that the TMT Board will find our business community ready and eager to work with them to connect all the people of our island, finding a way to respect all religious, cultural, historical, scientific and recreational needs of our community.

I offer specific comments that may improve the Draft EIS:

1 Cultural Impact Assessment: We believe that the EIS may be improved by expounding on the limited findings about the cultural impact of the TMT. A more extensive representation of the indigenous Hawaiian community would provide a better and more meaningful Cultural Impact Assessment. In particular, interviews need to be conducted with more than just thirteen people. The EIS also will benefit from making a clear commitment to preserving Hawaiian heritage and culture as it pertains to the mountain. This may take the form of establishing archival and archeological outposts that preserve the cherished relationship between the Hawaiian people and Maunakea. Establishing a partnership with state and local cultural preservation organizations is just one example of the indirect benefits that reach beyond the astronomy, construction industry and labor advantages.

2 Biological Assessment: As a scientist, I feel qualified to address the biological assessment portion of the EIS. It is my opinion that the TMT EIS takes into account the environmental concerns and will educate construction workers and employees on the status, condition, diversity and protection of the natural resources present on the mountain. TMT will minimize the introduction of invasive species through materials control and reduction. The EIS specifies that a biologist will have oversight of the building process. I would hope that TMT would partner with the University's biology and ecology programs so that our students may get hands-on experience. This is another example of indirect community benefits that exceed the obvious ones to the overall economy.

1
Since the completion of the Draft EIS, the Thirty Meter Telescope (TMT) Project has continued to work on and develop the Cultural Impact Assessment (CIA) through additional interviews with community members and review of past studies. This work is documented in Section 3.2 and Appendix D of the Final EIS.

2
Thank your for your input. TMT will consider partnering with UH Hilo's biology and ecology programs at appropriate times during construction and operation.

Hawai'i Island Chamber of Commerce

106 Kamehameha Avenue
Hilo, Hawai'i 96720
Phone: (808) 935-7178
Fax: (808) 961-4435
E-mail: exec@hicc.biz
www.hicc.biz

3 Workforce Pipeline Program: The educational and workforce opportunities provided by TMT are long lasting and significant. The Chamber looks forward to working collaboratively with TMT on their Workforce Pipeline Program, which would be established to identify the jobs TMT will need to fill, and develop programs to train students for those jobs. In their efforts to support learning and advancement for our keiki, TMT will support programs that strengthen the integration of language and culture with science and engineering.

4 The Chamber supports efforts to maximize the number of residents who will be employed by TMT. A series of workforce summits, job fairs and other events are successful methods for communicating with residents about job and educational opportunities. Some of the jobs will not be filled until the TMT is built, so it makes sense to attract students early on so that they ready themselves for these future employment opportunities. The Workforce Pipeline Program will benefit greatly by partnering with the Department of Education, the Community Colleges and the University.

5 Potential Benefits: The Draft EIS emphasizes that there are potential economic benefits to our community in the form of employment opportunities, educational opportunities and continuing the longstanding legacy of Maunakea as a portal to astronomy internationally. It is not fully clear, however, how TMT proposes to ensure that these proposed benefits will be secured for our island community. I recommend that TMT creates partnerships with business organizations such as the Hawai`i Island Chamber of Commerce to develop economic summits or forums through which these economic benefits may be better defined. It also is important to conduct a detailed analysis to ensure that any costs or financial burdens on the Hawai`i Island community are made transparent and evident.

6 Energy: The TMT Draft EIS recognizes that the decommissioning of the CSO facility will reduce the existing strain on HELCO's energy facilities. I encourage the TMT people to engage local alternate energy providers in coming up with innovative methods for improving the source of energy for TMT. As an individual who lives off-the-grid, I believe that there are existing methods for producing and harboring natural resources that will diminish the TMT's carbon foot print. Again, partnering with local business and educational organizations may be the most expeditious way to ensure that TMT becomes a leader in alternate energy usage.

In closing, I would like to emphasize that the TMT offers opportunities to our island community on many levels. We stand to benefit by improving our understanding of how we can build a sustainable future for our island. TMT is willing to be a partner with us and I believe they are not looking to come here to pull the wool over anyone's eyes. The comments that I offer in this letter may improve the EIS but at the end of the day, I trust the TMT people to do the right thing as they become a part of our community.

Mahalo,
Judi Steinman, PhD
Executive Officer

3
As discussed in Section 3.9.4 of the Draft EIS, a key element of the Workforce Pipeline Program will involve initiation of a TMT workforce committee including members from UH Hilo, HawCC, DOE, and Hawai'i Island workforce development groups. The Workforce Pipeline Program including the TMT workforce committee efforts will be coordinated by a dedicated program manager.

4
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

5
The Community Beneft Package (CBP) is one of TMT's committements to the island community. Section 3.9.4 of the Final EIS describe the CBP as: "The CBP will be funded by the TMT Observatory Corporation and will be administered via The Hawai'i Island New Knowledge (THINK) Fund Board of Advisors. The THINK Fund Board of Advisors will consist of local Hawai'i Island community representatives. The CBP funding will commence upon the start of Project construction and continue throughout the TMT Observatory's presence, so long as the CDUP is not invalidated or construction stayed by court order. As part of the CBP, the TMT Observatory Corporation will provide $1 million annually during such period to the THINK Fund; the dollar amount will be adjusted annually using an appropriate inflation index (the baseline from when inflation index will be applied will be the date of start of construction). It is envisioned that THINK Fund purposes could include:

- "Scholarships and mini-grants,
- "Educational programs,
- "College awards,
- "Educational programs specific to Hawaiian culture,
- "Educational programs specific to astronomy,
- "Educational programs specific to math and science, and
- "Community outreach.

"Educational initiatives will focus on K-5, 6-8, 9-12, and college. The program could include support for students to visit 'Imiloa, TMT, and other observatories."
It is intended that the CBP be part of a larger pool of funds from other astronomy, public, and private sources that would make up the THINK Fund to extend community reach.
At this early stage in the formation of the THINK Fund it is premature to have all of the programming, strategies, implementation, and measurements in place. The following preliminary information is provided to illustrate some of the ideas and directions discussed this far.
On an on-going basis it is estimated that 25% of THINK will be directed to endowment and 75% to yearly programming.

6
The energy consumed by the Thirty Meter Telescope Project will be provided by the HELCO island-wide electric grid, roughly 40 percent of which comes from renewable sources. The Project does not have any involvement in where or how the energy provided by HELCO is generated (renewable vs. otherwise). However, Section 3.12.4 of the Final EIS has been updated to include the following:
"Energy saving devices will be incorporated into Project facilities; plans include: solar hot water systems, photo voltaic power systems, energy efficient light fixtures controlled by occupancy sensors, efficient Energy Star rated electrical appliances at all facilities, and design with local knowledge to maximize the use of natural ventilation and lighting at the Headquarters."

HAWAII BUSINESS ROUNDTABLE
INCORPORATED

1003 Bishop Street • Pauahi Tower • Suite 2630 • Honolulu, HI 96813
Phone: (808) 532-2244 • Fax: (808) 545-2025

2009 JUN 26 AM 11:20

UH-HILO
CHANCELLOR'S OFFICE

June 23, 2009

University of Hawai`i at Hilo
Office of the Chancellor
200 Kawili Street
Hilo, HI 96720-4091

RE: Thirty Meter Telescope

1 The Hawaii Business Roundtable sends this letter in support of the Comprehensive Management Plan for Mauna Kea, and the Thirty Meter Telescope ("TMT") project.

The TMT project is a unique opportunity to bring jobs and economic prosperity to the Big Island at a time when the global economic outlook remains grim. The direct community benefits, the positive impact on education and the kinds of jobs that the project and the on-going operations of the telescope will bring to Hawaii is so critical.

We understand that the TMT project has made a commitment to hire as many local people as possible to operate the TMT observatory. This is coupled with a commitment to collaborate with our local education institutions to develop training programs so that our local students and residents can be qualified for those jobs.

We are impressed that this commitment will be supported by a full-time person devoted to establishing and implementing this program. In addition, we understand that TMT is committed to establishing and supporting local students through mentoring and scholarship programs.

For many years, the State has worked towards building a science, technology, engineering and math (STEM) sector. It is through projects like TMT that our communities, families and children will have the opportunities that STEM sector jobs can provide.

In summary, the Hawaii Business Roundtable supports the TMT project. We are hopeful that this will be yet a first of many steps towards revitalizing our economy and providing economic opportunities for many of our citizens on the Big Island.

Sincerely,

Kathryn Matayoshi
Executive Director

The Hawaii Business Roundtable is a statewide public policy organization made up of the chief executive officers and senior executives of companies headquartered or maintaining significant operations in Hawaii. The Roundtable's mission is to promote the overall economic vitality and social health of Hawaii.

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

The Pacific Resource
PARTNERSHIP

June 19, 2009

University of Hawai'i at Hilo
Office of the Chancellor
200 W. Kawili Street
Hilo, Hawai'i 96720-4091

RE: Commentary in Support of TMT DEIS

Dear Sir or Madam:

My name is Kyle Chock, Executive Director of The Pacific Resource Partnership (PRP) a labor-management consortium representing over 240 union signatory contractors and the Hawaii Carpenters Union. The Pacific Resource Partnership strongly supports TMT and its plans to construct a new thirty meter telescope at the top of Mauna Kea.

The Thirty Meter Telescope (TMT) at Mauna Kea, has the potential to become an "industry standard" with regard to the comprehensive approach that was taken in planning this project. TMT has demonstrated its respect and reverence for the sanctity of this location by going to great lengths to help ensure that its presence atop Mauna Kea will have as little impact on the mountain top as possible. From a conscious effort to reduce hazardous materials, such as avoiding the use of "spun mercury" in the design of the telescope, taking measures to help prevent the spread of invasive species to the summit, to the placement of telescope in a location that is the least likely to disturb native wildlife habitats and sacred sites. This project is one of the most comprehensive of its kind, taking into consideration the various types of impacts a project of this size will have on the environment and the community.

1 This project will not only benefit the worldwide scientific community as a whole, but will also serve to directly benefit those of Native Hawaiian ancestry, residents of the Big Island, and most importantly, will create work for numbers of unemployed construction workers on the Big Island helping them to provide for their families during these tough economic times.

The global economic recession, tightening national credit markets, and stagnating local economies have played a large part in affecting the lives of our local people. Tourism on the neighbor islands has taken the hardest hit due to the global and national economic conditions. UHERO predicts a nearly 9% contraction in jobs in the accommodation and food service sectors for Hawaii county. Hotel and condominium resort occupancy rates have fallen significantly, as

ASB Tower, Suite 1501 • 1001 Bishop Street • Honolulu, Hawaii 96813
Tel (808) 528-5557 • Fax (808) 528-0421 • www.prp-hawaii.com

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

Hawaii county averaged 58.2% occupancy rate through the first four months of the year – a decline of 11.7%.

Hawaii County's unemployment rate as of April 2009 is at 9.7% -- a 5.5% increase from a year ago. Through 2009, April's 9.7% unemployment rate is only second to March's 10.1%. According to a UHERO report, Hawaii county construction jobs are expected to fall more than 16% this year, as the private construction sector, particularly the residential market, continues to falter. Total Natural Resources, Mining, and Construction jobs for April 2009 have already decreased by 17.4% compared to April 2008. In terms of overall construction spending for the State of Hawaii, UHERO predicts a decline of approximately 30% over the next 2 year period.

Additionally, the Hawaii Carpenters Union, Local 745 reports that nearly 52% of their Hilo members and 78% of their Kona members are currently unemployed.

Benefits from this Project:

- Estimated project costs may exceed $1 billion – potential for federal money to be infused into the State's and County's economy creating both direct and indirect local jobs.
- Due to the highly sophisticated and technical nature of the project, certain construction material and equipment that is available in Hawaii will be procured locally, supporting local vendors and suppliers.
- Along with construction workers, positions that need to be filled include: administrative and financial services, software and information technology engineering, mechanical engineering, and installation and service technicians. The project will provide varied job opportunities that cover a wide variety of skill sets and knowledge base.
- Skilled trade employees include: carpenters, steelworkers, electricians, plumbers, heavy equipment operators, laborers, supervisors, shipping and trucking service workers, caterers, paramedics, security personnel, and vehicle mechanics.
    - Construction crew personnel are expected to receive Union wages
    - Estimated 50-60 workers would be required at the TMT observatory construction site alone; during certain phases, up to 100 workers
- Housing and support services will be provided to certain construction personnel if they choose to take advantage of such a facility.

Aside from the benefits to the worldwide and local communities affected by this project, we feel that TMT is a critical component for helping to bolster an already depressed economy on the Big Island of Hawaii by creating jobs that will put local construction workers back to work.

Thank you very much for this opportunity to comment on this project.

Respectfully yours,

Kyle Chock
Executive Director

June 19, 2009

Comments in Support of the Thirty Meter Telescope
Draft Environmental Impact Statement

Aloha, my name is Richard Dods. I am the community liaison for Puna Geothermal Venture. Personally and in behalf of PGV we endorse and support the Thirty Meter Telescope Project.

One of the foremost reasons for our support is the positive economic impact it will have for this island and specifically for this area in providing needed employment opportunities.

For the past 10 years, we have provided scholarships for many young men and women out of this very school, Pahoa High. We wish we could provide jobs for them also. This TMT project and all of its support facilities will provide employment through the construction phase and into its operations. In these tough economic times, we need to put these kids to work.

We would also like to offer some humble advice. Speaking from experience, PGV got off to a rocky start some 20 years ago, but over the years we learned some very hard lessons. What we learned is that you need to keep the lines of communications open on the "Grass Roots" level.

1 As this project proceeds, being honest and upfront with everyone involved is absolutely necessary. Establishing and maintaining personal contacts with community groups and individuals, supporters and non-supporters. At every aspect, from pre-construction through construction, and when the Telescope is up and running, keep in contact with the community and individuals, the supporters and the non-supporters.

2 This is what we learned. When you communicate with all of these folks, supporters and non-supporters, and I mean communicate - "they talk – you listen; you talk - they listen". Talking, how easy is that? Listening might take some practice, but if you listen you are going to learn. You are going to learn that there are reasons why people take stands on issues. These are issues that they feel and are close to their hearts. This has helped us to respect the heartfelt views of all, supporters and non-supporters. With this comes mutual respect.

At PGV we still have those who do not support us, but we understand why, and respect that. We are convinced that this proactive communications with groups and individuals has helped us to avoid many heartaches.

So in conclusion, we firmly support this project. We would love to see it create the jobs so needed, especially here in Puna. And we sincerely hope that you are successful in "listening and talking" to those who have feelings for this project.

Mahalo for your kind attention.

Richard Dods
Community Liaison
Puna Geothermal Venture

1
The Thirty Meter Telescope Project is coordinating with the community and agencies to minimize potential Project impacts to the extent possible, with mitigation measures as appropriate, and also maximize benefits to the community.
As outlined in Section 3.2.4 of the Final EIS, these measures will include:

- "Have an open door policy so that TMT's outreach management can be contacted by the Native Hawaiian community to discuss issues.
- "Initial and then annual or as-needed tours of the TMT Observatory will be provided, with the Native Hawaiian community invited at least two weeks prior to the tour.
- "TMT will request permission to attend, on a quarterly basis, meetings of the Kahu Ku Mauna Council. A TMT representative will be available to review cultural impact issues, should there be any, related to the Project."

These measures will be one method to maintain dialog with Project supporters and non-supporters during Project operation.

2
Thank you for your input.

HPM BUILDING SUPPLY
HPM CUSTOM METAL ROOFING | HPM TRUSS | HPM WOOD PROTECTION | HPM DOORS
MICHAEL K. FUJIMOTO | PRESIDENT AND CHIEF EXECUTIVE OFFICER
16-166 MELEKAHIWA STREET • KEA`AU, HAWAII 96749 • PHONE: (808) 966-5636 • FAX: (808) 966-7564
MIKEF@HPMHI.COM • WWW.HPMHAWAII.COM

July 7, 2009

Dr. Rose Tseng
Chancellor
University of Hawaii at Hilo

RE: Comments in Support of the Thirty Meter Telescope Draft Environmental Impact Statement

Dear Chancellor Tseng:

On behalf of HPM Building Supply, I am writing you in support of the Thirty Meter Telescope (TMT) Draft Environmental Impact Statement (EIS). The EIS is thoroughly researched, respectful of cultural and archeological concerns and careful in its consideration of the environmental effects of putting a telescope on Mauna Kea. The proposed action was created after extensive efforts to communicate with representatives from all walks of life and truly reflects an effort to unite cultural, scientific, economic and environmental interests.

I am the President and Chief Executive Officer of the HPM Building Supply. HPM is an 88 year old Big Island company with 260 employees. Our 100% employee-owned company strongly supports the TMT coming to Hawai`i Island. We believe that the TMT presence on the island will further strengthen our overall economy, cultural diversity and educational opportunities.

1 We believe that the TMT Board will find our business and educational community ready and eager to work with them to further both their interests and those of our community.

I would be honored to have any member of the TMT board contact me for further information or for a tour our facilities.

Sincerely,



1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

W.H. Shipman
Limited

2009 JUN 30 AM 11:49

UH-HILO
CHANCELLOR'S OFFICE

June 26, 2009

University of Hawai`i at Hilo
Office of the Chancellor
200 Kawili Street,
Hilo, HI 96720-4091

Re: Thirty Meter Telescope

Dear Chancellor Tseng:

1

The State of Hawaii and particularly the County of Hawaii has a truly unique opportunity to host the Thirty Meter Telescope on Mauna Kea. Why should we do this, though? There are a host of reasons including:

- We are citizens of the World. As such it is our responsibility to contribute in areas where we have truly unique world wide capabilities. There is little question that hosting the Thirty Meter Telescope is one such situation. The world community advances effectively when we all adopt the attitude that we will carry those responsibilities that we can best handle. That does not mean that we merely accept them blindly. We accept them and then work to responsibly ameliorate negative aspects that may occur.
- The benefits for the Nation, the State and the Island are enormous. Base research and those who do the research will be centered here in our Nation, State and County. The results of this research are of great significance. Conducting the research is what under virtually all standards would be considered "clean and non polluting" industry. There are few industries available to Hawaii that meet the qualifications of advancing science and industry while providing quality and high paying jobs in clean industry.
- Locating high science in our community will result in a "proximity rub-off" By that I mean that as those involved with the telescope become integrated into our community their education and trained thinking will educate all of us. Their enthusiasm for science and particularly for astronomy is likely to open avenues of thought and interest for our children, avenues that will take them places that they otherwise would not think of going. In the same way, we will have the opportunity to rub off on these scientists, their associates and families in a positive way. If we demonstrate the spirit of love and aloha that we are capable of they will take that spirit and those memories of Hawaii with them when they leave us.
- One of our great problems in Hawaii and particularly here in Hawaii County is the difficulty for those who receive higher education to find jobs that will stretch them and provide well for them here. This project will provide many such opportunities to our Island community. We need to increase the number of such

16-523 Keaau-Pahoa Road Keaau, HI 96749
tel.: 808.966.9325 • fax: 808.966.8522
www.whshipman.com

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

W.H. Shipman
Limited

job opportunities if we are to retain our young men and women – one of the more important ways we have of also maintaining our heritage and our culture.

- TMT has committed to directly putting over $1 million annually into our educational programs. One can only imagine – and then likely underestimate – the affect that such funds combined with the opportunity to experience the ground breaking science that will have on our children. Denying this telescope will deny our children of this. Why would we deny them and for what real benefit?

These are but of few of the benefits of bringing the TMT to the Island of Hawaii. We should be working to bring this opportunity to our community.

All of this would be interesting but maybe not compelling if we did not have a strong management plan for the mountain and a plan that is managed here on the Island of Hawaii. We have all seen and observed through mistakes of the past what happens when we let others control our resources. But we do have such a plan and the assurance from the State that funds will be made available to manage this site that is important to all of us. It is time for us as a community to move past the victim and blaming of the past stage to the place where we cooperate to create an environment of positive and responsible growth. There are few opportunities better suited for this than the Thirty Meter Telescope.

I am glad to see that you who with the help of your staff, have brought us a much stronger and more complete university community are at the forefront of this effort. Thank you for your work on our behalf

Sincerely,

Bill Walter
President

RECORD DETAIL

First Name : Charlene

Last Name : Prickett

Submission Date : 05/25/2009

1 **Submission Content/Notes :** I want to voice my support for the Thirty Meter Telescope project and, indeed, the entire astronomy community. Ancient Hawaiians studied the sky and used it to their advantage. It is appropriate that the summit of Mauna Kea be dedicated to this continuing serious observation of the sky. I an honored that our island merits consideration for such an important telescope, and I am always thrilled to visit the summit to get a glimpse firsthand of what goes on there and witness the awesome night sky.

When I look at Mauna Kea from the lowlands of the Hamakua Coast, I am proud to see the telescopes on the summit. The astronomy community brings an intellectual and economic element to our island which would not otherwise exist. The commitment to prepare local students for the opportunity to secure jobs in the astronomy / telescope community is admirable and moral.

The astronomy community is a clean industry which offers a unique economic opportunity to Hawaii and brings with it the perk of ongoing education and job opportunities for island residents. What's not to like!

Thank you for considering my input.

Sincerely,
Charlene Prickett

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : Diana

Last Name : Radich

Submission Date : 05/23/2009

1 **Submission Content/Notes :** I wanted to call and say that I am 100% for the telescope. We have already lost the super ferry, lets not loose another thing that would be very beneficial for all of the people in Hawaii and would benefit all the future children in Hawaii. So I am 100% for it. My phone no. is 966-9757 if you would need to call me. Thank you very much.

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : Ben

Last Name : Discoe

Submission Date : 06/06/2009

Submission Content/Notes : I have done a partial read of the draft EIS, in particular the sections on siting, biology and power. I favor the TMT in general, for its scientific and economic benefits, and the impact on the site itself is small and acceptable. There are just two points in the EIS I'd like to comment on:

1 1. The 'Projects Objectives' include "integrate sustainability". This statement does not make sense in the context of the TMT. There is nothing at all sustainable about any aspect of the TMT's construction or operation, none of the materials and vehicle fuel is sustainable. Nothing about the scientific goals of the TMT relate to sustainability. The majority of the HELCO power used is not even renewable, let alone sustainable. I recommend to either explain the usage of the term, or omit "sustainable" from any TMT documents.

2 2. The estimated power consumption is alarming. At 2.4 MW peak, it exceeds the estimated peak of every other existing observatory combined. Even if the typical power draw is as given, 350 kW, this represents a non-trivial additional load for HELCO at a time when the island and state are desperately trying to reduce consumption to bring demand down to a level that can be met without burning oil.

Stakeholder Type : Citizen

1

Environmental stewardship and the concept of sustainability planning for operations of the oberservatory are both areas of focus for the TMT Observatory Corporation and their partnering institutions. To achieve this, various energy conservation measures are being implemented such as ride-sharing program for TMT Observatory employees (Section 3.11.4 of the Draft EIS), using energy-conserving lighting, appliances, and systems (Section 3.12.4 of the Draft EIS), and conducting an energy audit annually (Section 3.12.4 of the Draft EIS). Additionally, TMT will comply with any requirements set forth in the CMP for integrating sustainability into the Project.

Based on comments received on the Draft EIS additions have been made to Section 3.12 of the Final EIS outlining additional TMT commitments to sustainability in design and operation of its facilities, including:

"As part of TMT's design work there is an active program to analyze the environmental heat loads and energy usage in the telescope enclosure and supporting facilities. Appropriate energy saving designs will be employed into all aspects of the buildings and facility design including: high R-rated insulation panels, radiant exterior barriers, high performance window glazing, and air infiltration sealing, for example.

"Energy saving devices will be incorporated into Project facilities; plans include: solar hot water systems, photo voltaic power systems, energy efficient light fixtures controlled by occupancy sensors, efficient Energy Star rated electrical appliances at all facilities, and design with local knowledge to maximize the use of natural ventilation and lighting at the Headquarters."

2

Power demand and generation related to the Project is discussed in Section 3.12 of the Draft EIS. In discussions with HELCO, they have indicated the Project would not result in a need to increase generating capacity by adding a new generating unit or by significantly increasing the operation of an existing unit, HELCO's current total generation capability provides a 45 percent reserve margin of the latest system peak demand. HELCO currently generates 40 percent of its power by renewable sources such as geothermal, wind, and solar. Based on discussions with HELCO, the Project will not require new power generation facilities or affect electricity rates for consumers.

RECORD DETAIL

First Name : JOHN MICHAEL
Last Name : WHITE
Submission Date : 06/08/2009
Submission Content/Notes : Aloha all,

1 After reviewing all information on the proposed 30-meter telescope for Mauna Kea I strongly SUPPORT it.

I'm very concerned that a small special-interest group of people are against the project, seriously threatening the project.

There is major competition for this thirty-meter scope project. Chile wants this project and expects to get it!

Many in Hawaii "assume" that Hawaii will get the 30-meter scope project, that it is a "done deal" and the 30-meter scope will be on Mauna Kea.

But keep in mind, the people of Chile also feel that they will get the 30-meter scope and they have presented good reasons for locating it in their country.

Loss of this project proposed for Mauna Kea would be a great loss for the people of Hawaii.

I enourage everyone to please support the proposed 30-meter scope for Mauna Kea.

Mahalo,

John Michael White
JMW:m

*****

Stakeholder Type : Citizen

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : Lawrence

Last Name : Goff

Submission Date : 06/08/2009

Submission Content/Notes : Comment on Draft EIS:
I wish to express my complete support for the proposed Thirty Meter Telescope Project atop Mauna Kea. I have reviewed the Draft EIS for the project and I support it. I think the Draft EIS is correct that this will bring substantial revenue and jobs to the Big Island with insignificant impact to the environment.

1

Thank you for a job well done on the Draft EIS.

Sincerely,
Lawrence Goff

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : Donald
Last Name : Goo
Submission Date : 06/08/2009
1 **Submission Content/Notes :** I support the TMT because of the pristine location in Hawaii.
Stakeholder Type : Citizen

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : James

Last Name : Monk

Submission Date : 06/09/2009

Submission Content/Notes : I have reviewed portions of the EIS and the Summary Statement. It would appear you have addressed the major potential impacts of this project. On balance, this project would provice a positive net increase in value for Hawaii, both the state and the island. While respecting Hawaiian traditions is important, a project like the Thirty Meter Telescope should not be held hostage to the ideas of a few activists of today who are redefining history to fit their limited objectives of blocking new activities in the state. Please proceed to provide the state and island with the employment, education and prestige advantages inherent in the project.

1

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : Guido

Last Name : Giacometti

Submission Date : 06/09/2009

1 **Submission Content/Notes :** As a life-long resident of Hawaii, and as a participant in the economic ups and downs of the islands, I strongly support the use of the Mauna Kea summit for astronomy. The TMT project is an important evolution and upgrade of the existing facilities already there, and if new technologies are not embraced, Hawaii will lose its important position as a leader in the study of the universe.

While there are some citizens who oppose development of the summit, a carefully installed TMT will provide jobs, intellectual growth, and pride in the State. I am confident that the pre-contact cultural values of the mountain can be maintained while the site is used to benefit the greater of us all.

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name :

Last Name :

Submission Date : 06/11/2009

1 **Submission Content/Notes :** I just wanted to make a comment that your announcement in the newspaper about the draft EIS, actually it would be more beneficial if you folks would put for the thirty meter telescopic project in parenthesis on Mauna Kea. I think that would key in a lot more activity and a lot more interest because there are many people who are not familiar with project title, they are more familiar with project location. So, I think that in order to make this a more transparent and easily recognizable project, and actually comment gathering announcement, i think it would really help if you folks were to add the location of this telescope project. My number is 808-696-0798 and I do plan on attending the Farrington High School project meeting on June 25th. Mahalo.

Stakeholder Type : Citizen

1

We received your input too late to make changes to the announcement in the newspaper but will consider this advice for future announcements.

RECORD DETAIL

First Name :

Last Name :

Submission Date : 06/16/2009

1 **Submission Content/Notes :** Just leaving a note that I am in support of the Mauna Kea observatory. I think it would be a good economy boost for our island and to teach everybody about astronomy. Thank you.

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name :

Last Name :

Submission Date : 06/16/2009

1 **Submission Content/Notes :** We are in support for the thirty meter telescope on Mauna Kea mountain. Myself and my family is in support.

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : Douglas

Last Name : Zang

Submission Date : 06/17/2009

Submission Content/Notes : Dear Chancellor:

1 I was present at the public meeting in Hilo and listened with great interest at the diversity of viewpoints on this project. I believe that the Thirty Meter Telescope offers Hawai`i Island an important opportunity to increase our community's prominence in science and provide other benefits.

2 Unfortunately, the strong resistance to the project by some Hawaiian cultural practitioners and other concerned people is understandable based on a history of mismanagement and cultural insensitivity. I would encourage you to address as many of their concerns as possible and work towards building consensus.

3 I would also encourage you to minimize use of undisturbed land as much as possible. The ideal situation would be to use a site where another telescope is to be decommissioned if that is possible. This concept should be pursued, even if it requires some waiting, if at all possible.

4 Several detractors mentioned the fact that this is not a federal EIS. If a federal permit or federal funding is needed, that should absolutely be pursued. Overall, their complaint really doesn't hold water, however, as the content of your EIS would easily fulfill the requirements of the National Environmental Policy Act.

5 Some detractors of this project compared a Target store's jobs to your telescope. Perhaps they would rather create mostly service-level unskilled jobs like those at Target. I would rather employ local people to construct and work at the TMT.

There are many people on this island that definitely want you here, myself included. Please do not go to Chile. That site is remote. Our people here could use the education, science, jobs, and opportunities in Hawaii and the United States. We could use the benefits that come from educated workers spending their income and volunteering their time in our community. Please work as hard as possible to ensure that as many jobs as possible go to current residents of this island.

6 Please do the right thing to be as sensitive as possible to our host culture. Let's move forward to improve things on the mountain and right past wrongs.

Please avoid adverse impacts to the greatest degree possible. Then figure out how to minimize them. Then finally mitigate what you cannot avoid.

Thank you for your efforts on the EIS, and thank you for the opportunity to comment.

Douglas Zang

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

2

The Thirty Meter Telescope Project has, and will continue to, work closely with the residents and communities of the Big Island, including Hawaiian groups, in an effort to address their concerns and develop the Project in a way the island can be proud of. Consultations with cultural practitioners and Hawaiians is discussed in Section 3.2 and Appendix D of the Draft EIS. Please see Section 3.2 and Appendix D of the Final EIS for additional information.

3

As discussed in Section 2.5.1, page 2-8, of the Draft EIS, "recycling an existing optical/infrared observatory in Area A or B is not an option for the TMT Observatory because the TMT Observatory would exceed the diameter and height requirements" detailed in the 2000 Master Plan. "In addition, none of the existing observatories has a large enough footprint for the development of the TMT Observatory without additional disturbance to Kukahauula or the cinder cone habitat."
There are several reasons why the 2000 Master Plan identified Area E for a Next Generation Large Telescope (NGLT) instead of suggesting a NGLT replace an existing observatory; TMT, with a 30-meter primary mirror, is a NGLT as defined in the Master Plan.
Based on comments received on the Draft EIS, the University of Hawaii at Hilo (UH Hilo), the proposing agency of the Project, reevaluated the reasoning outlined in the 2000 Master Plan and believes that reasoning is still valid and the TMT Observatory is best located in Area E. Reasons for not placing a NGLT in the location of an existing observatory are directly related to siting criteria identified in the plan:

- Minimize impact to Wekiu bug habitat (existing optical/infrared observatories are located in good Wekiu bug habitat, expansion of a site to fit TMT would impact that habitat)
- Avoid archaeological and historic sites (existing optical/infrared observatories are located on Kukahauula, a State Historic Property, expansion of a site to fit TMT would further impact this resources)
- Minimize visual impact from significant cultural areas (replacing an existing optical/infrared observatory with TMT would make it visible from the summit of Kukahauula and Puu Lilinoe, both significant cultural sites)
- Avoid and minimize views from Waimea, Honokaa, and Hilo (replacing an existing optical/infrared observatory with TMT would make it visible from all of these towns)
- Minimize impact on existing facilities (building a structure the size of the TMT Observatory at the site of an existing optical infrared observatory could significantly impact nearby existing facilities)

It is often thought that the 13N site in Area E is undisturbed land and that is why recycling the site of an existing optical/infrared observatory appears preferrable. As discussed in Section 2.5.1 Final EIS, there is already a road leading to the 13N site and a roughly 0.5-acre portion of the site has been disturbed by the road and former presence of site testing equipment dating back to the mid-1960s.

4

The obligation to evaluate and disclose environmental impacts under the National Environmental Policy Act (NEPA) is triggered when a federal agency proposes a major federal action that would significantly affect the environment. Neither the University of Hawaii at Hilo (UH Hilo) nor the TMT Observatory Corporation is a federal agency. Further, neither UH Hilo nor the TMT Observatory Corporation has received funding or pledges of financial support from any Federal agency for activities that will or may significantly affect the environment, nor has either entity applied for any federally-issued permit or license. Therefore, the United States' obligations under NEPA have not been triggered.

5

The TMT Project agrees that technical jobs, like those that will be available at the TMT Observatory, will benefit and diversify the community and economy in ways service level jobs cannot. The Workforce Pipeline Program, described in Section 3.9.4 of the Draft EIS, will be implemented to ensure that as many jobs as possible go to current residents of the island.

6

The Thirty Meter Telescope Project is working with the host culture and entire community to avoid, minimize and mitigate potential Project impacts, including cumulative impacts.

RECORD DETAIL

	First Name :	Mary
	Last Name :	Robertson
	Submission Date :	06/18/2009
1	**Submission Content/Notes :**	I am strongly in favor of the TMT being sited in Hawai'i. We should not miss this opportunity to continue to utilize the world's premier site for astronomy, and to bring employment and recognition to this island and all our people. We simply must treat Maunakea with the same respect and reverence that Ke Akua expects us to show to all places and peoples.
	Stakeholder Type :	Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : John

Last Name : Steuber

Submission Date : 06/18/2009

1 **Submission Content/Notes :** I am a strong proponent of the TMT project. The proposal, along with the CMP, demonstrates a strong commitment to balancing the needs of all constituents.

Both short term and long term community objectives are achieved with this project.

In the short term significant investment will be made in our local economy that will generate much needed jobs and improved infrastructure.

In the long term, the TMT will support the diversifying of the local economy. The TMT will create higher paying technical and support jobs and careers. This will offer our citizens and children opportunities locally.

In addition, the TMT proposal supports increasing education and training in various technical fields. This will improve the opportunities for Big Island residents to obtain rewarding careers.

The TMT's implementation offers a balanced use of Mauna Kea by locating in an area that has limited impact on the ecology, visual cues and current cultural practices.

I realize there remains a vocal group who oppose any use of the mountain. These individuals will not be swayed by any arguments from others.

As a community we need to come to a reasonable accommodation that is sensitive to all.

Thank you for allowing me to comment on the TMT.

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : CHIEU

Last Name : NGUYEN

Submission Date : 06/18/2009

1 **Submission Content/Notes :** Even though the air quality of Maunakea is not as good as that of the location in Chile, overall, this is a much better place for the TMT. Hawaii has a much better atmosphere for this high-level intellectual pursuit.

From the point of view of the state of Hawaii, this high-tech development will help in many ways. It will pioneer the third leg of the three-leg development of the state: tourism, agriculture and high-tech.

The point of view of the pro-local culture group is well taken but let's not overdo it. Beauty is more beautiful if not over-exposed.

Chieu T Nguyen, Ph.D.
June 16, 2009.

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : david

Last Name : wissmar

Submission Date : 06/18/2009

Submission Content/Notes : Aloha
I grew up here, and as long as I have been alive the holy grail of economic development has been high paying high tech jobs with no smokestack. That is what the telescopes are. I was a Boy Scout leader for seven years; I always had at least one dad that was an engineer, It made for a great peer group for the kids.

This is my best story, of many.
I have never met Mr Chem, but his wife teaches at Kalakehe High. They met at MIT, she teaches science
My son took her advanced placement classes He received a 5 in environmental science and a 4 in chemistry. Her science team beat all the private schools on Oahu and her team went to New York to compete.

1 Stop building gated communities and build more telescopes. If you are happy with your kids mowing golf courses build more resorts. I would prefer that my kids work with their brain not their back.

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

	First Name :	Daniel
	Last Name :	Sharpenberg
	Submission Date :	06/16/2009
1	**Submission Content/Notes :**	Just wanted to comment on the telescope project on Mauna Kea. They have my full support and the new one especially. I have been here in Hilo, in Hawaiian Paridise Park for 9 years and I can see no downside. I support it a 100% and if anybody wants to talk to me, i am at 808-443-8914. Hopefully it will happen. Looking forward to it. Thanks
	Stakeholder Type :	Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

	First Name :	Bobby
	Last Name :	Cooper
	Submission Date :	06/18/2009
1	**Submission Content/Notes :**	I have now problem with this proposed new telescope. However it needs to be on a re-cycled spot....that is, demolish one of the existing telescopes (that has outlived its technology)...and put this one in its place. Bobby Cooper
	Stakeholder Type :	Citizen

1

As discussed in Section 2.5.1, page 2-8, of the Draft EIS, "recycling an existing optical/infrared observatory in Area A or B is not an option for the TMT Observatory because the TMT Observatory would exceed the diameter and height requirements" detailed in the 2000 Master Plan. "In addition, none of the existing observatories has a large enough footprint for the development of the TMT Observatory without additional disturbance to Kukahauula or the cinder cone habitat."
There are several reasons why the 2000 Master Plan identified Area E for a Next Generation Large Telescope (NGLT) instead of suggesting a NGLT replace an existing observatory; TMT, with a 30-meter primary mirror, is a NGLT as defined in the Master Plan.
Based on comments received on the Draft EIS, the University of Hawaii at Hilo (UH Hilo), the proposing agency of the Project, reevaluated the reasoning outlined in the 2000 Master Plan and believes that reasoning is still valid and the TMT Observatory is best located in Area E. Reasons for not placing a NGLT in the location of an existing observatory are directly related to siting criteria identified in the plan:

- Minimize impact to Wekiu bug habitat (existing optical/infrared observatories are located in good Wekiu bug habitat, expansion of a site to fit TMT would impact that habitat)
- Avoid archaeological and historic sites (existing optical/infrared observatories are located on Kukahauula, a State Historic Property, expansion of a site to fit TMT would further impact this resources)
- Minimize visual impact from significant cultural areas (replacing an existing optical/infrared observatory with TMT would make it visible from the summit of Kukahauula and Puu Lilinoe, both significant cultural sites)
- Avoid and minimize views from Waimea, Honokaa, and Hilo (replacing an existing optical/infrared observatory with TMT would make it visible from all of these towns)
- Minimize impact on existing facilities (building a structure the size of the TMT Observatory at the site of an existing optical infrared observatory could significantly impact nearby existing facilities)

It is often thought that the 13N site in Area E is undisturbed land and that is why recycling the site of an existing optical/infrared observatory appears preferrable. As discussed in Section 2.5.1 Final EIS, there is already a road leading to the 13N site and a roughly 0.5-acre portion of the site has been disturbed by the road and former presence of site testing equipment dating back to the mid-1960s.

RECORD DETAIL

First Name : Steve

Last Name : Pollard

Submission Date : 06/18/2009

Submission Content/Notes : Aloha.

1 I am in strong support of the 30 meter scope. Not only will it bring jobs but will make Hilo a world destination for outstanding astronomy. It will help provide higher education for island residents and it will build on the sacred aspect of the mountain for all peoples helping us all to understand our universe and each other.

Aloha,
steve

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

	First Name :	John
	Last Name :	Begg
	Submission Date :	06/18/2009
1	**Submission Content/Notes :**	I am in favor of the project to develop Mauna Kea for astronomy.
	Stakeholder Type :	Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : Ronald

Last Name : Fujiyoshi

Submission Date : 06/19/2009

Submission Content/Notes : My name is Ronald Fujiyoshi. I am commenting as an individual. However, I am the Luna Hoomalu or President of the Association of Hawaiian Evangelical Churches of the Hawaii Conference United Church of Christ. Although I am ethnically Japanese our Association is a non-geographical association of twenty-nine Hawaiian churches. In many of our meetings we have discussed what it is to be Hawaiian and Christian at the same time. We have also discussed what it is to be a "host people."

One universal principle that I believe to be true is the right of a people for self-determination. A people have the right to self-determine their own values, self-determine their own culture, tradition, spirituality and religion.

1 From what I have learned from Kanaka Maoli Mauna Kea is considered a sacred mountain for them. From what I have learned from them, it is an affront to their religion and their spirituality that observatories are being built on top of their sacred mountain. No one else can define their religious and spiritual beliefs of the Kanaka Maoli for them.

The rights of the Kanaka Maoli to the practice of their religion and their religious and spiritual beliefs are accepted in USA law AND in the State of Hawaii Constitution.

2 As far as I understand neither the State of Hawaii nor the University of Hawaii has clear title to the land on top of Mauna Kea. Thus, neither the State of Hawaii nor the Univesity of Hawaii has the right to permit the building of another telescope on top of Mauna Kea.

3 An alternative to this EIS is NOT to build a telescope atop Mauna Kea. Out of respect for the rights of Kanaka Maoli to practice their own religion I believe the TMT project should be halted.

Stakeholder Type : Citizen

1

Cultural practicies and potential Project impacts related to cultural resources are discussed in Section 3.2 of the Draft EIS. The Project is not attempting in anyway to define the spiritual and religious practices of the Hawaiian people; the Draft EIS documents practicies that have been observed, reported, or documented by others. As stated throughout the Draft EIS, the Project will comply with the CMP; the CMP states on page 7-7, "Native Hawaiian cultural and customary practicies shall not be restricted, except where safety, resource management, cultural appropriateness, and legal compliance considerations may require reasonable restrictions".

2

Resolving claims that the ceded lands were wrongfully taken by the United States, that the State's title to ceded lands is clouded or void, or that ceded lands should be returned (or compensation provided) to a class defined by race or ancestry, is beyond the scope of this EIS. This EIS assumes that the State of Hawaii lawfully owns those portions of Maunakea where physical improvements for the Thirty Meter Telescope Project are anticipated.

3

Acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

RECORD DETAIL

First Name : roger

Last Name : fontes

Submission Date : 06/19/2009

1 **Submission Content/Notes :** Life is full of choices. We must balance the required proper protocols and respect for ancient Hawaiian ways and religious sites, with the need for Hawaiian's today to marvel at, be inspired by, and utilize the vast night sky as our ancestors did so long ago...and so successfully. Placing the new 30 meter telescope at Mauna Kea is a great blessing to all the inhabitants of Hawaii. It will mean vast new opportunities for UH Hilo's Astronomy and Astrophysics Department and the Imiloa Planetarium; both of which are world class organizations. Young Hawaiian women and men can realistically aspire to learn Astrophysics, earth sciences, astronomy and related fields. These opportunities would be horribly lost if the new telescope is sited in Chile.

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name :	Cory
Last Name :	Harden
Submission Date :	06/21/2009

Submission Content/Notes : comments on May 23, 2009 DEIS for Thirty Meter Telescope Project, Hawai'i
Ms. Cory (Martha) Harden, PO Box 10265, Hilo, Occupied Hawaii 96721
808-968-8965 mh@interpac.net

TMT is to be commended for planning--
Decommissioning with money set aside annually
Trucking all wastewater off the mountain
Mandatory ride-sharing
Efforts to make TMT less visible
Internships, apprenticeships, summer jobs, support for science, technology, engineering, and math, scholarships
Archaeological monitoring
Biologist inspections

1 Can the UH 2000 Master Plan legally be used as a basis for decisions, thought it's not approved by BLNR?

2 Balance color pictures and positive presentations of TMT with similar presentations of native Hawaiian spirituality and culture as they relate to Mauna Kea, and the natural beauty and unique life on Mauna Kea.

3 Kukahu'ula should not be further desecrated with Access Way Option 3.

Draft EIS p. 3-32 [Hawai'i]...the Project would continue consultation with SHPD and Kahu Ku Mauna Council to assess the new shrine in the vicinity of the TMT Observatory site and establish appropriate protocols for dismantling it.
4 Which Native Hawaiian groups approve dismantling the shrine found on the TMT site? Which disapprove?
What is the basis for Kahu Ku Mauna having authority to make decisions for Mauna Kea?

5 Analyze visual impacts for residents and tourists traveling about the island. The EIS mostly considers people looking out from homes and lodging places--most of which lack a mountain view.
Analyze severe visual impacts for people looking down from the summit. It is disheartening to make your way to a summit, especially by foot, then see a gigantic concrete building instead of a wilderness.
Will TMT occupy the last place you can look down from the summit and not see a telescope?

Draft EIS p. 3-86 [Hawai'i] [in] the series of springs found near Pohakuoloa and Waikahalulu Gulches....Scientific dating tests of the spring's water indicate that it is recent, meaning the water is not from the melting of ancient subsurface ice or permafrost, and analyses of the water shows it to be identical to rainfall at the summit. This indicates that at least some of the rainfall and now melt at the summit percolates downward to a perching layer to ultimately discharge at the ground surface as a spring or seep.
6 Has this water been tested for contaminants? What are the impacts from all observatories?

Draft EIS p. 3-92 [Hawai'i] The best available information suggests that while mercury spills have occurred, spilled amounts occurred inside...and were small...there have been no mercury spills in the outside environment at the Maunakea summit.
7 Did any mercury go down the old open drains?

8 Specify what types of jobs, and how many, would probably be filled by local people.

1
The 2000 Master Plan is referenced throughout the Draft EIS, including Chapter 2 and Section 3.10. Section 3.10.3 of the Draft EIS outlines the Thirty Meter Telescope Project's consistency with land use plans, policies, and controls. The Draft EIS neither states nor suggests that the 2000 Master Plan was approved by the Board of Land and Natural Resources (BLNR). The 2000 Master Plan was prepared by UH through a process that included broad community input as well as coordination with governmental agencies, including the Department of Land and Natural Resources (DLNR). A Draft and Final EIS were prepared and the 2000 Master Plan was adopted by the University of Hawaii (UH) Board of Regents (BOR) and implemented. Although the 2000 Master Plan was not officially approved by the BLNR, the Master Plan is the guiding document for the University of Hawaii at Hilo (UH Hilo), the proposing agency for the Project. Therefore, the 2000 Master Plan, which built on the 1983 Master Plan, is pertinent to the Project. In addition, the wealth of scientific information in the 2000 Master Plan remains valid and valuable. References to the 1983 Master Plan have been included in the Final EIS for the Project where applicable, including Chapter 2 and Section 3.10. Like the 2000 Master Plan, the 1983 Master Plan was never approved by the BLNR.

2
There are a number of color presentations in the Draft EIS related to the Project in Chapter 2 of the Draft EIS. This is necessary to help the reader understand the Purpose and Need of the Project plus the Project components. There are also photographs of existing conditions in Chapter 2 and photographs of environmental resources in Chapter 3, as appropriate, to understand the material presented. Additional photographs are not necessary to address the Project's potential impacts on the environment evaluated in the Draft EIS.

3
Thank you for your input; the Thirty Meter Telescope Project appreciates your review and participation in the process.
Since the completion of the Draft EIS, the Access Way Options have been refined. Of the three Options discussed in the Draft EIS, Option 1 is no longer being considered due to conflicts with SMA operations. Access Way Options 2 and 3 remain under consideration, but both have been refined. Please see Section 2.5.2 of the Final EIS for details regarding the Access Way Options that remain under consideration for the Project.

4
The modern shrine is discussed in Section 3.2.3, page 3-21; Section 3.3.1, page 3-30; and Section 3.3.4, page 3-32, of the Draft EIS. The modern shrine was likely constructed within the last 10 years, a fact established prior to the Thirty Meter Telescope Project's interest in the 13N site. Because it is less than 50 years old, it is not a historic property.
No Native Hawaiian groups have come forward to specifically approve or disapprove of relocating the modern shrine with proper protocols. Nor has any group or individual indicated they built the shrine for cultural practices. The Project will continue to work with Kahu Ku Mauna and other groups to establish proper protocols for the the relocation of this shrine.
CMP Management Action CR-7 is referenced in Section 3.2.3, page 3-21 of the Draft EIS. This management action is within the Board of Land and Natural Resources (BLNR) approved CMP and indicates, "Kahu Ku Mauna shall take the lead in determining the appropriateness of constructing new Hawaiian cultural features." The CMP Management Actions included a number of other management actions related to cultural practices (Section 7.1.1 of the CMP), including Management Action CR-9: A management policy for the culturally appropriateness of building ahu or "stacking of rocks" will need to be developed by Kahu Ku Mauna who may consider similar policies adopted by Hawaii Volcanoes National Park.
The authority to generate such a policy does not address the Project's potential impacts on the environment evaluated in the Draft EIS.

p. 3-105 [Hawai'i] Federal rules, such as the National Environmental Policy act (NEPA), do not apply to the Project because no Federal agency is involved in the Project, no Federal funding is being used for the Project, and the Project does not use Federal land."

9 If a Federal agency wants to use the TMT in the future, would they be barred from doing so?
Who will monitor, over the life of TMT, to ensure that prospective telescope users have no Federal funding? What are the penalties for noncompliance? Who will enforce them?
Will the military, since they are Federal, be unable to use the telescope?

If there is classified military use of TMT, will the public be informed, even if details of the use cannot be disclosed?

Draft EIS p. 3-120 [Hawai'i] The Project would not impede any traditional cultural or religious practices.

10 Altering the landscape and view impedes traditional cultural and religious practices.

11 Draft EIS p. 3-121 [Hawai'i] Overall, the Project would not result in a significant impact on current land use...
Taking away the last unobstructed view from the summit is a significant impact.

12 Evaluate environmental impacts of the Hale Pohaku Staging Area and Batch Plant Staging Area..

Draft EIS p. 3-142 [Hawai'i] A 300-ton crawler crane, in combination with a 200-ton assisting crawler crane, would be used to erect the dome.

13 Analyze impacts on erosion, and plants and animals, including the wekiu bug.

Draft EIS p. 3-143 [Hawai'i] ...an on-site construction monitor...would have authority to order any and all construction activity [to] cease if and when, in the construction monitor's judgment, (a) there has been a violation of the permit that warrants cessation of construction activites, or (b) that continued construction activity would unduly harm cultural resources...All orders to cease construction issued by the construction monitor would immediately be reported to OMKM, and if it is a violation of the CDUP, notice would be reported to DLNR.

14 All orders should be reported to DLNR, since they are best qualified to determine if CDUP violations have occurred.

Draft EIS p. 3-148 [Hawai'i] Washing/ Cleaning

15 State what this WILL include, not just what it COULD include.

16 Draft EIS p. 3-148 [Hawai'i] Invasive species identified during monitoring would be controlled to prevent spread.
This should be supervised by DLNR.

17 Draft EIS p. 3-148 [Hawai'i] The [invasive species] plan...would not include inspections by a biologist.
It should include biologist inspections.

18 Draft EIS p. 3-151 [Hawai'i] Solid and Hazardous Materials and Waste
In all sections, say "Measures WILL include" instead of "COULD include"

Draft EIS p. 3-145 [Hawai'i] Noise generated during construction could affect cultural practices in the summit area."
How will it affect hikers' wilderness experience?

Draft EIS p. 3-154 [Hawai'i] Noise

5

Potential visual impacts are discussed in Section 3.5.3 of the Draft EIS. Figure 3-7 on page 3-61 of the Draft EIS shows the area of the Island of Hawaii where at least some of the proposed TMT Observatory could be visible. If a resident or tourist was traveling about the island this figure shows where they would be expected to be able to see the TMT Observatory and where they would not see it based on GIS line of sight analysis.
In response to comments on the Draft EIS, an additional photo simulation of the TMT Observatory has been included in the Final EIS. The new simulation illustrates the view of a person standing near the Keck Observatory and looking toward the TMT Observatory 13N site. In addition to the simulation, the following information has been included in Section 3.5.3 of the Final EIS, "...the TMT Observatory will add a substantial new visual element in the landscape that will be visible from viewpoints along the northern ridge of Kukahauula and by people as they travel within the northern portion of the summit region."
In addition, to address those traveling within the TMT viewshed the following has been added to Section 3.5.3 of the Final EIS: "In addition to residents within the TMT viewshed, the TMT Observatory will be visible to other island residents and visitors when they travel within the TMT viewshed (Figure 3-7), including travel along roads and stops at viewpoints. The Project's visual impact is perceived by some to be significant; however, in the context of the existing observatories and the fact that the TMT Observatory will not block or substantially obstruct the identified views and viewplanes of the mountain, which is the applicable significance criteria in §11-200-12 of the HAR, the Project's visual impact will be less than significant."
As indicated in Section 3.5.3, and Figure 3-7 on page 3-61 in particular, of the Draft EIS, the TMT Observatory would not be visible from the summit of Maunakea (Viewpoint 16; the summit of Kukuhauula/Puu Wekiu). Therefore, TMT will not occupy the last place you can look down from the summit and not see a telescope, because it will not be visible from the summit.

6

The potential impact to the springs found near Pohakuoloa and Waikahalulu Gulches is a cumulative impact issue, which is discussed in Section 3.16.2 of the Draft EIS. On page 3-171 of the Draft EIS it is stated that, "It has been shown that the past disposal practices of mirror washing wastewater have not had an impact on water quality." The Outrigger EIS provides a greater level of detail regarding the analysis of water from the springs and concludes on page 3-33 "Laboratory analysis of December 2002 samples from the two upper Hopukani Springs are presented in Table 3-5. As with Lake Waiau water, dissolved constitutes levels are very low." On page 4-27 of the Outrigger EIS it is stated that, "Isotopic analyses in Arvidson (2002) show that the water from the springs is similar to the isotopically "light" rainfall that occurs at high elevations near the summit. If wastewater had reached the springs after subsurface discharge at the summit, it would be identifiable by isotopic analysis. Because it originates as water trucked to the summit from sources at a far lower elevation, it would be isotopically "heavier" than the water actually discharged at the springs."

7

As stated in Section 3.8.1, page 3-92, of the Draft EIS states "To date, there have been no mercury spills in the outside environmental at the Maunakea summit." Section 3.16.2, page 3-172, of the Draft EIS states "A small number of mercury spills have occurred since observatory operations began; the best available information regarding such occurrences suggest that none of the spills reached the outside environment." This statement indicates that the best available information suggests no mercury spills went down the old open drains.

19 Analyze noise effects from echoes in a mountain environment, and under several different wind conditions.

Draft EIS p. 3-154 [Hawai'i] Noise during construction would be bothersome and annoying to nearby residents, visitors, tourists, and businesses. Construction noise could also affect cultural practices in the summit area.
Evaluate effects on hikers' wilderness experience

Draft EIS p. 3-154 [Hawai'i] Short periods of blasting may...be necessary to dig foundations...
How far will noise be audible?

Draft EIS p. 3-155 [Hawai'i] Noise Level (dBA) at 15 meters (50 feet)
Include blasting noise.

20 Draft EIS p. 3-165 [Hawai'i] ..the existing observatories have disrupted the ambiance necessary for Native Hawaiian religious observances. They also disrupt hikers' wilderness experiences.

Draft EIS p. 3-175 [Hawai'i] While construction activities create intermittent, though sometimes significant disruptions, the existing ambient noise levels remain low and fully within the applicable noise standards of 55 dBA during daytime hours and 45 dBA during nighttime hours."
It should be SILENT up there--it's a mountain.

Draft EIS p. 3-191 [Hawai'i] Due to the number and size of the observatories on Maunakea, their removal would generate an extremely large amount of solid waste. Some of the materials could and would be reclaimed or recycled, but it is anticipated that a large amount of the material would need to be disposed of at a landfill.
21 For TMT, figure this cost into the economic costs and benefits. Present a detailed plan for where the waste would go and who would pay for long-term care of it.

22 Please evaluate the legality of using ceded lands in light of the following--
Excerpt from September 15, 2007e-mail to Public Affairs Officer, Pacific Missile Range Facility, from Kyle Kajihiro, American Friends Service Committee, Honolulu; subject: comments on the Draft EIS/OEIS for Hawai'i Navy Range Complex
….the Draft EIS/OEIS…arrived at the erroneous conclusion that "valid legal title to these lands was vested in the United States." [p. I-1] International law and the U.S. Constitution do not permit the annexation of the territory of a sovereign country without a lawful treaty of annexation. There was no treaty annexing Hawai'i to the United States, only a joint resolution of Congress claiming to accept the cession of Hawai'i to the U.S. by the illegitimate "Republic of Hawai'i", a government that the U.S. administration refused to recognize after the overthrow of the Hawaiian monarchy in 1893. Two attempted treaties of annexation put forth by the leaders of the illegal U.S. military-backed coup d'etat failed.
…please provide proof of a lawful treaty transferring sovereignty from the Kingdom of Hawai'i to the U.S. Domestic U.S. legislation is insufficient to acquire sovereignty over Hawaiian territory.
In 1988, the U.S. Department of Justice could not determine how the U.S. annexed Hawai'i when it issued a memo that stated in part, "It is therefore unclear which constitutional power Congress exercised when it acquired Hawaii by joint resolution. Accordingly, it is doubtful that the acquisition of Hawaii can serve as an appropriate precedent for a congressional assertion of sovereignty over an extended territorial sea."

8
Section 3.9.3, page 3-102, of the Draft EIS states the Project would provide an estimated 140 full-time jobs for "astronomers, a wide range of engineers and engineer technicians (mechanical, electrical, and optical), software and information technology engineers, staff to maintain and direct equipment at the observatory, scientific support, public outreach, and management and administrative personnel, including cultural and educational outreach specialists."
At this time, roughly eight years before the start of the TMT Observatory operation phase, it is not possible to know an exact number of each type of future employee. However, the following has been added to Section 3.9.3 of the Final EIS, "The majority of the positions will likely be in the technical and engineering areas (40%), followed by science (20%), software/IT (10%), and administration (10%)."
The Workforce Pipeline Program described in Section 3.9.4, page 3-103 to 3-104, of the Draft EIS, explains how the Project would strive to fill operations positions to the "greatest extent feasible" locally. Section 3.9.4 of the Final EIS now contains a list of "Additional Mitigation Measures", one of which is: "To the greatest extent feasible, employment opportunities will be filled locally. This will include advertising available positions locally first; however, to fill some positions, which typically require a worldwide search, advertisements will be simultaneously released both locally and to a wider audience."

[United States Department of Justice, Legal Issues Raised by Proposed Presidential Proclamation to Extend the Territorial Sea, Opinions of the Office of Legal Counsel, vol. 12, p. 238-263, October 4, 1988. Excerpts commenting on the annexation of Hawai'i taken from pp. 250 – 252]
Thus a number of scholars of international law have concluded that proper status of Hawai'i is one of prolonged U.S. occupation. This would also mean that the U.S. does not have clear title to "ceded" lands….

23 How well TMT can attain its goals in Chile vs. Hawai'i is a major factor in deciding whether the benefits to Hawai'i outweigh the environmental impacts.
Compare applicable Chile and Hawai'i environmental laws.

24 Given modern communications, how much difference is expected between the Hawai'i and Chile sites in communication and synergy with other telescopes?

25 Draft EIS p. 5-1 [Hawai'i] Although the Cerro Amazones site is being considered by the TMT board, it is not considered an 'alternative' for UH because UH cannot approve locating the TMT in Chile.
Why is UH preparing the EIS, not TMT?
Would it be legal for TMT to prepare the EIS?

26 Give a side-by-side, easy-to-interpret comparison of Chile/ Hawai'i benefits and impacts, including information from the following:

Regulatory environment: There are indications that environmental law is less stringent in Chile. It appears no environmental study was required despite the size and cost of the observatory, and use of explosives to remove 36 feet and 72,000 cubic meters of rock from a mountain summit.
DIA p. 6 sec 1.2 [Chile] The project "Transport, Construction and Operation of TMT Telescope (Thirty Meters Telescope) on Cerro Armazones", constitutes astronomical research activities, a type of project or activity that is not expressly contained in Article 10 of Law 19,300 and Article 3 of the rules for the Environmental Impact Assessment System / Sistema de Evaluacion de Impacto Ambiental (SEIA). In accordance with Articles 8 and 10 of Law 19,300, this project is not required to undergo SEIA. The presentation of this Environmental Impact Statement is done on a voluntary basis under the first paragraph of Article 9 of the same law.

DIA p. 34 [Chile] In order to have a platform for the installation of the telescope's infrastructure, it is necessary to lower the summit of Cerro Armazones by 12 meters (from its current height, 3,064 meters above sea level to its final elevation, 3,052 meters above sea level) The excavation of the platform will be executed by using explosives in a controlled manner, by specialized, properly certified personnel. A total of 72,000 m3 of rock is expected to be removed.

DIA p. 72 [Chile] In this case there are no elements that require the presentation of an Environmental Impact Study. For this reason, a Declaration of Environmental Impact is presented in order to ensure the project´s compliance with all the legal norms and regulations applicable according to article 10. The said project is not described in letters a) to f), and therefore is entered into the Environmental Impact Evaluation System voluntarily.

Facility life: TMT's lifespan in Hawai'i may be only 15 years if the lease is not renewed in 2033--versus an expected lifespan of 50 or more years in Chile. Hawai'i's 15 years could be shortened by the contested case action and any challenges to the EIS.

9
If the Federal government wished to fund an individual's, group's, or agency's (including a Federal agency's) use of the TMT Observatory once it has been built there would be no restriction on the Federal government doing so. There would be no need to monitor the use of such funding.
There are no agreements or plans for military involvement in the Project. The TMT is not a military project or designed for military purposes. It is a research instrument. However, should the military wish to fund an individual's, group's, or agency's (including a Federal agency's) use of the TMT Observatory once it has been built there would be no restriction on the military doing so; however, there will be no classified research performed using the TMT.

10
The Draft EIS does not suggest that TMT or other groups or individuals will constrain cultural practices in the summit region. The Draft EIS, in Section 3.2.3, page 3-18, indicates the Project will comply with applicable rules, regulations, and requirements - including the CMP - concerning cultural resources and practices. The CMP states, on page 7-7, that "Native Hawaiian traditional and customary practicies shall not be restricted, except where safety, resource managment, cultural appropriateness, and legal compliance considerations may require reasonable restrictions."
The quote by the commentor, from Section 3.10.3 (Land Use), reads "The Project staff would be trained to not interefere with cultural and religious practices, and the Project would not impede any traditional cultural or religious practices." Based on the comment this statement has been modified to read "The Project staff would be trained to not interefere with cultural and religious practices." Impacts to cultural practices based on landscape alteration and views are discussed in Section 3.2.3 (Cultural Resources) of the Draft EIS.
In addition, the discussion of the Project's impact on cultural practices and beliefs has been expanded in the Final EIS, including this addition: "The summit region, which includes the Mauna Kea Summit Region Historic District and Kukahau`ula, is a sacred area in Hawaiian culture and serves as a site for individual and group ceremonial and spiritual practices. These practices include prayer, shrine erection and the placement of offerings. The area to be occupied by the TMT Observatory structure would not be available for future cultural practices of this nature. In addition, for some individuals, the introduction of new elements associated with the Project in the area of the northern plateau would adversely affect the setting in which such practices could take place."

11
The quote by the commentor comes from Section 3.10.3 of the Draft EIS. Visual impacts are discussed in Section 3.5.3 of the Draft EIS. As indicated in Section 3.5.3 of the Draft EIS, Figure 3-7 on page 3-61 in particular, the TMT Observatory would not be visible from the summit of Maunakea (Viewpoint 16; the summit of Kukuhauula/Puu Wekiu). Therefore, the Project would not be taking away the last unobstructed view from the summit.

12
The impacts of the Project's use of the Hale Pohaku Staging Area, part of the potential TMT Mid-Level Facility, and the Batch Plant Staging Area are discusses in the subsections of Chapter 3 of the Draft EIS as appropriate. The level of detail is sufficient to discuss the Project's potential impacts on the environment.

13
Potential Project impacts related to construction phase activities are discussed in Section 3.15 of the Draft EIS. Because the limits of construction disturbance will be the same as the area of disturbance discussed in Section 3.2 through 3.14, there will be no additional habitat displacement during construction. Mitigation measures in the Final EIS include:

•"Arthropods will be monitored in the area of the Access Way prior to, during, and for two years after construction on the alpine cinder cone habitat.
•"In addition to the NPDES BMP plan that will require flagging of the planned limits of disturbance, the location of nearby property boundaries will be surveyed to ensure that the limits of disturbance do not encroach on neighboring parcels. This will be done at the Batch Plant Staging Area to prevent encroachment on the Ice Age NAR, at the potential TMT Mid-Level Facility area, if constructed, and at the Headquarters construction site."

27

Quality of viewing: The EIS says there is “no significant difference” in viewing quality between Hawai’i and Chile. But the DIA has high praise for Chile viewing.

Draft EIS p. 5-1 [Hawai’i and Chile] ...overall there is no significant difference in the quality of observations between the Cerro Amazones site and the site of the proposed Project.

DIA p. 10 [Chile] As a result of a comprehensive atmospheric study conducted internationally, TMT determined that the geographic area of the Atacama Desert is one of the best places in the world to conduct research in astronomy. In particular, the Cerro Armazones located in the Cordillera de la Costa, has an ideal combination of nights with photometric quality, clear weather throughout most of the year and low atmospheric turbulence… Like Cerro Paranal, home of the European ESO VLT, Cerro Armazones lies within what astronomers have come to call Photon Valley, due to exceptional weather conditions making it appropriate for observation of the Universe.

Partnerships The EIS says “the potential for synergy between [nearby observatories]...and TMT, or for a system of integrated observatories leading to greater scientific productivity, is lower” in Chile than in Hawai’i. Still, the DIA says “effective partnership with other observatories” is likely, and modern communications make distance less of an issue.

Draft EIS p. 5-1 [Hawai’i and Chile]...the potential for synergy between [nearby telescopes in Chile]...and TMT, or for a system of integrated observatories leading to greater scientific productivity, is lower than for the Project site."

DIA p. 10 [Chile] The construction of an observatory on Cerro Armazones creates the opportunity to develop an effective partnership with other observatories in the region, such as: VLT telescope (Very Large Telescope) on Cerro Paranal and the radio interferometer ALMA (Atacama Large Millimeter Array) located in the Llano Chajnantor towards the interior of the Antofagasta region.

DIA p. 12 [Chile] Universidad Católica del Norte,,,has developed an infrastructure complex and
equipment for astronomy research. In fact, a telescope was built in collaboration with German
universities. The premises have also seen the development of facilities by the University, which
has built a base camp for operational staff, astronomers and students.

US/ Chile astronomy leadership The EIS says “locating the TMT in Hawai'i would help maintain the U.S.' leadership in astronomy, research, discovery, and innovation.” The DIA says locating it in Chile would help make the region “the world capital of astronomy.”

Draft EIS p. 2-1 to 2-2 [Hawai’i] …locating the TMT in Hawai'i would help maintain the U.S.' leadership in astronomy, research, discovery, and innovation.

DIA p. 21 [Chile] The TMT telescope will have a place among the largest in the world, and together with the VLT (Very Large Telescope) optical telescope and the interferometer radio ALMA (Atacama Large Millimeter Array), will distinguish the Antofagasta region as the world capital of astronomy.

Socioeconomic Conditions Socioeconomic benefits seem to be greater

14

The quote by the commentor and Section 3.15, page 3-143, of the Draft EIS indicate "All orders to cease construction issued by the construction monitor would immediately be reported to OMKM and, if it is a violation of the CDUP, notice would be reported to the DLNR." Based on the comment this statement has been changed to read "All orders to cease construction issued by the construction monitor would immediately be reported to OMKM and DLNR" in the Final EIS.

15

Section 3.15.1 of the Draft EIS outlines potential Project impacts during construction and compliance measures that will mitigate those potential impacts. It is stated that "Materials and clothing would be washed or otherwise cleaned prior to proceeding above Saddle Road." The subbullets of what "could" be included in this effort are provided to indicate what sort of things are being considered to fullfill the "would" in the main washing/cleaning bullet. The details of the Invasive Species Prevention and Control Program will be developed during the Conservation District Use Permit (CDUP) process; if, during the CDUP process, one of these items is determined to be inappropriate for some reason a similar protective practice will be developed. For this reason the word could is used.

16

The commentor is referring to the "Control" component of the Invasive Species Prevention and Control Program discussed in Section 3.15.1 of the Draft EIS. The details of the program will be developed during the CDUP process, which is managed by the DLNR; therefore, control methods to be employed will have been approved by DLNR prior to their implementation. The DLNR does not have staff to supervise the actual control effort in the field. The following statement has been added to the "Control" bullet in the Final EIS "Control measures would be implemented by staff trained by a trained biologist, selected by OMKM and approved by the DLNR."

17

In Section 3.15.1, page 3-148, it is stated that, "Many invasive species are already well established at the potential Headquarters and Satellite Office sites and those sites are not unique or critial habitat. The plan would be implemented for these construction sites only to the extent necessary to prevent new invasive speces from becoming established and would not include inspections by a biologist."
To address the comment and clarify the intention of the statement in the Draft EIS, the Final EIS now reads, "Many invasive species are already well etablished at the potential Headquarters sites and those sites are not unique or critial habitat. The Invasive Species and Control Plan will be implemented at the Headquarters site only to the extent necessary to prevent new invasive speces from becoming established and will not include inspections by a biologist at the Headquarters site." The Satellite Office considered in the Draft EIS is no longer a consideration in the Final EIS.

18

In response to the comment, the Final EIS has revised "could include" to read "will include".

28

in Hawai'i--140 employees versus 100 in Chile, plus an Instrument Development Office, and scholarships and other mitigation measures in Hawai'i. But comparison is not possible, because total budget, construction, and annual operating cost are not given for both sites.

Draft EIS p. 5-6 [Chile]...The DIA states the amount of money expected to be invested in Chile during construction would be $150 million (U.S) over a period of 8 years. During the construction phase, it is anticipated that 170 people would be employed, 20 of whom would be foreigners. During the operation phase, it is expected that approximately 100 people would be employed with long-term contracts; any given day there would be about 40 people working at Cerro Amazones. The DIA states that this would not cause any significant socioeconomic changes in the population, including level of education or employment levels.

Draft EIS p. 3-102 [Hawai'i]...The current estimate for observatory operations anticipates the need for 140 full-time employees.

Draft EIS p. 3-102 [Hawai'i]..."it is planned to locate TMT's Instrument Development Office in Hawai'i..."

Land Use Plans, Policies, and Controls--Decommissioning The Hawai'i EIS is stricter--it cites decommissioning requirements including saving excavated material and setting aside funds. But the DIA just says "Surfaces will be restored at the end of the project."

Draft EIS p. 2-24 [Hawai'i] Consider future decommissioning during project planning and include provisions in subleases that require funding of full restoration...To address [this]...the :Project has (a) included in the design of the TMT Observatory and Access Way the storing of 99 percent of the excavated material on those sites for reuse during site restoration, and (b) included in the planned Project operation budget annually setting aside funds that would be used for decommissioning of the TMT. The Project understands decommissioning and site restoration requirements will be included in the sublease.

DIA p. 64 [Chile] The project does include alteration of the surface soil for the purpose of installing the infrastructure and telescope. Surfaces will be restored at the end of the project.

Land Use Plans, Policies, and Controls--Land control In Hawai'i, TMT may be affected by controversy over ceded lands. But in Chile, though the site is protected for mining purposes, the TMT is allowed.

DIA p. 67 The project is located in an area placed under official protection as a Place of Scientific Interest for Mining Purposes, according to Decree No. 71 of May 2, 1991 by the Ministry of Mining. Given the scientific nature of the project, this protection allows for its development and, at the same time, protects it from the potentially adverse effects of entities that may wish to develop mining projects in the area.

Stakeholder Type : Citizen

19

The potential impacts of the Project are evaluated within the framework of compliance with all applicable rules, regulations, and requirements for the project type and location. Wind generally disperses noise and renders noise less noticable; however, sound waves are generated by noise generating activities regardless of wind conditions. Noise is discussed in the absense of wind because that is when it is most noticible. While there are no "echoing" standards to be measured, echoing is not anticipated to occur due to the lack of area/surface for the sound to bounce off of and be directed back to the source.
Related to construction impacts to hikers the following wording has been added to Section 3.15.1, Land Use subsection: "those accessing the area for cultural purposes, hiking, or other outdoor activities would be affected by construction traffic, dust, and noise as discussed in those sections below. Generally, the distance of the TMT Observatory construction site from the primary areas of cultural practice and hiking trails will reduce the potential impact."
The distance from the construction site from which blasting would be audible is dependent on many factors and is not known at this time. As stated in the Draft EIS, page 3-155, "A noise permit would be obtained, per regulations from the HDOH, under HAR Section 11-46-7 to temporarily allow noise levels to exceed those typically permitted. A noise variance would also be obtained under HAR Section 11-46-8 for construction of the TMT Observatory so that work could be performed beyond normal work hours." Permit and variance conditions generally mitigate noise impacts at construction sites; typically percussive noise, such as blasting, is not allowed outside of normal work hours.

20

Section 3.13.1, page 3-132, of the Draft EIS states, "Pursuant to HAR Section 11-46-3, land such as the MKSR, which is zones as a conservation district, would be classified as a Class A district. A maximum noise level of 55 dBA during the daytime hours ... and 45 dBA during nighttime hours ... is allowed in a Class A district. Noise levels are not to exceed these maximum permissible levels for more than 10 percent of the time within any twenty-minute period, except by permit or variance." These are the regulatory noise levels that apply to the MKSR.
Please see Section 3.13 of the Final EIS for additional information added in response to comments received during the Draft EIS comment period. The additional information includes the results of a field study of noise conditions in the summit area and outlined additional Project mitigation measures related to noise, including:
Section 3.13.3, Potential Project Impacts: "The noise generated by the TMT Observatory will be below the Class A allowable limits at a distance of 270 feet from the HVAC system during the day and 850 feet from the system at night. Therefore, anyone standing at least 270 feet from the TMT Observatory HVAC system during the day will not be exposed to noise levels exceeding the Class A daytime standard. This area is illustrated in Figure 3-35. Areas beyond 850 feet of the TMT Observatory HVAC exhaust output will not experience noise levels exceeding the Class A nighttime standard. All identified noise sensitive areas in the summit region, including the trailhead and summit of Pu'u Wekiu/Kukahau'ula, Lake Waiau, and Pu'u Lilinoe, will be more than 850 feet from the TMT Observatory HVAC system (Figure 3-34). Operation of the TMT Project will not contribute to a noticeable increase in noise levels at the identified recreational sites recognized as sensitive to noise in the surrounding area."
Section 3.13.4, Mitigation Measures: "the Project will implement the following mitigation measures:

- "HVAC equipment will be placed indoors. By placing the equipment indoors the noise associated with HVAC equipment motors, evaporators, and condensers will be significantly reduced. Data regarding the noise associated with the exhaust of the chillers alone is not available; however, the noise level will be lower than those indicated in Table 3-17 and Table 3-18. Therefore, the radius of the area exposed to noise levels greater than the Class A standard will also be reduced.
- "The exhaust of the HVAC equipment will be directed through a tunnel duct that exits on the northwest side of the graded area, which faces away from noise sensitive areas. Measures along the route of the airflow will also be used to reduce the noise discharging outside of the TMT Observatory; measures could include acoustical louvers, tunnel duct wall treatments, and duct silencers. These measures will further reduce the radius of the area exposed to noise greater than the Class A standard."

21

Section 2.7.4, page 2-24, of the Draft EIS states:

2. "Once the observatory's useful life has ended, develop a recycling and/or demolition plan that considers items such as waste management and demolition best managment practices (BMPs) (CMP Management Action SR-1).", and

3. "Once the observatory's useful life has ended, develop a site restoration plan, which would include an environmental cost-benefit analysis of the three levels of decommissioning (CMP Management Action SR-2)."

This is also considered in construction phase impacts in Section 3.15, on page 3-143, and cumulative impacts in Section 3.16, on page 3-191 of the Draft EIS.

The Decommissioning Plan (DP), a sub plan of the CMP, became available after complition of the Draft EIS. The Final EIS has included and referenced information from the DP as appropriate. As indicated in Section 2.7, Table 2-2, the timeline for TMT Observatory decommissioning activities has not yet been determined, but the process is expected to begin "at least 5 years prior to lease end"; it is therefore considered premature to provide a detailed plan for where potential waste may go or who would care for such waste. The practices employed to recycle and dispose of wastes is a constantly evolving. The best practices at the time of decommissioning will be evaluated and selected at the appropriate time. As stated in Section 2.7.4 of the Final EIS: "TMT is committed to preparing the necessary plans, such as the SDP, SDRP, and SRP, in accordance with the general timeline presented in the Decommissioning Plan and providing an opportunity for the public to comment on the plans."

22

Resolving claims that the ceded lands were wrongfully taken by the United States, that the State's title to ceded lands is clouded or void, or that ceded lands should be returned (or compensation provided) to a class defined by race or ancestry, is beyond the scope of this EIS. This EIS assumes that the State of Hawaii lawfully owns those portions of Maunakea where physical improvements for the Thirty Meter Telescope Project are anticipated.

23

The site that was being considered in Chile is discussed in Chapter 5 of the Draft EIS. The proposing agency, the University of Hawaii at Hilo (UH Hilo), does not have any authority in Chile; therefore, the site in Chile is not an alternative available to them and is not discussed as an alternative in this State of Hawaii Chapter 343 EIS disclosure document. Differences between Chilean and Hawaiian environmental laws do not address the Project's potential impacts on the environment evaluated in the Draft EIS.

24

As stated in Chapter 5 of the Draft EIS, on page 5-1, "While the ALMA and LSST could potentially help identify astronomical observation targets for the TMT, none of those observatories is operated by the TMT partners and they are scattered over a large geographic area. Thus, the potential for synergy between those facilities and TMT, or for a system of integrated observatories leading to greater scientific productivity, is lower than for the Project site."

Modern communications leads to wide cooperation among observatories, such as the identification of targets mentioned in this quote. However, to realize greater synergy in research and operation, observatories need to be operated by common partners and be located nearby each other. As is pointed out in Section 2.3, page 2-4, of the Draft EIS, the existing Keck, Canada-France-Hawaii Telescope, and Subaru are at least partially operated by TMT partner institutions. For observatories operated jointly and co-located at the same mountain there would be many opportunities to integrate science programs and to develop complementary instrumentation.

25

As indicated in the EIS, the University of Hawaii at Hilo (UH Hilo) is the proposing agency. HRS Chapter 343 imposes obligations on State and local agencies. The TMT Observatory Corporation is not a State or local agency – it is a California nonprofit public benefit corporation. UH Hilo is an instrumentality and body corporate of the State of Hawaii. UH Hilo is the proposing agency because it holds the lease on the State land being considered for the TMT Observatory and potential Mid-Level Facility. UH Hilo is also the permittee and applicant of current Conservation District Use Permits (CDUPs) for the Mauna Kea Science Reserve (MKSR).

26

Comment acknowledged; the site that was considered in Chile is discussed in Chapter 5 of the Draft EIS. The proposing agency, the University of Hawaii at Hilo (UH Hilo), does not have any authority in Chile; therefore, the site in Chile is not an alternative available to them and is not discussed as an alternative in this State of Hawaii HRS Chapter 343 EIS disclosure document. For this reason no side-by-side comparison of the two sites is included.

27

Comment acknowledged; the site that was considered in Chile is discussed in Chapter 5 of the Draft EIS. The proposing agency, the University of Hawaii at Hilo (UH Hilo), does not have any authority in Chile; therefore, the site in Chile is not an alternative available to them and is not discussed as an alternative in this State of Hawaii HRS Chapter 343 EIS disclosure document. For this reason no side-by-side comparison of the two sites is included.

28

Comment acknowledged; the site that was considered in Chile is discussed in Chapter 5 of the Draft EIS. The proposing agency, the University of Hawaii at Hilo (UH Hilo), does not have any authority in Chile; therefore, the site in Chile is not an alternative available to them and is not discussed as an alternative in this State of Hawaii HRS Chapter 343 EIS disclosure document. For this reason no side-by-side comparison of the two sites is included.

RECORD DETAIL

First Name : Darryl

Last Name : Johnston

Submission Date : 06/21/2009

1 **Submission Content/Notes :** I strongly support the Thirty Meter Telescope for Mauna Kea. A small vocal minority should not be allowed to dictate against the interests of the community and against progress in science.

Darryl Johnston

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : Jesse

Last Name : Wu

Submission Date : 06/22/2009

1 **Submission Content/Notes :** I wholeheartedly support this project as it will create high paying jobs for our County. Furthermore, it will diversify our economic base away from tourism and also take advantage of a unique opportunity only available to Hawaii County. We must not forget that the hospitality industry is principally made up of low-paying jobs, any households making less than $54,000 are considered "Low-Income" by HUD's standards - a majority of the full-time job opportunities at this facility will make more.

Obviously, we must be sensitive to the cultural concerns but the construction of this facility should not be hampered by a minority voice that is not mindful of sustaining long term opportunities for people of this island. Any design opportunities to minimize the visual impact of the summit should be considered, however, such factors should not be unrealistic and forget the impact of existing facilities at the summit (previously approved by people of this island).

Thank you.

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : William and Maria

Last Name : Pendered

Submission Date : 06/23/2009

1 **Submission Content/Notes :** Construction of the Thirty Meter Telescope (TMT) on Mauna Kea will be a boon for the State of Hawaii for generations to come. In the near future it will provide a much needed boost to our econoomy by a totally clean and non-polluting industry. In the long run, it will assure that Hawaii remains the world's premier astronomical site.

Arguments against the Mauna Kea site by a small number of dissidents are misguided. Environmental concerns about endangered insect life there have proven unfounded. Claims by activists that astronomy atop the mountain desecrates sacred "aina" is specious. Hawaiian royalty long ago banished the practice of multiple gods and the kapu system. The practice of ancient Hawaiian religion on the mountain has been virtually nonexistent for years.

If the TMT goes to Chile because of a few ignorant or foolish dissidents, it will be a disaster for Hawaii and its citizens. Please don't let that happen!

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : Matt

Last Name : Binder

Submission Date : 06/23/2009

1 **Submission Content/Notes :** As an educator, I would welcome the Thirty Meter Telescope to our island as a tremendously valuable teaching tool for our students and a source of good, high-tech jobs for our graduates.

We often decry the lack of good job opportunities for our young people as they are forced to go elsewhere for good jobs. I think the astronomy industry provides a much-needed diversification to our economy. I hope some day my son will have the chance to stay at home on the Big Island and still reach for the stars.

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your review and will continue to work with the community to focus educational and other benefits so that they best fit the community goals and needs. Please see Section 3.9.4 of the Final EIS for additional details regarding the Project's educational measures.

RECORD DETAIL

First Name : Duane
Last Name : Erway
Submission Date : 06/24/2009
Submission Content/Notes : Aloha!!!

The Thirty Meter Telescope will be an important new window on the universe because of it's light gathering power and optical resolution. However it does not belong on Mauna Kea.

1 Mauna Kea is part of a cultural landscape protected by both federal and states laws. The summit area is eligible for listing on the National Historic Register. The historic and cultural sites make up the Native Hawaiians cultural landscape, as well as a nationally acclaimed area of unique importance. Mauna Kea is held sacred by Hawaiians, akin to that of a church, temple or mosque. The summit area is also a Conservation District and includes many plants and animals that are found nowhere else on earth. Impacts to their natural habitat can cause species to be listed as threatened and/or endangered. That can be determined only if they are studied and valued, which has not yet been done satisfactorily by the University of Hawaii.

There has been substantial public opposition to further development for decades now, largely because there is evidence (such as that listed in the NASA EIS for the KECK Outrigger Telescopes) that the thirty years of astronomy development has resulted in serious and substantial impacts to both the cultural and natural resources of Mauna Kea. Building the Thirty Meter Telescope will undoubtedly cause more harm, probably some irreparable.

2 The legal limit on the number of telescopes has been far exceeded and the public has come out strongly in favor of no further development. The citizens groups including Sierra Club, Mauna Kea Anaina Hou, The Royal Order of Kamehameha I, and Clarence Ku Ching litigated in both Federal and States court, leading to Judge Hara's 2007 landmark ruling against the Keck Outriggers. There is ongoing litigation over the same that will undoubtedly continue with more development such as the Thirty Meter Telescope being proposed.

The site in Chile has equal if not better seeing for the Thirty Meter Telescope.

3 I urge you build in Chile, avoiding long years of controversy, negatively impacting the ecosystem and causing undo stress amongst the host culture, that has graciously given their mountain for astronomy for well over thirty years now.

Regards,

Duane D. Erway
P.O. Box 2807
Kailua-Kona, HI 86745

Stakeholder Type : Citizen

1
Potential cultural impacts due to the Project are discussed in Section 3.2 of the Draft EIS and potential impacts to biological resources due to the Project are discussed in Section 3.4 of the Draft EIS; cumulative impacts are discussed in Section 3.16 of the Draft EIS.

2
There is no set "limit" on the number of telescopes or observatories on Maunakea. The 1983 Master Plan states on page 41, "Based on the RDP [Research Development Plan], the SRCDP [Science Reserve Complex Development Plan] identifies siting areas for a total of thirteen telescopes on the mountain by the end of the century. Although the actual number of facilities which will be realized by the astronomy program at Mauna Kea will depend on the demand and on the role determined for this activity by public policy makers, the University of Hawaii has determined that it is resonable and feasible to project a total of 13 telescopes on the mountain between now and the year 2000." The 1983 Master Plan is silent on the number of observatories that could be built after the year 2000 and overall the number of observatories is left to public policy makers.
The 2000 Master Plan, which is the most current master plan for the UH management areas, does not identify a limit on the number of observatories on Maunakea but does limit the area of future development to within the Astronomy Precinct.

3
Acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

RECORD DETAIL

First Name : Linda

Last Name : Gregoire

Submission Date : 06/24/2009

Submission Content/Notes : I attended the meetings in Hilo. My three suggestions for the final EIS are this:

1 1. Please give a detailed break-down of proposed staffing levels for the TMT. I.e., how many scientists, telescope operators, engineers, maintenance people, accountants, secretaries, receptionists, etc. do you expect to employ? (It might be a good idea to give the expected break down of construction jobs, too...plumbers, electricians, steel workers, etc.)

I believe this would enable local people to see how they might be employed by the TMT and, most especially, what they might do to prepare for such jobs. Local high school kids applying for university might tailor their choices for a viable career here at home. Also, adults looking for career retraining options would find this information useful.

2 2. How many staff members must be "imported" based on promises to funding agencies and foreign governments? How many of the estimated 140 permanent jobs can qualified local people have a reasonable chance of obtaining?

3 3. If possible, please include an estimate of the "trickle down" effect on the local economy that the TMT would have. You've explained how much money you're prepared to pump into local school and education programs, but do you have any idea of the total impact on the island economy? (Injections by employees into the tax base from wages, property taxes, and excise tax; additional spending at local shops and businesses for office supplies, company cars, janitorial services, etc.) This might help some local opponents see that their families could benefit even if not directly employed by the TMT.

Thanks very much and best of luck to all of you!

Best regards,
Linda Gregoire

P.S. Please pick Hawaii! :-)

Stakeholder Type : Citizen

1

Section 3.9.3, page 3-102, of the Draft EIS states the Project would provide an estimated 140 full-time jobs for "astronomers, a wide range of engineers and engineer technicians (mechanical, electrical, and optical), software and information technology engineers, staff to maintain and direct equipment at the observatory, scientific support, public outreach, and management and administrative personnel, including cultural and educational outreach specialists."
At this time, roughly eight years before the start of the TMT Observatory operation phase, it is not possible to know an exact number of each type of future employee. However, the following has been added to Section 3.9.3 of the Final EIS, "The majority of the positions will likely be in the technical and engineering areas (40%), followed by science (20%), software/IT (10%), and administration (10%)."
The Workforce Pipeline Program described in Section 3.9.4, page 3-103 to 3-104, of the Draft EIS, explains how the Project would strive to fill operations positions to the "greatest extent feasible" locally. Section 3.9.4 of the Final EIS now contains a list of "Additional Mitigation Measures", one of which is: "To the greatest extent feasible, employment opportunities will be filled locally. This will include advertising available positions locally first; however, to fill some positions, which typically require a worldwide search, advertisements will be simultaneously released both locally and to a wider audience."

2

There are no agreements with the Thirty Meter Telescope Project partners or others to fill the planned operations jobs with staff from outside of Hawaii. Partners may, however, choose to complement the operations staffing by providing additional researchers and scientists.

3

Section 3.9.3, pages 3-102 to 3-103, of the Draft EIS discusses potential impacts related to socioeconomic conditions on the island. This sections outlines that the Thirty Meter Telescope Project would pay local and state tax, pay utility bills, have large annual budgets ($25.8 million), hire local contractors for various specialties, and its employees would purchase local goods and services as well as pay their own taxes. Overall it is stated that the Project would contribute to the socioeconomic welfare of the island community and the state. However, given that the operation phase of the Project is eight years in the future, greater details of potential beneficial impacts at that time are not provided.

RECORD DETAIL

First Name : J. Kimo
Last Name : Hugho
Submission Date : 06/24/2009

Submission Content/Notes : Anthropomorphism, the attributing of human characteristics to non-human creatures and beings, natural and supernatural phenomena, gods and inanimate objects clearly describes the feelings and beliefs of ancestors, past and present as to how they view Mauna Kea. From first voyagers and for those not yet born, Mauna Kea will always be seen as a family member, as a vital force and source for re-sensitizing of a culture guided by Nature, as an everlasting source of spiritual strength, and an important navigational aid but, very significantly, a therapeutic source for post traumatic stress, a Pu'uhonua in its own right.

As Hokule'a was being designed, I instantly knew that my role would be as care giver to this living cultural artifact, albeit a replica of the first artifact of the first people to settle here. We were committed to Hokule'a as its hanai parents and Hokule'a the child. The same holds true for Mauna Kea and the many who are its cultural care givers.

I asked Mau the navigator, "What makes you the champion navigator and that you are exact and successful in finding your island?"

His response was, "I see everything as friend. The stars, the sun, the moon, the ocean, the colors of the sunrise and sunset, the darks of the night, the fish, the birds, the whale, the islands and trees, the rain and the high mountains like you have Mauna Kea who I will find by the clouds playing with him. I think, maybe, the magic you look for from your gods will always be there if you be like me, same same, everything is friend!"

True to Mau's words and within two months, this magic or natural happenstance began on the first visit to the big island by Hokule'a in 1975. Becalmed and drifting offshore from Keahole and at the mercy of strong currents, stepping out of the dry pili grass through heat vapors rising from the ancient and hot lava fields comes Iolani Luahine. She calls for winds and the sails fill. She comes aboard and prepares a ho'okupu at Kealakekua Bay with the monument of Captain Cooke hidden in the shadows of keawe and all the while she speaks to someone or something, even with her eyes. At Hale O Keawe we meet Tutu, cousin of Iolani. Mauna Loa erupts as we make ready to leave for Kealakekua and Kawaihae and Tutu sails with us. Tutu speaks of her sister, Mano, who is having fun following Hokule'a and who will always be with the canoe. The magic continues with three paranormal experiences that detail what the next years will be like if Hokule'a continues to be subjected to egoic posturing of a corporate mindset.

The solution is to include and respect the above described beliefs and common sense methods of the past and present for a beneficial and synergistic outcome, however history will show that past efforts have been academy award glittering generalities, opaque transparency and choreographed genuflections.

The reality of now is that the cultural keepers and general population of the big island, all special beings with beautiful minds, are in the throes of the most critical of a pandemic like economic depression, a survival mode as hunter/gatherer, where medical coverage and health concerns are being affected and the most feared of results imagined. Certainly, a CPR like process is necessary to regain for each person that God given breath of life, the Ha! Depression of a valuable populace is not acceptable for where Aloha is key!

1 Should TMT become the savior to the present horrors of now, the kuleana of this administration must be to thoroughly review all components of TMT to determine which items can be engineered, machined and fabricated here in the state. For the critical lens

1
Section 3.15.1, page 3-152, of the Draft EIS states "to the extent practicable, when suitable construction material is available in Hawaii it would be procured locally."

2 components, these should be thoroughly fumigated and vacuum sealed prior to shipment. Upon arrival, removal and delivery of all components shall be by local companies. This shall hold true for infrastructure and facilities construction thru its completion and for maintenance of TMT.

3 There shall also be a need to provide areas to where the ashes of ancestors can be brought to be infused with the mists and winds of Mauna Kea along with areas set aside to allow for the therapeutic benefits that Mauna Kea provides, validating the necessary collaboration with man and nature as a positive process for comfort healing.

4 Continuing educational programs shall exist for the life of the contract for TMT with all visuals received from the most distant of galaxies made available to everyone. Include also the scientific writings, day to day schedules, future plans and results of all observation to be shared with everyone. Emphasis shall be to provide immediate educational assist for training of local students for employment at TMT with a goal of a significant number of staffing by locals.

For this testimony to ever be in review and accepted remains to be seen. What is not needed is designer sound bites, fogged layers of transparency and dramatic bending at the knees as if in prayer. Mauna Kea is culturally alive, yet scared for life!

Stakeholder Type : Citizen

2
The handling of shipments imported to the state for the Project is discussed in Section 3.15.1, pages 3-147 to 3-148, of the Draft EIS. The Invasive Species Prevention and Control Program outlined includes several components, including materials control and reduction (including packing materials to be used and repacking at the Port Staging Area), washing/cleaning, inspections, monitoring, control, and eduction/training. These components will continue throughout the operation phase of the Project, as discussed in Section 3.4.3, pages 3-50 to 3-51, of the Draft EIS.

3
The Draft EIS does not suggest that the Thirty Meter Telescope Project or other groups or individuals will constrain cultural practices or access, including gathering of cultural resources, in the summit region. The Draft EIS, in Section 3.2.3, page 3-18, indicates the Project will comply with applicable rules, regulations, and requirements - including the CMP. The CMP states, on page 7-7, that "Native Hawaiian traditional and customary practicies shall not be restricted, except where safety, resource managment, cultural appropriateness, and legal compliance considerations may require reasonable restrictions."

4
The Community Benefits Package (CBP) and Workforce Pipeline Program (WPP) outlined in the Draft EIS would continue for the life of the Project on Maunakea. These programs would assist local students during their education and training for future employement at the TMT Observatory, should they choose such a course. As stated in Section 3.9.4, page 3-103, of the Draft EIS, "to the greatest extent feasible, employment opportunities would be filled locally." Please see Section 3.9.4 of the Final EIS for additional information, including: "The CBP will be funded by the TMT Observatory Corporation and will be administered via The Hawai'i Island New Knowledge (THINK) Fund Board of Advisors. The THINK Fund Board of Advisors will consist of local Hawai'i Island community representatives. The CBP funding will commence upon the start of Project construction and continue throughout the TMT Observatory's presence, so long as the CDUP is not invalidated or construction stayed by court order. As part of the CBP, the TMT Observatory Corporation will provide $1 million annually during such period to the THINK Fund; the dollar amount will be adjusted annually using an appropriate inflation index (the baseline from when inflation index will be applied will be the date of start of construction). ... Educational initiatives will focus on K-5, 6-8, 9-12, and college. The program could include support for students to visit 'Imiloa, TMT, and other observatories."
All observatories routinely publish images made and scientific writings based on research performed, including how findings will influence future plans; TMT will do this as well. However, not every image, scientific writing, or day to day schedule will be published.

RECORD DETAIL

First Name :

Last Name :

Submission Date : 06/18/2009

1 **Submission Content/Notes :** Ya I think you guys should go ahead with the project. Its a good thing for work and places for the children to go up and learn the astronomy. Construction would also boom and thats a plus, and in the long term, it will be good for our island. you should go ahead with it

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : Colin

Last Name : Aspin

Submission Date : 06/24/2009

1 **Submission Content/Notes :** The TMT promises a 'new start' for collaboration and cooperation between astronomers and local residents of the Big Island including our Hawaiian ohana. Clearly this is very important, it is important that the community realizes that astronomers are trying their absolute best to make the development of new or refurbished facilities on Mauna Kea as environmentally, culturally, and ecologically friendly as possible. They are also willing and able to inject considerable funding into the local economy including job creation. The proposed educational grants will contribute significantly to the life of our keikis as they go from kindergarten to college during the lifetime of, for example, the TMT. Providing the views and wishes of the community are seriously considered and promises made are followed through, development of the TMT should be wholeheartedly approved for all our benefit.

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : Lee
Last Name : Motteler
Submission Date : 06/25/2009

1 **Submission Content/Notes :** I have been a resident of Hawaii since 1962 and of the Big Island since 1989. In the early 1990s I worked as office manager of the Caltech Submilliter Observatory in Hilo. I had no professional background in astronomy, yet I was provided this excellent employment opportunity.

Locating the next-generation optical telescope (the Thirty Meter Telescope or TMT) on Mauna Kea seems not only logical but imperative to me. To allow this state-of-the-art facility to be built in Chile would potentially be the biggest mistake Hawaii could make.

Although the project would provide employment opportunities for the local community (see above), this is not about jobs. This is about cutting-edge astronomy and astrophysics: learning about the cosmos and humankind's ultimate beginnings. The greatest astronomical discoveries in human history are going to be made in the next few decades (for example, earthlike planets capable of sustaining life similar to ours). Is Hawaii going to pass up the golden opportunity to be at the center of these discoveries?

I have studied the Draft EIS and printed out the maps and many of the pages for further reference. Contrary to what some critics have said, it is an extremely well written document. No EIS is perfect, of course, but it is after all a DRAFT. Comments submitted will no doubt contribute to an improved final EIS.

I wonder how many critics of the TMT and EIS have read the Draft? I find it incredibly comprehensive, covering the cultural and environmental impacts perhaps even more fully than the scientific ones. The preparers have definitely done their homework.

Unfortunately, some activists are against ANY development, and they are not above misrepresenting the facts or making emotional pleas in presenting their arguments. Thus when Clarence "Ku" Ching says, "My culture and your science doesn't mix," it becomes difficult to have a meaningful dialogue. This sort of comment creates an "us versus them" confrontation, and the two sides are made to seem irreconcilable. So, science can't be part of modern Hawaiian culture? That would mean that Hawaiians are hopelessly stuck in the past, and that would be a shame.

Anyone who doubts that Hawaiian culture and astronomical science don't mix has not seen the wonderful exhibits at the Imiloa Science Center and the excellent planetarium shows featuring Hawaiian language, history, and the stars and constellations with their Hawaiian names and descriptions. They should go.
Imiloa has made epic progress in attempting to bridge the gaping culture gap. But obviously, they are not reaching many of the activists who are doing their best to keep the gap wide.

2 For the critics of the Draft EIS choosing to spell the mountain Maunakea, there is discussion of this decision early on, and there is a section on place names (page 3-10) that also covers it. While it may have historical significance, however, popular usage over many years and the spelling used on current maps combine to suggest that the name should be rendered in two words, as Mauna Kea (this takes nothing away from the original meaning, as many Hawaiian place names are shortened versions of an earlier name). One could argue that, technically, all Hawaiian place names could be written as one word, but as we have Mauna Loa to the south, it seems strange and inconsistent to have Maunakea in the north. I vote for Mauna Kea.

And, obviously, my vote also goes to Mauna Kea as the site for the TMT. The criticism from the activists is what we have become accustomed to

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

2
Thank you for your input; the Thirty Meter Telescope appreciates your review and participation in the process.

hearing. It is mostly self-serving and does nothing for our community or for human progress. Let's not listen to them. Let's lift our eyes to the heavens and listen to its voice beckoning us to come and discover!

Stakeholder Type : Citizen

RECORD DETAIL

	First Name :	Sherri Grant
	Last Name :	Johnson
	Submission Date :	06/20/2009
1	**Submission Content/Notes :**	I am adamantly opposed to this telescope going on at our mountain. It has desecrated the mountain enough, for what, the tower of babble? I really dont want this on our mountain. Once you pave paradise, you cant go back. So please, I say No.
	Stakeholder Type :	Citizen

1

Acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

RECORD DETAIL

	First Name :	Daniel Grant
	Last Name :	Johnson
	Submission Date :	06/20/2009
1	**Submission Content/Notes :**	I am totally against them developing more telescopic environment up on our mountain. I believe that the money could be spent for people who need help in our world. Nothing outside of our environment needs help. They are wasting this money trying to prove that everything evolves that there is no God, then they will never do it. Give the money to the poor people, starving people, people who need help on earth along with the aesthetics of the mountain which should be preserved too.
	Stakeholder Type :	Citizen

1

Acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

RECORD DETAIL

First Name : Alida

Last Name : Adamek

Submission Date : 06/25/2009

1 **Submission Content/Notes :** My husband & I attended the TMT meeting in Hawi on the evening of June 23. We were extremely impressed by the very evident time and effort involved in structuring this project to address the concerns of native Hawaiians and other "no development" proponents. The representatives of the TMT were very knowledgeable and willing to listen to all of the viewpoints presented. We believe projects such as the TMT are essential to securing the future economic success of all Hawaii residents. We also believe that it would be a travesty to allow this project be built anywhere other than in the United States. We strongly support the location of the TMT in Hawaii. Please let us know if we can be of assistance in helping make this project a reality for our state.

Alida & Patrick Adamek

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : Art and Rene

Last Name : Kimura

Submission Date : 06/26/2009

1 **Submission Content/Notes :** We are fully in support of the TMT being planned and constructed on Mauna Kea for the following reasons:
1. Mauna Kea is a place that can be and should be a catalyst for honoring and respecting the Hawaiian culture, the need for environmental stewardship, inspiring the next generation of explorers and innovators, and linking exploration...past, present and future.
2. TMT project managers have proactively planned for supporting the Big Island community through developing a needed work force development pipeline, not only for TMT but for other high technology opportunities for Big Island youth, providing substantial funds to support K-12 and post high school/community education, and a commitment to provide employment to as many qualified Hawaii born workers.
3. The short and long term economic benefits to Hawaii and to the Big Island in particular, are substantial both in the planning and construction phases but in the decades long operational phase through high tech and higher paying job opportunities, purchase of goods and services and visiting scientists to the Big Island.

We believe that through responsible decision making and accountability, the benefit will be for the greater good of Hawaii's people at least harm.

A Waiakea High School graduate, currently a sophomore in the College of Engineering, UH Manoa, recently told us that her "dream" job is to work for an astronomy project on the Big Island as an engineer; she was an intern last summer through the Akamai project which TMT is currently funding and was a 3 year participant on the Waiakea robotics team that is also receiving funding support for their outreach program.

The spinoffs through the TMT not only in terms of economic development and scientific research but in community benefit through the work force pipeline being supported, will have a significant impact on the Big Island and the State of Hawaii. We encourage the decision makers to select Mauna Kea as the preferred site for the TMT.

Sincerely,

Art and Rene Kimura

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

	First Name :	Joseph
	Last Name :	Green
	Submission Date :	06/26/2009
1	**Submission Content/Notes :**	Maunakea is and has been for hundreds of years a scared place of the Hawaiian people. When it was initally decided to be a place to build telescopes (mainly for UH) the agreement was that there would only be 12 telescopes. Now there are 20. I believe the states politicians, and the DLNR conned the OHH into believing that that the commitments included in the original lease (respect for the sacred nature of the mountain) would be followed, but workers and visitors had no sense of the kapu. There has been dumping of toxic waste materials and no public restrooms so that fecal matter and urine are wherever people felt "They could get away with it". Sacred sites have been vandalized and the mountai treated as if it were just another Disneyland attraction.I feel that TMT should go to Chile where there are no sacred lands and our mountain cleared of all the telescopes and restored to it's original state and the access road closed and reduced to a footpath for those who could treat it with respect.
	Stakeholder Type :	Citizen

1

Acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

The subjects brought up by the commentor are related to the actions of past projects on Maunakea. Cumulative impacts related to past projects are discussed in Section 3.16.2 of the Draft EIS, which indicates that, from a cumulative perspective, the impact of past and present actions on (a) cultural resources is substantial, adverse, and significant, (b) geologic resources in the astronomy precinct has been substantial, adverse, and significant, (c) alpine shrublands and grasslands and mamane subalpine woodlands ecosystems has also been substantial, adverse, and significant, primarily due to grazing by hoofed animals, and (d) alpine stone desert ecosystem is not yet fully determined.

There is no set "limit" on the number of telescopes or observatories on Maunakea. The 1983 Master Plan states on page 41, "Based on the RDP [Research Development Plan], the SRCDP [Science Reserve Complex Development Plan] identifies siting areas for a total of thirteen telescopes on the mountain by the end of the century. Although the actual number of facilities which will be realized by the astronomy program at Mauna Kea will depend on the demand and on the role determined for this activity by public policy makers, the University of Hawaii has determined that it is resonable and feasible to project a total of 13 telescopes on the mountain between now and the year 2000." The 1983 Master Plan is silent on the number of observatories that could be built after the year 2000 and overall the number of observatories is left to public policy makers.

The 2000 Master Plan, which is the most current master plan for the UH management areas, does not identify a limit on the number of observatories on Maunakea but does limit the area of future development to within the Astronomy Precinct.

RECORD DETAIL

First Name : stephen

Last Name : fischer

Submission Date : 06/26/2009

1 **Submission Content/Notes :** I am in full suport of the tmt. It should be built in Hawaii. I believe it will provide amazing new scientific information and will create new jobs not only for the telescope itself but also for our community.

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : Carlton

Last Name : Lane

Submission Date : 06/27/2009

1 **Submission Content/Notes :** PLEASE select the Mauna Kea site. Those concerned about environmental or cultural impact can, readily, be shown other places and things where they can take other more productive action that will yield real results at a large multiple of any of their supposed or imagined impacts of the telescope on Mauna Kea. Please help them to see that there are charging giants that they need to put their efforts on rather than the small pea they seem to be concerned about here. (Straining at gnats.)

The Sun will envelope the Earth long before enough "peas" can amount to the "charing giants", for example, population growth with its human waste products. Again, the environmental impact at Mauna Kea is too trivial to be concerned about and will be overwhelmed by, for example, increased auto production and pollution of cars for millions of more people.

As for those concerned about Pele, they might be angering her by keeping her from helping in gaining great, new knowledge. Besides, Pele will be further angered the tninking of followers that she's not powerful enough to take care of herself and needs puny help All should see the abundent examples of worthy Gods wanting their followers to know more about the Universe. I suppose a powerful god or godess might be touched by our efforts to protect or help them, but a worthy god does not need our often misdirected help. A worthy god knows what's going on even if we don't. The record of human history shows how often we have not known what we were doing and, often, got things terribly wrong, like placing the Earth at the center of the Universe. A worthy god provides means whereby we can, finally, get things right so that we can better appreciate and understand the realm of that god. Blocking the way to such understanding and appreciation is as contrary to what a worthy god expects as slavery is to freedom. (Why do dictatorships fail? They run counter to the freewill built into our universe.)

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : David S.

Last Name : De Luz, Jr.

Submission Date : 06/27/2009

1 **Submission Content/Notes :** I want to first express my appreication for the oppurtunity to be able to address my persoand and professiona support for the TMT project to be built in Hawaii atop Mauna Kea.

For me the reasons are simple;
1. greater oppurtunities for our community and our people in education & job oppurtunities, which in turn will probably lead to our childern consider staying home; ultimately improving our quality of life w/ our family
2. offer a level of academic excellence in attracting world class parnerships and resources
3. AND being a key community player supporting and working to improve Big Island life style

Unfortunately, the details in how we acheive this is quite complex and is why this process, EIS, is just a first step; this is ONLY the begining of the joureny.

The key I beleive is that we have open transparency and dialouge and ASSURE we invite and invole ALL the stakeholders in this process and understand each others issues w/ respect; regardless of wether we support or do not support this project.

There is no end to this process, its a continous "work in process"; what works today may not work tomorrow, so to me the key element is that we ALL strive to work together to achive a workable plan.

Hopefully this process will evolve over time to keep ALL parties accountable for the privileage of having access and/or use of Mauna Kea.

Alhough their may seem be be so many obstacles, any thing/project that is of any value, such as TMT, is well worth ALL of our efforts!

Mahalo again for this oppurtunity to offer my perspective on the support of the TMT project!

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : Jesse
Last Name : Eiben
Submission Date : 07/01/2009

Submission Content/Notes : To Whom It May Concern at TMT EIS,

As a researcher intimately familiar with the Wekiu Bug and its habitat, I feel that I should comment on the TMT EIS in that capacity. I was part of the Wekiu Bug monitoring work that took place for this EIS, and I have been researching the life history of the Wekiu Bug, and conducting monitoring for the Wekiu Bug since 2006 as part of my PhD research at the University of Hawaii at Manoa. I feel that the conclusions found in the EIS about the Wekiu Bug habitat that could be directly impacted by construction activities are correct. Specifically, the area of the construction footprint in 'Area E' is not high quality habitat for the Wekiu Bug, and the areas that may be impacted by an access road (Option 2 and Option 3) are regularly used by Wekiu Bugs. If the access road Option 1 is selected, that would have the least impact on the wekiu bug and its habitat. There are, however, some aspects of the EIS that should be addressed relating to the Wekiu Bug.

1

Areas of the TMT EIS that I would be insistent on being clarified include: 1. Wekiu Bug habitat mitigation 2. The invasive species monitoring must be detailed 3. A plan for construction scheduling that would minimize impacts on all native plants and animals 4. Elimination of any Soil Binding substance above 10,000 feet.

2

1. Wekiu Bug habitat mitigation: The details of the potential mitigation plan are not found in the TMT EIS document, and are only referenced in a different document. The actual plan must be found in the TMT EIS (even if it essentially derived from the Outrigger EIS). Creating new Wekiu Bug habitat will eventually be good for the Wekiu Bug. A solid mitigation plan and evaluation of the results of implementing the plan should be undertaken. It may immediately help improve some habitat, but it will also serve as a pilot study for the reclamation of cinder cones planned for after any of the telescopes are removed. Wekiu Bugs are found in areas of cinder that have been previously disturbed by telescope and road construction. It is likely that the creation of new wekiu bug habitat required by a mitigation plan will also eventually be colonized.

3

2. Invasive Species Monitoring: Included in the monitoring plan should be specific details about the timeline and nature of inspections. I would suggest a weekly random vehicle inspection at all staging and construction sites by a trained biologist (specifically trained in searching for and identifying insects, plants, and seeds). I would also suggest monthly site monitoring, with multiple collecting methods. An initial baseline sampling of plant and insect species must be conducted before any project begins. Vehicle cleanings must occur at each staging area, since different arthropods and plants are found at any of the proposed staging areas (ie. Waimea vehicle washing/inspection, Hale Pohaku vehicle and material washing/inspection, Summit inspection). There must be an invasive species rapid response eradication plan available for comment. Specifically, the response plan should detail the action that will take place in the event of new noxious weed detection, or any ant species detection. All permits required for such a plan (especially if pesticides/herbicides are to be used) must be approved and waiting for potential implementation.

4

3. Construction scheduling: I would suggest that the staging of any construction materials and equipment should take place during the time when it would be most difficult for invasive plants and arthropods to become established. At the Summit of Mauna Kea, the winter season (November-Late February) would be most inhospitable to new introduced flora and fauna. It is essential to understand that preventing any new species from becoming established in the summit region and

1

Thank you for your input; the Thirty Meter Telescope Project appreciates your review and participation in the process.
Since the completion of the Draft EIS, the Access Way Options have been refined. Of the three Options discussed in the Draft EIS, Option 1 is no longer being considered due to conflicts with SMA operations. Access Way Options 2 and 3 remain under consideration, but both have been refined. Please see Section 2.5.2 of the Final EIS for details regarding the Access Way Options that remain under consideration for the Project.

2

Section 3.4.3 of the Draft EIS discusses potential impacts to biological resources. On page 3-41 it is stated that "Although the [Access Way] Option 2 or 3 impact is evaluated to be less than significant, to comply with the CMP (Management Action FLU-6), the Project would prepare and implement a Habitat Restoration Plan to compensate for the loss of Type 3 Wekiu bug habitat...". CMP Management Action FLU-6 states "Incorporate habitat mitigation plans into project planning process."
Based on comments received during the Draft EIS public review period and the issues associated with the feasibility and effectiveness of any habitat restoration approach, the planned mitigation measure for the loss of sensitive habitat has been modified. The Project will no longer prepare or implement a Habitat Restoration Plan as outlined in the Draft EIS. As detailed in Section 3.4.3 of the Final EIS, the Project is in comliance with Management Action FLU-6 through (a) Project planning to avoid impacts, (b) monitoring of arthropod activity in the region of the Access Way's disturbance of cinder cone habitat prior to, during, and for two years following the construction of that portion of the Access Way, and (c) working with OMKM on the development and implementation of a habitat restoration study.

3

Threats from invasive, non-indigenous species are discussed in the Draft EIS in Section 3.4.3, pages 3-50 and 3-51, and Section 3.15, pages 3-147 and 3-148. As discussed in the Draft EIS, the Thirty Meter Telescope Project will implement an Invasive Species Prevention and Control Program during both construction and operation. The program will include a number of measures, including materials control and reduction, washing/cleaning, inspections, monitoring, control, and education/training.
A number of disparate, and sometimes conflicting, suggestions concerning the details of the Invasive Species Prevention and Control Program were received in comments on the Draft EIS. The Program will be refined during the Conservation District Use Application (CDUA) process the Project must undergo in order to receive a Conservation District Use Permit (CDUP). This process will include further coordination with the Department of Land and Natural Resources (DLNR), and the Invasive Species Prevention and Control Program will be available for review during the process.

4

The information about the overall Thirty Meter Telescope Project schedule was presented in Table 2-1 on page 2-22 of the Draft EIS. Section 2.7.2, page 2-23, of the Draft EIS discusses the construction period where it is noted that, "It is also anticipated that winter weather conditions at the TMT Observatory site would interrupt construction at times, until the dome is completed."
Section 3.4.3 of the Final EIS discusses the Project's potential for habitat displacement in relation to the refined Access Way Options 2 and 3 that remain under consideration for the Project. The potential area of Project disturbance that is Wekiu bug habitat Type 3 varies depending on the Access Way Option, from about 0.06 acre for Option 3B to approximately 0.23 acre for Access Way Option 2A.
Since the area of Type 3 Wekiu bug habitat that will be disturbed is limited to 0.23 acre at most, the period of construction in that small area will be limited in duration. Overall, extending the period of construction would extend the duration of other construction-related impacts, which would result in prolonging potential adverse environmental effects.
Therefore, the construction schedule will not be limited relative to Wekiu bug prevalence or the likelihood of invasive species establishment.

5 around Hale Pohaku is much preferred to attempting eradication (success unknown, expensive). Also, if there is going to be any construction on Wekiu Bug habitat and, hence, associated mitigation, the timing of that is also very important. Wekiu Bug populations are most likely to be very vulnerable when they are rare (during low population years, and late summer to late winter). It may be counter-intuitive, but it is reasonable to plan to destroy and create 'Wekiu Bug Habitat' only during times when Wekiu Bugs are extremely abundant (more mortality may occur, but the overall affect to the population would be lower). Essentially, construction should avoid harming the low-density 'seed' population of Wekiu Bugs. If mitigation is deemed necessary, any new habitat should be located near a source population. In my view it would be inevitable that some mortality of wekiu bugs would occur during cinder addition as new habitat. This new habitat should be added only when there are many wekiu bugs already present (during the spring and early summer when many new bugs are hatching).

6 4. Soil Binders: I believe these should be avoided. Spraying any viscous fluid to prevent dust from blowing has the potential to create many more problems for Wekiu Bugs than from the dust itself (which will be harmful if it fills interstitial spaces in their habitat). Any insects that become stuck in a muddy viscous fluid will soon perish. These dead insects will accumulate in high numbers. Wekiu Bugs will be attracted to and forage on any dead or dying arthropods that get stuck in a Soil Binder. Wekiu bugs will also become trapped and die. Even if the product is not specifically toxic to arthropods, by its nature, it will cause arthropod (and Wekiu Bug) death. It may be better to apply water as dust control when deemed necessary.

Thank you for taking my comments into consideration.

Stakeholder Type : Citizen

5

The information about the overall Thirty Meter Telescope Project schedule was presented in Table 2-1 on page 2-22 of the Draft EIS. Section 2.7.2, page 2-23, of the Draft EIS discusses the construction period where it is noted that, "It is also anticipated that winter weather conditions at the TMT Observatory site would interrupt construction at times, until the dome is completed."
Section 3.4.3 of the Final EIS discusses the Project's potential for habitat displacement in relation to the refined Access Way Options 2 and 3 that remain under consideration for the Project. The potential area of Project disturbance that is Wekiu bug habitat Type 3 varies depending on the Access Way Option, from about 0.06 acre for Option 3B to approximately 0.23 acre for Access Way Option 2A.
Since the area of Type 3 Wekiu bug habitat that will be disturbed is limited to 0.23 acre at most, the period of construction in that small area will be limited in duration. Overall, extending the period of construction would extend the duration of other construction-related impacts, which would result in prolonging potential adverse environmental effects.
Therefore, the construction schedule will not be limited relative to Wekiu bug prevalence or the likelihood of invasive species establishment.

6

In Section 3.4.4, page 3-52, of the Draft EIS it is stated that, "TMT may elect to use soil-binding stabilizers to control dust along the unpaved portion of the Access Way", and the consideration of the use of these products is presented as a possibility. It is further indicated on this page of the Draft EIS that, "This would only be implemented following the approval of OMKM."
Based on comments received on the Draft EIS, this potential mitigation measure has been eliminated from consideration. The Final EIS does not include the use of a soil-binding stabilizer as a potential mitigation measure.

RECORD DETAIL

First Name : Raquel

Last Name : Dow

Submission Date : 07/01/2009

1 **Submission Content/Notes :** I strongly support the TMT in Hawaii. For many years the telescopes on Maunakea have made Hawaii a leading center of astonomical research. Those telescopes are aging. If we refuse to allow the next generation of telescopes to be built here, they will be built elsewhere and Hawaii's leadership in this field will gradually dwindle. It is important to the Island of Hawaii's economy to have such a non-polluting source of jobs. Additionally, Maunakea's telescopes are a tourist attraction drawing more visitors to the Island. Maunakea is big enough to absorb the TMT and, once construction is completed, it will be scarcely visible from most of the Island.

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : Jody

Last Name : Fulford

Submission Date : 06/30/2009

1 **Submission Content/Notes :** Having attended the Hilo meeting for the Draft EIS, I was left feeling that it should perhaps contain a seperate chapter for the impact on the emotional environment.
A small yet a vociferous group dominated the speaking time, possibly leaving one to feel as if a majority of us are in opposition to this project. This is not the case, as I have yet to meet with anyone outside of the meeting who opposes this telescope.

2 The socioeconomic precipitation would have many long lasting positive effects on our community, not just by providing jobs as the opposition suggest would be provided by a Target or a K-Mart but highly technical jobs fulfilling the project goals.
The "Not in my backyard" posture is extremely unwarranted. Having read this draft EIS, I am certain that TMT project will be a welcome addition to our isalnd and can be constructed and operated in harmony with all of the environment and people of this community. To not build it will have a negative impact by surrendering to the loud squawking of the few who do oppose this telescope.
Since Galileo first turned his instrument towards the moon and Jupiter's moon's, astronomy has served mankind and our pursuit of understanding this universe we inhabit. Developing the telescope should be considered a continuation of the King Kalakaua's desire to further this pursuit and not as an intrusion againt the will of the people. I consider this project among the most important developments in astronomy today and say "Yes in my backyard."
Thank you and Aloha.

Stakeholder Type : Citizen

1
Thank you for your input; the Thirty Meter Telescope Project appreciates your review and participation in the process.

2
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name :	Fred
Last Name :	Stone
Submission Date :	07/06/2009

Submission Content/Notes : Comments on the Draft EIS for the proposed TMT on Mauna Kea
Fred D. Stone, Ph.D.

1. The proposing agency listed on the Draft EIS is the University of Hawaii at Hilo. The actual parties involved in planning, funding, and operating the proposed TMT are listed on p. 2-1 of the Draft EIS: The TMT Observatory Corporation, including UC, CalTech and ACURA, with collaboration with Japan. The Gordon Moore Foundation has not been identified as a major funding agency. Why have these responsible parties not been listed as proposing agencies?

2. Clear documentation exists showing that there is Federal involvement with the proposed TMT. EIS Regulations require that a Federal EIS be done, and the State EIS be done concurrently. Explain why no Federal EIS has been conducted for this project, and how this State Draft EIS is in compliance with the regulations requiring concurrent Federal and State EIS.

3. The Comprehensive Management Plan for the Mauna Kea summit area, under preparation by the University of Hawaii, has not been approved by the BLNR, pending addition of subplans for cultural resource management, natural resource management, visitor accessibility and decommissioning of telescopes. Without a BLNR approved CMP, the TMT EIS cannot address and conform to any guidelines and mitigation measures that might be included. Therefore, the Draft EIS is premature, and will need to be re-done after completion and approval of the CMP.

4. The Executive Summary states that the proposed TMT is in the "Astronomy Precinct" and is in the 13N site of the 525 acre zone designated for the NGLT in the 2000 Mauna Kea Science Reserve Master Plan. It should be clearly stated that none of these designations has been approved by the BLNR. The 2000 Master Plan is an internal document of the University of Hawaii that was never submitted for approval by the BLNR. The EIS should explain why it references a non-approved document rather than the 1983 and 1995 Management Plans that were approved by the BLNR.

5. The proposed TMT exceeds the restriction on the number of telescopes on Mauna Kea. The number currently allowed under the 1995 Management Plan is 13, with 11 major and two minor. The draft EIS, on the map on page 3-163, lists 13 telescopes by joining the Keck One and Keck Two telescopes as a single "Keck Observatory". This change of terms from "telescope" to "observatory" allows the "Former University of Arizona 0.3m" to be listed as number 13, and the proposed TMT as number 14 (which would become #13 with removal of the decommissioned UA telescope). The draft EIS should correct this map to show that the Keck Observatory includes TWO telescopes, and therefore the proposed TMT is number FIFTEEN, and with removal of the Arizona telescope is still number FOURTEEN.

6. The extremely large size of the proposed TMT, its major footprint and infrastructural requirements (both above and below ground) and its placement on an as-yet undeveloped area of Mauna Kea require a detailed assessment of their cumulative environmental impact. Clearly, construction and operation of this telescope will add substantially to the cumulative impacts. Yet the Draft EIS consistently refers to the major impacts being due to human visitation to the mountain by tourists, recreational users and others. The Federal EIS for the proposed Keck Outrigger Telescopes found that there had been significant adverse cumulative impacts to the Mauna Kea summit through incremental telescope and infrastructure development. The Draft EIS for the proposed TMT does not assess in a detailed manner how the proposed telescope will prevent further substantial adverse cumulative impacts.

7. The TMT Draft EIS does not address in a comprehensive way the ecosystems unique to the summit area of Mauna Kea. Only two of the many species native to the summit are mentioned in Part 1 of the Draft

1
As indicated in the EIS, the University of Hawaii at Hilo (UH Hilo) is the proposing agency. HRS Chapter 343 imposes obligations on State and local agencies. The TMT Observatory Corporation is not a State or local agency – it is a California nonprofit public benefit corporation. UH Hilo is an instrumentality and body corporate of the State of Hawaii. UH Hilo is the proposing agency because it holds the lease on the State land being considered for the TMT Observatory and potential Mid-Level Facility. UH Hilo is also the permittee and applicant of current Conservation District Use Permits (CDUPs) for the Mauna Kea Science Reserve (MKSR).

2
The TMT Observatory Corporation has received limited funding from the National Science Foundation (NSF) for the development of technology that can be used on other telescopes. With respect to the construction, operation, or decommissioning of the Thirty Meter Telescope Project, no Federal agency, including the NSF, has provided or pledged funds for such construction, operation, or decommissioning. Nor is TMT required to obtain a permit, license or other approval from the United States prior to the construction or operation of the Thirty Meter Telescope (TMT) Project. Federal funding alone does not trigger an obligation on the part of the United States to comply the National Environmental Policy Act (NEPA) or the National Historic Preservation Act (NHPA). For example, the United States' obligation to undertake an environmental review under NEPA is triggered only if a "major Federal action" may significantly affect the environment. Similarly, the United States' obligation to comply with the NHPA is triggered only if there is a federal "undertaking" which is defined as an activity or project carried out under the jurisdiction of a federal agency. The United States' obligation to comply with NEPA and the NHPA has not been triggered with respect to this Project.

3
The Thirty Meter Telescope Project has been working diligently to assure the Project will be in compliance with the Comprehensive Management Plan (CMP), the body of which has been available since January 2009. The four required sub plans have been available as follows: the Natural Resources Management Plan (NRMP) was available in September 2009, the Cultural Resources Management Plan (CRMP) was available in October 2009, and the Decommissioning Plan (DP) and Public Access Plan (PAP) were made available in January 2010.
The Management Actions described in the CMP and associated sub plans have been incorporated into the Project and are documented throughout the Final EIS. As stated in Section 2.7.4 of the Final EIS, upon decommissioning, the Project will comply with the Decommissioning Plan. The Access Plan is to be implemented by UH and will not have an impact on the Project; the Project is not anticipated to impact access. The BLNR's conditional approval in April 2009 stated that all CMP components are to be completed prior to a project submitting a Conservation District Use Application (CDUA); the Project has not yet submitted a CDUA and the conditions of CMP approval have been met (completion of the four sub plans). Therefore, as required by BLNR's approval of the CMP and in HAR 13-5-24, an approved and complete management plan will be in place prior to BLNR's review of the Project's CDUA.

4
The 2000 Master Plan is referenced throughout the Draft EIS, including Chapter 2 and Section 3.10. Section 3.10.3 of the Draft EIS outlines the Thirty Meter Telescope Project's consistency with land use plans, policies, and controls. The Draft EIS neither states nor suggests that the 2000 Master Plan was approved by the Board of Land and Natural Resources (BLNR). The 2000 Master Plan was prepared by UH through a process that included broad community input as well as coordination with governmental agencies, including the Department of Land and Natural Resources (DLNR). A Draft and Final EIS were prepared and the 2000 Master Plan was adopted by the University of Hawaii (UH) Board of Regents (BOR) and implemented. Although the 2000 Master Plan was not officially approved by the BLNR, the Master Plan is the guiding document for the University of Hawaii at Hilo (UH Hilo), the proposing agency for the Project. Therefore, the 2000 Master Plan, which built on the 1983 Master Plan, is pertinent to the Project. In addition, the wealth of scientific information in the 2000 Master Plan remains valid and valuable. References to the 1983 Master Plan have been included in the Final EIS for the Project where applicable, including Chapter 2 and Section 3.10. Like the 2000 Master Plan, the 1983 Master Plan was never approved by the BLNR.

7 EIS, the Wekiu bug and the Douglas bladder fern. Possible impacts to the Wekiu bug are minimized by statements that artificial Wekiu habitat would be provided. This is given as if there were experimental evidence showing that artificial habitat would work, but in truth there has been NO trial of artificial habitat showing whether it would be effective. The summary states that the cumulative adverse impact to the Alpine Stony Desert Ecosystem has yet to be determined. Further major development should not be approved until the studies have been done to determine cumulative adverse impact.

8 8. Mitigation includes washing of vehicles at Hale Pohaku. Vehicle washing should be done at lower elevation sites in Hilo and Waimea as recommended in Part II, Appendix G of the Draft EIS. Washing at the high elevation Hale Pohaku will allow for introductions of seeds and invertebrates, and should not be considered.

9 9. Baseline inventories followed by regular monitoring of plant and animal species need to be done of Hale Pohaku, the road corridors, the staging sites, and the telescope site itself. Monitoring needs to be done over the proposed lifetime of the telescope. Existing surveys show that introductions of alien species have already occurred. These introductions are part of the significant adverse impact to the high elevation ecosystems that must be addressed in the TMT EIS. This is an example of why the TMT EIS needs to be done within the framework of a comprehensive management plan which includes a detailed natural resource management plan. Without a CMP, the TMT EIS cannot be complete, and will need to be substantially re-done after a CMP has been approved by the BLNR.

10 10. Comprehensive inventories of the cultural and natural environment need to be conducted before any construction activities occur so that when decommissioning occurs, the impacted areas can be returned to the pre-construction status, as required by lease. This needs to be addressed in detail in the TMT EIS.

11 11. Cost estimates for carrying out proposed mitigation measures, sources of funds, and a detailed budget should be included as part of the TMT EIS. The costs should be included in the overall construction and operation budget of the proposed telescope. Without a commitment to pay for the necessary mitigation, there is no guarantee that they will be carried out.

Stakeholder Type : Citizen

5

There is no set "limit" on the number of telescopes or observatories on Maunakea. The 1983 Master Plan states on page 41, "Based on the RDP [Research Development Plan], the SRCDP [Science Reserve Complex Development Plan] identifies siting areas for a total of thirteen telescopes on the mountain by the end of the century. Although the actual number of facilities which will be realized by the astronomy program at Mauna Kea will depend on the demand and on the role determined for this activity by public policy makers, the University of Hawaii has determined that it is resonable and feasible to project a total of 13 telescopes on the mountain between now and the year 2000." The 1983 Master Plan is silent on the number of observatories that could be built after the year 2000 and overall the number of observatories is left to public policy makers.
The 2000 Master Plan, which is the most current master plan for the UH management areas, does not identify a limit on the number of observatories on Maunakea but does limit the area of future development to within the Astronomy Precinct.

12

An observatory is clearly defined in Section 2.1 of the Draft EIS as follows:
"An observatory includes the telescope(s), the dome(s) that contain the telescope(s), and the instrumentation and support facilities for the telescopes that fall under a common ownership."
By this definition there are 11 observatories and one radio telescope on Maunakea. Various other documents have failed to differentiate between an observatory and a telescope or defined an observatory in a variety of different ways without consistency. The information included in the Draft and Final EIS is meant to provide information about existing observatories and telescopes based on clearly defined parameters, as well as to provide consistency within the document.

6

Cumulative impacts are discussed in Section 3.16 of the Draft EIS. The TMT Chapter 343 EIS is in agreement with the Outrigger NEPA EIS when discussing the level of existing cumulative impact on Maunakea; the level of existing cumulative impact is discussed in Section 3.16.2 of the Draft EIS and identifies cumulative impacts to cultural, archaeological, biologic (in some zones), geologic, and visual resources to be substantial and adverse. As discussed in Section 3.16 the cumulative impacts are related to a number of actions, including observatory development, grazing, and human visitors.
The direct impacts of the Project are discussed in detail in Sectiond 3.2 through 3.15. The Project's incremental contribution to cumulative impacts are then discussed in Section 3.16.4, along with the potential impacts of the foreseeable actions. Because the impact of the Project is detailed in the earlier sections (3.2 through 3.15), it is not discussed in as great a detail in Section 3.16.4; however, in response to your comment, references to Sections 3.2 through 3.15 have been added to the discussion in the Final EIS as appropriate. The Project design and mitigation measures outlined in Section 3.2 through 3.15 will also mitigate the Project's contributing to the cumulative impacts.
The reviewer may personally perceive a bias but the bulk of the Draft EIS discusses potential Project impacts, not impacts related to human visition.

7

Section 3.4 of the Draft EIS discusses the biological resources in the Project area. Many species are discussed, not only two species as the commentor suggests.
Based on comments received during the Draft EIS public review period and the issues associated with the feasibility and effectiveness of any habitat restoration approach, the planned mitigation measure for the loss of sensitive habitat has been modified. The Project will no longer prepare or implement a Habitat Restoration Plan as outlined in the Draft EIS. As detailed in Section 3.4.3 of the Final EIS, the Project is in comliance with Management Action FLU-6 through the following Project design and other measures:

- "The Access Way has been designed to limit disturbance and displacement of sensitive habitat and will be paved where adjacent to sensitive habitat to reduce dust-related impacts.
- "Construction-phase measures will be implemented to reduce impacts to sensitive habitat (Section 3.15), and arthropods will be monitored in the area of the Access Way prior to, during, and for two years after construction on the alpine cinder cone habitat.
- "TMT will work with OMKM on the development and implementation of a habitat restoration study."

Cumulative impacts of past actions is discussed in Section 3.16.2 of the Draft EIS. The discussion in Section 3.16.2 is divided into the three ecosystems in the summit region: alpine stone desert, alpine shrublands and grasslands, and mamane subalpine woodlands. For the alpine stone desert ecosystem it is stated that "human activity has not had a significant cumulative impact on species that dwell in these other habitats [alpine stone desert habitats other than the cinder cones], such as lichens, mosses, and vascular plants. ... Based on the available information it is not possible to determine the magnitude or significance of past human activity on Wekiu bugs or other biological resources that inhabit the alpine cinder cone ecosystem." Related to the alpine shrublands and grasslands and mamane subalpine woodlands, it is stated that "the cumulative impact on these ecosystems has been significant and adverse."
Therefore, the bulk of the Project area in the summit region, the TMT Observatory site and common Access Way which will impact a non-cinder cone portion of the alpine stone desert ecosystem, is in a habitat where a less than significant cumulative impact has occurred. Furthermore, there has been significant research done in the cinder cone habitat, as outlined in the Draft EIS, and even after the intensive investigations it is not clear that a significant cumulative impact has occurred.

8

Vehicle wasing during the operation period is address in Section 3.4, page 3-51. In Section 3.15, page 3-142, of the Draft EIS it is stated that "The Hale Pohaku Staging Area would be used for parking, vehicle washing and inspection..." Washing during the construction period is also addressed in Section 3.15, page 3-148, of the Draft EIS.
The reference to washing at Hale Pohaku has been removed from Section 3.15 of the Final EIS and language has been added to both Section 3.4 and 3.15 of the Final EIS to indicate that this washing is not to occur at Hale Pohaku but at baseyards at lower elevations, such as the Headquarters. Including the following addition to Section 3.15.1: "This will be done at lower elevation baseyards, such as the Port Staging Area" when discussing washing of materials and equipment.

9

Working within the framework of the Draft EIS is discussed above. Surveys of the TMT Mid-Level Facility area are discussed in Section 3.4 of the Draft EIS. Cumulative impact in the mamane subalpine woodlands ecosystem are discussed in Section 3.16. The CMP outlines a number of management actions that address additional surveys and monitoring of natural resources. The Project's Invasive Species Prevention and Control Plan, detailed in Section 3.15.1 of the Draft EIS, also outlines inspections of Project areas, including the Mid-Level Facility during construction.

10

Comprehensive surveys were conducted during the preparation of this Draft EIS, as outlined in Sections 3.3, 3.4, and 3.6, in particular. CMP Management Action FLU-3 requires cataloguing the initial site conditions for use when conducting site restoration in the future. In Section 3.15, page 3-143, of the Draft EIS it is stated that would use "high-resolution surface and aerial photography to document existing natural conditions."

11

The costs of identified mitigation measures has no bearing on their implementation. The Thirty Meter Telescope Project is committed to the mitigation measures and has included budgets for their implementation during construction, operation, and eventual decommissioning. Most of the identified mitigation measures will be enforceable because they either will become conditions of the lease or they will become conditions of a permit, such as the Conservation District Use Permit (CDUP).

RECORD DETAIL

	First Name :	Mark
	Last Name :	Goldman
	Submission Date :	07/06/2009
1	**Submission Content/Notes :**	The ancient Hawaiians were such astronimical masters, that I think the thirty meter telescope would be a tribute to them. And what better place to honor their astronimical abilities than Mauna Kea. Aloha, Mark Goldman
	Stakeholder Type :	Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

COMMENT FORM

Thirty Meter Telescope Project

The University of Hawai'i encourages comments on the Thirty Meter Telescope (TMT) project. The 45-day Draft EIS comment period opened with the notice of availability published in the OEQC Environmental Notice on May 23, 2009. Comments are required to be submitted or postmarked by July 7, 2009. Comments can be submitted via the website (www.TMT-HawaiiEIS.org), the toll-free hotline (1-866-284-1716), at public meetings, or by mailing written comments to the address on this form. This form is provided for convenience only; to submit this form by mail, please fold and staple, and affix proper postage (see reverse side for guide). Any letter or other printed comments not using this form are also welcome.

All comments received will be responded to individually with both the comment and responses included in the Final EIS.

Name: David & Doris Milotta **Address:** 46-490 Haiku Plantations Dr.
Phone: 808 247-1771 Kaneohe, HI 96744
E-mail: —

Comments: We both concur and approve of your plans for the project.

We both are graduates of Pennsylvania State University and David holds a Masters degree from George Washington University. We have lived in Hawaii since 1960.

(use additional sheets if appropriate)

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

COMMENT FORM

Thirty Meter Telescope Project

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All comments received will be responded to individually with both the comment and responses included in the Final EIS.

Name: GYÖNGYI SZIRON **Address:** HCR 1, Box 5403

Phone: 982-9331 Keaau, Hi

E-mail: gsziron@gmail.com 96749

1

Comments: I am opposed to the TMT project on Mauna Kea. Build it in Chile. It is my understanding that there are to be no more telescopes built on Mauna Kea. Enough is enough! I'm not against telescopes in general, but stop desecrating that sacred place! Please have some respect for the Hawaiian culture. I'll bet you wouldn't dream of desecrating Canossian sacred places.

I am not Hawaiian but I also believe Mauna Kea is a very sacred place and needs to be protected from further building. I feel badly for the Hawaiians that their mythological place is treated so disrespectfully. Shame on you!

NO TMT ON MAUNA KEA! please.

Gyöngyi Sziron

(use additional sheets if appropriate)

1
Acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

John F. Roney
401 Wainaku Ave.
Hilo, HI 96720

June 18, 2009

TMT Observatory Project,
Office of the Chancellor,
University of Hawaii at Hilo,
200 W. Kawili St.,
Hilo, HI 96720-4091

Dear Ms. Tseng;

Subject: Thirty Meter Telescope.

After reviewing the Draft EIS and attending the TMT information meeting in Hilo yesterday, I believe that the TMT Observatory Project has done an extraordinary job of planning, that is respectful of Hawaiian Culture and of the delicate environment on Maunakea mountain. This project should be allowed to proceed.

Hawaii has been blessed with many assets that are unique in the world. High on the list is Maunakea, one of the world's best astronomy sites. In recent years Hawaii has surged into a leadership position in the world of science and astronomy.

But since Hawaii is not situated properly for most industries, we must utilize the gifts that we have. The tourist industry has long benefited from our climate, beaches and tropical beauty, and the military has utilized our geographical location. But we need more. Our economy is based on government spending and recession sensitive tourism.

Astronomy is one of the most environmentally neutral "industries" in the world. Star light and other radiation has been hitting the Earth since the beginning of time. Astronomer just want to look at it. They focus it, and record it, and learn about the Universe that we live in. The construction phase will be disruptive only temporarily.

1 Hawaii must keep our leadership position in world astronomy by building the Thirty Meter Telescope at the chosen site on Maunakea.

Sincerely,

John F. Roney
50 year Hawaii citizen

copy: Office of Environmental Quality Control

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

University of Hawaii at Hilo
Office of the Chancellor
200 West Kawili Street
Hilo, HI 96720-4091
United States of America (just a reminder)

2009 JUN -2 AM 10: 38
UH-HILO
CHANCELLOR'S OFFICE

RE: Thirty Meter Telescope Project

1 I am an intelligent, progressive American. Therefore, of course, I am in favor of the TMT. I wish you luck against the Sierra Club and Hawaiian groups (who are so naïve that they don't realize that these strategically located islands would now be Japanese [Chinese today] if they did not belong to the United States of America}. They will always be dominated by a large power.

I mentioned the Sierra Club because they and the nit-wit justices of this Mickey Mouse Hawaii State Supreme Court just got rid of the Hawaii Superferry for good. It was a disservice to all of the children now and in the future of the state. Low and moderate income people were free from financial imprisonment on one island. Back to airplanes and rental cars, etc. which are too expensive for a large family. The Superferry is gone for good, and will never come back. Yes, the Sierra Club and the "Supreme" court nit-wits got rid of it for good. I asked both Inouye and Akaka for help by email and was completely ignored. Some people have large investments in Young Bros., and the Hawaii Superferry was competitive with Young Bros. in very small ways.

With all of those supposedly intelligent people running the university, their voice was never heard in the matter of the Superferry. The only influential voice heard was that of the owner of Suisan fish market. He is an old-timer, but has a progressive heart and could see the wonderful gift it was for all the people here, especially those with low incomes.

I have never seen so many ignorant passive people in my life, nor seen such squabbling about anything progressive. Hawaii is so screwed up that it doesn't even know how screwed up it is.. My heart went back to the mainland with the Hawaii Superferry where people live who can appreciate it because of common sense. I have been somewhat of a small-time activist for causes I believed in here, but I will not waste any more of my time and money on these ignorant people. Anything I do will be for the mainland. I have started sending letters to the mainland to make a national park of Mauna Kea. Any scientist will tell you it is just a mountain: big, but just a mountain.

I grew up in Hollywood, California and was able to visit the Griffith Park Observatory. It is really great, and one doesn't have to listen to endless history lessons about our country's brave pioneers. It focuses on astronomy because it is an observatory.

Whoops, say your prayers, I think I hear the Sierra Club and the Hawaiian groups coming. They want to send the TMT to Chile. Why am I not surprised. I wish you nothing but good in your endeavor to bring this wonderful project to the Big Island. It's a constant tug-o-war between the Primitives and the Progressives. I've seen all 3 Imiloa concerts.

Sincerely, Cornelia A. Radich 5/30/09

Cornelia A. Radich
HC 1 Box 5314
Keaau, HI 96749-9520
808/966-4877

Sen. Inouye spoke out for the TMT. It in no way competes with Young Bros. Hmmm ——.

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

COMMENT FORM

Thirty Meter Telescope Project

2009 JUN -2 AM 10:37
UH HILO
CHANCELLOR'S OFFICE

The University of Hawai'i encourages comments on the Thirty Meter Telescope (TMT) project. The 45-day Draft EIS comment period opened with the notice of availability published in the OEQC Environmental Notice on May 23, 2009. Comments are required to be submitted or postmarked by July 7, 2009. Comments can be submitted via the website (www.TMT-HawaiiEIS.org), the toll-free hotline (1-866-284-1716), at public meetings, or by mailing written comments to the address on this form. This form is provided for convenience only; to submit this form by mail, please fold and staple, and affix proper postage (see reverse side for guide). Any letter or other printed comments not using this form are also welcome.

All comments received will be responded to individually with both the comment and responses included in the Final EIS.

Na
Ph
E-n

Mr. Jack E. Telaneus
2428 Tusitala St. Apt. 711
Honolulu HI 96815-3186

Address:

Comments: Howdy, 5-26-09

Suggest you remove my name from your mailing list. I'm really not qualified to give advice on this matter.

Aloha
Jack Telaneus

However, I hope considerable consideration is is being given to the considerable snow conditions you'll frequently experience, AND the auto headlights reflecting at night on the SNOW.

1

Aloha,
Jack

(use additional sheets if appropriate)

1
Snow conditions have been considered. Section 3.15 states that during construction "It is expected that winter weather conditions at the TMT Observatory site would interrupt construction at times, until the dome is completed." Many observatories operate in areas where snow is present, including Maunakea. There are policies in place related to the use of outdoor lights and automobile headlights in the evening when they could impact astronomical observations.

5-28-09

2009 MAY 29 PM 4:42
UH-HILO
CHANCELLOR'S OFFICE

ALOHA,

THANK YOU FOR THE COPY of THE DRAFT ENVIRO IMPACT STATEMENT FOR THE TELESCOPE, I will READ IT ASAP, I LOVE THIS KIND of STUFF, I WORKED FOR MICH. DEPT of TRANS. PLANNING FOR 30 yrs.

1

IF YOUR OFFICE COULD DO ME A LARGE FAVOR, I KNOW of A STARGAZER WHO WOULD LOVE THIS, COULD YOU "SEND A COPY" AND ADD THIS NAME TOO YOUR THIRTY METER TELESCOPE'S PROJECT MAILING LIST! (IF THEY RESPOND) ILL CALL 'EM TOO MAKE A COMMENT!

DO PLZS. THIS..

MR. L. HUMPHREY'S
12-445 OLE OLE ST,
PAHOA, HI 96778

MAHALO'S

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

ALOHA-

2009 JUN -1 PM 1:39
UH-HILO
CHANCELLOR'S OFFICE

THANKS FOR my COPY
of THE DRAFT ENVIRO-
IMPACT STATEMENT, FOR
THE THIRTY METER ELT PROJECT:
IF THIS IS OK, I

KNOW of TWO VERY
SMART TYPES IN
ANNARBOR AREA of MICHIGAN
U of M (GO BLUE) THAT
WOULD LOVE THIS FOR THEIR
STUDY AREAS, MAIL A
COPY TOO:

1| MR. B. JONES
6216 DENTON Rd.
BELLEVILLE, MI 48111

+TO:
R. M. ARNETT
121 KEUELING ST
SALINE, MI 48176

1
Unfortunately your request was not received in time to allow for sending a copy to the parties you requested prior to end of the Draft EIS comment period. However, we hope that they were able to download a copy of the Draft EIS from the Project website - www.TMT-HawaiiEIS.org.

IF ITS NOT TO MUCH ~~BROTHER~~ TROUBLE
(I CANT SPELL TO GOOD)

I will INFORM THEM THEY NEED TO FILL OUT THE COMMENT FORM ASAP.

THANKS

Dj Berg

U.S. ARMY VET 70-72
30 YRS. MICH DEPT of TRANS. (PLANNING DIVISION) RETIRED,
I ALSO FLY RC GLIDERS, IN COMBAT MODE BY WHITTINGTON B. STATE ~~PARK~~ ON SATS! IF I NEED TOO PAY FOR THIS MAILING'S LET ME KNOW!

P.S.

Nimr Tamimi
P.O. Box 4159
Hilo, Hawaii 96720

June 17, 2009

University of Hawaii at Hilo
200 W. Kawili Street
Hilo, Hawaii 96720

Attention: Rose Tseng
Chancellor

Subject: Thirty Meter Telescope Environmental Impact Statement

1 As a lifelong resident of Hilo and practicing engineer, I am in support of the EIS for the TMT. I think that there has been a lot of thought and effort put into implementing a plan that is sensitive to the environment and also the natural and cultural resources of Mauna Kea.

The profound balance of preservation and economic development outlined in the EIS can become a model of Sustainability for future projects on Mauna Kea, sensitive areas of our island and other not so sensitive areas. Implementation of those practices will help nurture a healthy community.

The proposed practices go above and beyond the current methods used for construction. The issues associated with "Sustainability" are also welcome and exceed some of the current standard practices of energy and resource conservation.

Taking responsibility and minimizing its impact on our community is very important to me. By taking care of Mauna Kea, I can feel comfortable that my children will not only be able to enjoy Mauna Kea as I have, but will also be privileged to have an opportunity to earn a decent living in the community they were born in and call home.

In general, I feel that the developers of the EIS have done a thorough job and I feel that I can support this document and look forward to when the Thirty Meter Telescope becomes a part of our community.

Thank you for your time and giving me the opportunity to voice my opinion.

Sincerely;

Nimr Tamimi

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

Alex Kalawe
15-1972 20th Ave.
Kea'au, Hawaii 96749

University of Hawaii at Hilo
200 West Kawili Street
Hilo, Hawaii 96720

Attention: Rose Tseng
Chancellor

Subject: TMT EIS

The proposed practices in relation to environmental preservation as outlined in the EIS are sound. As an engineer, implementation of these proposed practices will lead to a Healthier Mountain. As a resident of the Big Island, this makes me feel that the TMT is serious about preserving the environment. 1

I support the EIS and the TMT.

Sincerely;

Alex Kalawe

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

Bri Simonian
P.O. Box 486
Keaau, Hawaii 96749

University of Hawaii at Hilo
200 West Kawili Street
Hilo, Hawaii 96720

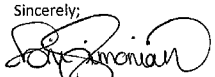
Attention: Rose Tseng
Chancellor

Subject: Thirty Meter Telescope

The people associated with the Thirty Meter Telescope have done a good job in preparing an EIS that I can feel comfortable with. I am especially concerned with the preservation of the mountain and the balance between economic development and the environment. This project will also provide an opportunity for our children.

1 The EIS and TMT have my support.

Sincerely;



Bri Simonian

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

Yen Wen Fang
P.O. Box 51
28-2845 Makea Pl.
Pepeekoe, Hawaii 96783

University of Hawaii at Hilo
200 West Kawili Street
Hilo, Hawaii 96720

Attention: Rose Tseng
Chancellor

Subject: TMT EIS

1 We have reviewed the EIS and believe that the issues and solutions presented are sound and can be implemented. As an engineer some of the proposed practices go above and beyond the current local practices. This definitely will add cost to the project; however, the TMT could become a "Model" of Green Building Design for our community.

I don't find any real issues or bones of contention with the EIS and I feel that I can support both the EIS and the TMT

Thank you for your consideration.

Sincerely;

Yen Wen Fang

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

Mei-Chiao Fang
P.O. Box 51
28-2845 Makea Pl.
Pepeekeo, Hawaii 96783

University of Hawaii at Hilo
200 West Kawili Street
Hilo, Hawaii 96720

Attention: Rose Tseng
Chancellor

Subject: Thirty Meter Telescope

1 The EIS for the subject project was well put together. I don't have any objections to it or the Thirty Meter Telescope. I wish them the best of luck and look forward to having them on our island.

Sincerely;

Mei-Chiao Fang

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

Matt Fisk
28-3553 Hawaii Belt Road
Honomu, Hawaii 96728

University of Hawaii at Hilo
200 West Kawili Street
Hilo, Hawaii 96720

Attention: Rose Tseng
Chancellor

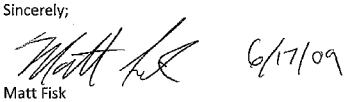
Subject: Thirty Meter Telescope EIS

I have reviewed portions of the EIS for the TMT on Mauna Kea. Of special interest to me is the Water Resources and Wastewater, Waste and Material Management, Power and Communications and the Visual and Aesthetic Resources Sections of the EIS. I am a practicing engineer and resident of the Big Island and find that the proposed methods of addressing all of these issues are sound. The site has been located to minimize the visual impact of the TMT as seen from around the island. Water and power consumption, and waste generation are kept to a minimum, and extensive measures are proposed for preserving the natural environment of the mountain.

1 In general, I feel that the developers of the EIS have done a thorough job and I feel that I can support this document.

Thank you for your time.

Sincerely;



Matt Fisk

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

Ed Bernal
HC 2 Box 6401
Kea'au, HI 96749

University of Hawaii at Hilo
200 West Kawili Street
Hilo, Hawaii 96720

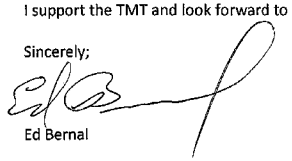
Attention: Rose Tseng
Chancellor

Subject: Thirty Meter Telescope

1 As a resident of the Island of Hawaii, I support the TMT and the EIS process that they are currently engaged in. I don't see any issues that I cannot support. It seems that they are taking great care to effectively address all the concerns the community might have.

I support the TMT and look forward to it becoming a part or our community.

Sincerely;



Ed Bernal

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

Scott Aken
122-A Kekela Street
Hilo, Hawaii 96720

University of Hawaii at Hilo
200 West Kawili Street
Hilo, Hawaii 96720

Attention: Rose Tseng
Chancellor

Subject: Thirty Meter Telescope EIS

1 As a resident of Hilo, I am in support of the EIS for the TMT, I think that there has been a lot of thought and effort put into implementing a plan that is sensitive to the environment, natural and cultural resources of the mountain.

Sincerely;



Scott Aken

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

NEWTON J. CHU

120 PAUAHI ST. SUITE 312
HILO, HAWAII 96720
TELEPHONE (808) 961-0408 • FACSIMILE (808) 961-3815

NEWTON J. CHU
E-MAIL: NEWTONC@HAWAII.RR.COM

June 17, 2009

Dr. Rose Tseng, Chancellor
University of Hawaii, Hilo
200 West Kawili Street
Hilo, HI 96720

RE: Comments for the Thirty Meter Telescope Project

Dear Chancellor Tseng:

As a parent of an aspiring astronomer and supporter of education and the environment, I strongly support the proposed establishment of the Thirty Meter Telescope ("TMT") on Maunakea. I have lived on Hawaii Island since 1994 and my wife and her parents were born and raised in Hilo. I volunteer in the community with organizations such as the Boys and Girls Club of the Big Island, the Boy Scouts of America, the Hawaii Island United Way and numerous other charitable organizations.

As a concerned citizen of Hawaii Island it is important that we preserve and protect Maunakea. I sincerely believe that the establishment of the TMT, working within the framework of the Comprehensive Management Plan ("CMP") will ensure that education, science and culture, as well as Maunakea will receive appropriate guardianship. I believe that the proposed TMT on Maunakea will further the peaceful co-existence of Hawaiian culture, science and recreation in a respectful way.

1 I believe the draft Environmental Impact Statement has addressed all issues regarding the preservation of historical and cultural sites, and I simply want to add the following comments: First, I am in favor of the implementation of a Cultural and Natural Resource Training Program and the proposed Invasive Species Control Program. In addition the proposed zero-discharge waste system should serve as a model for
2 future users. Finally, I recognize that in the field of sciences such as astronomy, the top scientists come from all over the worlds. However, I am impressed by TMT's pledge to hire as many local people as possible to operate and support the observatory. The proposed Workforce Pipeline Program to be established is a big step in the right direction for our island, and I hope it serves to educate and train many of our island's youth in this area. I recommend that TMT focus on teaching, inspiring and training our youth, and not just on bringing mainland students to study here. I strongly urge you to communicate these comments to the TMT project. Thank you.

Aloha,

Newton J. Chu

C:\Documents and Settings\NJC\My Documents\Mauna Kea\ltr to Ch Tseng 061709.doc

1
Thank you for your input; the Thirty Meter Telescope Project appreciates your review and participation in the process.

2
Thank you for your input. The Project will continue to work with the community to develop the Workforce Pipeline Program to offer the greatest benefit possible for the community, with the goal of training students of today for astronomy-related and other technical sector job opportunities.

COMMENT FORM
Thirty Meter Telescope Project

The University of Hawai'i encourages comments on the Thirty Meter Telescope (TMT) project. The 45-day Draft EIS comment period opened with the notice of availability published in the OEQC Environmental Notice on May 23, 2009. Comments are required to be submitted or postmarked by July 7, 2009. Comments can be submitted via the website (www.TMT-HawaiiEIS.org), the toll-free hotline (1-866-284-1716), at public meetings (in writing or recorded individually), or by mailing written comments to the address on this form. This form is provided for convenience only; to submit this form by mail, please fold and staple, and affix proper postage (see reverse side for guide). Letter or other printed comments not using this form are also welcome.

All comments received will be responded to individually with both the comment and responses included in the Final EIS.

Name: Suzy Sanxter
Phone: 936 6071
E-mail: jumpinjs@starband.net

Address: Hilo High Robotics Club
556 Waianuenue Ave.
HILO, HI 96720

Comments: As secretary for the Hilo High Robotics Club Boosters, Inc. I can say that our team members, who are aspiring engineers fully support the 30MTP. We can already feel the compassion + mana of the leaders of the Project - in the awarding of a $30,000 grant to Waiakea High School Robotics! It was a great misfortune + bad timing that HHS lost ~~of~~ our Robotics Advisor + Science teacher, Tom Murphy, due to school budget cuts. This occurred simultaneous with the grant application process + thus HHS Robotics was omitted from the application due to lack of an advisor. On the bright side, we now have a dedicated advisor, Ryan Nakasato, Math teacher. We would greatly appreciate inclusion in any robotics funding available. Mahalo nui loa + we wish you folks full + fast success with your proposals. — Suzy Sanxter

1

(use additional sheets if appropriate)

1
The Thirty Meter Telescope Project appreciates your review and will continue to work with the community to focus educational and other benefits so that they best fit the community goals and needs. Please see Section 3.9.4 of the Final EIS for additional details regarding the Project's educational measures.

COMMENT FORM
Thirty Meter Telescope Project

The University of Hawai'i encourages comments on the Thirty Meter Telescope (TMT) project. The 45-day Draft EIS comment period opened with the notice of availability published in the OEQC Environmental Notice on May 23, 2009. Comments are required to be submitted or postmarked by July 7, 2009. Comments can be submitted via the website (www.TMT-HawaiiEIS.org), the toll-free hotline (1-866-284-1716), at public meetings (in writing or recorded individually), or by mailing written comments to the address on this form. This form is provided for convenience only; to submit this form by mail, please fold and staple, and affix proper postage (see reverse side for guide). Letter or other printed comments not using this form are also welcome.

All comments received will be responded to individually with both the comment and responses included in the Final EIS.

Name: DARRYL D. MOSES **Address:** 22 KAIKUONO ST.
Phone: 769-4076
E-mail: DNTMOSES@MSN.COM HILO, HI 96720

Comments: I am very much in favor of the TMT project. There are tremendous scientific, educational economic and cultural benefits of this project. Mauna Kea is a beautiful mountain and the TMT has a beautiful purpose, which is to increase our knowledge of the universe and more fully appreciate its grandeur. The beauty of the mountain and the beauty of the purpose of the TMT go well together.

Darryl D. Moses

(use additional sheets if appropriate)

1
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Thirty Meter Telescope Project

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Name: Larry Black **Address:** 104 Kapaa St. Hilo 96720
Phone: 808 969 7011
E-mail: Hiloboyhi@aol.com

Comments: UHH does not have the resources to run the Mauna Kea Telescope facility. It operates its 2 Hilo & 1 Kona campus but is ill equipped to operate/maintain the Mountain top & prevent damage to cultural sites, prevent litter, vandalism, etc. The Dept. of Land & Natural Resources is the Agency that should staff the Mountain & provide visitors w/directions, safety, emergency services, etc.

(use additional sheets if appropriate)

1
The commentor's views are acknowledged, but do not address the Project's potential impacts on the environment evaluated in the Draft EIS. The UH, through a series of management plans approved by the Boad of Land and Natural Resources (BLNR), has taken on management responsibilities to increase safety and to mitigate potential impacts to environmental resources by visitors. UH and the BLNR have recently approved the CMP; it is designed to continue improvements related to the management of Maunakea.

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Name: Kevin Hedlund **Address:** 106 UHALOA PL
Phone: 808 960 8892 Hilo
E-mail: hedlunddoo1@hawaii.rr.com 96720

Comments: I am strongly in favor of
1 the thirty Meter Telescope. The benefits far out weigh the neg. impact this project will cause. From the contributions to science as well as the community there can only be good that will come of this.

(use additional sheets if appropriate)

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

Date:_____

Name: Ricky P Ishibashi

Address: POBox # 647
Kurtistown

My name is Ricky P Ishibashi and I am a member of the Hawaii Laborers' Union, Local 368. I am Native Hawaiian and I live in Big Is. I was born and raised on the Big Island and have lived my entire life on the Big Island.

1 I care about what happens to Mauna Kea, but I support the Thirty Meter Telescope because I believe that we can have a balance between Hawaiian culture and science. Ancient Hawaiians studied the stars and the Hokulea has proven that it was this understanding of the stars that allowed ancient Hawaiians to voyage across the Pacific.

I also support the TMT because it will provide needed jobs and will help our Big Island economy. At a time when jobs are desperately needed, the TMT will provide a important boost to our economy.

I also support the TMT because it will benefit our Big Island keiki. I understand that the TMT will contribute money to a fund that will benefit the education of our Big Island children and provide needed scholarships.

2 I also think not enough people were asked for input to the Cultural Assessment. I hope more people are asked for their input.

Thank you.

Sincerely,

Ricky P Ishibashi

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

2
Since the completion of the Draft EIS, the Thirty Meter Telescope (TMT) Project has continued to work on and develop the Cultural Impact Assessment (CIA) through additional interviews with community members and review of past studies. This work is documented in Section 3.2 and Appendix D of the Final EIS.

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Name: JERRY FERRO **Address:** 450 KAUMANA DR.
Phone: 987-8110 HILO HI 96720
E-mail: JFREENER@HOTMAIL.COM

Comments: MY SPIRIT WAS CREATED IN HAWAII. IT WAS CREATED SPIRITUALLY IN PROCESS NOT THRU THE EDUCATIONAL/SCIENTIFIC COMMUNITIES OF FOREIGN INTEREST. IT HAS NOT BEEN SUSTAINED BY THESE COMMUNITIES PAST OR PRESENT. WHEN THE HAWAIIAN CULTURE HAS BEEN IN NEED OF SUPPORT FROM OFF SHORE PEOPLES IN ITS DRIVE FOR SOVEREIGNTY IT STOOD ALONE. TMT AND ITS PARTNER, MEMBERS, AND BACKER HAVE STOOD OFF SHORE WAITING FOR YOUR CHANCE TO TAKE OR GET "YOUR SHARE" IN SPITE OF THE HAWAIIAN CULTURE AND PEOPLES. YOU CARRY THE FINGERPRINT OF WESTERN MATERIALISTIC, CAPITALISTIC CULTURE WELL. YOU WILL TRY TO GET A DEEPER LOOK OF "OUT THERE" WHILE WHAT BEGS FOR ATTENTION IS UNDER YOUR FEET. A FEARFUL MAN GAZES UPWARD AND SMILES. A GRATEFUL AND COURAGEOUS MAN LOOKS DOWN AND SHOWS LOVE.

(use additional sheets if appropriate)

1

1
Comment acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

ROBERTA CHU
478 Kipuni Street
Hilo, HI 96720

June 16, 2009

University of Hawai'i at Hilo
Office of the Chancellor
200 W. Kawili Street
Hilo, Hawai'i 96720-4091

RE: Thirty Meter Telescope Draft EIS

Dear Chancellor Tseng,

I have a 17-year old son, Devin, who attends Hilo High School. He has a keen interest in astronomy which has been fueled largely by the exciting discoveries taking place atop Mauna Kea. This mountain, sacred in Hawaiian culture and a natural wonder, is an inspirational presence. Devin sees the mountain every day and I believe Mauna Kea has sparked his interest in exploring the universe.

If our children are to succeed in Hawai'i, we must have high-tech, high-skill, high-paying jobs right here at home, not only in Honolulu, but throughout our Island communities.

The Thirty-Meter Telescope, an incredible awe-inspiring endeavor, brings with it tremendous opportunities for the children of Hawai'i to literally reach for the stars. TMT can contribute long-term, sustainable community benefits, making new educational opportunities possible such as scholarships and mentoring programs for local students.

According to the draft EIS, TMT is committed to hiring as many local people as possible to operate the TMT observatory. A Workforce Pipeline Program would be established in collaboration with UH Hilo, Hawai'i Community College, and the DOE to identify the jobs TMT will need to fill, and develop programs to train students for those jobs. TMT will support and actively participate in on-going efforts to strengthen science, technology, engineering and math education in Hawai'i Island K-12 schools and clubs. It will create a partnership with UH Hilo and TMT partner organizations such as Caltech, the UC system, and Canadian universities to attract and develop top talent to TMT as well as create internships, degree programs, and student exchanges.

1 To build the world's largest telescope in the world's best astronomical site, the TMT must find the avenue for Hawaiian culture, environmental stewardship and astronomical science of the future to intertwine harmoniously. I believe it can. Per this draft EIS, TMT will support programs that strengthen Hawaiian language and culture programs and their integration with science and engineering.

Sometimes children fall short of their dreams, but we cannot short change our children. My son's dream is held in the far corners of the universe. My dream is to see my future grandchildren thrive here at home.

For all the wonderful possibilities the Thirty Meter Telescope will bring to Hawai'i, I support Mauna Kea as the project site.

Sincerely,

Roberta Chu

Roberta Chu

1
The Thirty Meter Telescope Project appreciates your review and will continue to work with the community to focus educational and other benefits so that they best fit the community goals and needs. Please see Section 3.9.4 of the Final EIS for additional details regarding the Project's educational measures.

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Name: Chris Thomas **Address:** 4331 Osage Ave
Phone: 267-804-4641 Philadelphia PA
E-mail: chthomas@dolphin-upenn.edu 19104

Comments: Aloha! I am a visiting PhD student in Sociolinguis at University of Pennsylvania. After learning about the 30-m telescope project and the community impact meetings, I have been thinking about developing my PhD dissertation on language & communication issues regarding community relations on projects, such as this one.

1 I would like to contact someone with the project who is involved in community relations to discuss the possibility of doing research on this important language and culture-related topic

Mahalo,
Chris Thomas

(use additional sheets if appropriate)

1
The Draft EIS comment meetings were conducted as part of the HRS Chapter 343 process. While they may be part of the Project's "community relations" outreach effort there is not a specific person to contact related to community relations as a subset of the EIS process. Feel free to forward your request to inquiry@tmt.org which is directed to TMT Observatory Corporation outside of the EIS process.

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Name: Geoff Nelson **Address:** Po Box 103
Phone: 415-279-2198 Hakalau 96710
E-mail: gnelson@alum.mit.edu

Comments:

The proposed site is sacred to the native people, a spiritual place occupied by the gods.

The TMT is another way to look at the heavens, a window into the vast Universe and our place in it. As such, it is entirely consistent with the sacred nature of the area, and with the searching and study of the ancestors of the native people.

1

(use additional sheets if appropriate)

1
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Name: Mark Lossing **Address:** 75-237 Aloha Kona Drive
Phone: 640-9557 Kailua-Kona, HI 96740
E-mail: Hawaii Carpenters Union

Comments: I represent over 500 unemployed members of the Hawaii Carpenters Union Local 745. To let a project of this magnitude slip away from the state of Hawaii would be a travesty.

1 I support the TMT because it will provide needed jobs now + into the extended future. At a time when jobs are desperately needed the TMT will provide an important boost to our economy.

I care what happens to Mauna Kea, but I support the TMT because I believe that we can have a balance between Hawaiian culture and science. Ancient Hawaiians studied the stars and the Hokulea has proven that it was this understanding of the stars that allowed ancient Hawaiians to voyage across the Pacific. If the ancients could embrace today's technology, as the very adaptable people they were, they would be in awe of the possibaties

(use additional sheets if appropriate)

Sincerly Mark Lossing
Field Representative
Hawaii Carpenter Union local 745

1
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Name: Sunny Stewart **Address:** PO Box 1707
Phone: 959-6054 Kea'au, HI 96749
E-mail: sunnystewart@gmail.com

Comments: As a former astronomy student from UHH I am supportive of the TMT project. Also, having grown up on the island of Hawaii it has always saddened me to see smart youths leave for "opportunity" on the mainland. The educational spending in Hawaii by TMT, and the number of good jobs becoming available is of great benefit. Personaly, I can hope for employment opportunities.

(use additional sheets if appropriate)

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Name: John Hamilton **Address:** PO BOX 615
Pepeekeo HI 96783
Phone:
E-mail: johe@hawaii.edu

Comments: As a faculty member at UHH, I see the TMT as huge opportunity for the students of UHH. Opportunities for projects, supplemental instruction, internships and jobs after graduation.

TMT has a new plan of positive cooperation with UHH and with the community. Hopefully close support of the UHH Astronomy program and its undergraduate educational telescope with encourage Big Island teens to consider science and astronomy as a career. A career that would allow them to stay in the State and raise families with a decent income

(use additional sheets if appropriate)

1
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Name: Jody Fulford **Address:** 1303 Kalaniana'ole #11
Phone: 934 9655 Hilo Hi
E-mail: 96720

Comments: Should the issue of visual disturbance become of considerable concern perhaps technology will have developed to allow for "chameleon paintings" that would change color in light or electronic polarization. Certain aspects are under study at this time and would be of use in this endeavor

(use additional sheets if appropriate)

1
Thank you for your input. TMT will continue to evaluate new technologies as they become available to assess how and if they may limit the Project's impact to the environment.

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Name: Don & Celeste Rudny **Address:** P.O. Box 106
Pepeekeo, HI 96783
Phone: 982-7054
E-mail: don@rseng.com

Comments: We believe that the TMT project is one of the best things that could happen to Hawaii and the Big Island. The economic impact is extremely positive and much needed in this difficult economic climate. The positives greatly outweigh the negatives, if there are any. What better way to honor the sacred nature of Mauna Kea than to build such a world class scientific marvel that allows us to reach the rest of the universe.

We urge you to select Mauna Kea as your site. We are sure that you will receive great support from the good people of Hawaii.

(use additional sheets if appropriate)

1
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Name: Ann Lau **Address:** P.O. Box 6009
Phone: Hilo, HI 96720
E-mail:

Comments: ☆ I just wanted to say "thanks" for
1 your support of the K-12 gr. students now + in the future. I realize that many are concerned about the impact of this major undertaking on Mauna Kea, and I, too, have the love for our aina, having been born + raised on this island.
☆ However, the potential of your telescope on the future of mankind is far greater than the negative impact that a lot of the speakers focused on. Our son has benefitted tremendously from the Robotics programs + we will be eternally grateful for the tireless efforts of all of the teachers, mentors + supporters who made so much of his successes possible. He will be pursuing a degree in Electrical Engineering + is currently interning for his 2nd summer at NASA. It is a dream coming true for him. I would like to welcome you with open arms. Thank you + ALOHA!

We appreciate the financial support that some companies + individuals have provided. I thank you in advance for your generous offer for our students.

(Use additional sheets if appropriate)

1
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RECORD DETAIL

First Name : Donn
Last Name : Mukensnable
Submission Date : 07/06/2009

Submission Content/Notes : First off, I have to say: Promise Kept! The preparation of the EIS and the negotiation of the various organizational hurdles could have been a daunting task, but the draft result proves that the team accomplished what it set out to do in delivering an honest, even-handed assessment of the TMT Project and its impacts on Maunakea, the community, and the state.

Exploration is a cultural imperative; if the founding Hawai'ians had not ventured forth across a vast and uncharted ocean, the history of these islands would be far different. If Galileo had not tilted his telescope upwards to the heavens, our view of the universe would be far different. If George Ellery Hale had lacked the drive to push technology to the limits, we would not know of the beginning of all things. However, these bold choices DID occur; those discoveries were made, illuminating the richness of our planet and the cosmos within which we live.

1 Now Hawai'i stands on the brink of a new exploration and new discoveries with the advent of the Thirty Meter Telescope, pushing back the curtains of obscurity ever farther and coming close to observing the first visible events in the universe. When planning and building such an instrument, spending huge amounts of money and resources, one should strive to make the most of those investments. Build the best telescope possible. Put it in the best place possible. Make the most efficient use of those feeble photons that will be gathered. Maunakea is that place, with the best steady seeing of anywhere on the surface of the planet. Add to that the best infrastructure with the University of Hawai'i at Hilo and the Institute for Astronomy, and the best instrumentation with the consortium of universities that will operate the facility.

No change is without impact, and the building of the TMT will inevitably cause some change. The significant aspect of change is how well it is understood, managed, contained, and mitigated. In those respects I feel the Draft EIS has achieved an excellent balance between many factors and constituencies, taking each point and opinion into consideration and proposing solutions that demonstrate that true equilibrium is possible and whatever imbalances occurred in the past do not create a precedent or set the course for the future. It is very gratifying to me that with the announced decommissioning and removal of the Caltech Submillimeter Observatory, a key commitment of the comprehensive master plan to limit the number of telescopes on the summit of Maunakea will be met.

I've reviewed the Draft EIS, and as a layperson with experience in building both (small) telescopes and public observatories, and as a resident of Waimea, I have a few observations and recommendations to make regarding the TMT Plan:

2 1. The recommendation of reflective aluminum for the surface of the TMT dome is very well considered, since it provides a balance between the aesthetic view of the facility and the overall effectiveness of the enclosure at the wavelengths where the telescope will operate. Efficiency counts here also; this reflective coating will require the least cooling to maintain the instrument at observing temperatures. My experience in looking at the observatories from down below confirms the artist's conception that a reflective dome would be nearly invisible under most conditions, as is Subaru now.

3 2. Of the on-summit access road options, I favor #2 (extending from the existing road and edging the cinder cone slightly) as it represents a good balance between safe access to the TMT site, minimal disturbance of the SMA telescope pads, particularly when they are in the extended configuration, and minimal impact on the landscape. It's also the shortest extension to the existing road.

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

2
Thank you for your input. Based on comments received during the Draft EIS comment period, the aluminum-like finish, similar to that of the Subaru Observatory, is being carried forward as the TMT Observatory dome finish. This is reflected in Section 3.5 of the Final EIS.

3
Thank you for your input. Of the three Access Way Options discussed in the Draft EIS, Option 1 is no longer being considered due to conflicts with SMA operations. Access Way Options 2 and 3 remain under consideration, but both have been refined since completion of the Draft EIS to reduce their impacts and provide for safe SMA operations. Please see Section 2.5.2 of the Final EIS for the updated Access Way discussion.

4 | 3. The selection of the building sites within the chosen region of the Astronomy Preserve was already made to minimize disturbance of culturally significant locations; it does appear that the option designated "E2" creates fewer such impacts. However, the alternate site may have a reduced access to the sky, since it will be closer to the cinder cone. I would opt for the location that gives the most sky coverage, since this will last for the lifetime of the TMT installation. Choosing a siting that favors the view to the south should be a priority in making the final decision.

5 | 4. The estimate of 50 staff at the TMT during normal operations seems high to me, especially given the rigors of traveling to and working at the summit. More consideration should be given to facilitating remote operation and observation options so as to reduce the number of people at the telescope, while maintaining appropriate oversight and safety considerations.

6 | 5. Construction and operation of the TMT must implement efficient use of energy and effective disposal of wastes. The TMT Facility itself should be designed to achieve the federal "Energy STAR" rating for the on-mountain facilities (observatory and mid-level support structures) as well as the in-town offices. In all respects, the TMT should be a showcase for "green" technology and techniques.

At a recent public hearing, one of the participants commented on whether Hawaii's King David Kalakaua would have embraced the TMT project. It's impossible to know what his response would have been. However, I do know that the scope and vision of the Thirty Meter Telescope can and will inspire future generations of Hawai'an explorers of all races and nationalities to join their honored ancestors in pushing back the frontiers of knowledge.

6-July-2009

Stakeholder Type : Citizen

4

Based on comments received and the analysis presented in Section 4.2 of the Draft EIS, the Thirty Meter Telescope Project has selected the proposed 13N Project site as the preferred alternative and the future site of the TMT Observatory. This selection is reflected in Chapters 2 and 4 of the Final EIS.

5

The Draft EIS estimated the number of employees at the TMT Observatory as 50, 44 in the daytime and 6 at night. This number was included as a maximum number of employees. This is discussed in Section 2.7.3, page 2-23; Section 3.2.3, page 3-23; Section 3.4.3, page 3-49; and Section 3.11.3, page 3-126 of the Draft EIS.
The appropriate sections of the Final EIS have been modified to indicate that during the day, it is estimated that a minimum of 15, an average of 24, and a maximum of 43 members of the staff would work at the TMT Observatory. At night approximately 6 system operators would be present at the TMT Observatory, while observers and support astronomers would work remotely.

6

The Thirty Meter Telescope Project intends to show leadership in energy and environmental design. Measures to reduce energy use through efficiency were discussed in Section 3.12.4 of the Draft EIS. Additional measures have been added to this section in the Final EIS, which states:
"A TMT Energy Roundtable meeting was held on September 8, 2009, with representatives from HELCO, the Department of Energy (DOE)/National Renewable Energy Laboratory (NREL), Pacific International Center for High Technology Research (PICHTR), and Hawai'i Clean Energy Initiative. The importance of maximizing energy efficiency in the design of TMT's facilities was emphasized at this meeting. As part of TMT's design work there is an active program to analyze the environmental heat loads and energy usage in the telescope enclosure and supporting facilities. Appropriate energy saving designs will be employed into all aspects of the buildings and facility design including: high R-rated insulation panels, radiant exterior barriers, high performance window glazing, and air infiltration sealing, for example.
"Energy saving devices will be incorporated into Project facilities; plans include: solar hot water systems, photo voltaic power systems, energy efficient light fixtures controlled by occupancy sensors, efficient Energy Star rated electrical appliances at all facilities, and design with local knowledge to maximize the use of natural ventilation and lighting at the Headquarters."

Statement on May 23, 2009 DEIS for Thirty Meter Telescope Project, Hawai'i
Ms. Cory (Martha) Harden, PO Box 10265, Hilo, Occupied Hawaii 96721
808-968-8965 mh@interpac.net

How much is enough?
How many telescopes?
How many spiritual settings?
How much money and how many jobs?
How much unspoiled nature?
How much exploration of the universe?
How much protection from enemies?

The answers are best found, and re-found, by giving all actors parts in an ongoing play.

1 Not by letting a bad actor write the play. The University, which allowed Kukahau'ula, and other irreplaceable resources on Mauna Kea, to be destroyed, should not write the Mauna Kea plan.

But the EIS presents the UH plan as a done deal that allows TMT. Instead, it should explain why TMT thinks the UH plan is legal, and give an update on the contested case action and how it affects TMT.

2 The EIS should also give an update on another major issue, ceded lands, analyzing how recent legal decisions and legislation affect TMT.

Another question--should TMT go to Hawai'i, or to Chile?

Four factors make this hard to answer.

3 1-The EIS does not offer a side-by-side comparison of the Hawai'i and Chile sites.

4 2-On the TMT website, the heart of the Chile environmental study is in Spanish. I only got a complete translation late Monday night.

3-Chile environmental law seems less strict than Hawai'i. The TMT would use explosives to help take 36 feet off the top of a Chile mountain, but this doesn't seem to trigger a stringent study.

5 4-On economic benefits for Hawai'i, the EIS does not evaluate how TMT will fare in the economic downturn, nor factor in the cost of decades and perhaps centuries of landfilling waste from eventual decommissioning of TMT.

Still, based on what we know now, should TMT go to Hawai'i, or Chile?

If you want money and jobs for Hawai'i, synergy between observatories, and world astronomy leadership for the U.S, you choose Hawai'i.

But what if you consider Mauna Kea's gifts--spiritual landscapes, millenniums of cultural heritage, unique life that survives snow and height, untouched natural beauty, and rare silence? What if you feel that some actors have taken far more than their share--and there's no end in sight?

Then you choose Chile, and hope astronomy will take more care with that mountain than was taken here.

1
The CMP was approved by the BLNR on April 9, 2009, with conditions. Certain individuals and organizations requested a contested case proceeding for the CMP approval. The BLNR denied the request since a contested case hearing was not required by law and those requesting it did not establish a property interest in the CMP or that the CMP would affect property in which they possessed an interest. In approving the CMP, the BLNR required that UH be responsible for the implementation of the CMP subject to oversight of the BLNR. Failure to comply with the BLNR's conditions of approval of the CMP may result in sanctions. Hence the CMP and its conditions of approval have legal force and effect.

2
Resolving claims that the ceded lands were wrongfully taken by the United States, that the State's title to ceded lands is clouded or void, or that ceded lands should be returned (or compensation provided) to a class defined by race or ancestry, is beyond the scope of this EIS. This EIS assumes that the State of Hawaii lawfully owns those portions of Maunakea where physical improvements for the Thirty Meter Telescope Project are anticipated.

3
Comment acknowledged; the site that was considered in Chile is discussed in Chapter 5 of the Draft EIS. The proposing agency, the University of Hawaii at Hilo (UH Hilo), does not have any authority in Chile; therefore, the site in Chile is not an alternative available to them and is not discussed as an alternative in this State of Hawaii HRS Chapter 343 EIS disclosure document. For this reason no side-by-side comparison of the two sites is included.

4
The Chile environmental study has no bearing on the Chapter 343 EIS prepared for the TMT Project. We are glad you received the English translation though.

5
The potential socioeconomic impacts of the Project are discussed in Section 3.9 of the Draft EIS. How the Project would fare in the economic downturn does not address the Project's potential impacts on the environment evaluated in the Draft EIS.
The generation of solid waste during decommissioning is addressed in Section 3.16.5, page 3-191, of the Draft EIS. It is stated that "Some of the materials could and would be reclaimed or recycled, but it is anticipated that a large amount of the material would need to be disposed of at a landfill. However, the daily generation of solid waste by observatory operations would cease." It is not possible to know what sort of recycling may be feasible when the TMT Observatory is decommissioned, whether that occurs in 2033 or more than 50 years from now. However, there is no indication that it would take centuries to landfill the waste generated.

June 17, 2009

Good afternoon,
My name is Amy Shiroma and I live in Hilo.
Thank you for this privilege of speaking before you.
1 I am in favor of locating the 30-Meter Telescope in Hawaii.
As expressed by many, it will definitely be of a great
financial boon to start, but I also believe that virtually
everyone of us, not only on this island, but the whole
State of Hawaii, will benefit, directly or indirectly.
I say, let's welcome its presence.
Thank you.

Amy Shiroma

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

COMMENT FORM
Thirty Meter Telescope Project

The University of Hawai'i encourages comments on the Thirty Meter Telescope (TMT) project. The 45-day Draft EIS comment period opened with the notice of availability published in the OEQC Environmental Notice on May 23, 2009. Comments are required to be submitted or postmarked by July 7, 2009. Comments can be submitted via the website (www.TMT-HawaiiEIS.org), the toll-free hotline (1-866-284-1716), at public meetings (in writing or recorded individually), or by mailing written comments to the address on this form. This form is provided for convenience only; to submit this form by mail, please fold and staple, and affix proper postage (see reverse side for guide). Letter or other printed comments not using this form are also welcome.

All comments received will be responded to individually with both the comment and responses included in the Final EIS.

Name: Russell Kackley **Address:** 162 Melani St.
Hilo HI 96720
Phone: 969 6583
E-mail:

1 **Comments:** I strongly support the TMT project installation on Mauna Kea. The TMT will bring positive benefits to the majority of the people in the State of Hawaii. The negative impacts are minimal and will be well-tolerated. The benefits will accrue especially to the children who will have better education and opportunities. In summary, I strongly support the TMT on Mauna Kea.

(use additional sheets if appropriate)

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

Testimony
In Support Of
The Draft Environmental Impact Statement
for
The Thirty Meter Telescope Project

David A. Byrne
P.O. Box 263
Volcano, HI 96785
Testifying as a private citizen and long time resident of Hawai`i

Date: Wednesday June 7, 2009

Time: 4-8pm

Place: Hilo High School Cafeteria
Hilo, Hawaii 96720

- My testimony is in **support** of **The Draft Environmental Impact Statement for The Thirty Meter Telescope Project**

- My name is David A. Byrne and I am testifying as a private citizen and a long time resident of Hawai`i in support of the The Draft Environmental Impact Statement for The Thirty Meter Telescope Project.

- I believe that traditional culture, environmental concerns and astronomy can co-exist on Mauna Kea and potential impacts can be appropriately mitigated.

1 - I support this Draft Environmental Impact Statement because it addresses all the principle issues associated with the installation and operation of the world class astronomical observatory of the 21st century. Appropriate mitigation measures are planned for all project phases. Significant programs and community partnerships are presented which will benefit all stakeholders and community members. Unresolved issues are clearly stated and will be resolved in the final Environmental Impact Statement.

- This Statement complies with the State Land Use Law, the State Environmental Policy, the Hawaii State Plan, the BLNR Mauna Kea Comprehensive Master Plan, the 2000 Mauna Kea Science Reserve Master Plan and the County of Hawaii General Plan.

- The genius of our great Hawaiian/American island community is our ability to come together with mutual respect and resolve our differences in such a manner to achieve our combined community goals. This Draft Environmental Impact Statement was developed with this in mind.

2 - I would recommend that the Mauna Kea Institute training program, which was a component of the 2000 Mauna Kea Science Reserve Master Plan, be restated and offered every two years. This was an intense two week training program offered by Hawaii Community College with college credits.

- I **support** this Draft Environmental Impact Statement because I believe that we can achieve our community goals with this plan. And I believe that we can achieve consensus to maintain the cultural respect of this most sacred of all mountains while coexisting, in the positive sense, with the Astronomical community.

- Thank you very much for the opportunity to testify today.

TMTEISTest090611DAB

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

2
The "Mauna Kea Institute training program" is outside of the Project process and therefore we cannot influence that program. As detailed in various sections of the Draft EIS, including Sections 3.2.3 and 3.4.3, the Project will implement an annual Cultural and Natural Resources Training Program for all employees to comply with applicable requirements, including CMP Management Actions CR-3, NR-6, EO-2, and IM-2.

Catherine Robbins
Thirty-Meter Telescope EIS Scoping Meeting
17 June 2009

Aloha. My name is Catherine Robbins.

Mauna Kea's near-pristine north plain should not be developed for the mind-bogglingly huge, stadium size Thirty-Meter Telescope.

1 I am deeply concerned that this project exemplifies 'more of the same' disingenuous mountain management by the University of Hawai'i, in addition to damaging an unspoiled part of a wild and sacred mountain.

2 Reading UH's TMT EIS, I was disturbed to discover that UH is now counting the two Kecks as one telescope and that the VLBA has been removed from the mountain observatory count. I surmise that this trickery was employed to skate under the eleven telescope requirement mandated in the 1985 management plan. UH has always wanted as many of the most powerful telescopes it can get and seems willing to stop at nothing to succeed. If the people hadn't intervened these past fifteen years, ninety more antennae – the Sub-Millimeter Array project – might now flank the summit cones. Plus six more domes called the Outriggers, would be visible as part of the Keck complex. The Outriggers were halted by court order since UH and its California partners hadn't followed the law. When will it stop?

3 I am angered that UH's TMT EIS even proposes, as one accessway option, cutting into the base of Kukahau'ula for the road out to the remote TMT site given all the damage that's already been done to those cones. That vividly demonstrates UH's continued disrespect for the mountain and the host culture.

1
Acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

2
An observatory is clearly defined in Section 2.1 of the Draft EIS as follows:
"An observatory includes the telescope(s), the dome(s) that contain the telescope(s), and the instrumentation and support facilities for the telescopes that fall under a common ownership."
By this definition there are 11 observatories and one radio telescope on Maunakea. Various other documents have failed to differentiate between an observatory and a telescope or defined an observatory in a variety of different ways without consistency. The information included in the Draft and Final EIS is meant to provide information about existing observatories and telescopes based on clearly defined parameters, as well as to provide consistency within the document.

3
Thank you for your input. Of the three Access Way Options discussed in the Draft EIS, Option 1 is no longer being considered due to conflicts with SMA operations. Access Way Options 2 and 3 remain under consideration, but both have been refined since completion of the Draft EIS to reduce their impacts and provide for safe SMA operations. Please see Section 2.5.2 of the Final EIS for the updated Access Way discussion.

A requirement of the original observatory leases was, upon decommissioning, to restore the sites to their original condition. I was disheartened (but perhaps not surprised) to find out from the TMT EIS that during UH's early years of managing the science reserve, so much material was removed during observatory construction, some of the sites now *can't* be restored to their original condition.

Mauna Kea is revered in ceremonies, song and dance. Artists attempt to catch its majesty and magic in paintings, photographs and poems. People make pilgrimages to the mountain from across
4 the Pacific. We *must* protect its wildness, health, quiet and viewplanes.

Wallace Stegner, Stanford University professor and Pulitzer Prize winner, said "we simply need that wild country available to us, even if we never do more than drive to its edge and look in. For it can be a means of reassuring ourselves of our sanity as creatures, a part of the geography of hope".

A handful of jobs are not worth bulldozing an undisturbed plain on a sacred and wild mountain. Once you bulldoze, irreparable harm is done.

Do not build the gargantuan TMT *anywhere* on Mauna Kea. Please take it to Chile. In fact, no more telescopes on Mauna Kea. Too much irreparable damage has been done already.

4
Thank you for your input. UH and the Board of Land and Natural Resources have approved the CMP on April 9, 2009, separate from the TMT Project, to manage and protect Maunakea.

RECORD DETAIL

First Name : Drew
Last Name : Kapp
Submission Date : 07/06/2009

Submission Content/Notes : Aloha,

I am writing to provide you with my unequivocally sincere and heartfelt testimony against the construction of the Thirty Meter Telescope atop Maunakea. There are many reasons that I cannot and will never support this, and I will offer just a few here. Mahalo, in advance, for seriously considering my testimony, as well as the testimony provided by others. Many people have suggested that the TMT is a “done deal,” something which I find extremely distressing. But, it makes me wonder if that is, indeed, the case. The approach to potential telescope construction on the summit of Maunakea is all wrong: the order of events is nonsensical; the processes are so complex for the public that they elude reasonable comprehension. I am uncomfortable with the idea that our testimony goes directly to TMT and/or the Chancellor of the University of Hawai'i at Hilo, both of which have a vested interest in telescope construction obviously. It is no wonder that is a sea of distrust among the public about development on the top of that mountain. It is no wonder.

1

I have been an employee of the University of Hawai'i at Hilo for many, many years, and am proud of my association with the institution. It unnerves me that this institution I so love is so intimately involved with development, the destruction of sites on the summit of Maunakea, and has illegally been awarded stewardship of the summit area. I teach Geography classes within the Department of Geography and Environmental Studies at UH-Hilo, and also within the Natural Sciences Division and Hawai'i Community College. I am fairly knowledgeable about the biotic, geologic, and cultural significance of the summit (and entire mountain) of Maunakea. The mountain is a recurrent subject in my Geography classes, and we visit the summit area of Maunakea at least twice a year for class excursions. When I take students up to that area they are invariably in awe of the landscape and the profound meanings found there. We appreciate the rare forms of life, the presence of deities and kupuna, the waters of Waiau, the silence; all of these facets, and more, are held in reverence. I conduct our excursions in a way that allows students to learn from the place itself, and I refrain from articulating my own thoughts of sadness about the transformation of the summit area. I can tell you that, although I do not dare to speak for my students, many of whom are from this island and are Native Hawaiian, the vast majority of my students express a dire need to preserve the summit area and to halt further telescope development. It is clear to them when they are there. And it should be clear to my university, too. Many of these students vow to engage in civil disobedience if construction of the TMT is approved and commences. This, among other things, is a testament of the strength of their convictions, and I side with this sentiment.

2

It is irresponsible to insist that the need to build another telescope at this precise location (and not elsewhere, in another country, for example) trumps the importance of Hawaiian culture and customary practice and perspective. It is, indeed, a haole view to privilege construction of an inappropriately-sized and inappropriately–located facility over the preservation of wahi pana. I am not against science: I, in fact, teach it and enjoy doing so; a Hawaiian worldview is not against science: it shares features with what we call science today: we celebrate powers of observation, understand environmental connections, view the world systemically, holistically, and appreciate its intricacies and profound sense. We are just against something that represents a massive insensitivity to a spiritual connection to the piko of Hawai'i. There could scarcely be a worse choice for locating yet another telescope. How can such a place tolerate the ugliness that this development initiative represents? It violates this sacred landscape. I use this language because it most effectively expresses how I feel: I have meditated upon

1

Neither UH Hilo nor the TMT Observatory Corporation consider the Project a "done deal." The EIS is a step in the approval process. Section 1.2 of the Draft EIS lays out the process being followed, HRS Chapter 343, and Section 3.19 of the Draft EIS lists the permits required by the Project, including the Conservation District Use Permit (CDUP). As outlined in these sections of the Draft EIS, there are many remaining steps to take before the Project is approved and can break ground.

2

As discussed in Section 3.2 of the Draft EIS, there is a diversity of views concerning the potential cultural impact of the Project and the ability to mitigate such impact. During the Draft EIS comment period we received comments expressing a number of wide-ranging views on the subject of the Project's potential cultural impact again. UH Hilo and the Project appreciate and understand the commentor's views and will continue to work with the Native Hawaiian and local community groups to address cultural concerns and issues.

such issues for years, and these are the words that are, at a minimum, appropriate. Maunakea is a place of unparalleled beauty, power and a whole people's ancestry: it's been sullied by the presence of telescope facilities, and should not be forced to experience the erection of one more, and especially of these gigantic dimensions, larger than Mokuola, floating at the foot of the mountain.

I offer my testimony to you humbly and respectfully. Respect is the place from which positive solutions emanate.

Aloha.

Stakeholder Type : Citizen

Tom Peek P.O. Box 1030 Volcano Hawai'i 96785
(808) 985-8973

Comments at the Thirty Meter Telescope Draft EIS
June 17 – Hilo, Hawai'i

1 Aloha. I'm Tom Peek from Volcano and a former guide for the Mauna Kea observatories. Giant telescopes like TMT are crucial tools in the search for planets—and life—beyond our solar system, but building them on Mauna Kea after decades of mismanagement is disrespectful to the island community. After all that sour history, observatory officials must begin to deal more honestly and fairly with the community that hosts them.

I was, therefore, sorely disappointed to see yet another shoddy planning document—this time from the confederation of UH, Caltech and UC—that only adds more bad blood to the already divisive controversy. Frankly, the EIS struck me as more PR than environmental impact study, containing more political spin than rational, scientific analysis, a document that understates the
12 impacts, and overstates the ability to mitigate them. It also fails to seriously consider the no build alternative—no surprise given its sponsors.

Here's are just nine the draft's many defects:

2 **1. The EIS fudges the number of telescopes.** The number of telescopes allowed by the last plan approved by the Land Board (two decades ago) allows only 11 major telescopes in the Science Reserve, specifically to prevent astronomy interests from taking over the mountaintop's conservation district. In addition to trying to grandfather in some new definitions of "telescopes" and "observatories," the EIS, on every summit map and in the text, fudges the current number built on the mountain, leaving the impression that the current 20 are actually just 11. Among other things, it counts Keck I and Keck II as one telescope, the 8 of Smithsonian's submillimeter array as one and the VLBA antenna, as off the summit (although it has always been inside the Science Reserve). This is more of the same funny math that has so outraged islanders, who do know how to count.

3 **2. The EIS contains inadequate socio-economic analysis,** claiming that the TMT will create 140 permanent jobs but providing no breakdown on how many of those mostly specialized employees will be imported from California, Japan and elsewhere.

4 It also grossly overstates the positive impact that number represents. Let's say, to be generous, that half of the 140 jobs go to islanders (with the aid of TMT's Workforce Pipeline Program). That leaves at most a manini 70 jobs—equal to less than a quarter of the 300 jobs that were just created by the new Target store in Kona (and those are the kind of jobs our unemployed islanders need now). The EIS figures on historic astronomy-related employment vary from only about 600 to almost 900 jobs for all observatories combined! All that damage and community animosity for employment that could easily be provided by adding the proposed Hilo Target store and one other comparable project.

Given how comparatively manini the local TMT benefits are, I think TMT officials have been disrespectfully misleading some of our conscientious community leaders, like Mr. Richard Ha, who are legitimately concerned about high unemployment here.

1
UH Hilo and the Thirty Meter Telescope Observatory Corporation understand there is a long history of what some have termed "mismanagement" of Maunakea. These views are acknowledged, but they do not address the Project's potential impacts on the environment evaluated in the Draft EIS.
UH and the Office of Mauna Kea Management (OMKM) have prepared the Comprehensive Management Plan (CMP) and it has been approved by the Board of Land and Natural Resources (BLNR). UH and OMKM are committed to implementing this CMP and the Project is committed to complying with it, as detailed in the Draft EIS. The CMP has been prepared to improve management of Maunakea.
In addition, as outlined in Chapter 1 of the Draft EIS, the TMT Project has worked hard to complete the HRS Chapter 343 process in a transparent manner providing many opportunities for community input.

12
The No Action alternative, as clearly described in Section 4.2.1 of the Draft EIS, is not a Chile location; the Cerro Armazones site in Chile is not an "alternative" for the proposing agency, the University of Hawaii Hilo (UH Hilo). As stated in the Draft EIS, "Pursuant to this alternative [No Action], TMT would not fund construction, installation, or operation of the TMT Observatory and its supporting facilities at Maunakea. However, the 36-acre Area E is identified for development of a Next Generation Large Telescope (NGLT) in the Mauna Kea Science Reserve Master Plan. Therefore, it is possible that absent the proposed Project, another observatory could be developed within Area E pursuant to the Master Plan. ... Since Area E is designated for a NGLT facility, it is likely that a possible future observatory would be similar in size and scope to the TMT."

2
There is no set "limit" on the number of telescopes or observatories on Maunakea. The 1983 Master Plan, approved by the Board of Land and Natural Resources (BLNR), states on page 41, "Based on the RDP [Research Development Plan], the SRCDP [Science Reserve Complex Development Plan] identifies siting areas for a total of thirteen telescopes on the mountain by the end of the century. Although the actual number of facilities which will be realized by the astronomy program at Mauna Kea will depend on the demand and on the role determined for this activity by public policy makers, the University of Hawaii has determined that it is resonable and feasible to project a total of 13 telescopes on the mountain between now and the year 2000." The 1983 Master Plan is silent on the number of observatories that could be built after the year 2000 and overall the number of observatories is left to public policy makers.
Further, an observatory is clearly defined in Section 2.1 of the Draft EIS as follows: "An observatory includes the telescope(s), the dome(s) that contain the telescope(s), and the instrumentation and support facilities for the telescopes that fall under a common ownership."
By this definition there are 11 observatories and one radio telescope on Maunakea. Various other documents have failed to differentiate between an observatory and a telescope or defined an observatory in a variety of different ways without consistency. The information included in the Draft and Final EIS is meant to provide information about existing observatories and telescopes based on clearly defined parameters, as well as to provide consistency within the document.

5 **3. The EIS incorrectly recognizes the 2000 UH master plan.** This highly unprofessional, PR-oriented "plan" was never approved by the state Land Board as required by law, and therefore has no legal force or effect of law. Referring to it as if it were a valid plan is not only inaccurate and misleading, but wishful thinking that legal realities are not what they are.

6 **4. The EIS fails to mention the federal government's substantial TMT involvement,** through the National Science Foundation's almost decade-long push for this telescope and its many millions in taxpayer dollars for TMT design and development funding.

7 **5. The EIS fails to examine the industrial carrying capacity of the mountaintop**, a public concern raised for years at numerous hearings.

8 **6. The EIS fails to adequately examine siting TMT in Chile**, which many islanders believe is only solution to the escalating conflict now plaguing our community.

9 **7. The EIS ignores this giant observatory's impact on what Kupuna Ed Stevens calls the "spiritual ambience" of the mountaintop,** even though this worry has been repeatedly raised in meetings and hearings.

10 **8. The EIS understates the TMT noise problem** by applying an urban noise standard to a revered mountaintop that was previously near silent—in order to find a "less than significant impact."

11 **9. The EIS understates the environmental impact of the TMT's construction phase**—seven years of noise, dust, traffic and construction site eyesores.

I could go on, but let me conclude by saying that, sadly, this EIS (and TMT's failure to prepare a federal EIS) is wholly consistent with Caltech and UC's long record of poisoning astronomy's relations with Big Islanders. In an attempt to shortcut approvals for their Keck Outrigger telescopes, Caltech and UC officials had willfully violated state and federal environmental and cultural laws, forcing the Office of Hawaiian Affairs and members of the Hawaiian community to sue for justice—and win in both suits. In addition, neither Keck I, Keck II or the Caltech Submillimeter Observatory conducted any kind of individual environmental review before being built. Attempting these lawless acts in their home state of California would have been unthinkable.

It saddens me to see that our own local and previously respected UH Chancellor, Rose Tseng, has allowed herself and UHH to become parties in this disrespectful record.

I would also urge the man funding much of TMT, Mr. Gordon Moore—billionaire cofounder of Intel corporation and longtime Caltech Trustee—to take his telescope to Chile and leave the people here alone.

Thank you for the opportunity to speak.

3

Section 3.9.3, page 3-102, of the Draft EIS states the Project would provide an estimated 140 full-time jobs for "astronomers, a wide range of engineers and engineer technicians (mechanical, electrical, and optical), software and information technology engineers, staff to maintain and direct equipment at the observatory, scientific support, public outreach, and management and administrative personnel, including cultural and educational outreach specialists."
At this time, roughly eight years before the start of the TMT Observatory operation phase, it is not possible to know an exact number of each type of future employee. However, the following has been added to Section 3.9.3 of the Final EIS, "The majority of the positions will likely be in the technical and engineering areas (40%), followed by science (20%), software/IT (10%), and administration (10%)."
The Workforce Pipeline Program described in Section 3.9.4, page 3-103 to 3-104, of the Draft EIS, explains how the Project would strive to fill operations positions to the "greatest extent feasible" locally. Section 3.9.4 of the Final EIS now contains a list of "Additional Mitigation Measures", one of which is: "To the greatest extent feasible, employment opportunities will be filled locally. This will include advertising available positions locally first; however, to fill some positions, which typically require a worldwide search, advertisements will be simultaneously released both locally and to a wider audience."

4

Section 3.9 of the Draft EIS discusses socioeconomic conditions and potential impacts. Table 3-11 documents average earning in the astronomy market segment of the economy (from nearly $71,000 to over $83,600 a year in 2007). County-wide the average individual earning in 2006 was almost $34,000 a year. This illustrates that employment in the astronomy sector provides earning double the average, and, therefore, likely well above the earning in the government, hospitality, and retail industries, which make up the bulk of the employment opportunities in the County. The County of Hawaii Data Book provides a listing of the County's top employers; the most recent information available is from the year 2008. In 2008 the top employer was the State government (8,240 employees), followed by the County government (2,705), the Federal government (1,3332), the Hilton Waikoloa Village (984), and Wal-Mart (852) to round out the top five.
Wages, salaries and benefits that will be offered by the Thirty Meter Telescope Project will be in-line with the current market for comparable skills and experience and pay rates at the other observatories. Attracting good staff and retaining them will be an important aspect of Project operations.
The Draft EIS merely discloses the estimated number of jobs and the potential impacts (benefits) that those jobs could bring to the community.

5

The 2000 Master Plan is referenced throughout the Draft EIS, including Chapter 2 and Section 3.10. Section 3.10.3 of the Draft EIS outlines the Thirty Meter Telescope Project's consistency with land use plans, policies, and controls. The Draft EIS neither states nor suggests that the 2000 Master Plan was approved by the Board of Land and Natural Resources (BLNR). The 2000 Master Plan was prepared by UH through a process that included broad community input as well as coordination with governmental agencies, including the Department of Land and Natural Resources (DLNR). A Draft and Final EIS were prepared and the 2000 Master Plan was adopted by the University of Hawaii (UH) Board of Regents (BOR) and implemented. Although the 2000 Master Plan was not officially approved by the BLNR, the Master Plan is the guiding document for the University of Hawaii at Hilo (UH Hilo), the proposing agency for the Project. Therefore, the 2000 Master Plan, which built on the 1983 Master Plan, is pertinent to the Project. In addition, the wealth of scientific information in the 2000 Master Plan remains valid and valuable. References to the 1983 Master Plan have been included in the Final EIS for the Project where applicable, including Chapter 2 and Section 3.10. Like the 2000 Master Plan, the 1983 Master Plan was never approved by the BLNR.

6

The TMT Observatory Corporation has received limited funding from the National Science Foundation (NSF) for the development of technology that can be used on other telescopes. With respect to the construction, operation, or decommissioning of the Thirty Meter Telescope Project, no Federal agency, including the NSF, has provided or pledged funds for such construction, operation, or decommissioning. Nor is TMT required to obtain a permit, license or other approval from the United States prior to the construction or operation of the Thirty Meter Telescope (TMT) Project. Federal funding alone does not trigger an obligation on the part of the United States to comply the National Environmental Policy Act (NEPA) or the National Historic Preservation Act (NHPA). For example, the United States' obligation to undertake an environmental review under NEPA is triggered only if a "major Federal action" may significantly affect the environment. Similarly, the United States' obligation to comply with the NHPA is triggered only if there is a federal "undertaking" which is defined as an activity or project carried out under the jurisdiction of a federal agency. The United States' obligation to comply with NEPA and the NHPA has not been triggered with respect to this Project.

7

As outlined in Section 8.1 of the Final EIS for the 2000 Master Plan, the carrying capacity of Maunakea for observatory development is large but difficult to define precisely. Existing Master Plans and Management Plans provide for observatory development to well less than the carrying capacity of Maunakea; therefore, the carrying capacity is not a relevant point of discussion for the TMT Observatory and does not address the Project's potential impacts on the environment evaluated in the Draft EIS.

8

The site that was being considered in Chile is discussed in Chapter 5 of the Draft EIS. The proposing agency, the University of Hawaii at Hilo (UH Hilo), does not have any authority in Chile; therefore, the site in Chile is not an alternative available to them and is not discussed as an alternative in this State of Hawaii Chapter 343 EIS disclosure document.
UH Hilo and other decision-makers always have the freedom to decide not to proceed with the Project in Hawaii through a number of approval and agreement processes separate from this HRS Chapter 343 disclosure document process.

9

The Project's potential impact on the "Spiritual and Sacred Quality of Maunakea" is discussed in Section 3.2.3, pages 3-21 to 3-23, of the Draft EIS. The impact is not ignored.

10

Section 3.13.1, page 3-132, of the Draft EIS indicates "Pursuant to HAR Section 11-46-3, land such as the MKSR, which is zones as a conservation district, would be classified as a Class A district." Class A is not an "urban" classification and is the most restrictive. HAR 11-46-3 states "Class A zoning districts include all aras equivalent to lands zones residential, conservation, preservation, public space, open space or similar type."
In response to comments received during the Draft EIS review period, additional information has been added to Section 3.13 of the Final EIS, including the following in Section 3.13.3: "The noise generated by the TMT Observatory will be below the Class A allowable limits at a distance of 270 feet from the HVAC system during the day and 850 feet from the system at night. Therefore, anyone standing at least 270 feet from the TMT Observatory HVAC system during the day will not be exposed to noise levels exceeding the Class A daytime standard. This area is illustrated in Figure 3-35. Areas beyond 850 feet of the TMT Observatory HVAC exhaust output will not experience noise levels exceeding the Class A nighttime standard. All identified noise sensitive areas in the summit region, including the trailhead and summit of Pu'u Wekiu/Kukahau'ula, Lake Waiau, and Pu'u Lilinoe, will be more than 850 feet from the TMT Observatory HVAC system (Figure 3-34). Operation of the TMT Project will not contribute to a noticeable increase in noise levels at the identified recreational sites recognized as sensitive to noise in the surrounding area." Section 3.13.4 of the Final EIS outlines mitigation measures that will "reduce the radius of the area exposed to noise greater than the Class A standard."

11

Potential construction phase impacts are discussed in Section 3.15 of the Draft EIS. The Draft EIS clearly states, in Table 2-1 and Section 3.15, that construction would take approximately seven years to complete.

6/16/09 Jason Bestamente
P.O. Box 385691 Waikaloa, HI 96738

My name is Jason Bestamente & I am a member of Hawaii Carpenters Union Local 745. I have lived on the Big Island all my life & I care about what happens to Mauna Kea. I support the TMT & believe that we can have an equal between Hawaiian culture & science.

Ancient Hawaiians used the stars for navigation around the Pacific and the TMT can only add to that knowledge.

Right now our economy is really bad & we need jobs that the TMT can provide now & in the future. The TMT will benifit our Keiki & contribute funds to scholorships & othe local jobs.

Sincerely

Jason Bestamente
Local 745

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

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All comments received will be responded to individually with both the comment and responses included in the Final EIS.

Name: DAVID B. GOMES **Address:** 65-1243 LAE LAE PL
Phone: 808 885-4560 KAMUELA, HI 96743
E-mail: dbgomes@hawaii.rr.com

Comments:

1 1. USE AN EXISTING FOOT PRINT ~~OF~~ BY REMOVING AN OLD TELESCOPE (IRTF)

2 2. LOWER THE BUILDING 10 to 20 FEET BY SINKING BASE IF POSSIBLE

3.

3 1. DO NOT MAKE MORE ROADS

GO FOR IT. PPP

(use additional sheets if appropriate)

1
As discussed in Section 2.5.1, page 2-8, of the Draft EIS, "recycling an existing optical/infrared observatory in Area A or B is not an option for the TMT Observatory because the TMT Observatory would exceed the diameter and height requirements" detailed in the 2000 Master Plan. "In addition, none of the existing observatories has a large enough footprint for the development of the TMT Observatory without additional disturbance to Kukahauula or the cinder cone habitat."
There are several reasons why the 2000 Master Plan identified Area E for a Next Generation Large Telescope (NGLT) instead of suggesting a NGLT replace an existing observatory; TMT, with a 30-meter primary mirror, is a NGLT as defined in the Master Plan.
Based on comments received on the Draft EIS, the University of Hawaii at Hilo (UH Hilo), the proposing agency of the Project, reevaluated the reasoning outlined in the 2000 Master Plan and believes that reasoning is still valid and the TMT Observatory is best located in Area E. Reasons for not placing a NGLT in the location of an existing observatory are directly related to siting criteria identified in the plan:

- Minimize impact to Wekiu bug habitat (existing optical/infrared observatories are located in good Wekiu bug habitat, expansion of a site to fit TMT would impact that habitat)
- Avoid archaeological and historic sites (existing optical/infrared observatories are located on Kukahauula, a State Historic Property, expansion of a site to fit TMT would further impact this resources)
- Minimize visual impact from significant cultural areas (replacing an existing optical/infrared observatory with TMT would make it visible from the summit of Kukahauula and Puu Lilinoe, both significant cultural sites)
- Avoid and minimize views from Waimea, Honokaa, and Hilo (replacing an existing optical/infrared observatory with TMT would make it visible from all of these towns)
- Minimize impact on existing facilities (building a structure the size of the TMT Observatory at the site of an existing optical infrared observatory could significantly impact nearby existing facilities)

It is often thought that the 13N site in Area E is undisturbed land and that is why recycling the site of an existing optical/infrared observatory appears preferrable. As discussed in Section 2.5.1 Final EIS, there is already a road leading to the 13N site and a roughly 0.5-acre portion of the site has been disturbed by the road and former presence of site testing equipment dating back to the mid-1960s.

2
Thank you for your input. The observatory facility has been designed so as to minimize its dimensions to the extent possible, while not adversely impacting its observing capabilities. Placing more of the structure underground would require more excavation plus adversely impact the observing quality of the telescope by placing it within unstable winds and air caused by ground effects.

3
Section 3.11 of the Draft EIS provides an analysis of roadways and traffic and the Thirty Meter Telescope Project's potential impact on these resources. Transportation agencies, including the State of Hawaii Department of Transportation, have indicated they do not anticipate any significant adverse impact to transportation infrastructure. Therefore, aside from the Access Way discussed in Section 2.5.2, no new roads will be built by the Project. The majority of the Access Way will be built where an existing 4-wheel drive road is located. Since the completion of the Draft EIS, Access Way Options have been refined. Please see Section 2.5.2 of the Final EIS for additional information regarding the Access Way Options that remain under consideration for the Project.

June 16, 2009

Pete Lindsey
P.O. Box 1419
Kamuela, HI 96743

Aloha,
My name is Pete Lindsey and I am a member of the Hawaii Laborers' Union, Local 368. I am a Native Hawaiian and I live in Kuhio Villiage Hawaiian Homestead for over 30 years.

1 I care about what happens to Mauna Kea, but I support the Thirty Meter Telescope because I believe that we can have a balance between Hawaiian culture and science. Ancient Hawaiians studied the stars and the Hokulea has proven that it was this understanding of the stars that allowed ancient Hawaiians to voyage across the Pacific.

I also support the TMT because it will provide needed jobs and will help our Big Island economy. At a time when jobs are desperately needed, the TMT will provide an important boost to our economy.

I also support the TMT because it will benefit our Big Island keiki. I understand that the TMT will contribute money to a fund that will benefit the education of our Big Island children and provide needed scholarships.

2 I also think not enough people were asked for input to the Cultural Assessment. I hope more people are asked for the input.

Thank you.

Sincerely,

Pete Lindsey

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

2
Since the completion of the Draft EIS, the Thirty Meter Telescope (TMT) Project has continued to work on and develop the Cultural Impact Assessment (CIA) through additional interviews with community members and review of past studies. This work is documented in Section 3.2 and Appendix D of the Final EIS.

Testimony submitted June 16, 2009, in support of the TMT EIS report and in support for its acceptance.

My name is J William "Bill" Sanborn, native son of part Hawai'ian decent, residing in Waimea since 1987. Although I represent and testify on my own behalf, I do have strong affiliations with the Waimea Community Association, Kona-Kohala Chamber of Commerce and the Waimea Preservation Association for disclosure purposes. I am also a member of the Waimea Hawai'ian Civic club.

My overreaching concern is for the people of our State, including all ethnic and cultural backgrounds as well as all economic groups residing, working and participating in the future of our Hawai'i.

My plea is for all of us to come together on our economic future, certainly honoring our roots and cultural practices but also strongly considering the sustainability of our own economic future and that of our children and grandchildren.

We certainly can no longer operate in a "silo" on passionate issues dear to our heritage without considering how we can survive in a global economy absent economic resources to do so. Our state cannot afford the luxury of protecting our aina or sharing our customs and practices throughout the world with other cultures without taking advantage of economic opportunities such as the TMT.

We are now collectively charged with the stewardship of honoring our resources concurrent with the recognition of such opportunities that can economically sustain our desire to preserve as well as do our part to acknowledge our global role and responsibilities to assist mankind well into the 22nd century. It is a legacy started by our ancestors and requires careful and renewable actions on our part to continue the voyage.

My personal opinion, having ancestral roots in Waimea, is that our ancestors would be the first in line to look into the heavens with modern day technology – not to change the values but to add value to their existence and perpetuation. The heavens gave our culture its navigation, sustainability, resources and cultural practices. To not update them continually will only stagnate the progression of our culture.

Facing us now is an unbelievably important and far reaching opportunity that not only would further our importance in and for the world community, it would be a travesty for us to not come together, ask for the "moon" on issues and concerns needing both clarity and benefits to us specifically and welcome the opportunity for all concerns to be met reasonably in the process of co-existence.

I think "brudda IS" had it right on his CD "Facing Future". Which way do we expect to face the future of our keiki? So let's embrace dialogue, compromise, shared benefits and vision during this EIS process but towards future sustainability rather than the past.

If it is the management on the mountain, then lets set some rules; if it is cultural respect, then lets integrate our practices with reverence and relevance to learning; if it is limiting or adjusting the

footprint on the mountain, lets address reasonable requirements to downsize, right size or retire facilities that have already taught us well. In simple terms, lets "change em" to fit co-existence as we are all in this world and universe together.

1

To not recognize the need to come together and embrace such an opportunity as this gift from the heavens, to become a major participant in of our world, would not only be devastating to our future economic well being but perhaps never recoverable for our independent island existance. This type of commerce is not cyclical like most of our other economic engines such as tourism, it is ongoing for not only Hawai'I but for our nation and the world. Lose this opportunity and another foreign country becomes the leader in learning from the heavens for decades. The brightest and best will no longer come to our shores to study and share their findings, and we will have the increased burden of seeking them out elsewhere at our own cost rather than having them come to us.

Let's get to working together now for support of our economic future through opportunities such as the TMT and make it happen for all to benefit for it is our culture to work it out together.

Mahalo for your patience, understanding, contribution and acceptance of the TMT EIS and willingness to make it happen here in the best place on the planet for astronomy.

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

Wiley Knight
P.O. Box 2280
Kamuela, Hi. 96743
June 16, 2009

TMT EIS Committee

I worked for Canada-France-Hawaii-Telescope from March 1984 until September 2002. As a technician over these 18 years I worked on Maunakea countless times and witnessed first hand the construction of the Keck, Subaru, and Gemini telescopes. And, for the record, I have native Hawaiian ancestry.

Although I believe TMT would be a worthy project for astronomy, I am opposed to pristine areas of Maunakea being torn up to accommodate the observatory. However, I am not opposed to TMT being built on Maunakea provided it replaces an existing observatory. As will be explained below, the construction I had witnessed of the Gemini telescope is pertinent to this discussion because it should stifle objections based on feasibility.

The Gemini observatory site is between the UH and CFHT sites which previously had consisted of a narrow ridge. Rather than have pristine areas of Maunakea disturbed to accommodate Gemini, the selected area on the ridge was backfilled on the east and west sides, and a special foundation was constructed. This required creative civil enginneering but not rocket science.

I have on my dining room wall a large photograph depicting an aerial view of Maunakea looking toward the west. All of the existing observatories can be seen clearly. When I heard about TMT and thought of an existing observatory it could replace, NASA's IRTF site leaped out as a solution. The IRTF telescope is about 30 years old and, in my view, is overripe for replacement.

1 This existing site has several advantages. The pu'u it sits on could be leveled off and backfilled on the north side in the same way as Gemini, creating an area at least four times larger than say the CFHT site as seen in the photograph. There is also a road circling around next to it--no new roads would have to be built. Because it is administered by NASA, questions of jurisdiction would be moot, and if NASA funding is being sought after for TMT, replacing IRTF with a state-of-the-art facility might be more attractive to NASA administrators. The existing IRTF offices in Hilo could be expanded into TMT offices, and all IRTF employees could transistion to TMT. And finally, by placing TMT within an area already having observatories, aesthetic objections would be addressed and no pristine land would be disturbed.

In closing, I do not know if TMT planners had ever considered what I am proposing; but if the idea had come up and they had rejected it out of hand, I would at least expect a detailed analysis as to exactly why replacing IRTF with TMT is beyond feasibility.

Sincerely,

Wiley Knight

1

As discussed in Section 2.5.1, page 2-8, of the Draft EIS, "recycling an existing optical/infrared observatory in Area A or B is not an option for the TMT Observatory because the TMT Observatory would exceed the diameter and height requirements" detailed in the 2000 Master Plan. "In addition, none of the existing observatories has a large enough footprint for the development of the TMT Observatory without additional disturbance to Kukahauula or the cinder cone habitat."
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All comments received will be responded to individually with both the comment and responses included in the Final EIS.

Name: Terry LADWIG **Address:**

Phone:

E-mail: whistlepig@hawaiiantel.net

Comments: We are very fortunant to have this opportunity to host the TMT. The EIS process has reminded those of us on the Big Island that Hawaiians have always been astronomers. Now we have the opportunity to involve more of our population in the study of the stars. The benefits of hosting the TMT on our island will benefit humanity.

Benefits will not be limited to astronomy or simply aesthetic. With better opportunities for skilled math & science, we'll have better doctors, better computer scientists, optical engineers, construction works, managers, etcetera. Young and old will benefit both near and far.

1 Thank you for bringing this topic to discussion in such a thoughtful manner. Done properly, we'll have another terrific reason to live on the Big Island!

(use additional sheets if appropriate)

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

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Name: CLIFFORD LIVERMORE **Address:** P.O. BOX 384043
Phone: 808-989-7451 WAIKOLOA HI 96738
E-mail: [illegible]@msdc.com

Comments: As a life long standing Amateur I moved to this Island for the purpose to observe the skies from the best skies on Earth. I am very positive about us getting the next generation Telescope. I am also the Vice President of the West Hawaii Astronomy CLUB.
I share a deep Reverent Love of Hawaii and Especially Mauna Kea. I am the most dedicated Volunteer of the Mauna Kea Visitors Center. I feel this project will bring
1 a blessing to this Island

(use additional sheets if appropriate)

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

	First Name :	Tom
	Last Name :	Murdic
	Submission Date :	07/06/2009
1	**Submission Content/Notes :**	I feel a South Hemisphere site will provide a greater opportunity for long term operation for a instrument of this size.
	Stakeholder Type :	Citizen

1

Comment acknowledged; the site that had been considered in Chile is discussed in Chapter 5 of the Draft EIS. The proposing agency, the University of Hawaii at Hilo (UH Hilo), does not have any authority in Chile; therefore, the site in Chile is not an alternative available to them and is not discussed as an alternative in this State of Hawaii HRS Chapter 343 EIS disclosure document.

Date: _____

Name: Daniel Sanchez

Address: 15-1693 Ae Olena
Keaau Hi 96749

My name is Daniel Sanchez and I am a member of the Hawaii Carpenters Union, Local 745. I am Native Hawaiian and I live in Keaau.

1 I care about what happens to Mauna Kea, but I support the Thirty Meter Telescope because I believe that we can have a balance between Hawaiian culture and science. Ancient Hawaiians studied the stars and the Hokulea has proven that it was this understanding of the stars that allowed ancient Hawaiians to voyage across the Pacific.

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Thank you.

Sincerely,



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Date:_____

Name: Duane Fujiyama

Address: P.O. Box 2182

Kea'au, Hi 96749

My name is Duane Fujiyama and I am a member of the Hawaii Carpenters Union, Local 745. I am Native Hawaiian and I live in ~~Hawaii Prince~~ Puna. I was born and raised on the Big Island and have lived my entire life on the Big Island.

1 I care about what happens to Mauna Kea, but I support the Thirty Meter Telescope because I believe that we can have a balance between Hawaiian culture and science. Ancient Hawaiians studied the stars and the Hokulea has proven that it was this understanding of the stars that allowed ancient Hawaiians to voyage across the Pacific.

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Date:_____

Name: David Cabuag

Address: 92 Likeke ST
Hilo Hi 96720

My name is David Cabuag and I am a member of the Hawaii Carpenters Union, Local 745. I am Native Hawaiian and I live in_____.

1 I care about what happens to Mauna Kea, but I support the Thirty Meter Telescope because I believe that we can have a balance between Hawaiian culture and science. Ancient Hawaiians studied the stars and the Hokulea has proven that it was this understanding of the stars that allowed ancient Hawaiians to voyage across the Pacific.

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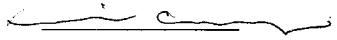
Thank you.

Sincerely,



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Date:_____

Name: MILFORD TABURA

Address: 1650 ALLI ST.

HILO HAWAII

My name is MILFORD TABURA and I am a member of the Hawaii Carpenters Union, Local 745. I am Native Hawaiian and I live in HILO.

1 I care about what happens to Mauna Kea, but I support the Thirty Meter Telescope because I believe that we can have a balance between Hawaiian culture and science. Ancient Hawaiians studied the stars and the Hokulea has proven that it was this understanding of the stars that allowed ancient Hawaiians to voyage across the Pacific.

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Thank you.

Sincerely,

Milford Tabura

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Date: 6-16-09

Name: PAUL Leong

Address: 100 Hoomalu St

My name is PAUL Leong and I am a member of the Hawaii Carpenters Union, Local 745. I am Native Hawaiian and I live in WAIAKEA UKA I was born and raised on the Big Island and have lived my entire life on the Big Island.

1 I care about what happens to Mauna Kea, but I support the Thirty Meter Telescope because I believe that we can have a balance between Hawaiian culture and science. Ancient Hawaiians studied the stars and the Hokulea has proven that it was this understanding of the stars that allowed ancient Hawaiians to voyage across the Pacific.

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Thank you.

Sincerely,

PL

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Date:_____

Name: Nodan Pua

Address: 501 Auwae Rd

_____

My name is Nodan Pua and I am a member of the Hawaii Carpenters Union, Local 745. I am Native Hawaiian and I live in Hilo. I was born and raised on the Big Island and have lived my entire life on the Big Island.

1 I care about what happens to Mauna Kea, but I support the Thirty Meter Telescope because I believe that we can have a balance between Hawaiian culture and science. Ancient Hawaiians studied the stars and the Hokulea has proven that it was this understanding of the stars that allowed ancient Hawaiians to voyage across the Pacific.

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Thank you.

Sincerely,

Nodan Pua

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Date:_____

Name: Matthew Hashide-Andrade

Address: 293 King
Hilo Hi 96720

My name is Matthew Hashide and I am a member of the Hawaii Carpenters Union, Local 745. I am Native Hawaiian and I live in Hilo.
I was born and raised on the Big Island and have lived my entire life on the Big Island.

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Matthew Hashide-Andrade

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Since the completion of the Draft EIS, the Thirty Meter Telescope (TMT) Project has continued to work on and develop the Cultural Impact Assessment (CIA) through additional interviews with community members and review of past studies. This work is documented in Section 3.2 and Appendix D of the Final EIS.

Date:_____

Name: Bryant Azevedo

Address: P.O. Box 7255

_____

My name is Bryant Azevedo and I am a member of the Hawaii Carpenters Union, Local 745. I am Native Hawaiian and I live in Hilo. I was born and raised on the Big Island and have lived my entire life on the Big Island.

1 I care about what happens to Mauna Kea, but I support the Thirty Meter Telescope because I believe that we can have a balance between Hawaiian culture and science. Ancient Hawaiians studied the stars and the Hokulea has proven that it was this understanding of the stars that allowed ancient Hawaiians to voyage across the Pacific.

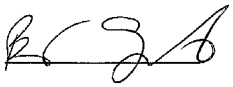
I also support the TMT because it will provide needed jobs and will help our Big Island economy. At a time when jobs are desperately needed, the TMT will provide a important boost to our economy.

I also support the TMT because it will benefit our Big Island keiki. I understand that the TMT will contribute money to a fund that will benefit the education of our Big Island children and provide needed scholarships.

2 I also think not enough people were asked for input to the Cultural Assessment. I hope more people are asked for their input.

Thank you.

Sincerely,



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Date:_____

Name: Kent Sonoda

Address: 23227 Aainala DR

_____

My name is Kent Sonoda and I am a member of the Hawaii Carpenters Union, Local 745. I am Native Hawaiian and I live in Hilo.

1 I care about what happens to Mauna Kea, but I support the Thirty Meter Telescope because I believe that we can have a balance between Hawaiian culture and science. Ancient Hawaiians studied the stars and the Hokulea has proven that it was this understanding of the stars that allowed ancient Hawaiians to voyage across the Pacific.

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Thank you.

Sincerely,

Kent Sonoda

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Testimony in support of the 30 meter telescope on Mauna Kea.
June 22, 2009

1 My name is Marge Elwell. I support the building of the 30 meter telescope on Mauna Kea. The fact that it would be 10 times more powerful than the Hubble Space Telescope, and that it would expand our Ohana to areas that man has never explored and provide over 120 local jobs for over 7 years. The project will also open the doors for education by providing scholarships for Hawaiian studies, ~~where our economics are not exactly flourishing.~~

What an opportunity to become a part of history, this is an investment in our world to obtain a deeper understanding of the universe and reinvent man's view of the cosmos and search for Earth like planets around the stars.

This is our tax dollars at work, I would be proud and honored to keep our critical world class status as a hub for high research and development right here on our island. To point up at the Mountain and say the people of Hawaii help make this dream become a reality for us and our children.

I support the building of the telescope ~~for us and our children~~.

Marge Elwell
P.O. Box 1043
Naalehu, HI 96772
808-929-7236
marge@hawaii.rr.com

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

COMMENT FORM
Thirty Meter Telescope Project

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All comments received will be responded to individually with both the comment and responses included in the Final EIS.

Name: Thomas N. Walsh **Address:** 1491 Wailuku Dr
Phone: 808 961 5443 Hilo HI 96720
E-mail:

Comments: I am against allowing the TMT to be built in the area proposed. I would agree to the TMT only if it is built in the area where an existing telescope is decommissioned. Once the area where the TMT is proposed is "developed" that area of Mauna Kea will never be the same. I hope the TMT as proposed is either not allowed by the State or subsequently defeated in the courts.

Thomas N Walsh 6/22/09

(use additional sheets if appropriate)

1
As discussed in Section 2.5.1, page 2-8, of the Draft EIS, "recycling an existing optical/infrared observatory in Area A or B is not an option for the TMT Observatory because the TMT Observatory would exceed the diameter and height requirements" detailed in the 2000 Master Plan. "In addition, none of the existing observatories has a large enough footprint for the development of the TMT Observatory without additional disturbance to Kukahauula or the cinder cone habitat."
There are several reasons why the 2000 Master Plan identified Area E for a Next Generation Large Telescope (NGLT) instead of suggesting a NGLT replace an existing observatory; TMT, with a 30-meter primary mirror, is a NGLT as defined in the Master Plan.
Based on comments received on the Draft EIS, the University of Hawaii at Hilo (UH Hilo), the proposing agency of the Project, reevaluated the reasoning outlined in the 2000 Master Plan and believes that reasoning is still valid and the TMT Observatory is best located in Area E. Reasons for not placing a NGLT in the location of an existing observatory are directly related to siting criteria identified in the plan:

- Minimize impact to Wekiu bug habitat (existing optical/infrared observatories are located in good Wekiu bug habitat, expansion of a site to fit TMT would impact that habitat)
- Avoid archaeological and historic sites (existing optical/infrared observatories are located on Kukahauula, a State Historic Property, expansion of a site to fit TMT would further impact this resources)
- Minimize visual impact from significant cultural areas (replacing an existing optical/infrared observatory with TMT would make it visible from the summit of Kukahauula and Puu Lilinoe, both significant cultural sites)
- Avoid and minimize views from Waimea, Honokaa, and Hilo (replacing an existing optical/infrared observatory with TMT would make it visible from all of these towns)
- Minimize impact on existing facilities (building a structure the size of the TMT Observatory at the site of an existing optical infrared observatory could significantly impact nearby existing facilities)

It is often thought that the 13N site in Area E is undisturbed land and that is why recycling the site of an existing optical/infrared observatory appears preferrable. As discussed in Section 2.5.1 Final EIS, there is already a road leading to the 13N site and a roughly 0.5-acre portion of the site has been disturbed by the road and former presence of site testing equipment dating back to the mid-1960s.

2
Acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

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Name: Guy Enriques **Address:** P.O. Box 355
Phone: 808 217-2253 Pahala, Hawaii
E-mail: enriques@hawaii.rr.com 96777

Comments: I support the TMT project so long as all the cultural concerns are adequately addressed. Furthermore, I will support this project if it includes the integrated participation of local businesses and (contractors, builders, etc.) and long-term day-to-day employment. This project should not only be build in Hawaii but must make every effort to make local Hawaii a vital part of the project (jobs, education, culture, etc.) We need to prepare our keiki to be a major part of the educators & stewards of the project - so when one visits the site, Hawaii is visibly and emotionally apparent.

(use additional sheets if appropriate)

1
Thank you for your review and participation in the process. The Thirty Meter Telescope Project will continue to work with the community to address cultural concerns and issues, which are discussed in Section 3.2 of the Draft EIS. Please see Section 3.2 of the Final EIS for additional information.

2
Section 3.9.3, page 3-102, of the Draft EIS states the Project would provide an estimated 140 full-time jobs for "astronomers, a wide range of engineers and engineer technicians (mechanical, electrical, and optical), software and information technology engineers, staff to maintain and direct equipment at the observatory, scientific support, public outreach, and management and administrative personnel, including cultural and educational outreach specialists."
At this time, roughly eight years before the start of the TMT Observatory operation phase, it is not possible to know an exact number of each type of future employee. However, the following has been added to Section 3.9.3 of the Final EIS, "The majority of the positions will likely be in the technical and engineering areas (40%), followed by science (20%), software/IT (10%), and administration (10%)."
The Workforce Pipeline Program described in Section 3.9.4, page 3-103 to 3-104, of the Draft EIS, explains how the Project would strive to fill operations positions to the "greatest extent feasible" locally. Section 3.9.4 of the Final EIS now contains a list of "Additional Mitigation Measures", one of which is: "To the greatest extent feasible, employment opportunities will be filled locally. This will include advertising available positions locally first; however, to fill some positions, which typically require a worldwide search, advertisements will be simultaneously released both locally and to a wider audience."

3
The Workforce Pipeline Program is designed to prepare today's keiki for future employment in the technical sector, including the TMT Project. The Project has proposed other programs and mitigation measures to assist the community, as discussed in the EIS. These include the Community Benefit Package, a Cultural and Natural Resources Training Program, and items such as furnishing the TMT facilities with items to provide a sense of place related to the cultural sensitivity and spiritual quality of Maunakea.

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Name: Moses Haunu **Address:** P.O Box 791 Pahala, Hi 96777

Phone:

E-mail:

Comments: I oppose any and all construction
1 of this scared mountain. Art. 12 State of
Hawaii Constitution concerning Native hawaiian
2 gathering rights included Genera Convention
Art. 4.

(use additional sheets if appropriate)

1
Acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

2
The Draft EIS does not suggest that the Thirty Meter Telescope Project or other groups or individuals will constrain cultural practices or access, including gathering of cultural resources, in the summit region. The Draft EIS, in Section 3.2.3, page 3-18, indicates the Project will comply with applicable rules, regulations, and requirements - including the CMP. The CMP states, on page 7-7, that "Native Hawaiian traditional and customary practicies shall not be restricted, except where safety, resource managment, cultural appropriateness, and legal compliance considerations may require reasonable restrictions."

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Name: Karen Rosen **Address:**

Phone:

E-mail:

Comments:

1 looks like you are addressing impacts such as grading waste water bathrooms ride sharing - ☺ what a great opportunity!! ☺ no response needed

(use additional sheets if appropriate)

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

Alan Axelrod

From: Alan Axelrod [axelrod@wave.bicv.net]
Sent: Monday, June 22, 2009 7:51 AM
To: Alan Axelrod
Subject: THIRTY METER TELESCOPE

Dear All,

Tues June 23 Kohala Cultural Center in Hawi, just mauka of Luke's 5 to 8 PM

I'm sending this to those who I think will be interested in building the Thirty Meter Telescope (TMT) on Mauna Kea. The public is invited to weigh in on the environmental impacts. The TMT board of directors in California is expected to render a decision whether to locate the telescope on the north slope of Mauna Kea or in Chile.

I am involving myself in this because I believe that it is very important for Hawaii to have the world's most prestigious and useful instruments to study the sky. Not only because of prestige, but from a practical standpoint, many people of Hawaii will be employed at the new telescope in addition to the people presently employed at the other telescopes in Hawaii. Not so practical perhaps, but ancient Hawaiians found their way to Hawaii through their knowledge of the stars.

Six meetings will be held around the Big Island, plus one in Honolulu, to gather public comment on the billion dollar project, which would be the world's largest optical/infrared telescope. The first hour will be an "open house" with observatory representatives available for one-on-one questions. Then will be a 40 minute presentation. Then a public discussion in which people will be able to stand and speak up.

Please come even for a very short time.

Alan Axelrod
PO Box 190588
Hawi. HI 96719

808-884-5603
cell 808-895-6715
axelrod@wave.bicv.net

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

Statement for
The Preservation of Sacred Mauna Kea
by
Ali`i Sir Kalikolehua Kanaele

Aloha

Aloha aina is a key phrase...Aloha Money is also a key phrase....one comes from the Gods and goddesses of this land and the other comes from some eastern culture the white man's bible calls Mammon...sometimes they hide this god behind Jesus...sometimes they hide this god behind the unions...they don't hide it behind Aloha Aina because there is no money to be made...only love and good feelings of beauty, pristine surroundings, that is why the first and
1 foremost reasons for the law of conservation is those reasons.....the observatories are a "sub" or far lesser reason for conservation then for economic gain. To be on conservation lands of the highest priority these lands are like watershed lands..in other words, sorry I made a mistake does not cover the damage done..that's what irreparable means ..the circumvention of these laws and check and balances for private or even for the special interests public gain ARE THE reasons why these laws were put in place..no rampart development in the areas designed as conservation lands..The special interests groups and their economic construction and..here's a good one... and farmers have now seen economic gain in the support of circumventing the conservation laws of the the State...even the occupier's people must have rules to control their ever widening greed for other peoples lands that they belligerent occupy with their collaborators...that's why we also have International laws for the conservation of of sacred lands in countries that are belligerently occupied for protection from the greed of the special interest groups..who control their legislatures and the business community.....the unions...my grandmother Mary Kanaele Fuji grew up Harry kamoku..in those days when sacred, honor, integrity and family weren't confused with making money by
2 desecrating.....I am not for any more development... a lot of changes must be made to the other observatories to conform with the mercury

1
As discussed in Section 3.10 of the Draft EIS, the lands of the summit region on Maunakea are classified by the State of Hawai'i as a conservation district, resource subzone, and is managed by the Department of Land and Natural Resources (DNLR) Office of Conservation and Coastal Lands (OCCL). The Thirty Meter Telescope Project has been coordinating with the DLNR-OCCL in regards to land use within the conservation district. Hawai'i Administrative Rules (HAR) Chapter 13-5-13 provides, "The objective of [the conservation district resource] subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas." HAR Chapter 13-5-24 specifically includes "R-3 Astronomy Facilities; (D-1) Astronomy facilities under an approved management plan." as one of the "identified land uses in the resource subzone."

2
The Thirty Meter Telescope Project appreciates your review.

3 spills, sewage, toxic wates products, oil spills and other toxic
4 agents...our great aquifer must be protected....access rights, worship, family altars...all that needs to be protected for private Hawaiian practitioner and peoples of the lineal descendants from other peoples
5 belief systems or economic gain.....please follow your own laws...no matter how much you trivialize our love of the land, our culture...and yes even youselves...we are still here alive and well...we who own this lands..... the US supreme court was right ...its all a matter of private property...check with your title insurance companies... all land title is clouded and if you no pay your taxes you never really owned the land...only the occupying governent by brainwash, economic warfare and violence....
aloha is the only way....It cost money to live here, but again who's fault is that....I hope everybody have enjoyed living in hawaii and have learned aloha aina if not POHO.....

Aloha Aina

Ali`i Sir Kalikolehua Kanaele K.C.K.
HCR 3 Box 13124
Keaau, Hawaiian Kingdom 96749
kaliko@kalikoguys.com

3
The existing level of cumulative impact is discussed in Section 3.16.2 of the Draft EIS, including issues related to chemical spills, sewage, and water resources.

4
Potential Project impacts to the aquifer and water quality, and the measures the Project will take to avoid impacts to the aquifer and its quality are discussed in Section 3.7 of the Draft EIS. The Project will have a zero-discharge waste system so that all waste is collected and transported down the mountain for treatment and disposal.
Cultural resources and measures the Project will take to avoid impacts to those resources, including cultural practices, are discussed in Section 3.2 of the Draft EIS. These measures include the Cultural and Natural Resources Training Program, which will inform TMT staff of the cultural sensitivity and practices of the area and how to avoid impacts to these resources.

5
The Admission Act (Pub.L. 86-3) established the State of Hawaii as the 50th state to be admitted into the Union. Resolving claims and issues around the various acts that resulted in Hawaii becoming a State is beyond the scope of this EIS.

Date: 6/15/09

Name: James K Wills

Address: P.O. Box 711425

Mt. View 96771

My name is James K Wills and I am a member of the Hawaii Laborers' Union, Local 368. I am Native Hawaiian and I live in Puna H. I was born and raised on the Big Island and have lived my entire life on the Big Island.

1 I care about what happens to Mauna Kea, but I support the Thirty Meter Telescope because I believe that we can have a balance between Hawaiian culture and science. Ancient Hawaiians studied the stars and the Hokulea has proven that it was this understanding of the stars that allowed ancient Hawaiians to voyage across the Pacific.

I also support the TMT because it will provide needed jobs and will help our Big Island economy. At a time when jobs are desperately needed, the TMT will provide a important boost to our economy.

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2 I also think not enough people were asked for input to the Cultural Assessment. I hope more people are asked for their input.

Thank you.

Sincerely,

James K Wills

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Date: 6/18/09

Name: CARTER SPENCER

Address: 16-2075 GARDENIA DR
PAHOA HI 96778

My name is CARTER SPENCER and I am a member of the Hawaii Laborers' Union, Local 368. I am Native Hawaiian and I live in AINA LOA.

1 I care about what happens to Mauna Kea, but I support the Thirty Meter Telescope because I believe that we can have a balance between Hawaiian culture and science. Ancient Hawaiians studied the stars and the Hokulea has proven that it was this understanding of the stars that allowed ancient Hawaiians to voyage across the Pacific.

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Thank you.

Sincerely,

Carter Spencer

1
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Date: 6/18/09

Name: Kelden Lukzen

Address: PO Box 407
Honoka'a HI 96727

My name is Kelden Lukzen and I am a member of the Hawaii Laborers' Union, Local 368. I am Native Hawaiian and I live in Honoka'a. I was born and raised on the Big Island and have lived my entire life on the Big Island.

1 I care about what happens to Mauna Kea, but I support the Thirty Meter Telescope because I believe that we can have a balance between Hawaiian culture and science. Ancient Hawaiians studied the stars and the Hokulea has proven that it was this understanding of the stars that allowed ancient Hawaiians to voyage across the Pacific.

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Thank you.

Sincerely,

Kelden Lukzen

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the Sun is on top of MK.

4 in Kona ♆ Kau
♄ in Hilo ♅ Hawi
♂ Imiloa ♀ Honokaa
☾ Waimea

♉ eUH

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All comments received will be responded to individually with both the comment and responses included in the Final EIS.

Name: Toby Hazel
Phone: 9650084
E-mail: ASTRONONA@Hotmail.com

Address: RR4 Box 2298
Pahoa, Hi
96778

Comments:

① Why aren't we Developing Solar energy or
1 wind power on the Mountain? or Next to The Mt.
Push → Helco
② local Jobs? ③ Student Interns. + Educational programs
④ 3 What are you doing for us?
⑤ 4 1 million - How are going to work w/us to spend that money?
per year.
5 UH / State of Hawaii → ⑥ Does this Building project get
upon Complesion CIP
(36 Acres) 1% Art funds to
State Foundation
⑦ 6 Fed EIS? of Culture + Arts?
Suggest Astronomy Art Park
APP
Art in Public Places

(use additional sheets if appropriate)

* Pluto is a Golf Ball in Pahoa

1

The energy consumed by the Thirty Meter Telescope Project will be provided by the HELCO island-wide electric grid, roughly 40 percent of which comes from renewable sources. The Project does not have any involvement in where or how the energy provided by HELCO is generated (renewable vs. otherwise). However, Section 3.12.4 of the Final EIS has been updated to include the following:
"Energy saving devices will be incorporated into Project facilities; plans include: solar hot water systems, photo voltaic power systems, energy efficient light fixtures controlled by occupancy sensors, efficient Energy Star rated electrical appliances at all facilities, and design with local knowledge to maximize the use of natural ventilation and lighting at the Headquarters."

2

Section 3.9.4 of the Draft EIS outlines the Workforce Pipeline Program. This program includes many aspects, including education and training programs with at least 4 internships per semester, apprenticeships, and at least 10 summer jobs for students. Overall, the goal of the program is to fill TMT Project employment opportunities locally to the greatest extent feasible.

3

Potential beneficial effects of the Thirty Meter Telescope Project are summarized on page S-7 of the Executive Summary in the Draft EIS. Benefits include up to 140 operational-phase jobs and a number of construction-phase jobs. The Draft EIS also mentions several programs to benefit the local community, including the Community Benefits Package (CBP) and the Workforce Pipeline Program (WPP). More details regarding these programs has been included in Section 3.9.4 of the Final EIS, including the following concerning the CBP: "The CBP will be funded by the TMT Observatory Corporation and will be administered via The Hawai'i Island New Knowledge (THINK) Fund Board of Advisors. The THINK Fund Board of Advisors will consist of local Hawai'i Island community representatives. The CBP funding will commence upon the start of Project construction and continue throughout the TMT Observatory's presence, so long as the CDUP is not invalidated or construction stayed by court order. As part of the CBP, the TMT Observatory Corporation will provide $1 million annually during such period to the THINK Fund; the dollar amount will be adjusted annually using an appropriate inflation index (the baseline from when inflation index will be applied will be the date of start of construction). ... Educational initiatives will focus on K-5, 6-8, 9-12, and college. The program could include support for students to visit 'Imiloa, TMT, and other observatories."

4

The Community Beneft Package (CBP) is one of TMT's committements to the island community. Section 3.9.4 of the Final EIS describe the CBP as: "The CBP will be funded by the TMT Observatory Corporation and will be administered via The Hawai'i Island New Knowledge (THINK) Fund Board of Advisors. The THINK Fund Board of Advisors will consist of local Hawai'i Island community representatives. The CBP funding will commence upon the start of Project construction and continue throughout the TMT Observatory's presence, so long as the CDUP is not invalidated or construction stayed by court order. As part of the CBP, the TMT Observatory Corporation will provide $1 million annually during such period to the THINK Fund; the dollar amount will be adjusted annually using an appropriate inflation index (the baseline from when inflation index will be applied will be the date of start of construction). It is envisioned that THINK Fund purposes could include:

- "Scholarships and mini-grants,
- "Educational programs,
- "College awards,
- "Educational programs specific to Hawaiian culture,
- "Educational programs specific to astronomy,
- "Educational programs specific to math and science, and
- "Community outreach.

"Educational initiatives will focus on K-5, 6-8, 9-12, and college. The program could include support for students to visit 'Imiloa, TMT, and other observatories."
It is intended that the CBP be part of a larger pool of funds from other astronomy, public, and private sources that would make up the THINK Fund to extend community reach.
At this early stage in the formation of the THINK Fund it is premature to have all of the programming, strategies, implementation, and measurements in place. The following preliminary information is provided to illustrate some of the ideas and directions discussed this far.
On an on-going basis it is estimated that 25% of THINK will be directed to endowment and 75% to yearly programming.

5

No, the Project does not trigger this program. In Section 3.2.4 of the Draft EIS it is stated the Project facilities will be furnished with items to "provide a sense of place and encourage and remind personnal of the cultural sensitivity and spiritual quality of Maunakea." This will require the purchase of local art to furnish portions of the Project facilities.

6

The obligation to evaluate and disclose environmental impacts under the National Environmental Policy Act (NEPA) is triggered when a federal agency proposes a major federal action that would significantly affect the environment. Neither the University of Hawaii at Hilo (UH Hilo) nor the TMT Observatory Corporation is a federal agency. Further, neither UH Hilo nor the TMT Observatory Corporation has received funding or pledges of financial support from any Federal agency for activities that will or may significantly affect the environment, nor has either entity applied for any federally-issued permit or license. Therefore, the United States' obligations under NEPA have not been triggered.

COMMENT FORM
Thirty Meter Telescope Project

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Name: IAUKEA-LUM, MICHEALENE **Address:** PO. BOX 6184
Phone: (808)443-4127 HILO, HI. 96720
E-mail: micheale@hawaii.edu

Comments:

1 - ALTERNATE ENERGY PLAN OR OPTIONS
- WIND ENERGY, SOLAR

2 - INCLUDE IN EIS AN ESTIMATED AMOUNT OF ENERGY REQUIRED TO OPERATE WITHIN A GIVEN TIMEFRAME

- COMPOST ALTERNATIVES FOR HUMAN WASTES

3 - IMPLEMENT A "NUTRIENT RICH LAND" PLAN FOR LOWER ELEVATIONS
PERHAPS DEVELOP A PLAN WITH THE SOLID WASTE DEPARTMENT TO SUPPLY RICHER SOILS FOR SELF-SUSTAINABILITY PROGRAMS

4 - COMMUNITY BENEFITS PACKAGE NEEDS ~~SUP~~ TO SHOW SUPPORT AND DEDICATION NOT ONLY FOR A GIVEN TIME PERIOD, BUT FOR A LENGTHY COMMITTED TIME ON BEHALF OF THE TMT.
- PEOPLE OF HAWAI'I NEED TO KNOW TMT IS HERE FOR REASONS OTHER THEN THEIR OWN. SHOW YOUR DEDICATION & COMMITMENT TO THE PUBLIC AND LET IT GROW.

- I DONOT SUPPORT NEPA. IT'S TOO BROAD AND MAY CAUSE A DISCONNECTION B/W TMT & THE VOICE OF THE PUBLIC.

(use additional sheets if appropriate)

1
The energy consumed by the Thirty Meter Telescope Project will be provided by the HELCO island-wide electric grid, roughly 40 percent of which comes from renewable sources. The Project does not have any involvement in where or how the energy provided by HELCO is generated (renewable vs. otherwise). However, Section 3.12.4 of the Final EIS has been updated to include the following:
"Energy saving devices will be incorporated into Project facilities; plans include: solar hot water systems, photo voltaic power systems, energy efficient light fixtures controlled by occupancy sensors, efficient Energy Star rated electrical appliances at all facilities, and design with local knowledge to maximize the use of natural ventilation and lighting at the Headquarters."

2
Preliminary design electrical load estimates are discussed in Section 3.12.3 of the Draft EIS. This section indicates that the TMT Observatory would operate with a "Peak Demand" (defined as the single highest demand electrical load required during any observatory operating period of time) load of 2.4 megawatts (MW). However, the average power usage at the TMT Observatory is likely to be similar to the average power usage at the Keck observatory, 350 kilowatts (kW), because the two facilities are similar in size when both Keck domes are considered.
Estimates regarding energy use at the potential TMT Mid-Level Facility and Headquarters are also discussed in Section 3.12.3 of the Draft EIS.

3
Project wastewater is discussed in Section 3.7.3 of the Draft EIS. All wastewater from the TMT Observatory and Headquarters facilities will be treated at the Hilo Wastewater Treatment Plant. The final destination of nutrients collected at the treatment plant is controled by the operator of the plant and needs to comply with applicable rules and regulations.

4
The Community Beneft Package (CBP) is one of TMT's committements to the island community. Section 3.9.4 of the Final EIS describe the CBP as: "The CBP will be funded by the TMT Observatory Corporation and will be administered via The Hawai'i Island New Knowledge (THINK) Fund Board of Advisors. The THINK Fund Board of Advisors will consist of local Hawai'i Island community representatives. The CBP funding will commence upon the start of Project construction and continue throughout the TMT Observatory's presence, so long as the CDUP is not invalidated or construction stayed by court order. As part of the CBP, the TMT Observatory Corporation will provide $1 million annually during such period to the THINK Fund; the dollar amount will be adjusted annually using an appropriate inflation index (the baseline from when inflation index will be applied will be the date of start of construction). It is envisioned that THINK Fund purposes could include:

- "Scholarships and mini-grants,
- "Educational programs,
- "College awards,
- "Educational programs specific to Hawaiian culture,
- "Educational programs specific to astronomy,
- "Educational programs specific to math and science, and
- "Community outreach.

"Educational initiatives will focus on K-5, 6-8, 9-12, and college. The program could include support for students to visit 'Imiloa, TMT, and other observatories."
It is intended that the CBP be part of a larger pool of funds from other astronomy, public, and private sources that would make up the THINK Fund to extend community reach.
At this early stage in the formation of the THINK Fund it is premature to have all of the programming, strategies, implementation, and measurements in place. The following preliminary information is provided to illustrate some of the ideas and directions discussed this far.
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Name: Steve Hirakami **Address:** 12-4265 Kalanianaole Hwy
Phone: 965-8253 Pahoa, HI 96778
E-mail: steve_hirakami@notes.k12.hi.us

Comments: EIS section 2.7.4 Decommissioning.
There is absolutely no clue given as to what constitutes
1| the "TMT Observatory's life". What are the parameters?
What is the expected life of the observatory? What
2| are the estimated costs of Minimal, moderate, and full?
3| What other telescopes have been decommissioned and
at what costs? Why have the observatories with
4| old technology been dismantled and the area returned
to its former state. Adaptive optics is one example
5| of obsolescence of the ones that haven't been
built with the technology rather than added on.

(use additional sheets if appropriate)

1
Section 2.7.4, page 2-24, of the Draft EIS states, "The Project is also committed to preparing other necessary plans once the observatory's useful life has ended or its lease expires. The current UH lease of the MKSR expires in 2033 and the TMT Observatory would be decommissioned and the site restored at that time, unless a new lease extension is obtained from the BLNR." Similar language appears in Section 3.15, page 3-143, and Section 3.16.3, page 3-176, of the Draft EIS.
Therefore, the useful life of the Project is at least partially dependent on the lease between the University of Hawaii (UH) and the Board of Land and Natural Resources (BLNR). UH may pursue a new lease for that portion of its leased lands that the TMT Observatory will occupy after it obtains a Conservation District Use Permit (CDUP), and sublease it to the Project beyond 2033. UH could on or before 2033 request that a new lease be issued to UH for the lands upon which the Project will be built and sublease that portion of it to the Project.

2
Because the year of Project decomissioning is unknown and technology and practices could change significantly between now and then, the costs of minimal, moderate, and full decomission and site restoration are not known at this time. As stated in Section 2.7.4, pages 2-23 to 2-24, of the Draft EIS, "The level of restoration to be done ... would be determined based on an environmental cost/benefit analysis overseen by OMKM, Kahu Ku Mauna, and other stakeholders."
Section 2.7.4 of the Final EIS has been refined to add additional information regarding the Project's decommissioning, including: "The TMT Observatory and the extent of the Access Way exclusively used to access the TMT Observatory will be dismantled and the site restored at the end of the TMT Observatory's life in compliance with the Decommissioning Plan for the Mauna Kea Observatories, a Sub-Plan of the Mauna Kea Comprehensive Management Plan (UH, 2010a). Deconstruction and site restoration efforts will be managed by TMT with oversight by OMKM. A process similar to the MKMB-approved Project Review Process will be established to review, guide, and recommend the disposition of a site, including site restoration. Reviewers will include OMKM, Kahu Ku Mauna, and the MKMB Environment Committee, with MKMB approval required."

3
The only long-term observatory that has been decommissioned was the Planetary Patrol 0.6-meter Observatory in the 1990s. The costs for decommissioning are unknown because the old observatory was removed to make way for the Gemini North Observatory.
As indicated in Section 3.16.3, page 3-176, of the Draft EIS, the Caltech Submillimeter Observatory (CSO) is programmed for decommissioning and this decommissioning is a foreseeable future action. No cost estimate for the CSO decommissioning is available at this time; the current schedule for decommissioning is 2018.

4
The only long-term Maunakea observatory to be decommissioned thus far is the Planetary Patrol Observatory. This observatory was decommissioned to make way for the Gemini North Observatory. As indicated in Section 3.16.3 of the Draft EIS, reasonably foreseeable future actions include (a) the replacement of the UH 2.2-meter telescope with the Pan-STARRS observatory, and (b) the decommissioning and removal of Caltech Submillimeter Observatory (CSO). The decommissioning of the CSO was announced April 30, 2009 by Caltech; the announcement stated that dismantling of the observatory is to begin in 2016 and site restoration be completed by 2018. Based on a number of factors, all outside the control of the Thirty Meter Telescope Project, additional older observatories on Maunakea maybe decommissioned in the future.

5
As stated in Section 2.2, page 2-2, of the Draft EIS "The TMT would push the frontier of technology, fully integrating the latest innovations in precision control, segmented mirror design, and adaptive optics (AO) to correct for the blurring effects of Earth's atmosphere." Older telescopes, including many of those located on Maunakea, have added AO systems to increase the clarity of the images they generate and remain on the cutting edge of astronomical science. Some older observatories also remain useful for certain types of science and can have a synergy with new observatories like TMT, as discussed in Section 2.3, page 2-4, of the Draft EIS. The decommissioning of other observatories is beyond the scope or control of the TMT Project.

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Name: Shel Remington **Address:** P.O. Box 1222
Phone: 938-3999 Keaau, HI 96749
E-mail: none

Comments:

1 | 1. Looks like all the E.I.S. ducks are in perfect order. High quality survey data, pretty impressive to see such intense self-scrutiny by an ordinary, smallish industrial facility, but possibly erring on the side of over-doing the pre-study. I'm satisfied, in particular, that the wekiu bug (which hardly anybody cared about until it became a fulcrum for anti-science politics) will not bee negatively impacted. I tip my hat to the E.I.S. team.

2 | 2. As an astronomy enthusiast, I'm disappointed that the T.M.T. project finds it necessary (in order to satisfy all but the most irrational opponents) to: A. Not situate the TMT near the other optical observatories where the sky conditions are measureably better

3 | than the planned site, and B. Not build it tall (like the CFHT) which also would yield somewhat better "seeing" far from ground instabilities. I think the TMT project is bending over too far, considering that the opposition is not widespread or deep- But you guys, no doubt, have considered how best to balance these things.

(use additional sheets if appropriate)

3. Green light from me and, I think, generally, the educated people of lower Puna. There are many hundreds of astro-buffs in the East Hawai'i community.

1
Thank you for your input.

2
Based on comments received on the Draft EIS, the University of Hawaii at Hilo (UH Hilo), the proposing agency of the Project, reevaluated the reasoning outlined in the 2000 Master Plan and believes that reasoning is still valid and the TMT Observatory is best located in Area E. Reasons for not placing a NGLT in the location of an existing observatory are directly related to siting criteria identified in the plan:

- Minimize impact to Wekiu bug habitat (existing optical/infrared observatories are located in good Wekiu bug habitat, expansion of a site to fit TMT would impact that habitat);
- Avoid archaeological and historic sites (existing optical/infrared observatories are located on Kukahauula, a State Historic Property, expansion of a site to fit TMT would further impact this resources);
- Minimize visual impact from significant cultural areas (replacing an existing optical/infrared observatory with TMT would make it visible from the summit of Kukahauula and Puu Lilinoe, both significant cultural sites);
- Avoid and minimize views from Waimea, Honokaa, and Hilo (replacing an existing optical/infrared observatory with TMT would make it visible from all of these towns);
- Minimize impact on existing facilities (building a structure the size of the TMT Observatory at the site of an existing optical infrared observatory could significantly impact nearby existing facilities).

3
Thank you for your input. The TMT Project has worked hard to mitigate environmental impacts, such as minimizing observatory size and height to mitigate visual and other impacts, and still provide an excellent level of astronomical seeing that will support a broad range of scientific endeavors.

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Name: Tiffany Edwards Hunt **Address:** P.O. Box 557
Phone: (808) 968-6439 Kurtistown, HI
E-mail: newswoman@mac.com 96760

Comments: Malama Aina. Truly.
If we are going to develop this Island, I want smart development.
Native Hawaiians decry the desecration of the sacred temple, Maunakea, well, the entrance to Pahoa is being desecrated with the development of Burger King, Kentucky Fried Chicken, and Long's Drugs. I don't see any public outcry about that. Why are we opposing development that lends a hand to science and encourages our children to get college degrees in astronomy and then welcoming other development that keeps our keiki dumb and on a bad diet.
It just doesn't compute. We need to really look at the dichotomy here.
Education is the key. Don't say no to this development and then sell Hawaii out to Corporate America at the same time

(use additional sheets if appropriate)

1

1
The Thirty Meter Telescope Project appreciates your review and will continue to work with the community to focus educational and other benefits so that they best fit the community goals and needs. Please see Section 3.9.4 of the Final EIS for additional details regarding the Project's educational measures.

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Name: PAULA HELFRICH **Address:** % YANGON INT'L SCHOOL
Phone: 808 989 5894 117 THUMINGALAR HSG
E-mail: helfrich.paula@gmail.com THINGANGYUN, YANGON MYANMAR

Comments: (1) EXCELLENT WORK ON TCP/KUKAHAU'ULA (KUMU PONO 1999+2005, LANILAS 1999-7, HIBBARD + MACELDOWNEY) + RECORDING OF KUPUNA COMMENTS (PG 3-15) RELATING TO SACRED SITES + TRAILS (ALEXANDER SURVEY 1892, USGS 1936 DESIGNATION OF SPHD SITE 21438 AS KUKAHAU'ULA AND FRANK DECLARATION OF MITIGATION NEEDS FOR
1| ACCESS – FAVOR ROUTE #2 OR #1 (2) OVERALL, THIS DRAFT EIS PROVIDES A CLEAR PICTURE OF CULTURAL, SCIENTIFIC, ENVIRONMENTAL NEEDS THAT CAN BE ADDRESSED THROUGH A COMMUNITY-BASED OMKM
2| LOCALLY-LED UHH-BASED INITIATIVE (3) I APPLAUD THE WORKFORCE + EDUCATIONAL OPPORTUNITIES THE PROJECT REPRESENTS. THERE IS, HOWEVER, AN ONGOING MISTRUST OF PAST ERRORS + OMISSIONS
3| THAT REQUIRES ABSOLUTE TRANSPARENCY AND CONTINUING COMMITMENT TO MAKE THIS PROJECT WORK, ESPECIALLY FOR ENVIRONMENTAL CONCERNS AT HALE POHAKU AND THE LOWER ALTITUDES.

(use additional sheets if appropriate)

(4) ESTABLISHMENT OF A MAUNA KEA ENVIRONMENTAL CENTER (PTA + HUMU'ULA) UNDER UHH WOULD PROVIDE ADDITIONAL EDUCATIONAL + ECONOMIC OPPORTUNITIES.

1
Thank you for your input. Of the three Access Way Options discussed in the Draft EIS, Option 1 is no longer being considered due to conflicts with SMA operations. Access Way Options 2 and 3 remain under consideration, but both have been refined since completion of the Draft EIS to reduce their impacts and provide for safe SMA operations. Please see Section 2.5.2 of the Final EIS for the updated Access Way discussion.

2
The Thirty Meter Telescope Project appreciates your review and will continue to work with the community to focus educational and other benefits so that they best fit the community goals and needs. Please see Section 3.9.4 of the Final EIS for additional details regarding the Project's educational measures.

3
UH Hilo and the Thirty Meter Telescope Observatory Corporation understand there is a long history of what some have termed "mismanagement" of Maunakea. These views are acknowledged, but do not address the Project's potential impacts on the environment evaluated in the Draft EIS.
UH Hilo and the Office of Mauna Kea Management (OMKM) have prepared the Comprehensive Management Plan (CMP) and it has been approved by the Board of Land and Natural Resources (BLNR). The CMP has been prepared to improve management of Maunakea. UH Hilo and OMKM are committed to implementing the CMP and the Project is committed to complying with it, as detailed in the EIS.

4
The establishment of a "Mauna Kea Environmental Center" is beyond the scope of the Project. However, as discussed in Section 3.9 of the Draft EIS, the Project will fund education- and community-based measures. Please see Section 3.9 of the Final EIS for additional details regarding the educational and economic opportunities proposed by the Project.

RECORD DETAIL

	First Name :	Klement
	Last Name :	Kondratovich
	Submission Date :	07/06/2009
1	**Submission Content/Notes :**	I am writing to voice my full support for the Thirty Meter Telescope project. The unique conditions in Hawaii make the state one of the few places on the planet where a facility such as the TMT could be built. The draft EIS addresses all of the arguments that have been presented against the project. The many advantages to building the TMT in Hawaii are simply too great to turn away. I would hate for this to turn into another Superferry debacle. We need to build the Thirty Meter Telescope in Hawaii.
	Stakeholder Type :	Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : Nancy

Last Name : Cabral

Submission Date : 07/07/2009

Submission Content/Notes : I have read all I can about the proposed TMT in our home town paper. I visited Mauna Kea last month to see the proposed location. I have attended presentations by several groups and one of your public meetings.

I have listened to learn what is wrong with the TMT on Mauna Kea.

I have heard that some people are angry because others have not been respectful of the Mountain in the past. I read the TMT will address all of those objections and become an example of what others could do to offend the Mountain the least.

I have heard that a few people consider the Mountain scared. They claim ownership of the Moutain because they are Hawaiian or they want to be.

I feel Mauna Kea is a scared and Beautiful place for many people, regardless of race or nationality, just as the beaches and the land of Hawaii are. The land I live on where my family hunts for pig, raises cattle, sheep, horses and were my husband and children were born and where we raise our children and grandchildren.

It was very interesting to hear about the history of Hawaii and the stars above.

I listened, but have heard NOTHING that is wrong with having the TMT on Mauna Kea Mountain. While those against the TMT have passion because their feelings are hurt, they have presented nothing WRONG with the TMT. (like we now know that the ocean can not be our dump site or sewer)

1 What the TMT will do for the future of the world with new great discoveries is worth the efforts required to be on Mauna Kea Mountain.

What the TMT will do for the youth of the Big Island and the education and jobs it will provide makes this effort worth while.

What the TMT will do for the Culture of our Big Island and the State of Hawaii makes this effort rewarding.

What the TMT will do for the economy of the Big Island makes the future of the TMT on the Big Island a wonderful effort.

I STRONGLY support the TMT on Mauna Kea Moutain because of the discoveries it will provide, the options it will open up for our youth and the general betterment it will provide for MY HOME in HILO, HAWAII.

Mahalo, Nancy Cabral
Hilo, Hawaii

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : Danny

Last Name : Li

Submission Date : 07/07/2009

1 **Submission Content/Notes :** The unspoken premise of TMT proponents is that "High Tech" is somehow our society's ultimate Salvation.
But the invisible partner of High Tech is High Energy consumption, and High Energy consumption translates into High Resource Depletion, Environmental Degradation, and more Garbage. and when we use massive amounts of resources(unprecedented in human history and forever increasing in our Capitalist society), we inevitably wind up patronizing and subsidizing mega-corporations like Exxon and GE. And in order to support and defend these mega-corporations, we have built an Empire of military bases that stretches across the entire Planet and spends Trillions of $ to guarantee their continual existence. In short, our Capitalist society's addiction to High Energy consumption locks us into a perpetual dependence on Militarism to maintain Full Spectrum Dominance for the Empire. Thus, the unspoken premise of High Tech as Salvation brings us full circle to a slavish embrace of-- and obedience to--an Imperial imperative on Steroids.
The Billion $ telescope may or may not help us find more Black Holes, but it definitely WILL NOT shine a light on the Dark Side of a High Energy consumption paradigm that will ultimately doom itself to a self-degrading developing plan.

Stakeholder Type : Citizen

1

The commentor's views are acknowledged, but do not address the Project's potential impacts on the environment discussed in the Draft EIS. The Thirty Meter Telescope Project appreciates your review and participation in the process.

RECORD DETAIL

First Name : Vanda

Last Name : Lawson

Submission Date : 07/05/2009

1 **Submission Content/Notes :** I am very much for this project to take place on this island and I see so many pluses. I have read this article in the 'Big Island Weekly' about the project and I am very excited about it. I have children that live here and I just feel it improving opportunities for everyone. We have quite a large family here that would appreciate the opportunities the project presents. Also the fact that it would be built on the turf of the United States for safety reasons and for many other reasons, just to safeguard it more to have it be used as it is intended to be and not have anything get in the way. I feel that, that would be an advantage for the whole project to make sure that things are done in an up and up way.
Anyway, thank you for this opportunity to share my information on this and I hope that they have it here.

Stakeholder Type : Citizen

1

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Name: Marjorie Erway **Address:** P.O. Box 2807
Phone: 324-4624 Kailua Kona
E-mail: erwaydoo1@hawaii.rr.com HI 96745

Comments: The 30 Meter Telescope is an important new window on the universe because of it's light gathering & optical resolution.
However, it does NOT belong on Mauna Kea mountain.
1 Mauna Kea's historic and cultural sites make up the Native Hawaiian's cultural landscape, as well as a nationally acclaimed area of unique importance.
The summit area is an example of 30 years of UH's mismanagement of the Conservation District that has resulted in serious and substantial impacts to both the cultural and natural resources of the mountain. One of the outstanding mismanagements is that the legal limit
2 on the number of telescopes has been far exceeded.
Due to this I propose NO ACTION.
Kill the TMT here in Hawaii and thereby letting it be built in Chile where there is no opposition to it.

(use additional sheets if appropriate)

1
Thank you for your input. Potential Project impacts to cultural resources are discussed in Section 3.2.3 and the cumulative impacts related to past actions is discussed in Section 3.16.2 of the Draft EIS.

2
There is no set "limit" on the number of telescopes or observatories on Maunakea. The 1983 Master Plan states on page 41, "Based on the RDP [Research Development Plan], the SRCDP [Science Reserve Complex Development Plan] identifies siting areas for a total of thirteen telescopes on the mountain by the end of the century. Although the actual number of facilities which will be realized by the astronomy program at Mauna Kea will depend on the demand and on the role determined for this activity by public policy makers, the University of Hawaii has determined that it is resonable and feasible to project a total of 13 telescopes on the mountain between now and the year 2000." The 1983 Master Plan is silent on the number of observatories that could be built after the year 2000 and overall the number of observatories is left to public policy makers.
The 2000 Master Plan, which is the most current master plan for the UH management areas, does not identify a limit on the number of observatories on Maunakea but does limit the area of future development to within the Astronomy Precinct.

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Name: Marjorie Erway **Address:** PO Box 2807
Phone: 324-4624 Kailua Kona
E-mail: erwaydoor@hawaii.rr.com HI 96745

Comments: Who are your experts on habitat restoration?

3 How can the habitat be restored even?

4 Use only renewable energy for entire project.
When will a comprehensive management plan be developed and followed? It must be completed before any development begins.

5 This EIS needs to be withdrawn until a Comp. Mgmt. Plan is complete.

(use additional sheets if appropriate)

3
Section 3.4.3 of the Draft EIS discusses potential impacts to biological resources. On page 3-41 it is stated that "Although the [Access Way] Option 2 or 3 impact is evaluated to be less than significant, to comply with the CMP (Management Action FLU-6), the Project would prepare and implement a Habitat Restoration Plan to compensate for the loss of Type 3 Wekiu bug habitat...". CMP Management Action FLU-6 states "Incorporate habitat mitigation plans into project planning process."
Based on comments received during the Draft EIS public review period and the issues associated with the feasibility and effectiveness of any habitat restoration approach, the planned mitigation measure for the loss of sensitive habitat has been modified. The Project will no longer prepare or implement a Habitat Restoration Plan as outlined in the Draft EIS. As detailed in Section 3.4.3 of the Final EIS, the Project is in comliance with Management Action FLU-6 through (a) Project planning to avoid impacts, (b) monitoring of arthropod activity in the region of the Access Way's disturbance of cinder cone habitat prior to, during, and for two years following the construction of that portion of the Access Way, and (c) working with OMKM on the development and implementation of a habitat restoration study.

4
The energy consumed by the Thirty Meter Telescope Project will be provided by the HELCO island-wide electric grid, roughly 40 percent of which comes from renewable sources. The Project does not have any involvement in where or how the energy provided by HELCO is generated (renewable vs. otherwise). However, Section 3.12.4 of the Final EIS has been updated to include the following:
"Energy saving devices will be incorporated into Project facilities; plans include: solar hot water systems, photo voltaic power systems, energy efficient light fixtures controlled by occupancy sensors, efficient Energy Star rated electrical appliances at all facilities, and design with local knowledge to maximize the use of natural ventilation and lighting at the Headquarters."

5
The CMP was approved by the BLNR on April 9, 2009, with conditions. The TMT Project Draft EIS referenced the approved CMP. Establishing the legality of the CMP is beyond the scope of this EIS. However, since the completion of the Draft EIS, on August 28, 2009, the BLNR determined that the HRS Chapter 91 contested case process was not applicable to the CMP approval and the four CMP sub plans have been completed and approved. The CMP as approved is a valid enforceable plan.

Subject: **Draft Environmental Impact Statement**
Thirty Meter Telescope (TMT) Observatory Project
Maunakea, Hawai'i

Dear Participant:

The University of Hawai'i has prepared the attached Draft Environmental Impact Statement (DEIS), which was prepared pursuant to the EIS law (Hawai'i Revised Statutes, Chapter 343) and the EIS rules (Hawai'i Administrative Rules, Title 11, Chapter 200). Due to your interest expressed in the Project we are providing the document to you for review. The following information summarizes the Project and commenting process.

Name of Project:	Thirty Meter Telescope Observatory Project
Island:	Hawai'i
District:	Hāmākua, South Hilo, and South Kohala
TMK:	4-4-15: 9 and 12; 2-4-1: 7; and 6-7-2: undetermined parcel

Comments are required to be submitted or postmarked by July 7, 2009. Comments can be submitted via the website (www.TMT-HawaiiEIS.org), the toll-free hotline (1-866-284-1716), at public meetings, or mailed to:

Original to:
TMT Observatory Project
Office of the Chancellor
University of Hawai'i at Hilo
200 W. Kāwili Street
Hilo, Hawai'i 96720-4091

Copy to:
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawai'i 96813

Public meetings will be held as follows:

Date	Area	Location	Time
June 16 (Tue)	Kamuela (Waimea)	Waimea Elementary School Cafeteria	5-8pm
June 17 (Wed)	Hilo	Hilo High School Cafeteria	4-8pm
June 18 (Thr)	Pāhoa / Puna	Pāhoa High School Cafeteria	5-8pm
June 22 (Mon)	Ka'ū / Pāhala	Ka'u High/Pāhala Elementary School Cafeteria	5-8pm
June 23 (Tue)	Hāwī / Kohala	Kohala High School Cafeteria	5-8pm
June 24 (Wed)	Kona	Kealakehe Elementary School Cafeteria	5-8pm
June 25 (Thr)	Honolulu	Farrington High School Cafeteria	5-8pm

A comment form is provided in Appendix C of the DEIS; however, comments do not need to be submitted on this form. The form is provided for convenience only.

If you no longer need this EIS, please recycle it. Thank you for your participation in the EIS process.

1

1
We appologize for this error, the meeting in Hawi/Kohala was held at the Kohala Cultural Center, not the High School. However, it was correctly listed in other announcements, including newspaper ads and page 1-6 of the Draft EIS, and signs were put up on the doors of the cafeteria that corrected the location of the meeting .

COMMENT FORM
Thirty Meter Telescope Project

The University of Hawai'i encourages comments on the Thirty Meter Telescope (TMT) project. The 45-day Draft EIS comment period opened with the notice of availability published in the OEQC Environmental Notice on May 23, 2009. Comments are required to be submitted or postmarked by July 7, 2009. Comments can be submitted via the website (www.TMT-HawaiiEIS.org), the toll-free hotline (1-866-284-1716), at public meetings (in writing or recorded individually), or by mailing written comments to the address on this form. This form is provided for convenience only; to submit this form by mail, please fold and staple, and affix proper postage (see reverse side for guide). Letter or other printed comments not using this form are also welcome.

All comments received will be responded to individually with both the comment and responses included in the Final EIS.

Name: Andrea Aseff **Address:** 2515 Manoa Rd. Honolulu, HI 96822

Phone:

E-mail: aseff@kahea.org

Comments: The wēiku is endemic to Mauna Kea. While it may currently be a candidate species & inhabit a summit other than the one proposed, this at-risk species may inhabit the proposed site in the near future. In fact, with its habitat elsewhere on Maunakea being destroyed &/or adversely modified-frequently by massive telescopes & their inevitable roads, waste, traffic, & buildings-the wēiku is likely to be forced onto the proposed site-at least before extinction. The Hawaiian monk seals' reoccurrence in the Main Hawaiian Islands, as a result of habitat modification in the Northwestern Hawaiian Islands, supports the likelihood of the wēiku migrating out of sheer necessity, too. We don't even understand the wēiku now. This project is based on the offensive, short-sighted presumption that the potential for enhanced knowledge of Science OUTSIDE our Planet is more important than Science INSIDE our Planet. Beyond profit and prestige, the intrinsic value of what we have on Earth is immeasurable. Intergenerational equity demands preservation of the natural & cultural gifts we enjoy—and even those we don't. Without Earth there can be no science, no technology, no man. If on sacred) Mauna Kea now, what now?

(use additional sheets if appropriate)

1
The Weiku Bug and its habitat have been studied for decades, as disclosed in Sections 3.4 and 3.16.2 of the Draft EIS. Experts who have studied the species extensively believe the Project would have a less than significant impact on the Wekiu bug and its habitat. Project mitigation measures will provide for further study of this species.
In addition, compliance with a number of CMP Management Actions will limit further degredation of primary Wekiu bug habitat to a minimum; therefore, it is unlikely the bug will abandon this favorable habitat for the less favorable, yet abundent, lava flow type habitat where the TMT Observatory will be located.

2
As documented in Chapter 1 of the Draft EIS, the Project has coordinated with resource agencies and land managers to reduce its impact while providing opportunities for this and future generations to explore the Universe through the TMT Observatory. The Project will continue to work with resource agencies and other stakeholders to preserve and protect natural and cultural resources during the HRS Chapter 343 process, the Conservation District Use Permit (CDUP) process, and beyond.

COMMENT FORM
Thirty Meter Telescope Project

The University of Hawai'i encourages comments on the Thirty Meter Telescope (TMT) project. The 45-day Draft EIS comment period opened with the notice of availability published in the OEQC Environmental Notice on May 23, 2009. Comments are required to be submitted or postmarked by July 7, 2009. Comments can be submitted via the website (www.TMT-HawaiiEIS.org), the toll-free hotline (1-866-284-1716), at public meetings (in writing or recorded individually), or by mailing written comments to the address on this form. This form is provided for convenience only; to submit this form by mail, please fold and staple, and affix proper postage (see reverse side for guide). Letter or other printed comments not using this form are also welcome.

All comments received will be responded to individually with both the comment and responses included in the Final EIS.

Name: Trina Kudlacek **Address:** 217 Prospect St #17
Phone: 808-489-8436 Honolulu HI 96813
E-mail: trinainitaly@yahoo.com

Comments:

1 - I hope that you will have an outreach program for for young children using the $1 million per annum. I hope they will be able to visit the telescopes or the headquarters at UH Hilo.

2 - I think use of reflective finish w/ lower visibility & better energy efficiency.

3 - I also feel that access road 1 should be used. The grade is only 6%-so it is safer. It also has minimal impact to the Cinder Cone environment & culturally sensitive area.

(use additional sheets if appropriate)

1
The Community Beneft Package (CBP) is one of TMT's committements to the island community. Section 3.9.4 of the Final EIS describe the CBP as: "The CBP will be funded by the TMT Observatory Corporation and will be administered via The Hawai'i Island New Knowledge (THINK) Fund Board of Advisors. The THINK Fund Board of Advisors will consist of local Hawai'i Island community representatives. The CBP funding will commence upon the start of Project construction and continue throughout the TMT Observatory's presence, so long as the CDUP is not invalidated or construction stayed by court order. As part of the CBP, the TMT Observatory Corporation will provide $1 million annually during such period to the THINK Fund; the dollar amount will be adjusted annually using an appropriate inflation index (the baseline from when inflation index will be applied will be the date of start of construction). It is envisioned that THINK Fund purposes could include:

- "Scholarships and mini-grants,
- "Educational programs,
- "College awards,
- "Educational programs specific to Hawaiian culture,
- "Educational programs specific to astronomy,
- "Educational programs specific to math and science, and
- "Community outreach.

"Educational initiatives will focus on K-5, 6-8, 9-12, and college. The program could include support for students to visit 'Imiloa, TMT, and other observatories."
It is intended that the CBP be part of a larger pool of funds from other astronomy, public, and private sources that would make up the THINK Fund to extend community reach.
At this early stage in the formation of the THINK Fund it is premature to have all of the programming, strategies, implementation, and measurements in place. The following preliminary information is provided to illustrate some of the ideas and directions discussed this far.
On an on-going basis it is estimated that 25% of THINK will be directed to endowment and 75% to yearly programming.

2
Thank you for your input. Based on comments received during the Draft EIS comment period, the aluminum-like finish, similar to that of the Subaru Observatory, is being carried forward as the TMT Observatory dome finish. This is reflected in Section 3.5 of the Final EIS.

3
Thank you for your input. Of the three Access Way Options discussed in the Draft EIS, Option 1 is no longer being considered due to conflicts with SMA operations. Access Way Options 2 and 3 remain under consideration, but both have been refined since completion of the Draft EIS to reduce their impacts and provide for safe SMA operations. Please see Section 2.5.2 of the Final EIS for the updated Access Way discussion.

RECORD DETAIL

First Name : Christine

Last Name : Reed

Submission Date : 07/07/2009

Submission Content/Notes : I want to enthusiastically welcome the Thirty Meter Telescope to the Island of Hawaii. As the owner of a business that supports and promotes knowledge, communication and education I cannot see a better participant in the economic and educational future of our citizens than this new telescope and all that it can do to improve our community. I wholeheartedly endorse TMT as a key to new knowledge and jobs for our island people.

1

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

	First Name :	David
	Last Name :	Reed
	Submission Date :	07/07/2009
1	**Submission Content/Notes :**	As the owner of a business that supports and promotes knowledge, communication and education I want to enthusiastically welcome the Thirty Meter Telescope to the Island of Hawaii. I cannot see a better participant in the economic and educational future of our citizens than this new telescope and all that it can do to improve our community. I wholeheartedly endorse TMT as a key to new knowledge and jobs for our island people.
	Stakeholder Type :	Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : Mya

Last Name : Paw'U

Submission Date : 07/07/2009

1 **Submission Content/Notes :** This is the next generation of astronomy and telescopes. Having this resource is valuable for our UHH Astronomy Dept, the students and the community.

Because telescopes attract top talent from around the globe, this project will continue the trend started by Subaru et al in exposing Hilo to the entire world.

Telescope projects already in existence have created many jobs directly, and even more in support services throughout the East Hawaii and North Hawaii (Waimea/Kamuela) areas. There is no doubt the TMT will do the same.

The TMT will enhance the reputation of Hilo as one of the top astronomy towns in the world.

I support this project and recommend that necessary permits be issued.

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

RECORD DETAIL

First Name : Luana

Last Name : Jones

Submission Date : 07/07/2009

Submission Content/Notes : TMT
July 7, 2009 - the deadline to submit testimony regarding the Thirty Meter Telescope (TMT).
Then, the powers that be will proceed with the intent to further desecrate the sacred Mauna Kea in the name of science, and fuelled by financial influence. These people actually think the desecration is okay!
Listening to the testimonies of our Kupuna and Native Practitioners, we are reminded that above the 13,000 foot elevation on Mauna Kea, is and always was a very sacred space not frequented by humans.
1 Our Kupuna say, "If they want to put more telescopes up on the mountain, why not show us good faith and remove some telescopes first." I agree with our Kupuna! This is PONO!
With 13 telescopes already up on Mauna Kea, none of which are scheduled for decommissioning (dismantling), how much more land area of this most sacred part of the mountain will be bulldozed?
The recent earthquake in North Hawaii that shut down the Mauna Kea Hotel was only a gentle warning to us that earthquakes can occur anywhere on and around Hawaii Island, whether they are man-made or not.
2 Several past public testimonies were from people who formerly worked with certain aspects of development on Mauna Kea or astronomy. Consequently, their concerns should seriously be addressed.
In 1991, the powers that be forced geothermal development 'down our throats', after two years of protests, hearings, and mediations. "Rule 12" eliminated contested-case hearings and allowed developers to proceed immediately, disregarding neighbor's concerns of health and safety.
A 31-hour-blowout, the worst-case-scenario, what developers said would never happen, shut the geothermal plant down for over two years.
Hopefully, further desecration can and will be avoided, even if it means stalling the process.
There is a pono way to go forward, but without regard for what is pono or what is right, we may be inviting a catastrophe.
The powers that be may have their way, but Akua will have the final say.

Stakeholder Type : Citizen

1

As indicated in Section 3.16.3 of the Draft EIS, reasonably foreseeable future actions include the decommissioning and removal of Caltech Submillimeter Observatory (CSO). The decommissioning of the CSO was announced April 30, 2009 by Caltech; the announcement stated that dismantling of the observatory is to begin in 2016 and site restoration be completed by 2018.
Based on a number of factors, all outside the control of the Thirty Meter Telescope Project, additional older observatories on Maunakea maybe decommissioned in the future.

2

The Thirty Meter Telescope Project is working in close collabration with the community to ensure that the Project addresses issues of concern to the community and has the least possible environmental impacts on Maunakea. Sections 1.6 and 1.7 of the Draft EIS discussed public outreach and consultation with agencies, organizations, and individuals that had occurred prior to the publication of that document. Appendix A of the Draft EIS provided the mailing list of those that received the Draft EIS; Appendix B of the Draft EIS summarized the scoping comments received and addressed in the Draft EIS. Section 1.7 of the Final EIS provides information related to comments received during the Draft EIS public review period and Chapter 8 provides responses to all comments received.

RECORD DETAIL

	First Name :	Leimomi
	Last Name :	Khan
	Submission Date :	07/08/2009
1	**Submission Content/Notes :**	The EIS provides that, "The discharge of domestic wastewater via a septic system has the potential to degrade surface and groundwater resources. In compliance with CMP Management Action FLU-7, TMT would instead install a zero-discharge waste system at the Observatory. Therefore, there would be no discharge of any wastewater, including domestic wastewater and mirrow washing wastewater, at the summit. All wastewater would be collected and imported off the mountain for treatment and disposal." The EIS does not address the impact this additional wastewater would have on the infrastructure of Hawaii Island and how it would be treated and disposed of once off the mountain.
	Stakeholder Type :	Citizen

1

The potential impact refered to by the commentor is a cumulative or indirect impact. A discussion of this issue has been added to Section 3.16.4 of the Final EIS, including: "The TMT Project and Pan-STARRS project would discharge domestic and mirror washing wastewater to the Hilo Wastewater Treatment Plant for treatment and disposal. The Project discharge is discussed in Section 3.7.3. The Project's discharge of roughly 2,000 gallons a month generated at the TMT Observatory and transported down and up to 1,600 gallons a day generated at the TMT Headquarters will likely be much greater than discharges associated with the Pan-STARRS project. Additional wastewater may be directed to the treatment plant if employees of the TMT Project live within the sewer network collection area; if all 140 potential employees were newly located within the area and had an average family size of 2.75 people (the County average in the 2000 census), this would result in an additional roughly 38,500 gallons of wastewater a day (based on 100 gallons a day per person, a conservative estimate) directed to the treatment plant. With the decommissioning of the CSO and their headquarters in Hilo, the volume of wastewater generated would be incrementally reduced. The total volume of wastewater currently treated at the Hilo Wastewater Treatment Plant averages 3 million gallons a day and the plant is designed for a maximum capacity of 5 million gallons a day. The volume of wastewater potentially directed to the treatment plant by the Project and its employees, should they all live within the collection area, represents less than two percent of the 2 million gallon unutilized capacity of the Hilo Wastewater Treatment Plant."

RECORD DETAIL

First Name : Ron

Last Name :

Submission Date : 07/05/2009

1 **Submission Content/Notes :** I am in Hawaii, irregardless, if I lived in the mainland, I would still be for the project being here rather than down in South America. Environmental impact would be same whether it's Hawaii or in South America. But it'd be nice to have it in the United States and chances of keeping it will be better, unlike what happened with Panama Canal and not to mention how life is for local people here. Irregardless of the local people, the clean air and everything will be better in Hawaii all the way round. So, I am for this project being in Hawaii.

Stakeholder Type : Citizen

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

Subject: New Letter
Date: Wed, 17 Jun 2009 14:40:17 -1000
From: Evonne Bjornen <e.bjornen@hawaiiantel.net>
To: Rose Tseng <rtseng@hawaii.edu>, Gerald DeMello <gmello@hawaii.edu>, Andrea Furuli <furuli@hawaii.edu>

Paul N. Tallett , Hilo, Hawai'i
June 17, 2009

EIS PUBLIC MEETING

My name is Paul Nolan Lulululuakauikawekiu Tallett. I am a native Hawaiian, born and raised, and have always lived, in Hilo, Hawaii. I was taught by my parents, private school teachers, University, and Elders, to respect my Kupuna, The Land, Sea, and Sky. I am a Korean War Veteran, was the manager of HMSA for over 30 years, on the Big Island of Hawaii. I was very active in the Community, with Church, Schools, Hilo Jaycees, Hilo Boys and Girls Club, Rotary, Hawaii Heart Association, Traffic Safety Council, Hawaii Sub Area Health Council, Hawaiian Clubs, Hawaii Sub Area Health Council- where I was Chairman of the Certificate of Need, Board of Realtors, Boys Scout of America, and many more. My wife (Evonne Bjornen) and I, own and operate a Macadamia Nut Farm here in Hilo now.

I feel that I am well qualified to state my opinion on the building of the TMT 30 Meter Telescope on the Mauna Kea Mountain on the Island of Hawaii, the Island that I love and cherish. I am speaking on behalf of my wife, Evonne Bjornen, as well.

We are 100% in FAVOR of the 30 Meter Telescope, to be built on Mauna Kea, on the Island of Hawaii.

1 We well realize that this 30 meter optical/ infrared Telescope is the largest of it's kind, with a ambitious Astronomy agenda, the potential of unlimited knowledge! This Telescope will bring wealth, notoriety and pride, to Hawaiians, the University of Hawaii at Hilo, and the entire State of Hawaii. I see it adding to our living Hawaiian Heritage and Culture, and feel it would be completely in conformity with the desires and best wishes of our Beloved Alii and Kupuna. Kulia i ka Nu 'u, a true commitment to excellence for this new Telescope on Mauna Kea. My understanding and feelings are, that Queen Liliokalani, recognized Astronomy as an important part of our Hawaiian Culture. This will be a perfect continuance of her memory and legacy. Let us also remember the financial and economical impact that will be provided, such as much needed jobs, money and technology, to our Island and State.

2 My feelings are that the control of MTM be the responsibility of the University of Hawaii at Hilo, and not the University of Hawaii at Manoa. The University of Hawaii at Hilo has a excellent Astronomy Program and is very capable of this Stewardship.

And Yes, We are also in favor of the Mauna Kea Comprehensive Plan.

3 I would like to see scholarships and educational Programs at TMT.

Add my name, as a Native born Hawaiian and My wife's name, Evonne F. Bjornen, as supporters of building the TMT 30 Meter Telescope on Mauna Kea.

Any further help we can be, email us at e.bjornen@hawaiiantel.net <mailto:e.bjornen@hawaiiantel.net>

Mahalo Nui loa,
Paul Nolan Lulululuakauikawekiu Tallett
Evonne Faye Bjornen / Tallett

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

2
TMT and UH Hilo, the proposing agency for the Project, are working closely together, and coordinating with the Office of Mauna Kea Management (OMKM), which is located on the UH Hilo campus.

3
The Thirty Meter Telescope Project appreciates your review and will continue to work with the community to focus educational and other benefits so that they best fit the community goals and needs. Please see Section 3.9.4 of the Final EIS for additional details regarding the Project's educational measures.

28 June 2009

Chancellor Rose Tseng
Univeristy of Hawai`i at Hilo
200 W. Kawili Street
Hilo, HI 96720

Re: Comments on TMT DEIS

Dear Chancellor Tseng:

I have read through the Draft Environmental Impact Statement for the Thirty Meter Telescope, with particular interest in Appendices D, E, and F dealing with cultural impacts and historic properties. I am deeply torn by this project because I understand both sides--the position taken by the majority of the Native Hawaiian respondents that there already has been too much development on Mauna Kea, and the desires expressed by others to advance the position of the State and the University in astronomical research and to create jobs. Despite my recognition of the merits of both arguments, I am fundamentally against the continued disenfranchisement of those in the Native Hawaiian community who do no want to see any more development on a sacred mountain.

I began reviewing environmental impact statements as a state regulator in Massachusetts in 1987, and I have continued to stay engaged with environmental processes in Hawaii during the 18 years that I have lived and worked here. With that context, it is clear to me that this DEIS has been professionally prepared. There are some technical problems (that I will outline below), but what concerns me more is the fundamental question for Mauna Kea: "When is enough, enough?" As you know, cultural and environmental review processes for proposed developments (both state and federal) do not have a clause that says "this place is too sacred to develop." All they allow for is a chance to mitigate (lessen) adverse effects through project-redesign or other measures. With that procedural foundation, those who find the mountain sacred are immediately disenfranchised from the review process, and the balance of power in any partnerships between the astronomical community and Native Hawaiian cultural practitioners is stacked towards the desires of the latter and the frustration of the former.

This scenario has occurred repeatedly since the 1960s, and, as the DEIS states, the cumulative effects have been "substantial and adverse" (p. 3-166). If this project does go forward, I would like to see, as one mitigation measure, a clear statement in the Final EIS and in a revised CMP that limits the footprints of development in the summit region once and for all. Additionally, and as I noted for the CMP, the summit needs to be treated as a single traditional cultural property, not divided up piecemeal between the very summit, Lilinoe, and Waiau (pardon the lack of kahako—I am leaving them out so they don't get messed up in electronic copies). The letter from SHPD dated May 9, 2009 included in Appendix D of the DEIS (p. vii) makes the same recommendation, as does the University's own CMP. Traditional cultural properties are in fact considered 'historic properties' despite the lack of physical alteration in many cases. With that in mind, the finding of "no historic properties affected" in Appendix E (p. iii) for the summit region should be modified.

1

2

Furthermore, both the parcels in the vicinity of Hale Pohaku that intend to be used for staging areas are precariously close to documented cultural sites including a shrine and stone tool workshops. If the project does indeed happen, mitigation measures need to be established in consultation with organizations such as Kahu Ku Mauna and SHPD to limit inadvertent damage to these sites both during and after construction.

3

I also do not see the paving of the summit road as a mitigation measure for the cultural community. It will increase traffic to the summit, most likely by culturally uninformed people in rent-a-cars, who could intentionally or unintentionally cause harm to the cultural sites in the vicinity. It will also most likely increase speed on the road, and increase the likelihood of accidents from burned out breaks, and increase the frequency of medical emergencies from hypoxia-induced pulmonary and cerebral edemas.

4

1

The commentor's input is acknowledged, but the Thirty Meter Telescope Project is the construction, operation, and future decommissioning of a 30-meter telescope and associated infrastructure, as defined in Chapter 2 of the Draft EIS; any development aside from the Project is out of the scope of this EIS process.

2

Continuing coordination with the State Historic Preservation Division (SHPD) after the publication of the Draft EIS revealed that the Maunakea summit region has been designated as a State Historic District by SHPD and has been evaluated by SHPD to be eligible for listing as a National Historic District; however, no National application for such a designation has yet been made.
Similarly, the three "Traditional Cultural Properties (TCPs)" that were discussed in Section 3.2 of the Draft EIS have been designated Historic Properties by SHPD. The term "Traditional Cultural Property" is associated with a federal designation, and while it has been suggested that these historic properties are eligible for federal designation as TCPs, no formal application for such designation has yet been put forward. Sections 3.2 and 3.3 of the Final EIS have been updated to reflect this information and to address potential impacts to both the Kukahaaula Historic Property and the Mauna Kea Summit Historic District. Additions to Section 3.3 include the following:
Section 3.3.1, Environmental Setting: "In 1999, during the preparation of the 2000 Master Plan, SHPD proposed that the cultural landscape on the top of Maunakea be recognized as the Mauna Kea Summit Region Historic District. The district is listed as SIHP # 50-10-23-26869. Nearly the entire MKSR is within the roughly 17,820-acre Mauna Kea Summit Region Historic District. The TMT Observatory Project 13N site, the Access Way, and the Batch Plant Staging Area are all within the Mauna Kea Summit Region Historic District. The boundaries of the district generally coincide with the extent of the glacial moraines and crest of the relatively pronounced change in slope that creates the impression of a summit plateau surrounding the cinder cones at or near the summit (Figure 3-1). The district encompasses a concentration of historic properties, including most of the 263 summarized in Table 3-3, that are historically, culturally, and visually linked within the context of their setting and environment. The spiritual and sacred quality of Maunakea is related to this context and the link between the Historic Properties and their setting and environment."
Section 3.3.3, Potential Project Impacts: "The Project will not result in the loss or complete destruction of any historic properties within the Maunakea summit region. The physical impacts on the only historic property physically effected, Kukahau'ula, will be minimal and will not be significant.
"Impacts to the Historic District and its contributing properties will be confined to the impacts on Kukahau'ula and the introduction of the Project components into the Historic District. Although the TMT will be a new structure in the Historic District, it will be isolated in the Northern Plateau and will not be visible from most areas with the district. The district is currently recognized as a significant cultural landscape based on the multitude of historic properties in the area and despite the existence of the modern structures and numerous find spots in the area that may detract from its overall character.
"Because the Project will (a) have certain facilities within a Historic District, (b) affect a Historic Property within the district, and (c) provide treatments/mitigations to address those effects, it has been determined that the Project will result in an 'effect with treatment/mitigation commitments.'
"Because the Project will not result in the loss or complete destruction of any archaeologic/historic resource within the Maunakea summit region, this impact is considered to be less than significant."

5

I would also like to see other mitigation measures for the continued cumulative adverse effects to Mauna Kea's summit detailed in the Final EIS. For example, although the DEIS lists a number of mitigation measures for educating people about Mauna Kea's cultural sensitivity, a more substantial mitigation measure would be to establish formal partnerships with Native Hawaiian organizations through Memoranda of Agreement to help better preserve cultural heritage related to the mountain. One example might be to work with the Department of Hawaiian Homelands, the Paniolo Preservation Society, the State Historic Preservation Division, the Office of Hawaiian Affairs, UH Hilo faculty, and Kamehameha Schools to rehabilitate the Humu`ula Sheep Station (near the base of the Mauna Kea Access Road) as a cultural heritage and education center related to the mountain. The sheep station, more properly Kalai'eha, would have been an important place in traditional culture due to nearby springs, and first appears as a ranching outpost on a map from 1862. At least one of the structures that is still standing (the sheep shearing shed) dates at least as early as 1885. Although DHHL uses the facility as a staging area, most of the buildings are in disrepair. The station and the buildings are deeply tied to the predominantly beloved Hawaiian paniolo tradition, and the complex could be re-habilitated to serve as a cultural education center and curatorial facility.

Thank you for the opportunity to comment on these important issues.

Sincerely,
Peter R. Mills, Ph.D.

3

Archaeological sites are discussed in Section 3.3 of the Draft EIS, with existing conditions at Hale Pohaku discussed on pages 3-30 and 3-31 and potential impacts discussed on page 3-32. As disclosed in the Draft EIS, there are no historic properties within 200 feet of the potential Thirty Meter Telescope Project's Mid-Level Facility area; therefore, no historic properties would be affected.
The State Historic Preservation Division (SHPD) reviewed the Draft EIS and the Archaeological Assessment Report for Hale Pohaku. Their review comments are included in Chapter 8 of the Final EIS. Section 3.3 of the Final EIS and the Archaeological Assessment Report, Appendix H of the Final EIS, have been updated to address SHPD's comments.
Potential construction phase impacts are disclosed in Section 3.15.1 of the Draft EIS; on page 3-145 of the Draft EIS it is clearly stated the "Per the 2000 Master Plan and CMP, a buffer would be maintained between Project construction activities within the MKSR and Hale Pohaku and archaeological resources." A number of items are then presented in the Draft EIS that would be implemented to achieve this protection.

4

Nowhere in the Draft EIS is it stated or inferred that paving the Mauna Kea Access Road, a foreseeable action listed in Section 3.16.3, would be or is designed to mitigate cultural impacts of the Project or cumulative impacts. Potential roadway and traffic impacts related to paving the road are discussed in the Draft EIS in Section 3.16.4, pages 3-185 and 3-186.

5

Although the Project has not established formal partnerships with Native Hawaiian organizations, it is committed to ongoing coordination with such organizations through its outreach programs as discussed in Section 3.9.3 of the Draft EIS. In addition, Kahu Ku Mauna, a council comprised of Hawaiian cultural resource persons, and the Mauna Kea Management Board's (MKMB's) Hawaiian Culture Committee will advise the Project on cultural matters brought before the MKMB.

The proposal by the commentor is appreciated; however, the sheep station is not within the UH Management Area and not associated with UH's history.

Ron Terry
10 Hina Street
Hilo HI 96720

July 6, 2009

Chancellor Rose Tseng
University of Hawaii at Hilo
200 W. Kawili Street
Hilo HI 96720-4091

Aloha Chancellor Tseng:

Subject: Comment on Thirty Meter Telescope Draft EIS

As I understand it, the Mauna Kea Management Board (MKMB) will not be submitting unified comments on the Draft EIS, although the Interim Director of the Office of Mauna Kea Management (OMKM) has solicited comments from us individually and is preparing a response on behalf of OMKM that will include a number of MKMB concerns. This letter is to convey my own comments on the Draft EIS from the perspective of an MKMB member.

First of all, I want to acknowledge the profound contribution the TMT can make to scientific knowledge, to the mission, faculty and students of the University of Hawai'i, and to the economy of the Big Island and the State of Hawai'i. Nevertheless, I find that there are certain aspects of the EIS that do not sufficiently convey the adverse impacts of the project, especially from a cumulative perspective, nor does it propose sufficient specific mitigation. The following comments are offered in the spirit of improving the analysis of impacts, the elements of the TMT project, and the decision to be made about whether to implement the project.

1 1. COST-BENEFIT. Are there any costs to the State or County associated with the project? The EIS discusses only benefits in its economic section. Most of the employees of the facility would undoubtedly from out of State, so they would be new residents. They and their families would, at least to some extent, burden local services supported by taxes (education, police, fire, parks, etc.). I believe that this needs to be analyzed and weighed, even if the net impact is positive.

2 2. WORKFORCE PIPELINE. In terms of mitigation, what are the mechanisms that will ensure that the Workforce Pipeline program will actually happen? Is TMT willing to make it a condition of the lease and/or CDUP?

3 3. TRAFFIC. Even with full institution of the (voluntary?) ride-sharing program, there is calculated to be an increase of 14% of traffic on the access road. Depending on how well the ride-sharing program is instituted and enforced, the EIS states that traffic could actually rise as much as 62%. This does not even count extra visitors who might be drawn to the facility. There is a statement in the EIS that the road could accommodate "many times that number of trips and remain congestion free" and that even a 62% increase would not be "significant." Although,

1
There are no direct costs to the State or County related to the Project, as no State or County agency is funding the Project. It is not evident that "most" employees would be from out of state. Section 3.9.4 of the Draft EIS outlines the Workforce Pipeline Program and the fact that "to the greatest extent feasible, employment opportunities would be filled locally." The Project will undoubtedly employee some currently non-county or -state residents that will utilize local services supported by taxes. Section 3.9.3 of the Draft EIS states the Project would pay applicable local and state taxes and that those employed by the Project and their families would make purchases the supported the local economy and pay local and state taxes themselves.
In response to the comment, a discussion of the Project's potential impact on public services and facilities has been added to Section 3.9 of the Final EIS. This discussion includes the following addition to Section 3.9.3: "Though the TMT Project is committed to hiring as many local staff as possible as outlined in Section 3.9.4, for impact analysis purposes, the worst-case scenario has been used that considers all TMT employees move to the island from elsewhere. This would represent an increase in the island population of 140 people. It is assumed for purposes of this analysis that these employees will be part of a household of 2.75 people, the average household size in Hawai'i County according to the 2000 Census. Therefore, the Project could result in approximately 385 people moving to Hawai'i County under this worst case scenario. The 2000 Census found the total resident population of the county to be just over 148,000 people; the addition of 385 people represents an increase of less than 0.3 percent. For comparison, the yearly birthrate on the island averaged 2,130 during the years of 2001 to 2005.
"As presented above, in 2006 the average annual salary in the county was $33,960; in 2007 the average annual salary of those in the astronomy industry was $70,951. The higher salaries of astronomy employees generate higher tax revenue per person for the county, as well as the state. In this respect, these employees contribute more tax revenue per person on average, and, therefore, help support public services and facilities within the county and state.
"Lastly, it is reasonably anticipated that not all TMT employees will choose to live in the same town, or even on the same side of the island. Also, the number of people being introduced to the island is relatively small. Therefore, the impact on public services and facilities should be negligible, and it is anticipated that there will not be any disproportionate adverse impact on any single public service or facility.
"For the reasons outlined above, the Project impacts on public services and facilities will be beneficial and less than significant."

2
The Project is committed to the Workforce Pipeline Program (WPP) as a function of its outreach office; however, the scope of the program is still being developed and could be modified as the needs of the Project and the community change over time. Therefore, while the TMT Observatory Corporation would be willing to make the WPP a condition of the CDUP, it may not be appropriate to make the program a condition of the CDUP due to the fact that it is likely to evolve over the lifetime of the Project and term of the CDUP.

technically, congestion might not be an issue, the road is very dangerous, rough, and dusty, and it involves considerable financial and environmental costs for maintenance. I believe that the road issues require a more thorough investigation and discussion.

4 4. COMMUNITY BENEFITS PACKAGE. TMT officials have mentioned this package with many community members and indicated that it would be substantial and highly beneficial, something that could help mitigate for cumulative impacts. I was disappointed to find only a brief reference to the package on page S-7 of the Executive Summary, where there are some indications of an education package for UHH, HCC, and locally-chosen and managed education programs, "provided an agreement is reached." This component of the project is far too vague, and the Final EIS should provide specifics on the package and the mechanisms to ensure it is carried out.

5 5. CUMULATIVE IMPACT. The EIS on page 3-165 correctly frames the existing level of cumulative impacts to the spiritual and sacred quality of Mauna Kea as *substantial and adverse*, but then on page 3-179 dismisses the additional impact of TMT as "a small incremental impact", focusing on the apparent lack of impacts to listed TCPs (unless Option 3 is selected). The visual component of cultural impact is relegated to the discussion on visual impact, where the impact is said to be "less than significant." In the summary of cumulative impacts on page 3-193, cultural resources are not mentioned. In conclusion, there would appear to be no cumulative cultural impacts to mitigate for. I do not believe this is the case.

6 Biological cumulative impacts are discussed as being relatively minor, although the EIS accurately states on Page 3-168 that "based on the available information it is not possible to determine the significance of past human activity on....biological resources." Without substantial further research, we may never actually know the damage we are doing. The timing of the TMT EIS is at one level unfortunate, because OMKM and MKMB are not quite finished with the Natural Resources Management Plan (NRMP) and Cultural Resources Management Plan (CRMP), which will provide abundant recommendations on data gaps and needed missing studies, which OMKM and MKMB will then prioritize for implementation.

7 The EIS states on Page 3-170 that the cumulative visual impact is considered substantial and significant, although the term adverse is not used. Even recognizing the extraordinary benefit of astronomy on Mauna Kea, the awe-inspiring visual majesty of the tallest mountain in Oceania has certainly been adversely affected by observatory development.

8 In the conclusions on cumulative impact on Page 3-193, it is stated that the TMT would add a small increment to the level of cumulative impact, but would not tip the balance of any specific cumulative impact from a less than significant level to significant. *Accordingly, no mitigation is proposed.* From my perspective, this conveys a message that although substantial and adverse impacts have occurred in the past, and they have not been mitigated, TMT is in no way responsible for helping to address or mitigate them. In fact, I believe that for TMT to earn a place on the mountain, it must proactively address cumulative impacts.

3
Based on refined Project information, it is now stated in the Final EIS that "an estimated minimum of 15, an average of 24, and a maximum of 43 TMT staff members will work at the TMT Observatory during the day", instead of the 44 indicated in the Draft EIS. This modification has been made in many sections of the Final EIS, including Sections 2.7.3 and 3.11.3. Therefore, the Project would only increase trips to the summit by 12 percent, and foreseeable actions would further reduce the number of observatory trips.
In addition, in Section 3.16.4, Cultural, Archaeological, and Historic Resources subsection, page 3-178, of the Draft EIS, it is stated that, "The Project and other foreseeable actions may attract visitors to the summit region to see the observatories. ... However, because Maunakea will continue to be a remote destination, these increases are likely to be slight relative to the existing level of visitors and employees."
A road such as the Maunakea Access Road (a two lane, unpaved, mountain road) can accomodate up to 110 vehicles per hour per lane according to the 2000 Highway Capacity Manual. The following discussion has been added to Section 3.11.3 of the Final EIS: "This additional traffic will result in a maximum potential increase of 32 round trips a day, or a 38 percent increase over existing traffic volumes. However, traffic on the Mauna Kea Access Road will remain light at roughly 136 116 trips a day on a roadway that could accommodate up to 110 vehicles per hour per lane and remain relatively congestion free based on information in the 2000 Highway Capacity Manual for a two-lane rural road in mountainous terrain. Therefore, it is expected that the associated impact will be negligible and less than significant." In Section 3.11.4 of the Final EIS it is further stated that "With the implementation of the Ride-Sharing Program for employees plus other trips (such as deliveries), it is estimated there will be an average of 9 trips to the TMT Observatory daily, an 11 percent increase over the existing number of trips beyond Hale Pohaku."
Page 3-186 of the Draft EIS recognizes and states that "paving the 4.6-mile currently unpaved section of the Maunakea Access Road could make the road safer and reduce the likelihood of accidents. It could also raise the speed at which vehicles travel along the road, potentially reducing safety. To truly improve safety it may be necessary to police compliance with a speed limit."
Dust and other issues related to the road are discussed in appropriate sections of the Draft EIS, such as Section 3.4.3 for the Project's potential dust-related impacts on biological resources.
Based on these points, the road issue is sufficiently discussed to analyze potential environmental impacts related to the Project in the EIS.

A frequent theme of many Big Island residents, even those who support astronomy, is that there are "too many" observatories on the summit. I recall community conversations during the 2000 Master Plan process about whether any more observatories could ever be accommodated. Many felt that if there could be a firm schedule to decommission several of the telescopes and recycle observatories rather than break virgin territory, this would help reduce the overall impact on the mountain to an acceptable level. Although theoretically the best solution, I understand why the TMT planners are not proposing to recycle an observatory. TMT is so massive that if it were on the summit ridge it would overwhelm the skyline, and therefore the Master Plan sensibly stuck it on the Northern Plateau. But since the controversial and divisive development proposals in the Master Plan, many people have come to expect that we will gradually have fewer, but better, telescopes, with restoration attempts on the sites of the former observatories. I had hoped that TMT would be able to work with IfA to present some decommissioning agreements as part of the TMT proposal. As it stands, instead of keeping the overall development footprint on the mountain at the current level or somewhat less, as desired by many in the community, TMT is instead increasing it dramatically, even factoring in the announced CSO decommissioning.

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I propose that TMT provide the following to help address cumulative impacts:

- Funding to OMKM for research into the natural resources of the mountain, to supply critically needed baseline data on biology, weather and climate, hydrology, and autecological studies of the rare organisms of the summit, data whose absence severely inhibits OMKM's ability to evaluate and mitigate cumulative impacts to natural resources.
- Funding to OMKM for education, signage, and access rationalization to protect cultural resources, which are increasingly threatened by the cumulative impact of visitors drawn to the summit to visit the observatories or for other reasons.
- Funding to OMKM for detection programs for invasive species, which the cumulative impact of summit disturbance and increasing visitation by observatory staff, contractors and visitors, has made a growing problem that will require occasional rapid detection and response.
- Funding to OMKM for monitoring to determine the ongoing status of resources critically impacted through the cumulative effects of astronomy and associated astronomy tourism on Mauna Kea, such as undisturbed cinder habitat, ancient shrines, and ecosystems yet undisturbed by invasive plant and animal species.
- Funding to OMKM for the general education and orientation of visitors to the mountain, including observatory staff, contractors, but especially the general public, who are increasingly drawn to the summit by the cumulative effects of increasing attractions (e.g., observatories) and decreasing difficulties (e.g., better road paving and a more visitor-friendly environment that OMKM is legally obliged to maintain.

I am sure that others with different fields of expertise and interest in the mountain could suggest other programs whose necessity arises from the cumulative effects of observatories on Mauna Kea. If the NRMP and CRMP were complete and adopted and their implementation underway, it would be possible for me to recommend specific programs with definite funding requirements in a priority order. As it is, I can just estimate that these programs will certainly require a minimum of a million dollars per year. It appears unlikely that the University of Hawai'i will be

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The Community Beneft Package (CBP) is one of TMT's committements to the island community. Section 3.9.4 of the Final EIS describe the CBP as: "The CBP will be funded by the TMT Observatory Corporation and will be administered via The Hawai'i Island New Knowledge (THINK) Fund Board of Advisors. The THINK Fund Board of Advisors will consist of local Hawai'i Island community representatives. The CBP funding will commence upon the start of Project construction and continue throughout the TMT Observatory's presence, so long as the CDUP is not invalidated or construction stayed by court order. As part of the CBP, the TMT Observatory Corporation will provide $1 million annually during such period to the THINK Fund; the dollar amount will be adjusted annually using an appropriate inflation index (the baseline from when inflation index will be applied will be the date of start of construction). It is envisioned that THINK Fund purposes could include:

- "Scholarships and mini-grants,
- "Educational programs,
- "College awards,
- "Educational programs specific to Hawaiian culture,
- "Educational programs specific to astronomy,
- "Educational programs specific to math and science, and
- "Community outreach.

"Educational initiatives will focus on K-5, 6-8, 9-12, and college. The program could include support for students to visit 'Imiloa, TMT, and other observatories."
It is intended that the CBP be part of a larger pool of funds from other astronomy, public, and private sources that would make up the THINK Fund to extend community reach.
At this early stage in the formation of the THINK Fund it is premature to have all of the programming, strategies, implementation, and measurements in place. The following preliminary information is provided to illustrate some of the ideas and directions discussed this far.
On an on-going basis it is estimated that 25% of THINK will be directed to endowment and 75% to yearly programming.

substantially increasing the budget for the management of natural and cultural resources on Mauna Kea in these fiscally constrained times, when the entire State of Hawai'i is undergoing double-digit budget cuts. If the largest observatory the world has ever seen wants to join the community of those who cherish and appreciate the diverse resources of Mauna Kea, it is critically important for them to step up to these stewardship responsibilities made necessary by the cumulative effects of decades of inadequate resource protection.

I look forward to a future where the Thirty Meter Telescope on Mauna Kea is the premier earth-based astronomical observatory, and the more than billion dollars invested in it is generating astounding new discoveries – but only if the natural and cultural resources of this most amazing mountain, a place sacred to the Hawaiian people for over a thousand years, its subtle ecological treasures still yielding surprises to natural scientists, are properly cared for.

Thank you for your consideration of my comments. I can be reached at (808) 969-7090.

Sincerely,

Ron Terry

Cc: Katherine Kealoha, Hawai'i OEQC
Barry Taniguchi, Chair, MKMB
Ed Stevens and Arthur Hoke, Kahu Ku Mauna
Stephanie Nagata, Interim Director, OMKM
Laura Thielen, Chair, Hawai'i BLNR
U.S. Senator Daniel K. Inouye
Mayor William Kenoi, County of Hawai'i
Sandra Dawson, TMT
Dr. Henry Yang, Chancellor, U.C. Santa Barbara
Kristin Duin and Andy Hood, SRGII
Dr. Pat McCoy, PCSI

5

Section 3.16.4 of the Draft EIS discusses the Project's contribution to cumulative impacts. On page 3-179 of that section, it is stated, "The addition of the Project and other foreseeable actions to the existing environment would have a small incremental impact; however, the level of cumulative impact on cultural, archaeological, and historic resources would continue to be substantial and adverse."
Page 3-177 of that section contains the reasoning behind the "small incremental impact" conclusion made on page 3-179; the Project does not dismiss the additional impact of the TMT Observatory. The following is from page 3-177 of the Draft EIS:
"Generally, through compliance with the CMP, the Project and other foreseeable action [sic] within MKSR and Hale Pohaku, would result in a small incremental increase in the cumulative impact on cultural resources. The limited extent of the impact is primarily because:

- Archaeological surveys would be performed prior to any ground-modifying work to ensure minimal impact to archaeological resources.
- Ground-modifying activities would be monitored by a qualified archaeologist.
- Consultations would be conducted with representatives of the Native Hawaiian community, including Kahu Ku Mauna, during planning activities and prior to construction.
- Construction and installation activities would be monitored by a cultural observer.
- Construction workers, operations staff, and visitors would be educated to understand the sacredness of the summit, to understand and recognize the sensitivity of the cultural resources, the importance of not disturbing the resources or disturbing cultural and religious practices, and ways to conduct their daily activities that would avoid the potential for disturbance."

The visual impact of the Project is appropriately discussed under the "Visual and Aesthetic Resources" heading in Section 3.16.4. Please see Section 3.5 of the Draft EIS for the detailed discussion of the Project's potential impacts on visual and aesthetic resources; Section 3.5.2 discusses the thresholds used to determine the Project's level of impact. Based on comments received the following discussion has been added to the Cultural, Archaeological, and Historic Resources subsection of Section 3.16.4: "As discussed in Section 3.5.3, the TMT Observatory and Access Way will not be visible from the summit of Kukahau'ula, Pu'u or Lake Waiau, or Pu'u Lilinoe, which are identified as State Historic Properties and are where many cultural practices occur. Pan-STARRS design would reduce the visual impact relative to the existing UH 2.2m observatory, which is visible from the summit of Kukahau'ula. The decommissioning of the CSO, which is visible from Pu'u Waiau, would also reduce the visual impact."
The first sentence of Section 3.16.6 on page 3-193 states, "From a cumulative perspective, the impact of past, present, and the Project together with other reasonable foreseeable future actions of cultural resources is substantial, adverse, and significant."; the Project recognizes the cumulative impacts on cultural resources. Nowhere in the Draft EIS is it suggested that there are no cumulative cultural impacts to mitigate for

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Section 3.4 of the Draft EIS discusses a wide range of research conducted on Maunakea related to natural resources, including studies specifically for this Project. Section 3.16.2, pages 3-166 through 3-169, of the Draft EIS also discuss research performed on Maunakea. The quote by the commentor only refers to the "Wekiu bugs or other biological resources that inhabit the alpine cinder cone ecosystem." The current level of research is sufficient to document the Project's potential impacts in the Astronomy Precinct.
The CMP, which is referenced throughout the Draft EIS, identifies data gaps and Management Actions to fill those data gaps. References to the sub plans, including the Natural Resources Management Plan (NRMP) and Cultural Resources Management Plan (NRMP), which have been available since July 2009 (after the completion of the Draft EIS), have been included in the Final EIS, as appropriate.

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Section 3.16.2 of the Final EIS has been revised to indicate that the cumulative visual impact is considered to be "substantial, significant, and adverse."

8

The Draft EIS does not state that "Accordingly, no mitigation is proposed." It is true that no mitigation to specifically address cumulative impacts were outlined in the Draft EIS. The Project understands that the best way to address and mitigate the cumulative impacts on the mountain would be to implement the CMP. As stated in Section 3.10.3 of the Final EIS: "it is generally anticipated that any sublease may include terms similar to ... Sublease rent that will commence upon the TMT Observatory's first scientific observations and continue for the term of the sublease or until observatory decommissioning, whichever is sooner. The lease rent shall consist of an annual payment, to be deposited into the Mauna Kea lands management special fund and used for the purposes set forth in HRS § 304A-2170. This dollar amount will be adjusted annually using an appropriate inflation index (the baseline from when the inflation index will be applied will be the subject of negotiation and specified in the sublease)."

It is further stated in Section 3.10.4 of the Final EIS that: "the Maunakea lands management special fund, including the TMT sublease rent, could be utilized to fund OMKM and its implementation of the CMP."

Although the amount of sublease rent has not been negotiated, it is anticipated that the sublease rent will amount to a large portion of the OMKM operating budget.

9

The Project did not include the decommissioning of an existing observatory as part of the Project. It is more appropriate to make the decommissioning process of an existing observatory proceed on its own rather than incorporate it into a development project, such as the TMT Observatory, especially when considering the Project is not proposing to recycle the site of any existing facility.
However, one of the TMT Observatory Corportation's partner institutions, Caltech, did announce they would decommission the CSO. The CSO and other observatories will be decommissioned following the process detailed in the CMP's Decommissioning subplan.

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Preliminary discussions between UH and the TMT Observatory Corporation relating to a sublease for the Project have indicated that the sublease will include a sublease rent payment. As discussed in Section 3.10.3 of the Final EIS, the sublease rent will commence upon the TMT Observatory's first scientific observations and continue for the term of the sublease or until observatory decommissioninig, whichever is sooner. The lease rent shall consist of an annual payment, to be deposited into the Mauna Kea lands management special fund and used for the purposes set forth in HRS section 304A-2170. This dollar amount will be adjusted annually using an appropriate inflation index (the baseline from when the inflation index will be applied will be the date of execution of the sublease.) As outlined in Section 3.10.4 of the Final EIS, the purposes set forth in HRS section 304A-2170 include management of Maunakea lands and, therefore, could be utilized to fund OMKM and its implementation of the CMP.

2009 JUN 24

COMMENT FORM
Thirty Meter Telescope Project

The University of Hawai'i encourages comments on the Thirty Meter Telescope (TMT) project. The 45-day Draft EIS comment period opened with the notice of availability published in the OEQC Environmental Notice on May 23, 2009. Comments are required to be submitted or postmarked by July 7, 2009. Comments can be submitted via the website (www.TMT-HawaiiEIS.org), the toll-free hotline (1-866-284-1716), at public meetings (in writing or recorded individually), or by mailing written comments to the address on this form. This form is provided for convenience only; to submit this form by mail, please fold and staple, and affix proper postage (see reverse side for guide). Letter or other printed comments not using this form are also welcome.

All comments received will be responded to individually with both the comment and responses included in the Final EIS.

Name: Nathan Secrest
Address: 1791 Kilauea Ave Hilo, HI 96720
Phone: (301) 760-0210
E-mail: secrest@hawaii.edu

Comments: I strongly support the TMT project on Mauna Kea. Not only will it lead to breakthroughs in the fields of astronomy and physics, but it will greatly boost the Hawaiian economy and create a score of new jobs. It would would be very wise to build the TMT on Mauna Kea, as it would secure the state of Hawaii as the world's top site for astronomy. This would greatly enhance the University of Hawaii system, which would further benefit the people of Hawaii by creating a new, strong generation of scientists and intellectuals. The TMT is exactly what is needed, as it is a huge step in the right direction for 21st century Hawaii.

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(use additional sheets if appropriate)

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

postmarked 23 JUN 2009

June 21, 2009

Chancellor
UH

1

I am a resident of the Big Isl. Like the VAST MAJORITY of Big Isl residents, I support the Thirty Meter Telescope for Mauna Kea.

I am very tired of our "leaders" basing their policy decisions on a small minority who are more interested in their own agenda than in the welfare of the community as a whole.

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

Please support the Thirty Meter Telescope for Mauna Kea.

Sincerely

Darryl Johnston
67-1032 Waimeae Rd
Kamuela Hi 96743

24 JUN 2009

COMMENT FORM
Thirty Meter Telescope Project

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All comments received will be responded to individually with both the comment and responses included in the Final EIS.

Name: Erva J Arnsworth **Address:** 13-973 Malama
Phone: 9650043 Pahoa
E-mail: Hi 96778

Comments: As a retired teacher - I have yet to see a student who isn't interested in the sky above them. We are lucky to have a chance of having
1 TMT - Our Children need it +

(use additional sheets if appropriate)

1
The Thirty Meter Telescope Project appreciates your review and will continue to work with the community to focus educational and other benefits so that they best fit the community goals and needs. Please see Section 3.9.4 of the Final EIS for additional details regarding the Project's educational measures.

Leslie M. Agorastos
P.O. Box 337
Kamuela, HI 96743-0337
June 26, 2009

TMT Observatory Project
Office of the Chancellor
University of Hawaii at Hilo
200 West Kawili Street
Hilo, HI 96720-4091

Gentlemen:

1 This telescope project is a huge gift to the people of this island and state. It is not just an economic boost for the present, but also will bring world class educational and career opportunities to our beloved home.

We can easily avoid harming cultural sites. Please make every effort to make this observatory a Hawaiian reality.

Aloha,

Leslie M. Agorastos

Leslie M. Agorastos

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The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

7 JUL 2009

COMMENT FORM

Thirty Meter Telescope Project

The University of Hawai'i encourages comments on the Thirty Meter Telescope (TMT) project. The 45-day Draft EIS comment period opened with the notice of availability published in the OEQC Environmental Notice on May 23, 2009. Comments are required to be submitted or postmarked by July 7, 2009. Comments can be submitted via the website (www.TMT-HawaiiEIS.org), the toll-free hotline (1-866-284-1716), at public meetings, or by mailing written comments to the address on this form. This form is provided for convenience only; to submit this form by mail, please fold and staple, and affix proper postage (see reverse side for guide). Any letter or other printed comments not using this form are also welcome.

All comments received will be responded to individually with both the comment and responses included in the Final EIS.

Name: Anthony Ching Ako **Address:** P.O. Box 943
Phone: (808) 889-5309 Kapaau, Hawaiian Islands
E-mail: 96755

Comments: The further desecration and illegal occupation by the U of H project shows that there is No respect for the sacredness and the kapu of Mauna Kea. The foreigners (haole) continue to act with a complete disregard of the Hawaiian laws governing the tradition of protecting sacred (kapu) places as Mauna Kea. It is further insulting to Hawaiians that a group of haole of the U of H continue to make major decisions with disregard to the Hawaiian culture and the laws of the Hawaiian people. Why aren't Hawaiians allowed to decide how our land, culture and sacred sites are to be protected from further desecration? Why do the haole with all their false titles (Ph.D., etc) look down on those of us who are Hawaiian, but have no titles that haole put their credibility on? The haole do not even respect our* Tupuna who have wisdom of our culture, but no titles in the haole community of scientific (waha) people in their culture. Why ???

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My family is Hawaiian and Chinese. The Hawaiian ancestors of our family have been here over 800 years. Shame on the U of H Chancellor (Rose Tseng???) for not honoring Chinese culture

(use additional sheets if appropriate)

* Tupuna - Hawaiian elder person of standing in the Hawaiian community; older Hawaiian who knows the laws, culture, etc of the Hawaiian people. does not collect

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The commentor's views regarding outsiders making decisions regarding Maunakea are acknowledged, but do not address the Project's potential impacts on the environment evaluated in the Draft EIS.
Nevertheless, in resonse to the comment the following is provided. The University of Hawaii (UH) has endeavored to move decisionmaking regarding Maunakea to Hawaii island through the Office of Mauna Kea Management (OMKM), OMKM's advisory groups, including Kahu Ku Mauna, and by making the UH Hilo Chancellor the person responsible for projects on Maunakea, such as the Thirty Meter Telescope Project. In addition, the Project has sought input from Native Hawaiians through the Cultural Impact Analysis (CIA) process and HRS Chapter 6(e) Historic Preservation process. Please see Section 3.2 of the Draft EIS for the discussion of cultural resources and potential Project impacts; see Appendix D for the Cultural Impact Assessment Report. Chapter 8 of the Final EIS contains all comments received during the Draft EIS comment period, as well as the Project's responses to those comments.

as it is dishonorable to bring shame to those who allow you to come into their house. The people of Hawaii (Hawaiians) are still their own country, but yet the Chancellor along with the rest of the scientists of Astronomy, etc, etc, continue to show no respect towards Hawaiian culture by promoting the illegal
2| and false development of Mauna Kea - a very sacred site in the Hawaiian culture. What if another government went to China and desecrated sacred sites in China? Wouldn't the Chancellor be offended by the desecration? What if the haole astronomers were to have desecration of sacred places in their countries that they came from? Why is it OK with these haole to do what they do here and think it is OK, and continue to do it with a hookano (arrogant) attitude? No amount of kala ($$$) can make it right - it is always wrong to desecrate sacred places as Mauna Kea!

The disrespect is endless, all in the name of the god of Astronomy and Science at all costs! Who cares about "Black Holes in Space" as one astronomer once proclaimed at a public meeting to defend putting more telescopes on Mauna Kea (at a cost of millions $$$ to the taxpayer). All he needed to do would be to look up his nose and other places of the human anatomy to study "earthly" Black Holes without desecrating Mauna Kea's sacredness.

Lastly, read documents in Congress signed by Grover Cleveland to his emissary Blount (1890's) instructing Blount to condemn the
3| illegal theft and over-throw of a "sovereign, benevolent government of the Hawaiian Queen Liliuokalani". Cleveland refused to have the U.S. be a part of stealing a foreign country [of Hawaii] and what is stolen is forever stolen and can never

2
As discussed in Section 3.10 of the Draft EIS, the lands of the summit region on Maunakea are classified by the State of Hawai'i as a conservation district, resource subzone, and is managed by the Department of Land and Natural Resources (DNLR) Office of Conservation and Coastal Lands (OCCL). The Thirty Meter Telescope Project has been coordinating with the DLNR-OCCL in regards to land use within the conservation district. Hawai'i Administrative Rules (HAR) Chapter 13-5-13 provides, "The objective of [the conservation district resource] subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas." HAR Chapter 13-5-24 specifically includes "R-3 Astronomy Facilities; (D-1) Astronomy facilities under an approved management plan." as one of the "identified land uses in the resource subzone."

3
The Admission Act (Pub.L. 86-3) established the State of Hawaii as the 50th state to be admitted into the Union. Resolving claims and issues around the various acts that resulted in Hawaii becoming a State is beyond the scope of this EIS.

3

be rightfully "owned" by another government no matter what the occupying government tries to do to convince the rest of the world! To sum up, you cannot steal and ever own what is not yours. How can the U of H and its Astronomy Institute continue to desecrate Mauna Kea and proclaim that it is their "right" to do this, when the University and Institute for Astronomy are illegal entities supporting illegal activities on Mauna Kea based on the illegal occupation of the Hawaiian Islands - as recognized by the World Court in the Hague, Netherlands as of 2009? Where is justice according to Grover Cleveland telling Congress in 1892-1893 to leave Hawaii sovereign and to respect the wishes of Liliuokalani and the Hawaiian people (based on the Anti-Annexation petition signed by the majority of Hawaiians at that time)? How can justice be served if the U of H and Astronomy Institute continue to lie to the Hawaiian people that fight for the removal of all the desecration (telescopes, towers, tourists, etc) that damages the beauty and sacredness of Mauna Kea ???

"We do not own the land, we only serve to protect the land and to cherish it" - is a Native American Indian saying from many, many years ago. The Hawaiians are no different than the Native American Indians in sharing the same beliefs: "Protect the Land, Cherish the Land, Honor the sacred Places for all of Eternity. Without our past being honored, we have no Future..." Because of this, stop the further desecration on Mauna Kea and condemn the "Thirty Meter Telescope Project" as more desecration to Hawaiians and especially to the sanctity of Mauna Kea

4

4
Acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

7 JUL 2009

COMMENT FORM
Thirty Meter Telescope Project

The University of Hawai'i encourages comments on the Thirty Meter Telescope (TMT) project. The 45-day Draft EIS comment period opened with the notice of availability published in the OEQC Environmental Notice on May 23, 2009. Comments are required to be submitted or postmarked by July 7, 2009. Comments can be submitted via the website (www.TMT-HawaiiEIS.org), the toll-free hotline (1-866-284-1716), at public meetings (in writing or recorded individually), or by mailing written comments to the address on this form. This form is provided for convenience only; to submit this form by mail, please fold and staple, and affix proper postage (see reverse side for guide). Letter or other printed comments not using this form are also welcome.

All comments received will be responded to individually with both the comment and responses included in the Final EIS.

Name: Harold Kāula **Address:** 64-819 Mamalahoa Hwy, Kamuela, HI 96743
Phone: 769-1399 leave message
[redacted] President/Children of the Forest

Comments: I have been reading any and all of the information about your proposal of the TMT on Mauna Kea. In the May 22nd HT-H Article you speak of moving a shrine. In your Draft EIS' summary sheet you talk of integrating scienc culture and sustainability. How is moving this shrine cultural? These shrines help us connect with our ancestors and our Gods. This is part of what makes Mauna Ke so sacred! Also, how will this affect or impact Umi's Trail or Kāula Gulch? Wh must you disturb my ancestors buried around Kāula Gulch? My Grandmother buri my piko (umbilical cord) there with my ancestors. Please do not disturb any of this. Any impact on or around Kukahau'ula or anywhere on Mauna Kea would negatively affect my ancestors, my history, our culture and everyone's future whatever you do on Mauna Kea negatively affects everything from the summit to the ocean. My wife and I and the community are in the process of restorin Keanakolu Forest at Humu'ula Forest Reserve 6000' below the summit along Kāula Gulch. If allowed, whatever you do will adversely affect our efforts which are not funded by you or any government agency. Which project will help the island more, a telescope or a rainforest which cannot be found anywhere else in the world? As far as providing jobs it will only be in some construction. When completed people will come from all over the world to operate it. How many local astronomers will be hired? I humbly ask that you reconsider your plans and do not move any further with this or any other construction on Mauna Kea. The price that you are asking of my ancestors and I is too expensive and the benefits will be minimum to none. Why not utilize what is there now? I would like to discuss this further but am limited to this paper. Please come to participate in reforestation to discuss more.

(use additional sheets if appropriate)

1
The modern shrine is discussed in Section 3.2.3, page 3-21; Section 3.3.1, page 3-30; and Section 3.3.4, page 3-32, of the Draft EIS. The modern shrine was likely constructed within the last 10 years, a fact established prior to the Thirty Meter Telescope Project's interest in the 13N site. Because it is less than 50 years old, it is not a historic property.
No Native Hawaiian groups have come forward to specifically approve or disapprove of relocating the modern shrine with proper protocols. Nor has any group or individual indicated they built the shrine for cultural practices. The Project will continue to work with Kahu Ku Mauna and other groups to establish proper protocols for the the relocation of this shrine.
CMP Management Action CR-7 is referenced in Section 3.2.3, page 3-21 of the Draft EIS. This management action is within the Board of Land and Natural Resources (BLNR) approved CMP and indicates, "Kahu Ku Mauna shall take the lead in determining the appropriateness of constructing new Hawaiian cultural features." The CMP Management Actions included a number of other management actions related to cultural practices (Section 7.1.1 of the CMP), including Management Action CR-9: A management policy for the culturally appropriateness of building ahu or "stacking of rocks" will need to be developed by Kahu Ku Mauna who may consider similar policies adopted by Hawaii Volcanoes National Park.
The authority to generate such a policy does not address the Project's potential impacts on the environment evaluated in the Draft EIS.

2
The Project's impact on cultural resources, including trails is disclosed in Section 3.2.3 of the Draft EIS. The Maunakea - Umikoa Trail generally traverses the southeastern slope of Maunakea from Puu Makanaka to Lake Waiau (Figure 3-1 of the Draft EIS). The Project is on the northern plateau of Maunakea and will not impact the trail.
According to the Hawaii Watershed Atlas, the Kaula Gulch watershed extends to a maximum elevation of 8,770 feet and is located on the northeastern flank of Maunakea. The TMT Observatory will be located at an elevation of roughly 13,150 feet on the northwestern slope of Maunakea (Figures 2-3 and 2-4 of the Draft EIS). The TMT Mid-Level Facility will be located at Hale Pohaku, which is at an elevation of roughly 9,000 feet on the southern slope of Maunakea (Figure 2-2 of the Draft EIS). None of the Project facilities are within the Kaula Gulch watershed and no disturbance within the watershed would occur. Therefore, the Project would not have an impact on environmental resources in Kaula Gulch, including burials.

3
The Project potential impacts on biological resources are discussed in Section 3.4.3 of the Draft EIS. Potential cumulative impacts are discussed in Section 3.16 of the Draft EIS. As discussed in response to previous comments, the Project facilities are not located near Kaula Gulch and would have no impact on environmental resources in the gulch, including forest recovery projects. The TMT Project appreciates your and community's efforts related to forest restoration, however, answering the question of which project provides the greatest benefit does not relate to the Project's potential impacts on the environment evaluated in the Draft EIS.

4

Section 3.9.3, page 3-102, of the Draft EIS states the Project would provide an estimated 140 full-time jobs for "astronomers, a wide range of engineers and engineer technicians (mechanical, electrical, and optical), software and information technology engineers, staff to maintain and direct equipment at the observatory, scientific support, public outreach, and management and administrative personnel, including cultural and educational outreach specialists."

At this time, roughly eight years before the start of the TMT Observatory operation phase, it is not possible to know an exact number of each type of future employee. However, the following has been added to Section 3.9.3 of the Final EIS, "The majority of the positions will likely be in the technical and engineering areas (40%), followed by science (20%), software/IT (10%), and administration (10%)."

The Workforce Pipeline Program described in Section 3.9.4, page 3-103 to 3-104, of the Draft EIS, explains how the Project would strive to fill operations positions to the "greatest extent feasible" locally. Section 3.9.4 of the Final EIS now contains a list of "Additional Mitigation Measures", one of which is: "To the greatest extent feasible, employment opportunities will be filled locally. This will include advertising available positions locally first; however, to fill some positions, which typically require a worldwide search, advertisements will be simultaneously released both locally and to a wider audience."

5

Acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

Univ of Hawai'i, Hilo
Office of the Chancellor
200 W Kāwili St, Hilo, 96720

3 July, 2009

Comments re TMT Project

Patrick T (Terry) McNeely 101 Aupuni St, #508, Hilo, Hi 96720 969-7890

I am a resident of Hilo, Hawai'i.

I do not think it appropriate at this time to move forward with the TMT project.

A few things need to be considered, I feel, before this project should begin:

1 2 1: The local Hawaiian community should be involved, and the final decision should be their decision. However, you will probably ignore the findings of your upcoming EIS, just as the Outrigger project did. Cumulative impacts would seem to demand removal of some current projects.

"There would be a short-term small-to-moderate adverse impact on cultural practices ...from construction, installation and operation. ...***From a cumulative perspective***, the impact of past, present, and reasonably foreseeable future activities ***on cultural resources*** on Mauna Kea is ***substantial and adverse.*** The addition of the Outrigger Telescopes to the existing observatories on the mountain would have a small incremental impact." The same assessments hold for biological resources, geology, soils and slope stability and visual and aesthetic impacts. The only positive impact is socio/economic. "No alternate site matches the scientific capability of the WM Keck Observatory on Mauna Kea, which hosts the world's two largest and most powerful telescopes. The WM Keck Observatory is found to offer the highest overall scientific potential, as well as the lowest technical and programmatic risk."[1]emphasis mine

3 2. The sight of observatories up there on MaunaKea may strike some as a perfect visual metaphor of the glory of our culture, but for me they are, perhaps, more accurately a visual symbol of the excesses of the past century, and this is unfortunately a time when the excesses of our 'way of life' are becoming ever more apparent in the current ongoing financial meltdown, in global warming, and the ongoing depletion of valuable resources, such as oil,water and soil.

4 I could be wrong about depletions, but the evidence continues to mount that the problems society has to solve are enormous. The blind unquestioning faith many have in progress science and technology is, maybe understandable, but ultimately unfathomable. In the last 200 years we have critically damaged our resource base, and succeeded in bringing ourselves and countless other species to the brink of extinction. Along the way countless peoples and their cultures have also disappeared. Will the supposed findings of TMT alter this picture? What good does it do to look into the eons of time, if we disappear from the face of the earth? Once again we insist on Progress built on the backs of others. My feeling is, that as scientists, you can no longer afford to work in isolation on purely narrow scientific problems, but must become involved, for part of your time at least, in the community, in ways that are outside of your

[1] Final NASA EIS, Feb,2005, Outrigger Project, Vol 1, xv on.

1
The local Hawaiian community has been involved through community outreach performed by the Project (discussed in Chapter 1), just as the community at large has been involved. In addition, Native Hawaiians have been involved through the Cultural Impact Assessment (CIA) and Chapter 6(e) Historic Preservation processes. Ultimitely, if the Project is to progress, the Board of Land and Natural Resources (BLNR) will have to award the Project with a Conservation District Use Permit (CDUP); therefore, the BLNR will have the final decision because they could elect to approve the CDUP or not.

2
The Project and agencies which must approve permits prior to Project construction will not ignore the findings of the EIS process. The HRS Chapter 343 process is designed to disclose potential Project impacts to the environment, both adverse and benefitial. The decision-makers can then weigh the information in the disclosure document, in this case the Final EIS, as they make their choice of whether or not to allow the Project to move forward.
Cumulative impacts are discussed in Section 3.16 of the Draft and Final EIS. Regarding decommissioning of existing observatories on Maunakea, the only long-term Maunakea observatory to be decommissioned thus far is the Planetary Patrol observatory. This observatory was decommissioned to make way for the Gemini North observatory. As indicated in Section 3.16.3 of the Draft EIS, reasonably foreseeable future actions include (a) the replacement of the UH 2.2-meter observatory with the Pan-STARRS observatory, and (b) the decommissioning and removal of Caltech Submillimeter Observatory (CSO). The decommissioning of the CSO was announced by April 30, 2009 by Caltech; the announcement stated that dismantling of the observatory will begin in 2016 and site restoration completed by 2018. Based on a number of factors, all outside the control of the TMT Project, additional older observatories on Maunakea maybe decommissioned in the future.

3
Potential visual impacts of the Project are discussed in Section 3.5 of the Draft EIS.

4
The Project's potential impacts related to global change are discussed in Section 3.16.3, pages 3-187 and 3-188.
The commentor's feelings regarding the usefulness of scientific progress are acknowledged, however, they do not relate to the Project's potential impacts on the environment evaluated in the Draft EIS. As with any education or research project, it is hoped that greater understanding of humanity's place in the universal environment will lead to advancements and policies that will improve the environment.

traditional fields, but which are in your purview as humans, such as local food, local transportation, local education, and health. Perhaps you all could think of ways to apply your experience, both as scientists and as citizens, in immediate and non-traditional ways.

We are limited or open in our imaginations, and thus in our understandings of the world, by the metaphors we carry in our heads. These metaphors are intrinsic in our languages, in our cultures. If we cannot find a suitable way to express something, our understanding, and hence our future actions, can be severely constricted or negative. Metaphor and language our heritage, but our future, a growing loss of diversity. We(Western Culture) live in a world we have desacralized, and our human world now denied connection to a deeper meaning. But a deep consciousness that precedes and supports all, reopens the door to a sacred that breathes through the universe springing from the darkness.

My thoughts turn to chanting. When chanting everyone is breathing in unison, weaving their breath together, weaving a continual story, a continual sacred universe, connecting with the consciousness integral to the universe, the living presence that precedes the universe. It is with such metaphorical reasoning one may have a beginning to unlocking ultimate secrets, but with metaphors grounded in 'Progress',' Time is Money', 'Might is Right', grounded in linear time, rational and reductionist thinking it is doubtful if those observatories will unlock anything except continuing opposition. " 'Theories of Everything' that do not account for life or consciousness will certainly lead ultimately to dead-ends, and this includes string theory. Models that are strictly time-based, such as further work on understanding the Big Bang as the putative natal event of the cosmos, will never deliver full satisfaction or closure."[2] 5

Thank you for your time. Please add me to the e-mail distribution list. My mailing address is above.
e-mail:

Patrick T. McNeely

[2] p162, Biocentrism by Robert Lanza, MD with Bob Berman

5
The commentors opinion and the opinion of those the commentor quotes are acknowledged, however, they do not relate to the Project's potential impacts on the environment evaluated in the Draft EIS.

6 JUL 2009

SIRS –

I'M WRITING TO FULLY/TOTALLY/COMPLETELY SUPPORT THE TMT PROJECT!

BEING A NON-BELIEVER OF A 'GOD' &/OR 'GODS' — I FIND IT ESPECIALLY OFFENSIVE THAT SO MUCH ATTENTION IS BEING PAID TO THOSE WHO OBJECT TO THE PROJECT ON THE GROUNDS THAT THEIR 'GOD' HAS PROCLAIMED THAT HE DOESN'T WANT ANYTHING LIKE THAT ON 'HIS' MOUNTAIN.

BELIEF IN A NON-EXISTENT DIETY 'UP-IN-THE-SKY' IS INTELLECTUAL NONSENSE & ULTIMATELY STYMIES & SUPPRESSES INTELLECTUAL GROWTH IN HUMANITY AS A WHOLE.

LET'S ALL HOPE YOUR PROJECT FINDS SUFFICIENT SUPPORT TO OVERCOME 'SPIRITUAL' IGNORANCE. LET'S ALSO HOPE THAT THE TMT WILL DISCOVER THE COSMIC PROOF OF THE 'FACT' THAT THERE IS NO GOD. WHICH WILL BE A BIG STEP TOWARD ELIMINATING TOXIC/ANTAGONISTIC/DESTRUCTIVE 'RELIGION' FROM OUR LIVES.

MAHALO & ALOHA,

Bruce Hopper

BRUCE HOPPER DESIGN

808-929-8529

400 HUALANI ST. #307 HILO HI 96720

P.S. SORRY ABOUT THE HOSTILITY IN MY LETTER – BUT, NONETHELESS, IT IS SINCERELY 'HEARTFELT'.

1

The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

MR. NIHEU: I'm Kihei Soli Niheu. Mai pukapu mai moku o keawe o kapa aina o Hawaii loa. My name is Soli, and I'm subject of the Hawaiian Kingdom. And I'm here to give notice to the organizers of this hearing that they're negotiating with the wrong government.

I'm here to state our position that the mountaintop belongs to our Ali'i and our people. It does not belong to OHA. It does not belong to Department of Land and Natural Resources. It doesn't belong to the state. But it belongs to Na Kanaka Maoli o ka aina Hawaii nei. And we are beneficiaries of Hawaiian Kingdom.

And as long as we are still around, we must inform those occupiers, religion occupiers, United States of America and its de facto government, state of Hawaii

1
Resolving claims that the ceded lands were wrongfully taken by the United States, that the State's title to ceded lands is clouded or void, or that ceded lands should be returned (or compensation provided) to a class defined by race or ancestry, is beyond the scope of this EIS. This EIS assumes that the State of Hawaii lawfully owns those portions of Maunakea where physical improvements for the Thirty Meter Telescope Project are anticipated.

and the county of Hawaii, that we are the true owners of the mountain. So if you want to talk about the mountain, to negotiate, you have to go to the right party of which I am just one of the many beneficiaries of the land trust.

2 First of all, a dollar a year is disgusting. It defies all the teachings that we have about aloha. Giving us only one dollar a year is like raping us once again. The money that we can devise from fair market 3 value sure is more than with $1 a year. And that we as beneficiaries of the trust, we have, should have the final say whether or not a telescope goes on top of that mountain, not the state of Hawaii, not the United States government and its military weapons. But rather, it's the people like me. I am just one of many subjects of the Hawaiian Kingdom, and I therefore am here to present my position.

When you talk about the impact statement, there's one area that seems to be lacking. And that area deals with the political reality of what happened to our country. The EIS mentions the fact of Kalakaua and his love for astronomy and science. We have no disagreement. That attitude continues for it. I, for one, am a graduate with two degrees, one in engineering, one in business, so I know the value of education.

2
State law (HRS §171-95) authorizes the BLNR to lease state land to government agencies at such rent and on such other terms and conditions as the BLNR may determine. It is common for BLNR to negotiate leases with nominal or no rent to governmental entities, including UH. For example, portions of the present UH Hilo campus are covered by state leases through BLNR at nominal or no rent.
The 1968 MKSR lease between DLNR and UH provide the terms of the master lease; those terms could be renegotiated as part of a discussion between UH and DLNR before the expiration of the existing lease. HRS section 304A - 1902 provides that the UH may charge a fee for the use of Maunakea lands and may enter into lease agreements provided it complies with all statutory requirements in the disposition of ceded lands.

3
The commentor's opinion regarding who "should have the final say" regarding the Project is acknowledged, however, it does not relate to the Project's potential impacts on the environment evaluated in the Draft EIS. Nevertheless, the following is provided in response. The Project cannot proceed without receiving a Conservation District Use Permit (CDUP), as discussed in Section 3.19 of the Draft EIS. Therefore, the Board of Land and Natural Resources (BLNR), who decides to aware CDUPs or not, will ultimately be the decision-maker in this case.

But what I'm concerned about is how are they going to use the science to benefit the trustees or the beneficiaries of the island? They don't. And its presentation by their cultural expert doesn't mention the fact that Kalakaua was ripped off. It doesn't mention that the Constitution of 1887 is called the Bayonet Constitution. It doesn't mention the fact that in 1993, according to the Blanc Report, that the United States is an illegal act of war against an innocent nation. It doesn't mention the fact that the Newlands Resolution only has powers within the boundaries of United States of America. It doesn't mention the fact that if you don't own the land, how can you give the land to the occupier?

So the provisional government is a de facto government based upon fraud, and that in its place we have the Organic Act, which represents the United States of America's interest. Also the documentary did not mention that Hawaii was on the list of non-self-governing territories, and that there's supposed to be a referendum allowing the first people to choose between being part of the U.S., being independent, or being under the protection of the U.S., which, according to the United Nations Law of Decolonization, was supposed to happen.

But in 1959 when they had their so-called referendum, most of the people voting were not Kanaka

4
The scientific results of the Thirty Meter Telescope Project will provide opportunities for education for the community regarding the universe and achieve the purposes of the Project outlined in Section 2.2 of the Draft EIS.
In addition to these educational benefits, the Project has proposed other direct benefits to the community. These include the Community Benefit Package (CBP) and Workforce Pipeline Program (WPP). These packages and programs were presented in the Draft EIS; additional details are included in Section 3.9.4 of the Final EIS.

5
The Admission Act (Pub.L. 86-3) established the State of Hawaii as the 50th state to be admitted into the Union. Resolving claims and issues around the various acts that resulted in Hawaii becoming a State is beyond the scope of this EIS.

Maoli. They were military people who were allowed to vote, and their interest wasn't exactly the same as Kanaka Maoli. Their interest was not the same as Hawaiians. And when I use the term Hawaiian, this is very important. Hawaiian is not a ethnicity. Hawaiian is a political term defined to describe people who support the Constitution of the Hawaiian Kingdom just as the American Constitution describes those people who support the Constitution of America as Americans likewise.

So when we talk about Hawaiian, at least the subjects do, we do not have a blood quantum. As long as you sign your oath to the government of the Hawaiian Kingdom, you are Hawaiian. And in the archives there's a list of all those people who pledge their allegiance to the Hawaiian Government, which includes haole, like you, which includes Koreans, Chinese, Japanese, Filipinos, Tongans, American Indians, whatever ethnicity you was back in those years of the kingdom, from Kamehameha into 1893.

They have a list. And it clearly shows that Hawaiian nationalism was not one of race, but it was one of supporting the Hawaiian Kingdom Constitution. So like this, your presentation excludes that. And it excludes the fact that the United States of America, according to

6

the Blanc Report, came here and they held our Queen hostage. It fails to mention that.

There's a lot of things it fails to mention. So what they are presenting in their presentation is another act of fictional legal theory. It's not based on real life. It's based upon lies, distortions, things like that. So once again, your EIS is perpetuating fictional history, history which is not true. History which is the evidence of the occupiers, belligerent occupiers, the United States of America.

As a Kanaka Maoli and as a Hawaiian, to me, I find that very insulting. It's for genocide on the part of the United States Government, on the part of the state government, on the part of the county government. So therefore, whatever happens at these hearings do not, we will not abide by their rules. We will continue, as the Queen says, Ku'e mau loa, which means forever protest the occupation of America.

And in final, if we are a nation of laws, then the United States should respect our laws too. And our first law in Hawaiian Kingdom is the law of the splintered paddle. In that law, it says if you disobey the laws of the Hawaiian Kingdom, says: Hiwa no make. Which can be literally translated as: If you disobey our laws, you will die. And I just want to say that our gods

6
The Admission Act (Pub.L. 86-3) established the State of Hawaii as the 50th state to be admitted into the Union. Resolving claims and issues around the various acts that resulted in Hawaii becoming a State is beyond the scope of this EIS.

will give the final answer as far as what the punishment is going to be.

In the Philippines they had two American bases there, one at Clark and one at Subic Bay. And Mount Pinatubo, I don't know if you know what happened, but the mountain blew up and destroyed the two military bases along with one of the cities that was catering to the U.S. American military.

7 So for myself as a cultural practitioner, I will ask my gods to follow the words of our ancestors and do what is right. And the word is pono. Whatever happens happens. And hurt no blame, especially for those Hawaiians who are supporting this facade on the top of the mountain.

7
Acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

MS. AKAKA: My name is Moanikeala Akaka.

First of all, I want to state for the record I'm a former trustee for the Offense of Hawaiian Affairs for twelve years, and one of a handful that started the Native Peoples Movement Through Justice almost forty years ago.

I want to state for the record that I am not against science. My son-in-law is a scientist. However, I am against the abuse and negligence to our sacred Mauna Kea that has been allowed by the DLNR, the university, and international astronomers from all over the world for

more than three decades.

It is sinful. The state leases Mauna Kea for a dollar a year while the governor is cutting health care, education, other services, and furloughing state workers. These telescopes make over $100,000 a night in viewing fees. We insist there be a federal environmental impact statement for this TMT, the world's largest telescope, larger than a football stadium.

Mauna Kea has already reached its carrying capacity, quote, unquote, carrying capacity for telescopes. Remove the obsolete telescopes you now have on our sacred mountain before you even consider adding any additional facilities. There is no reason for the TMT hearings at this time. There is no management plan, exclamation point.

There is a request for contested-case hearing by many groups. We won the last contested-case hearing. Why aren't you following the law? We sued twice relating to past abuse by you astronomers on Mauna Kea, and we won twice. The judge ruled there was cumulative and significant negative impact on Mauna Kea. Mind you, these are the same entities that are proposing the TMT.

Mauna Kea has reached its carrying capacity. This EIS mentions no alternative, such as Chile, which will have no cultural or historical impact. The TMT will

1
State law (HRS §171-95) authorizes the BLNR to lease state land to government agencies at such rent and on such other terms and conditions as the BLNR may determine. It is common for BLNR to negotiate leases with nominal or no rent to governmental entities, including UH. For example, portions of the present UH Hilo campus are covered by state leases through BLNR at nominal or no rent.
The 1968 MKSR lease between DLNR and UH provide the terms of the master lease; those terms could be renegotiated as part of a discussion between UH and DLNR before the expiration of the existing lease. HRS section 304A - 1902 provides that the UH may charge a fee for the use of Maunakea lands and may enter into lease agreements provided it complies with all statutory requirements in the disposition of ceded lands.

2
The cost to operate an observatory varies based on the size of the telescope and the instruments attached to it, among other things. The existing observatories and the future TMT Observatory require users to support the operation of the observatory. However, the observatories, including the future TMT Observatory, are non-profit corporations and as such do not make money.

3
The obligation to evaluate and disclose environmental impacts under the National Environmental Policy Act (NEPA) is triggered when a federal agency proposes a major federal action that would significantly affect the environment. Neither the University of Hawaii at Hilo (UH Hilo) nor the TMT Observatory Corporation is a federal agency. Further, neither UH Hilo nor the TMT Observatory Corporation has received funding or pledges of financial support from any Federal agency for activities that will or may significantly affect the environment, nor has either entity applied for any federally-issued permit or license. Therefore, the United States' obligations under NEPA have not been triggered.

4
As outlined in Section 8.1 of the Final EIS for the 2000 Master Plan, the carrying capacity of Maunakea for observatory development is large but difficult to define precisely. Existing Master Plans and Management Plans provide for observatory development to well less than the carrying capacity of Maunakea; therefore, the carrying capacity is not a relevant point of discussion for the TMT Observatory and does not address the Project's potential impacts on the environment evaluated in the Draft EIS.

5
As indicated in Section 3.16.3 of the Draft EIS, reasonably foreseeable future actions include the decommissioning and removal of Caltech Submillimeter Observatory (CSO). The decommissioning of the CSO was announced April 30, 2009 by Caltech; the announcement stated that dismantling of the observatory is to begin in 2016 and site restoration be completed by 2018. Based on a number of factors, all outside the control of the Thirty Meter Telescope Project, additional older observatories on Maunakea maybe decommissioned in the future.

6
The CMP was approved by the BLNR on April 9, 2009, with conditions. The TMT Project Draft EIS references the approved CMP. Establishing the legality of the CMP is beyond the scope of this EIS; however, on August 28, 2009, the BLNR determined that the HRS Chapter 91 contested case process was not applicable to the CMP approval. The CMP as approved is a valid enforceable plan.

7
The site that was being considered in Chile is discussed in Chapter 5 of the Draft EIS. The proposing agency, the University of Hawaii at Hilo (UH Hilo), does not have any authority in Chile; therefore, the site in Chile is not an alternative available to them and is not discussed as an alternative in this State of Hawaii Chapter 343 EIS disclosure document.
UH Hilo and other decision-makers always have the freedom to decide not to proceed with the Project in Hawaii through a number of approval and agreement processes separate from this HRS Chapter 343 disclosure document process.

be welcome there, exclamation point. Enough is enough, exclamation point. You used the lure of a pipeline to jobs at what expense to our sacred mountain, question mark.

While Hilo High School is cutting classes so our kids will not be able to get into good colleges, you tell us our kids will be able to fill the jobs on the mountain. Jobs, what, as bus drivers, janitors, tour guides, respectable as they may be, parenthesis, end of parenthesis, who will cater to the foreign scientists, question mark.

A ninety-minute documentary entitled, Life in These Islands, was shown last weekend on Channel 9, hosted by Skylark Rosetti, who gave the opening prayer here tonight, and local-boy actor Jason Scott Lee. It was about the need to protect and malama, which means cherish, these islands and oceans for the present and future generations, semicolon. Just what we of the Aloha Aina Movement, capital A for Aloha and capital A for Aina, have been telling you officials for almost four decades now.

The film spoke about the importance of the sustainability and for us to protect our aina, which means land. They should have added sacred Mauna Kea to that film. Because what is being proposed by this TMT is

8

Section 3.9.3, page 3-102, of the Draft EIS states the Project would provide an estimated 140 full-time jobs for "astronomers, a wide range of engineers and engineer technicians (mechanical, electrical, and optical), software and information technology engineers, staff to maintain and direct equipment at the observatory, scientific support, public outreach, and management and administrative personnel, including cultural and educational outreach specialists."

At this time, roughly eight years before the start of the TMT Observatory operation phase, it is not possible to know an exact number of each type of future employee. However, the following has been added to Section 3.9.3 of the Final EIS, "The majority of the positions will likely be in the technical and engineering areas (40%), followed by science (20%), software/IT (10%), and administration (10%)."

The Workforce Pipeline Program described in Section 3.9.4, page 3-103 to 3-104, of the Draft EIS, explains how the Project would strive to fill operations positions to the "greatest extent feasible" locally. Section 3.9.4 of the Final EIS now contains a list of "Additional Mitigation Measures", one of which is: "To the greatest extent feasible, employment opportunities will be filled locally. This will include advertising available positions locally first; however, to fill some positions, which typically require a worldwide search, advertisements will be simultaneously released both locally and to a wider audience."

not pono, which means good, and not respectful to this sacred mountain.

9 Go to Chile where you will be welcomed with open arms, exclamation point. It is sacrilegious to have T-shirts that say Malama Mauna Kea, when you really mean, quote, develop the hell out of her, unquote.

Puna's representative Faye, F-A-Y-E, Hanohano, H-A-N-O-H-A-N-O, should be congratulated for speaking out against the continued desecration, by the university, of our sacred Mauna Kea. Ua Mau Ke Ea O Ka Aina I Ka Pono, which is U-A space M-A-U space K-E space E-A, O space K-A space Aina, capital A-I-N-A, which means land, E-I space K-A space Pono, which means: The life of the land is perpetuated in righteousness.

Aloha aina, Moanikeala Akaka.

9
Acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

MS. CHUNG: Kathleen Chun. The island of Hawaii has been subjected to development throughout the last one hundred years without understanding and respecting the cultural of its indigenous people.

This recent TMT project is another example of running roughshod over the voice of its people, especially the native people of the Big Island. Science and knowledge of the universe is important; however, the beliefs and ideology of its indigenous people should also be considered when building on, quote, sacred, unquote,

land.

The site Mauna Kea may not be considered by the project managers. But have the native people been polled about what this land means to them? First of all, the mountain is considered sacred by most Hawaiian people. There is tremendous amount of opposition to this TMT project. Why would the developers of the telescope project want to be located where they are not wanted? And secondly, there is the option of another location in Chile, where supposedly there is no opposition to its presence.

If one were to look at the history of telescope development on Mauna Kea in the past thirty years, there have not been many, if any, positive benefits for the native people. A lack of seeing a direct benefit to the local community from all the observatories on this sacred land has undoubtedly raised doubt that the TMT project would provide anything significant or positive for the native community.

At this point in time, this development, whether for scientific purpose or economic, should be brought forth as a vote before the people of Hawaii. The people should have a direct voice in this major construction on such a sacred mountain. I don't feel the astronomers and scientists, all or mostly from the

1
Since the completion of the Draft EIS, the Thirty Meter Telescope (TMT) Project has continued to work on and develop the Cultural Impact Assessment (CIA) through additional interviews with community members and review of past studies. This work is documented in Section 3.2 and Appendix D of the Final EIS.

2
TMT has, and will continue to, work closely with the residents and communities of the Big Island, including Hawaiian groups, in an effort to address their concerns and develop the Project in a way the island can be proud of. Consultations with cultural practitioners and Hawaiians is discussed in Section 3.2 of the Draft EIS.
The TMT Observatory is proposed for the 13N site on Maunakea due to the reasons outlined in Sections 2.2, 2.3, and 2.5.1 of the Draft EIS. Locating the TMT Observatory at the 13N site would achieve the Project purpose and need and the telescope "seeing" conditions at the site are among the best in the world.

3
Comment acknowledged; the site that had been considered in Chile is discussed in Chapter 5 of the Draft EIS. The proposing agency, the University of Hawaii at Hilo (UH Hilo), does not have any authority in Chile; therefore, the site in Chile is not an alternative available to them and is not discussed as an alternative in this State of Hawaii HRS Chapter 343 EIS disclosure document.

4
Section 3.16.2 of the Draft EIS discusses the cumulative impacts of the existing observatories on Maunakea to date. The Socioeconomic subsection of Section 3.16.2, on pages 3-172 and 3-173, discusses the beneficial impacts of the existing observatories.
As outlined in Section 3.9.4 of the Draft EIS, the TMT Project will fill job opportunities locally to the greatest extent feasible through the Workforce Pipeline Program (WPP).
Please see Section 3.9.4 of the Final EIS for details of additional Project measures, including the Community Benefits Package (CBP). The discussion of the CBP in Section 3.9.4 of the Final EIS includes: "The CBP will be funded by the TMT Observatory Corporation and will be administered via The Hawai'i Island New Knowledge (THINK) Fund Board of Advisors. The THINK Fund Board of Advisors will consist of local Hawai'i Island community representatives. The CBP funding will commence upon the start of Project construction and continue throughout the TMT Observatory's presence, so long as the CDUP is not invalidated or construction stayed by court order. As part of the CBP, the TMT Observatory Corporation will provide $1 million annually during such period to the THINK Fund; the dollar amount will be adjusted annually using an appropriate inflation index (the baseline from when inflation index will be applied will be the date of start of construction). It is envisioned that THINK Fund purposes could include: ... College awards, Educational programs specific to Hawaiian culture..."

5
The commentor's view concerning a direct vote is acknowledged, but it does not address the Project's potential impacts on the environment evaluated in the Draft EIS.

mainland, have a right to say that this project would be good for the native people, that it would bring jobs to the island. What development has made the indigenous people homeowners, given them careers, not just menial jobs, and a college education for those who want it? Not enough. A fortunate few have benefitted.

But if a poll were taken in a large enough number to justify selling -- not a large enough number to justify selling their homelands. Malama o pono.

MR. VICENTE: My name is Dwight Vicente. I'm here -- first thing I'm going to do is protest, object under Queen's protest of January 17, 1893, against U.S. Minister Stevens. This gives rise to original jurisdiction, U.S. Constitution, Article III, Section 2, Clause 2. Her complaint is against U.S. Minister Stevens. And therefore her protest is yet to go to the U.S. Supreme Court.

She had an illegal cabinet which consisted of U.S. citizens that misdirected her to the State Department. So she died in 1917 not realizing where she should have been sent to. So because of that protest, everything is in limbo until that protest is taken to the U.S. Supreme Court to be resolved.

And another thing too. A lot of people don't realize why the Queen was thrown out. It's in the

1
The Admission Act (Pub.L. 86-3) established the State of Hawaii as the 50th state to be admitted into the Union. Resolving claims and issues around the various acts that resulted in Hawaii becoming a State is beyond the scope of this EIS.

Blanc's Report. On January 13, 1893, she signed the lottery bill into law. And when they did that, it caused the foreigners, who were allowed to vote illegally under the Bayonet Constitution which they imposed on the Kingdom, to not be able to vote because she abolished the taxes, which allowed them to vote. So that's why they reacted swiftly.

When she signed on the 13th, U.S. citizen Dole, who sat as chief justice in the Hawaiian Kingdom Supreme Court, resigned that afternoon, and he self-proclaimed himself to be the president of the provisional government, which is a direct violation of the Treaty of Friendship and Commerce between the Hawaiian Kingdom and the United States.

Japan was one of the nations that protested against the overthrow, but later on cut a sweetheart deal with either the provisional or republic, and they allowed the Japanese women to come over and join their husbands. So they withdrew the protest.

And there comes a question of title to the land. The foreigners that owned the land lost all their title because they were in violation of the treaty, meaning they have to be deported and disposed of their property. So all land tile reverted back to the Hawaiian Kingdom. As a matter of fact, when the Queen signed the

lottery bill into law, that was -- one of the things that it would accomplish was there was a moratorium on the sale of crown and government lands to include leases. They would not have to sell or lease lands anymore, because they were going to get half a million dollars a year to support the government for -- the kingdom for twenty-five years, which never took place because of the illegal overthrow.

And right now they got in the Public Law 103-150, they cite the Queen's protest. But what the United States is doing is trying to pass the Akaka Bill, which is not according to the Constitution. Because of her protest is against U.S. Minister Stevens, the Akaka Bill is not the way to go. Congress cannot resolve that protest, nor can the president. So the only one left is the U.S. Supreme Court. So I'm opposed to the Akaka Bill, I'm opposed to the provisional government, the republic, the territory and state of Hawaii.

And another thing I want to point out, the territory and the state of Hawaii is created by the Northwest Ordinance of 1787. The Northwest Ordinance of 1787 has no force and effect of law. In fact, Bennet went up against OHA and the U.S. Supreme Court a couple of months ago and stated that the title could not be questioned in any court, because he was citing Article

IV, Section 3, Clause 2 of the U.S. Constitution, which refers to the Northwest Ordinance of 1787 only. And it does not apply to the Hawaiian Kingdom. It's limited to Article 5 of the document, to lands.

So another thing I want to point out is the provisional republic had no treaties of their own. The treaties that ended in 1897 was the last treaty that King Kalakaua signed in 1887. So you'll find no treaties in the name of the provisional or republic, no laws of naturalization.

They had to make a move in 1898 because there was no treaties left, so they placed Hawaii under the U.S. -- they claimed that Hawaii was annexed to Washington, D.C., which is a violation of Article I, Section 8, Clause 17. Washington, D.C., is fixed by the Constitution, ten-miles square, the seat of the United States Government. So we could not have been annexed to Washington, D.C. If not, Hawaii would be called Washington, D.C., and it was not called that. It was called a colony, territory of Hawaii, which was created by the Organic Act which is a constitution, which Congress, being a constitutional creature, could not have created. So you see the contradictions.

So them being not able to -- you'll notice that they had no laws of naturalization. All foreigners

remain foreigners and remain here illegally when the treaties was violated and the term of the treaty ended in 1887 -- 1897, I should say. So even until today, if you're not of kanaka blood, and you're here, you have no right to be here because there is no treaty right now that allows foreigners to be here.

So when they talk about Hawaii having two publics, those of Hawaiian blood and those of non-Hawaiian blood, it should be only public because there's no treaty that authorized foreigners to be here at this point in time.

And another thing I always like to say is the United States is only thirteen states. Article I, Section 2, Clause 2, Representation and Taxation, cites only thirteen states in the Constitution. They never added any more through Article 5 showing that there was any more new states admitted to the union under Article 4, Section 3, Clause 1. And the representation and taxation, so there's a lot of defects in the history showing that it doesn't conform to U.S. Constitution, meaning that the history becomes null and void.

Even going back to the treaty they had under the Bayonet Constitution with King Kalakaua, the reciprocity treaty violated the taxing power under Article I, Section 8, Clause 1 and Article 4, Section 8,

Clause 17, dockyards and harbor being in the United States only. By treaty, they could have never extended the navy to Pearl Harbor, nor could they have a standing army onboard a navy ship, which is a violation of navy and army separated.

And the army, they only can appropriate -- raising support in the army is only for a term no longer than two years. So they cannot be on a navy ship. And besides that, they complain about King George of England doing that, rode in a standing army onto the navy ships and taking them over to the thirteen colonies to oppress. And that's why in the Constitution it's separated.

And another thing too, Pearl Harbor Treaty ended 1887, not to mention it was already violated in 1893. And the navy's still here, which is illegal. They cannot be in a foreign country, even by treaty, except to replenish supplies, take shelter from storms, and recover wrecked ships. And that's it. It's limited. And the only purpose of the navy was to prosecute piracy on the high seas. No other reason. But they went beyond what the Constitution authorized.

2 So going back to title to land, the lands remain. There's no ceded lands here in Hawaii. It's all a lie. The lands still remain as Crown and government lands belonging to the Hawaiian Kingdom. And the kanaka

2
Resolving claims that the ceded lands were wrongfully taken by the United States, that the State's title to ceded lands is clouded or void, or that ceded lands should be returned (or compensation provided) to a class defined by race or ancestry, is beyond the scope of this EIS. This EIS assumes that the State of Hawaii lawfully owns those portions of Maunakea where physical improvements for the Thirty Meter Telescope Project are anticipated.

people have rights to the land, and land title comes from the great mahele. And that's the only law that applies here. So if there's a TMK or any person claiming to have given title to anyone, the title is bogus. It's not even real. You have to have a title from the Hawaiian Kingdom.

So I'll end at that. And my statement is made under the Queen's protest of January 17, 1893. And I reserve all my rights. Thank you.

(Testimony for the record concluded at 8:15 p.m.)

--oOo--

Oral comment
06/18/09

Ok do you want me to hold it? Ok so I'm Toby Hazel. I live in Nanawale, outside of Pahoa, and (do I have to say anything else? No? Ok) So I'm, I'm at the site this evening for the comments about the Thirty Meter Telescope project, and I just wanted to say a few things for the record.

1 First of all, you know, I think it's really good about the expansion on the mountain but I wouldn't want to see it go too far. I don't, I don't think we should become the Honolulu of astronomy. So one thing is how far are you going to go, when is it going to stop?

5 And the other thing is what, what are you going to give back to the community? I understand that there is a million dollars. I don't know if that is per year or per facility or what. We'd certainly like to know how you are going to spend that and will you work with us to spend it?

2 A few ideas are why aren't you developing solar energy on the mountain. You want to look at the sun, but how about making us sustainable on this island by helping us develop solar energy and wind power on the mountain. Because HELCO doesn't seem to be doing it. And you guys are paying a lot of money to HELCO from what I understand. Just the Subaru people said something like four million a year they are forking over to HELCO. So this needs to stop and along with you guys stopping it for yourselves you could extend those privileges to us, the people who live on the island and find a way to do that. You have a bigger vote with HELCO to push their asses in a direction that is sustainable for all of us.

3 Also jobs that was mentioned in the newspaper. Like what kind of jobs? For who? I'm a little old lady, I hardly have any money. You got a job for me? My phone number is 9650084. You got some job for me? I'm going to need it because guess what? I'm going to get thrown out of my job in September. And you guys get plenty of money but we're losing our jobs. I can't lose my house because luckily I paid it off.

4 Also student interns. How many of them are you taking? Are you taking them from all over the island? How are you implementing that program in these high schools to select those kids and, and give them a boost up?

That's probably about it. If I can think of something else, I'll call you later.

Thank you and aloha.

1
The subject of the TMT Project Draft EIS is the TMT Project - the construction, operation, and future decommissioning of a 30-meter telescope and associated infrastructure - as defined in Chapter 2 of the Draft EIS. The Project does not address other development in the summit region. As disclosed in Section 3.10 of the Draft EIS, Master Plans for the Mauna Kea Science Reserve address long-term development plans and areas for the summit region.

5
The Community Beneft Package (CBP) is one of TMT's committements to the island community. Section 3.9.4 of the Final EIS describe the CBP as: "The CBP will be funded by the TMT Observatory Corporation and will be administered via The Hawai'i Island New Knowledge (THINK) Fund Board of Advisors. The THINK Fund Board of Advisors will consist of local Hawai'i Island community representatives. The CBP funding will commence upon the start of Project construction and continue throughout the TMT Observatory's presence, so long as the CDUP is not invalidated or construction stayed by court order. As part of the CBP, the TMT Observatory Corporation will provide $1 million annually during such period to the THINK Fund; the dollar amount will be adjusted annually using an appropriate inflation index (the baseline from when inflation index will be applied will be the date of start of construction). It is envisioned that THINK Fund purposes could include:

- "Scholarships and mini-grants,
- "Educational programs,
- "College awards,
- "Educational programs specific to Hawaiian culture,
- "Educational programs specific to astronomy,
- "Educational programs specific to math and science, and
- "Community outreach.

"Educational initiatives will focus on K-5, 6-8, 9-12, and college. The program could include support for students to visit 'Imiloa, TMT, and other observatories."
It is intended that the CBP be part of a larger pool of funds from other astronomy, public, and private sources that would make up the THINK Fund to extend community reach.
At this early stage in the formation of the THINK Fund it is premature to have all of the programming, strategies, implementation, and measurements in place. The following preliminary information is provided to illustrate some of the ideas and directions discussed this far.
On an on-going basis it is estimated that 25% of THINK will be directed to endowment and 75% to yearly programming.

2
The energy consumed by the Thirty Meter Telescope Project will be provided by the HELCO island-wide electric grid, roughly 40 percent of which comes from renewable sources. The Project does not have any involvement in where or how the energy provided by HELCO is generated (renewable vs. otherwise). However, Section 3.12.4 of the Final EIS has been updated to include the following:
"Energy saving devices will be incorporated into Project facilities; plans include: solar hot water systems, photo voltaic power systems, energy efficient light fixtures controlled by occupancy sensors, efficient Energy Star rated electrical appliances at all facilities, and design with local knowledge to maximize the use of natural ventilation and lighting at the Headquarters."

3

Section 3.9.3, page 3-102, of the Draft EIS states the Project would provide an estimated 140 full-time jobs for "astronomers, a wide range of engineers and engineer technicians (mechanical, electrical, and optical), software and information technology engineers, staff to maintain and direct equipment at the observatory, scientific support, public outreach, and management and administrative personnel, including cultural and educational outreach specialists."

At this time, roughly eight years before the start of the TMT Observatory operation phase, it is not possible to know an exact number of each type of future employee. However, the following has been added to Section 3.9.3 of the Final EIS, "The majority of the positions will likely be in the technical and engineering areas (40%), followed by science (20%), software/IT (10%), and administration (10%)."

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4

Section 3.9.4, page 3-103, of the Draft EIS states that TMT will support education and training programs, including at least 4 internships per semester, apprenticeships, and at least 10 summer jobs for students. These measures are part of the Workforce Pipeline Program (WPP) dicussed in response to a comment above. It is envisioned that students who fill the interships, apprentices, and summer jobs will come from all over the island and have participated in other WPP activities.

Oral comment
06/16/09

1 On Mauna Kea there is a gulch that begins on the top. It's called Kaula Gulch. Where you building this it's going come through my gulch and when you come through my gulch you're going to dig up my ancestors. Where do you find that right to dig up my ancestors?

All these meetings you've had, you come away with people don't really want it, right? But you still have these meetings because it don't mean anything. You still going to put it up there, ok. Now I like to know what are you going to do when you dig up my ancestors. How you going to know who they belong to? If I don't walk up there that day, then what, I lose? Is there anything sacred to you people? If there is which I cannot…find hard to believe. I mean, think about someone doing, desecrating your sacred site, ok. And
2 for the betterment of the people? How? How does one telescope represent betterment for the people, of the herd? It just benefits the astronomy here. You still have all this homeless here. Economy is bad, and what about the money going there? They're not being cut short they still have job to do, I mean.

3 We're from the island. We are from here, k. My wife and I are at 6,000 feet. We're trying to restore this forest and you guys keep throwing trash on top the mountain and bringing trash. Why can't you just use what you already have? When my people went up there, it was to benefit the herd. Yeah, we made a calendar, we learned how to navigate, and we cut tools. And that's everything that affected everybody here. Now, when you guys build all this telescopes up there and how does it affect everybody? It doesn't. People are still homeless. People are still go hungry. Kids going to sleep hungry, and yet all this money is wasted on the mountain, and that is not fair, it's not right. And we need to stop the building and take care of the people. We live on an island throw too much crap on an island it will sink.

4 I don't know what to say except no more building, I mean. If I see you guys building then I'm going to have meetings on how to deconstruct what you build because you have meetings on how to construct what you build. Because this can't keep happening, I mean.

5 Where does it stop? Have you guys ran into bones before in all your astronomy buildings? And if so, what do you do with them? Just dig a hole and throw them in? My ancestors are the most sacred thing to me. They guard my life, they tell me what to do. I'm doing this rainforest for the birds and the kids that aren't born. And every time I think about what's going on up there it makes me sick because whatever happens up there
6 always rolls down hill, k. They're blaming the little, the sheep for the palila bird. It's not the sheep's fault, that's the people's fault for shooting the sheep lying around. Palila bird uses the sheep's coat for his nest, but because the astronomers, yeah, and the observatories you can't go hunt up there so, so they got to make it… sound like it works but what they really doing is killing off the palila bird by themselves.

1
The Project's impact on cultural resources is disclosed in Section 3.2.3 of the Draft EIS. According to the Hawaii Watershed Atlas, the Kaula Gulch watershed extends to a maximum elevation of 8,770 feet and is located on the northeastern flank of Maunakea. The TMT Observatory will be located at an elevation of roughly 13,150 feet on the northwestern slope of Maunakea (Figures 2-3 and 2-4 of the Draft EIS). The TMT Mid-Level Facility will be located at Hale Pohaku, which is at an elevation of roughly 9,000 feet on the southern slope of Maunakea (Figure 2-2 of the Draft EIS). None of the Project facilities are within the Kaula Gulch watershed and no disturbanc within the watershed would occur. Therefore, the Project would not have an impact on environmental resources in Kaula Gulch, including burials.

2
Potential beneficial effects of the Thirty Meter Telescope Project are summarized on page S-7 of the Executive Summary in the Draft EIS. Benefits include up to 140 operational-phase jobs and a number of construction-phase jobs. The Draft EIS also mentions several programs to benefit the local community, including the Community Benefits Package (CBP) and the Workforce Pipeline Program (WPP). More details regarding these programs has been included in Section 3.9.4 of the Final EIS, including the following concerning the CBP: "The CBP will be funded by the TMT Observatory Corporation and will be administered via The Hawai'i Island New Knowledge (THINK) Fund Board of Advisors. The THINK Fund Board of Advisors will consist of local Hawai'i Island community representatives. The CBP funding will commence upon the start of Project construction and continue throughout the TMT Observatory's presence, so long as the CDUP is not invalidated or construction stayed by court order. As part of the CBP, the TMT Observatory Corporation will provide $1 million annually during such period to the THINK Fund; the dollar amount will be adjusted annually using an appropriate inflation index (the baseline from when inflation index will be applied will be the date of start of construction). ... Educational initiatives will focus on K-5, 6-8, 9-12, and college. The program could include support for students to visit 'Imiloa, TMT, and other observatories."

3
As discussed in Section 2.1 of the Draft EIS, the TMT Observatory will be able to "observe objects nine-times fainter than existing 10-meter telescopes". In order to achieve the knowledge growth Project objectives outlined in Section 2.3 of the Draft EIS, a new observatory with a larger primary mirror, such as the 30-meter TMT is required.

4
Acknowledged; the Thirty Meter Telescope Project appreciates your review and participation in the process.

5
Section 3.3 of the Draft EIS discusses archaeological/historic resources. As disclosed in this section, there are 26 burials and possible burials identified within the Mauna Kea Science Reserve (MKSR) and none of these sites are located in TMT Project areas. Section 3.16.2 of the Draft EIS discusses the cumulative impact of past actions; page 3-165 states that there is no indication that any archaeological sites, including burials, in the summit region were destroyed during the construction of the Maunakea Access Road or the early observatories.

6
Cumulative impacts to biological resources due to past actions are disclosed in Section 3.16.2 of the Draft EIS.

I don't know what else to say cause it won't really matter. All I can do is keep walking up there and telling you what's real. Bringing this telescope up here is not real or in Chile. Who came up with it? Put it in their yard. Put it in their graveyard. But we won't do that because Hawaii just got brown people and we don't care. We'll steal their land and dig up their ancestors and put them on reservations. The problem is there's very few that would get out and get smart and then those are dangerous. If the way, if there is a way to build something then there is a way to tear it down. The same proper channels.

Now, leave my family alone. We suffered too much already. You know what a kāula is? It's a prophet. So in my family legacy, I, I am a prophet and I see things, and what you guys doing that's a bad thing, bringing bad things. So you don't care cause it works for you now. It pays your check. And that's how you people justify to your ancestors when you die. It's a job and I have to do it. That's why people are afraid to die, you see. Cause they got to meet their ancestors. Wouldn't you be scared if you didn't know who they were? I know all mine.

If that's it.

Wiley Knight
P.O. Box 2280
Kamuela, Hi. 96743
knight@cfht.hawaii.edu
June 23, 2009

TMT EIS Committee

A week ago I submitted a formal comment at the Waimea TMT meeting. After having talked to several people about the issues I raised, including the Executive Director of Canada France Hawaii Telescope, I would like to add these comments.

To reiterate, I worked for Canada-France-Hawaii-Telescope from March 1984 until September 2002. As a technician over these 18 years I worked on Maunakea countless times and witnessed first hand the construction of the Keck, Subaru, and Gemini telescopes. I feel that this experience gives me some expertise regarding Maunakea issues. And, for the record, I have native Hawaiian ancestry.

1 Although I believe TMT would be a worthy project for astronomy, I am opposed to pristine areas of Maunakea being torn up to accommodate the observatory. However, I am not opposed to TMT being built on Maunakea provided it replaces an existing observatory. When I heard about TMT and thought of an existing observatory it could replace, NASA's IRTF site leaped out as a solution. The IRTF telescope is about 30 years old and, in my view, is overripe for replacement.

2 I have since found out that the IRTF site is supposedly out of the question for a reason I consider absolutely bizzarre. It seems there is a regulation in the 2000 Master Plan that forbids the replacement of any existing observatory if the new observatory's physical size exceeds--by any amount--the size of the existing one. This is known as the "footprint" restriction. Ironically the 2000 Master Plan allows for the disturbance of pristine areas of Maunakea for new observatory construction, but does not reasonably allow for a replacement on an existing site.

A good example of how this footprint restriction has backfired is the Pan-Stars project. Originally it was planned to completely replace UH's 40-year old facility, but because it's footprint was a few feet larger than UH's it was rejected out of hand. So now Pan Stars will be placed on Haleakala on--guess what--a pristine area that has to be disturbed.

I think this footprint restriction is fundamentally flawed, and I would encourage--no, demand if possible--that the TMT planners approach those people responsible for the 2000 Master Plan and try to negotiate a variance of the footprint restriction so that the IRTF site can be seriously considered. I think it would be irresponsible for TMT planners not to do so, but I also think it would be even more irresponsible for the 2000 Master Plan people not to negotiate. If both sides refuse to sit down and work out a compromise on this footprint issue, then I'm afraid Mauna is destined for even more destruction.

Sincerely,



Wiley Knight

1

As discussed in Section 2.5.1, page 2-8, of the Draft EIS, "recycling an existing optical/infrared observatory in Area A or B is not an option for the TMT Observatory because the TMT Observatory would exceed the diameter and height requirements" detailed in the 2000 Master Plan. "In addition, none of the existing observatories has a large enough footprint for the development of the TMT Observatory without additional disturbance to Kukahauula or the cinder cone habitat."

There are several reasons why the 2000 Master Plan identified Area E for a Next Generation Large Telescope (NGLT) instead of suggesting a NGLT replace an existing observatory; TMT, with a 30-meter primary mirror, is a NGLT as defined in the Master Plan.

Based on comments received on the Draft EIS, the University of Hawaii at Hilo (UH Hilo), the proposing agency of the Project, reevaluated the reasoning outlined in the 2000 Master Plan and believes that reasoning is still valid and the TMT Observatory is best located in Area E. Reasons for not placing a NGLT in the location of an existing observatory are directly related to siting criteria identified in the plan:

- Minimize impact to Wekiu bug habitat (existing optical/infrared observatories are located in good Wekiu bug habitat, expansion of a site to fit TMT would impact that habitat)
- Avoid archaeological and historic sites (existing optical/infrared observatories are located on Kukahauula, a State Historic Property, expansion of a site to fit TMT would further impact this resources)
- Minimize visual impact from significant cultural areas (replacing an existing optical/infrared observatory with TMT would make it visible from the summit of Kukahauula and Puu Lilinoe, both significant cultural sites)
- Avoid and minimize views from Waimea, Honokaa, and Hilo (replacing an existing optical/infrared observatory with TMT would make it visible from all of these towns)
- Minimize impact on existing facilities (building a structure the size of the TMT Observatory at the site of an existing optical infrared observatory could significantly impact nearby existing facilities)

It is often thought that the 13N site in Area E is undisturbed land and that is why recycling the site of an existing optical/infrared observatory appears preferrable. As discussed in Section 2.5.1 Final EIS, there is already a road leading to the 13N site and a roughly 0.5-acre portion of the site has been disturbed by the road and former presence of site testing equipment dating back to the mid-1960s.

2

The primary reason for the Project not being able to recycle an existing observatory site in Area A or B is that the TMT Observatory would exceed the diameter and height requirements for those Areas, and the large footprint of the TMT would cause additional disturbance to the State Historic Property known as Kukahauula, as well as the cinder cone habitat utilized by the Wekiu bug. For comparison, the IRTF site consists of roughly one acre of level ground, while the TMT Observatory requires a level of area of roughly 4.5 acres; thus, significant grading would have to be performed to replace the IRTF with the TMT Observatory.

Consideration of all these factors led the TMT Observatory to comply with the 2000 Master Plan's second priority for telescope siting - site new observatories in two new areas (Areas E or F), only if a suitable summit ridge site cannot be utilized for redevelopment. The Master Plan restrictions on site footprint changes are not so restrictive that a difference of a few feet would prevent site recycling.

COMMENT FORM
Thirty Meter Telescope Project

The University of Hawai'i encourages comments on the Thirty Meter Telescope (TMT) project. The 45-day Draft EIS comment period opened with the notice of availability published in the OEQC Environmental Notice on May 23, 2009. Comments are required to be submitted or postmarked by July 7, 2009. Comments can be submitted via the website (www.TMT-HawaiiEIS.org), the toll-free hotline (1-866-284-1716), at public meetings (in writing or recorded individually), or by mailing written comments to the address on this form. This form is provided for convenience only; to submit this form by mail, please fold and staple, and affix proper postage (see reverse side for guide). Letter or other printed comments not using this form are also welcome.

All comments received will be responded to individually with both the comment and responses included in the Final EIS.

Name: CLIFFORD P LIVERMORE **Address:** POB 384043
Phone: 808 989 7451 WAIKOLOA, HI 96738
E-mail: cliffstargazer@msn.com

Comments: I am a longstanding Volunteer at the Vis on Mauna Kea and have been up the Mountain since 1975. I have three Reasons for the TMT on Mauna Kea:

1 1. Best site considering All of Northern Sky and 60 pt of Southern Sky visible from This site.

2. The Best Easily Accessible site for Sky Seeing Condition.

3. The Telescopes Have Become an International Draw for Tourist and I hope That the TMT will follow in the Tradition of The KECK and Through The Mauna Kea support Group have weekend tours of the TMT

STARGAZER, Old man of The Mountain

(use additional sheets if appropriate)

1
The Thirty Meter Telescope Project appreciates your support and will continue to work with all interested individuals and groups to provide a lasting benefit to the community.

Subject	[Fwd: In Opposition to the TMT on Mauna Kea]
From	Rose Tseng <rtseng@hawaii.edu>
Date	Thursday, June 18, 2009 9:19 am
To	christina sato <ccsato@hawaii.edu>
Cc	helen Rogers <hrogers@hawaii.edu>

Chris,

og in

-------- Original Message --------
Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 12:21:26 -0400 (EDT)
From: EMILY BAKER <emilykitty@verizon.net>
Reply-To: emilykitty@verizon.net
To: rtseng@hawaii.edu

We should be taking steps to dismantle the telescopes already on the summit, not building more...

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U'au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

Significant and Adverse Impact Prohibited

2 The TMT should not be built because it will cause "significant, adverse, and substantial impact" to the resources of Mauna Kea conservation district, which is prohibited by state law. In 2003, a federal court compelled NASA to complete the first EIS ever conducted on Mauna Kea since telescope construction began there in 1968. The EIS unequivocally states that "the cumulative impact of 30 years of astronomy development has resulted in significant, adverse and substantial impact to the cultural and natural resources of Mauna Kea." State law provides that only activities that do NOT have a "significant and adverse" impact maybe permitted in conservation districts. Because the massive 360-foot dome of the TMT will do nothing to alleviate the significant and adverse harm suffered at the summit, and it fact will only add to that harm, it is highly unlikely that the BLNR will be allowed to grant a permit to build the TMT in the conservation district at the summit of Mauna Kea. (See, NASA Federal Environmental Impact Statement and accompanying court records OHA v. Sean O'Keefe, Civil. No. 02-00227 SOM/BMK filed July 15, 2003).

Comprehensive Management Plan Incomplete

3 Despite the University's spin, in reality a final comprehensive management plan has still not been approved for the summit of Mauna Kea. For more than 10 years, the community has called for comprehensive management of the sacred summit of Mauna Kea. This demand was echoed by a court decision in 2007 against the State and the University of Hawaii, which halted all construction on the summit of Mauna Kea until a comprehensive management plan is adopted. In April 2009, the University presented what they described as an "imperfect first step" to a management plan for state approval. The state offered the University conditional approval of the plan provided that significant changes were made to the plan, including the addition of specific steps to protect cultural resources, natural resources, and public access. The University has yet to provide these important improvements to their management plan. Thus, the management plan remains incomplete and construction on the summit is prohibited. Moreover, how can the TMT advocates claim to be in compliance with a document that has not been completed, yet?

EMILY BAKER
425 Elberta Ave.
Cashmere, WA 98815

--

Rose Tseng
Chancellor
University of Hawaii at Hilo

1
The summit region on Maunakea is classified by the State of Hawai'i as a conservation district, resource subzone, which are managed by the State of Hawai'i Department of Land and Natural Resources (DNLR) Office of Conservation and Coastal Lands (OCCL). The summit region is also designated as a National Natural Landmark (NNL) by the U.S. Department of the Interior (DOI). The Thirty Meter Telescope Project has been coordinating with the DLNR-OCCL and DOI in regards to land use within the conservation district and the NNL. In addition, the Project has been coordinating with DLNR's State Historic Preservation Division (SHPD), which has designated a large portion of the summit area as a Historic District; no official designation has been made at the Federal level.
Telescope activities are not "an exception to the rules" under applicable rules and regulations. Hawai'i Administrative Rules (HAR) Chapter 13-5-13 provides, "The objective of [the conservation district resource] subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas." HAR Chapter 13-5-24 specifically includes "R-3 Astronomy Facilities; (D-1) Astronomy facilities under an approved management plan." as one of the "identified land uses in the resource subzone".

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While the Outrigger EIS was the first Federal NEPA EIS prepared for a project in the summit region of Maunakea, other State of Hawaii HRS Chapter 343 EIS documents had been prepared for various actions in the summit region of Maunakea prior to the Outrigger EIS. Uses with potential environmental impacts may be authorized in the conservation district provided those impacts are disclosed in the EIS and are avoided, minimized, and mitigated to the extent practicable. As the Draft and Final EIS discuss in Section 3.16, past and current actions have resulted in substantial, significant, and adverse impacts to certain resources and those impacts would continue to be substantial, significant, and adverse if the Project proceeds. However, as outlined in Final EIS Sections 3.2 through 3.15, the TMT Project individually will not result in any significant and adverse impacts. The DNLR-OCCL and Chairperson of the BLNR have not indicated one way or another the likelihood of granting a Conservation District Use Permit (CDUP) for the Thirty Meter Telescope Project, nor would it be appropriate for them to do so.
The observatory dome will be roughly 180 feet high, not 360 feet.

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The Thirty Meter Telescope Project has been working diligently to assure the Project will be in compliance with the Comprehensive Management Plan (CMP), the body of which has been available since January 2009 and was approved by the BLNR on April 9, 2009, with conditions. The four sub plans required by CMP approval conditions have become available as follows: the Natural Resources Management Plan (NRMP) was available in September 2009, the Cultural Resources Management Plan (CRMP) was available in October 2009, and the Decommissioning Plan (DP) and Public Access Plan (PAP) were made available in January 2010. All four sub plans were approved by the Board of Land and Natural Resources (BLNR) on March 25, 2010.
The Management Actions described in the CMP and associated sub plans have been incorporated into the Project and are documented throughout the Final EIS. For example, as stated in Section 2.7.4 of the Final EIS: "The TMT Observatory and the extent of the Access Way exclusively used to access the TMT Observatory will be dismantled and the site restored at the end of the TMT Observatory's life in compliance with the Decommissioning Plan for the Mauna Kea Observatories, a Sub-Plan of the Mauna Kea Comprehensive Management Plan."
The Access Plan is to be implemented by UH and will not have an impact on the Project; the Project is not anticipated to impact access.
The BLNR's conditional approval in April 2009 stated that all CMP sub plan components are to be completed prior to a project submitting a Conservation District Use Application (CDUA); the Project has not yet submitted a CDUA but the conditions of the BLNR's approval of the CMP have been fulfilled. Therefore, as required by BLNR's approval of the CMP and in HAR 13-5-24, an approved and complete management plan will be in place prior to BLNR's review of the Project's CDUA and potentially providing the Project with a CDUP.

Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 18:40:59 -0400 (EDT)
From: Andrea Brower <>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Comprehensive Management Plan Incomplete

3 Despite the University's spin, in reality a final comprehensive management plan has still not been approved for the summit of Mauna Kea. For more than 10 years, the community has called for comprehensive management of the sacred summit of Mauna Kea. This demand was echoed by a court decision in 2007 against the State and the University of Hawaii, which halted all construction on the summit of Mauna Kea until a comprehensive management plan is adopted. In April 2009, the University presented what they described as an "imperfect first step" to a management plan for state approval. The state offered the University conditional approval of the plan provided that significant changes were made to the plan, including the addition of specific steps to protect cultural resources, natural resources, and public access. The University has yet to provide these important improvements to their management plan. Thus, the management plan remains incomplete and construction on the summit is prohibited. Moreover, how can the TMT advocates claim to be in compliance with a document that has not been completed, yet?

Andrea Brower

Anahola, HI 96703

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 18:42:00 -0400 (EDT)
From: FITHIAN JONES <fith4th@gmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1

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FITHIAN JONES
PO Box 277
Kapaa, HI 96746

1

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 18:44:14 -0400 (EDT)
From: Marti Townsend <marti@kahea.org>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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1

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Marti Townsend
Honolulu
Kaneohe, HI 96744

1
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The observatory dome will be roughly 180 feet high, not 360 feet.

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 18:48:06 -0400 (EDT)
From: Nina Puhipau <nina_kai@yahoo.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Nina Puhipau
67-427 Kekauwa Street
Waialua, HI 96791

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 18:55:48 -0400 (EDT)
From: Jessica DelaCruz <nrtshrlv@gmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Jessica DelaCruz
56-193 Pualalea st.
Kahuku, HI 96731

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 18:58:15 -0400 (EDT)
From: Skye Loe <mauiskye1@yahoo.com>
To: rtseng@hawaii.edu

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Skye Loe
xxx
Kihe"i, HI 96753

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 19:08:04 -0400 (EDT)
From: delton johnson <deltonjohnson@hotmail.com>
To: rtseng@hawaii.edu

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delton johnson
6052 hauiki rd
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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 19:10:01 -0400 (EDT)
From: Bernice Bishop-Kanoa <bernice.bishop-kanoa@navy.mil>
To: rtseng@hawaii.edu

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Bernice Bishop-Kanoa
637 Keolu Drive
Kailua, HI 96734

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 19:31:24 -0400 (EDT)
From: Sharlynn Paet <s.mahealani@gmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Sharlynn Paet
716A Olokele Ave Apt B
Honolulu, HI 96816

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 19:41:53 -0400 (EDT)
From: Jennifer Ire <jenire@netzero.net>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

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Jennifer Ire
6645 Waipouli Rd
Kapa"a, HI 96746

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 20:22:00 -0400 (EDT)
From: Suzanna Ohoiner <sohoiner@yahoo.com>
To: rtseng@hawaii.edu

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Suzanna Ohoiner
2708 Kolo Pl. #7
Honolulu, HI 96826

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Subject: Opposed to TMT on Mauna Kea
Date: Wed, 17 Jun 2009 20:35:22 -0400 (EDT)
From: Paul Moss <paul@themailpath.com>
To: rtseng@hawaii.edu

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Paul Moss
1849 Whitaker St.
White Bear Lake, MN 55110

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 20:43:14 -0400 (EDT)
From: kimo stowell <jdsdecordesign@aol.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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kimo stowell
nu'uanu ave
Honolulu, HI 96792

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 20:46:39 -0400 (EDT)
From: Rowena Vaca <rocokona@aloha.net>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Rowena Vaca
75-5773 Kaila Place
Kailua Kona, HI 96740

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 21:04:10 -0400 (EDT)
From: Corey Ann Lewin <koliana8@yahoo.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Corey Ann Lewin
923 N. San Vicente Blvd #7
West Hollywood, CA 90069

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 21:06:48 -0400 (EDT)
From: Thomas Tizard <tizard8@hawaii.rr.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Thomas Tizard
591-A Keolu Drive
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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 21:10:41 -0400 (EDT)
From: Jeff Sacher <jsacher@kona.net>
To: rtseng@hawaii.edu

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Jeff Sacher
PO Box 44910
Kamuela, HI 96743

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 21:18:38 -0400 (EDT)
From: Dan Taulapapa McMullin <taulapapa@gmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Dan Taulapapa McMullin
Kings View
Laguna Niguel, CA 92677

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 21:32:04 -0400 (EDT)
From: Brenda Kwon <brenda.kwon@gmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Brenda Kwon
874 Dillingham Blvd.
Honolulu, ID 96817

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Date: Wed, 17 Jun 2009 21:39:57 -0400 (EDT)
From: Doug Phillips <djp@kona.net>
To: rtseng@hawaii.edu

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PO Box 44910
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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 21:57:25 -0400 (EDT)
From: Amy Wiecking <onoa@hawaii.edu>
To: rtseng@hawaii.edu

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Amy Wiecking
P.O. Box 4526
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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 22:17:01 -0400 (EDT)
From: Frederika Ebel <lapuma7@hotmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Frederika Ebel
Po Box 701
Flemington, NJ 08822

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 23:07:54 -0400 (EDT)
From: Peter Sanderson <petekona@sonic.net>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Peter Sanderson
1539 Range Ave # 3
Santa Rosa, CA 95401

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 23:13:53 -0400 (EDT)
From: Lindsay McDougall <yingwenquestions@gmail.com>
To: rtseng@hawaii.edu

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Lindsay McDougall
706-650 Parliament Street
Toronto, ON M4X1R3

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 17 Jun 2009 23:40:30 -0400 (EDT)
From: Joshua Garfein <sparrowredfunk@yahoo.com>
To: rtseng@hawaii.edu

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Joshua Garfein
6820 S. Pennsylvania St.
Centennial, CO 80122

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 00:19:32 -0400 (EDT)
From: gi crabbe <gilcrabbe@cox.net>
To: rtseng@hawaii.edu

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gi crabbe
po box 292
2288 whitney ave
summerland , CA 93067

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 00:16:50 -0400 (EDT)
From: Enoch Page <hepage@anthro.umass.edu>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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S Deerfield, MA 01373

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 00:37:29 -0400 (EDT)
From: Philip Simon <philsimtpr@aol.com>
To: rtseng@hawaii.edu

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Date: Thu, 18 Jun 2009 00:47:49 -0400 (EDT)
From: barton susan <barton_susan2003@yahoo.com>
To: rtseng@hawaii.edu

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barton susan
41-1680 Kaala Rd
O'okala, HI 96774

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suzanne garrett
2023 lime st. #J
Honolulu, HI 96826

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 00:55:47 -0400 (EDT)
From: Forest Shomer <inspass@whidbey.net>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Forest Shomer
PO Box 639
Port Townsend, WA 98368

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 01:00:20 -0400 (EDT)
From: Dharma (Darlene) Wease <dharmadasi@msn.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Dharma (Darlene) Wease
PO Box 223513
5109 Iolani Pl
Princeville, HI 96722

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 01:39:42 -0400 (EDT)
From: Pam Daugherty <>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Pam Daugherty
Encinitas, CA 92024

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 01:49:38 -0400 (EDT)
From: Mary Dias <kehau96701d@yahoo.com>
To: rtseng@hawaii.edu

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Mary Dias
99-118 Kohomua
Aiea, HI 96701

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 02:30:06 -0400 (EDT)
From: Laura Lee <lauralee5@pacbell.net>
To: rtseng@hawaii.edu

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Laura Lee
476 Cane St. #8
Larkspur, CA 94939

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 03:05:15 -0400 (EDT)
From: Leona Toler <Kealanohea@yahoo.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1

The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Leona Toler
195 Todd Avenue
Hilo, HI 96720-4850

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 03:11:33 -0400 (EDT)
From: Lila Liebmann <nnambeil@gmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Lila Liebmann
msc 1592, 0615 SW palatine hill road
Hawi, HI 96719

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 03:04:56 -0400 (EDT)
From: Lanny Sinkin <lanny.sinkin@gmail.com>
To: rtseng@hawaii.edu

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Lanny Sinkin
P. O. Box 944
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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 03:37:25 -0400 (EDT)
From: Vickie Innis <vickiebliss@yahoo.com>
To: rtseng@hawaii.edu

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Vickie Innis
538 Poipu Drive
Honolulu, HI 96825

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 04:29:24 -0400 (EDT)
From: Keala Kahuanui <keala@kalo.org>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Keala Kahuanui
Kinohou St.
Kamuela, HI 96743

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 03:53:38 -0400 (EDT)
From: Bryan Matsumoto <bmotzbmotz@yahoo.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Bryan Matsumoto
8831 Longden Ave.
Temple City, CA 91780

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 05:25:48 -0400 (EDT)
From: Dawn Gohara <gohara3@hawaii.rr.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Dawn Gohara
4225-3 Keanu St.
Honolulu, HI 96816

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 24 Jun 2009 02:54:38 -0400 (EDT)
From: Dwynn Kamai <dwynn@hawaii.rr.com>
To: rtseng@hawaii.edu

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Dwynn Kamai
Honolulu, HI 96825

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 07:18:54 -0400 (EDT)
From: Stephen scribner <sscribner@cppmail.com>
To: rtseng@hawaii.edu

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Stephen scribner
478 South Ave.
Elmira, NY 14904

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 08:18:22 -0400 (EDT)
From: Lisa Bedinger <salinavt@myfairpoint.net>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1

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Lisa Bedinger
South Burlington, VT 05403

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 06:05:56 -0400 (EDT)
From: Carmen L <cllonline@gmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Madrid, ot 00000

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 10:19:14 -0400 (EDT)
From: Carolyn Moore <lealeahula@earthlink.net>
To: rtseng@hawaii.edu

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Carolyn Moore
5402 E. McKellips, #289
5402 McKellips Rd. Lot 289
Mesa, AZ 85215

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 11:02:43 -0400 (EDT)
From: Satya Anubhuti <Satya@Citizen-Kane.net>
To: rtseng@hawaii.edu

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PO Box 1010
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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 11:59:37 -0400 (EDT)
From: alison yahna <beeoracle@hotmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Please do the RIGHT thing, before we spend more money and destroy so much to look farther out into space we need to malama the earth we are standing on.

alison yahna
po box 679; ka'alualu rd
na"alehu, HI 96772

1
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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 12:48:17 -0400 (EDT)
From: Joe Hiscott <emanpro@gmail.com>
To: rtseng@hawaii.edu

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Joe Hiscott
Alcove, QC

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 13:11:02 -0400 (EDT)
From: Eloise Engman <pualeafarm@hawaiiantel.net>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1

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Eloise Engman
22 Auoli Drive
Makawao, HI 96768

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 14:00:32 -0400 (EDT)
From: Dav Dinner <gentlewave@hawaii.rr.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Dav Dinner
P.O.Box 942
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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 13:56:35 -0400 (EDT)
From: Erica Burt <Erykah808@gmail.com>
To: rtseng@hawaii.edu

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Erica Burt
PO BOX 611
Haleiwa, HI 96712

1

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The observatory dome will be roughly 180 feet high, not 360 feet.

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 14:21:21 -0400 (EDT)
From: Heidi Byron <heidibyron@yahoo.com>
To: rtseng@hawaii.edu

I am on of the native's of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1

The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

Significant and Adverse Impact Prohibited

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Heidi Byron
PO Box 10821
Hilo, HI 96721

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 14:26:40 -0400 (EDT)
From: Fairin Woods <fairinwoods@gmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Fairin Woods
PO Box 1212
Lawai, HI 96765

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 15:20:28 -0400 (EDT)
From: Susan Bender <running-raptar@hotmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Susan Bender
73-1326 Awakea Street
Kailua-Kona, HI 96740

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 16:01:20 -0400 (EDT)
From: Maryjane Genco <hotjuana@hotmail.com>
To: rtseng@hawaii.edu

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Maryjane Genco
968 Apricot Avenue
Campbell, CA 95008

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 14:10:22 -0400 (EDT)
From: Kuapapakai Graff <sumrwind@comcast.net>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1

The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

Significant and Adverse Impact Prohibited

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The TMT should not be built because it will cause "significant, adverse, and substantial impact" to the resources of Mauna Kea conservation district, which is prohibited by state law. In 2003, a federal court compelled NASA to complete the first EIS ever conducted on Mauna Kea since telescope construction began there in 1968. The EIS unequivocally states that "the cumulative impact of 30 years of astronomy development has resulted in significant, adverse and substantial impact to the cultural and natural resources of Mauna Kea." State law provides that only activities that do NOT have a "significant and adverse" impact maybe permitted in conservation districts. Because the massive 360-foot dome of the TMT will do nothing to alleviate the significant and adverse harm suffered at the summit, and it fact will only add to that harm, it is highly unlikely that the BLNR will be allowed to grant a permit to build the TMT in the conservation district at the summit of Mauna Kea. (See, NASA Federal Environmental Impact Statement and accompanying court records OHA v. Sean O`Keefe, Civil. No. 02-00227 SOM/BMK filed July 15, 2003).

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Despite the University's spin, in reality a final comprehensive management plan has still not been approved for the summit of Mauna Kea. For more than 10 years, the community has called for comprehensive management of the sacred summit of Mauna Kea. This demand was echoed by a court decision in 2007 against the State and the University of Hawaii, which halted all construction on the summit of Mauna Kea until a comprehensive management plan is adopted. In April 2009, the University presented what they described as an "imperfect first step" to a management plan for state approval. The state offered the University conditional approval of the plan provided that significant changes were made to the plan, including the addition of specific steps to protect cultural resources, natural resources, and public access. The University has yet to provide these important improvements to their management plan. Thus, the management plan remains incomplete and construction on the summit is prohibited. Moreover, how can the TMT advocates claim to be in compliance with a document that has not been completed, yet?

Kuapapakai Graff
102 East Ellery Av
Villas, NJ 08251

1

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 15:34:31 -0400 (EDT)
From: Glen Venezio <sethspeaksnyc@gmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Glen Venezio
176 Calle San Jorge Apt 2A
San Juan, PR 00911-2036

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 15:39:51 -0400 (EDT)
From: Chaunnel "Pake" salmon <pake@makahaangels.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Chaunnel "Pake" salmon
84-849 Fricke St.
Makaha, HI 96792

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 16:15:34 -0400 (EDT)
From: christina Gauen <simone5501@hotmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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christina Gauen
558-A Maluniu Ave.
kailua, HI 96734

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 15:55:27 -0400 (EDT)
From: Cha Smith <conch@hawaii.rr.com>
To: rtseng@hawaii.edu

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Honolulu, HI 96816

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 16:25:56 -0400 (EDT)
From: Kanoe Kapu <mapukahanu@aol.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1

The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

Significant and Adverse Impact Prohibited

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Kanoe Kapu
P.O. Box 10433
Hilo, HI 96721

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 16:28:40 -0400 (EDT)
From: Donna Cussac <epona111@gmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

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Donna Cussac
211 Hannah Rd NW
Cleveland, TN 37311

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 19:23:27 -0400 (EDT)
From: Maggie Costigan <magonmaui@msn.com>
To: rtseng@hawaii.edu

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Maggie Costigan
894 Hog Bck Rd Haiku
Paia, HI 96779

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 19:27:22 -0400 (EDT)
From: Randy Bautista <rpb@hawaii.edu>
To: rtseng@hawaii.edu

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Randy Bautista
1953B 10th Ave.
Honolulu, HI 96816

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 19:48:33 -0400 (EDT)
From: Darlene Meiden <>
To: rtseng@hawaii.edu

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The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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The TMT should not be built because it will cause "significant, adverse, and substantial impact" to the resources of Mauna Kea conservation district, which is prohibited by state law. In 2003, a federal court compelled NASA to complete the first EIS ever conducted on Mauna Kea since telescope construction began there in 1968. The EIS unequivocally states that "the cumulative impact of 30 years of astronomy development has resulted in significant, adverse and substantial impact to the cultural and natural resources of Mauna Kea." State law provides that only activities that do NOT have a "significant and adverse" impact maybe permitted in conservation districts. Because the massive 360-foot dome of the TMT will do nothing to alleviate the significant and adverse harm suffered at the summit, and it fact will only add to that harm, it is highly unlikely that the BLNR will be allowed to grant a permit to build the TMT in the conservation district at the summit of Mauna Kea. (See, NASA Federal Environmental Impact Statement and accompanying court records OHA v. Sean O`Keefe, Civil. No. 02-00227 SOM/BMK filed July 15, 2003).

Comprehensive Management Plan Incomplete

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Despite the University's spin, in reality a final comprehensive management plan has still not been approved for the summit of Mauna Kea. For more than 10 years, the community has called for comprehensive management of the sacred summit of Mauna Kea. This demand was echoed by a court decision in 2007 against the State and the University of Hawaii, which halted all construction on the summit of Mauna Kea until a comprehensive management plan is adopted. In April 2009, the University presented what they described as an "imperfect first step" to a management plan for state approval. The state offered the University conditional approval of the plan provided that significant changes were made to the plan, including the addition of specific steps to protect cultural resources, natural resources, and public access. The University has yet to provide these important improvements to their management plan. Thus, the management plan remains incomplete and construction on the summit is prohibited. Moreover, how can the TMT advocates claim to be in compliance with a document that has not been completed, yet?

Darlene Meiden
Westminster, CO 80234

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 20:27:44 -0400 (EDT)
From: Wanda Brown <gardening.goddess@bendcable.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

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Wanda Brown
21784 Mare Ct
Bend, OR 97702

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 20:45:12 -0400 (EDT)
From: Yvonne Siu-Runyan <hanalei@indra.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

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Yvonne Siu-Runyan
2591 Sumac Avenue
Boulder,, CO 80304

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 22:50:40 -0400 (EDT)
From: Mary Detrick <mary13ld@yahoo.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Mary Detrick
8115 37th Avenue North
St. Petersburg, FL 33710

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 22:54:29 -0400 (EDT)
From: David Bishaw <dbishaw@hawaii.edu>
To: rtseng@hawaii.edu

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Hilo, HI 96721

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The observatory dome will be roughly 180 feet high, not 360 feet.

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 23:15:12 -0400 (EDT)
From: Amy Stahl <>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1

The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

Significant and Adverse Impact Prohibited

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The TMT should not be built because it will cause "significant, adverse, and substantial impact" to the resources of Mauna Kea conservation district, which is prohibited by state law. In 2003, a federal court compelled NASA to complete the first EIS ever conducted on Mauna Kea since telescope construction began there in 1968. The EIS unequivocally states that "the cumulative impact of 30 years of astronomy development has resulted in significant, adverse and substantial impact to the cultural and natural resources of Mauna Kea." State law provides that only activities that do NOT have a "significant and adverse" impact maybe permitted in conservation districts. Because the massive 360-foot dome of the TMT will do nothing to alleviate the significant and adverse harm suffered at the summit, and it fact will only add to that harm, it is highly unlikely that the BLNR will be allowed to grant a permit to build the TMT in the conservation district at the summit of Mauna Kea. (See, NASA Federal Environmental Impact Statement and accompanying court records OHA v. Sean O`Keefe, Civil. No. 02-00227 SOM/BMK filed July 15, 2003).

Comprehensive Management Plan Incomplete

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Despite the University's spin, in reality a final comprehensive management plan has still not been approved for the summit of Mauna Kea. For more than 10 years, the community has called for comprehensive management of the sacred summit of Mauna Kea. This demand was echoed by a court decision in 2007 against the State and the University of Hawaii, which halted all construction on the summit of Mauna Kea until a comprehensive management plan is adopted. In April 2009, the University presented what they described as an "imperfect first step" to a management plan for state approval. The state offered the University conditional approval of the plan provided that significant changes were made to the plan, including the addition of specific steps to protect cultural resources, natural resources, and public access. The University has yet to provide these important improvements to their management plan. Thus, the management plan remains incomplete and construction on the summit is prohibited. Moreover, how can the TMT advocates claim to be in compliance with a document that has not been completed, yet?

Amy Stahl
Boulder, CO

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 18 Jun 2009 23:34:29 -0400 (EDT)
From: Denise Lytle <squishytart@moose-mail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1

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Denise Lytle
73 Poplar St.
Fords, NJ 08863

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Subject: In Opposition to the TMT on Mauna Kea
Date: Fri, 19 Jun 2009 00:02:33 -0400 (EDT)
From: Shannon Dodge <shannondodge23@YAHOO.COM>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Shannon Dodge
6820 s. pENNSYLVANIA sTREET
Centennial , CO 80122

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Subject: In Opposition to the TMT on Mauna Kea
Date: Fri, 19 Jun 2009 11:34:10 -0400 (EDT)
From: Christine Walters <cwalters@hawaii.edu>
To: rtseng@hawaii.edu

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Christine Walters
2216 Metcalf St.
HON, HI 96822

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Subject: In Opposition to the TMT on Mauna Kea
Date: Fri, 19 Jun 2009 13:26:50 -0400 (EDT)
From: Gwendolyn Hill <gwen@bikevolcano.com>
To: rtseng@hawaii.edu

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Gwendolyn Hill
P.O. Box 7474
HIlo, HI 96720

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Subject: In Opposition to the TMT on Mauna Kea
Date: Fri, 19 Jun 2009 15:38:13 -0400 (EDT)
From: Tara Cornelisse <tara.cornelisse@gmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1

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Tara Cornelisse
2071 huckleberry rd.
San Rafael, CA 94903

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Subject: In Opposition to the TMT on Mauna Kea
Date: Fri, 19 Jun 2009 20:02:52 -0400 (EDT)
From: Thomas Ah Yee <imakakoloaihenenui2000@yahoo.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Thomas Ah Yee
8546 W Preston Lane
Tolleson, AZ 85353

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Subject: In Opposition to the TMT on Mauna Kea
Date: Fri, 19 Jun 2009 18:21:17 -0400 (EDT)
From: Sandra Parker <uluparker@yahoo.com>
To: rtseng@hawaii.edu

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Sandra Parker
P.O. Box 50
Kaneohe, HI 96744-0050

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Subject: In Opposition to the TMT on Mauna Kea
Date: Sat, 20 Jun 2009 00:52:24 -0400 (EDT)
From: Frances Pitzer <iam4joy@hotmail.com>
To: rtseng@hawaii.edu

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14 Hakoi Hema Place
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Subject: In Opposition to the TMT on Mauna Kea
Date: Sat, 20 Jun 2009 02:05:56 -0400 (EDT)
From: Phyllis and Lanny Younger <phylyounger2@yahoo.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Phyllis and Lanny Younger
2105 Jackson Branch Drive
New Lenox, IL 60451

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Subject: In Opposition to the TMT on Mauna Kea
Date: Sat, 20 Jun 2009 16:14:52 -0400 (EDT)
From: Marge White <marge.us.white@gmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

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Marge White
P.O. Box 2990
Kamuela, HI 96743

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Subject: In Opposition to the TMT on Mauna Kea
Date: Sun, 21 Jun 2009 02:25:19 -0400 (EDT)
From: Meghan Au <meghanau@hawaii.edu>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Meghan Au
41-582 Inoa'ole St.
Waimanalo, HI 96795

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Subject: In Opposition to the TMT on Mauna Kea
Date: Sun, 21 Jun 2009 04:43:21 -0400 (EDT)
From: Gloria-Ann Muraki <lolay1@hawaii.rr.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

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Gloria-Ann Muraki
76 6186 Plumeria Rd
Kailua Kona, HI 96740

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Subject: In Opposition to the TMT on Mauna Kea
Date: Sun, 21 Jun 2009 16:07:22 -0400 (EDT)
From: Pamela Punihaole <moowahine@yahoo.com>
To: rtseng@hawaii.edu

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Mauna Kea's Natural and Cultural Resources Protected

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The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Pamela Punihaole
734310A Mamalahoa Hwy
Kailua-Kona, HI 96740

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Subject: In Opposition to the TMT on Mauna Kea
Date: Sun, 21 Jun 2009 19:39:31 -0400 (EDT)
From: Daphne Gray <daph108@yahoo.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Daphne Gray
67-5165 Kamamalu rd.
Kamuela, HI 96743

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Subject: In Opposition to the TMT on Mauna Kea
Date: Mon, 22 Jun 2009 19:53:55 -0400 (EDT)
From: Keoki Fukumitsu <keokikaloman@aol.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Keoki Fukumitsu
49-077 Johnson Road
Kaneohe, HI 96744

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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 23 Jun 2009 17:08:51 -0400 (EDT)
From: Joan Lander <namaka@interpac.net>
To: rtseng@hawaii.edu

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Joan Lander
PO Box 29
Naalehu, HI 96772-0029

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Subject: In Opposition to the TMT on Mauna Kea
Date: Mon, 22 Jun 2009 19:56:05 -0400 (EDT)
From: Kanoe Cazimero <caztwin@aol.com>
To: rtseng@hawaii.edu

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Kanoe Cazimero
1519 Nuuanu Ave #26
Honolulu, HI 96817

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The observatory dome will be roughly 180 feet high, not 360 feet.

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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 23 Jun 2009 18:32:34 -0400 (EDT)
From: Katy Fogg <SKMFogg@netscape.net>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1

The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

Significant and Adverse Impact Prohibited

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Comprehensive Management Plan Incomplete

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Despite the University's spin, in reality a final comprehensive management plan has still not been approved for the summit of Mauna Kea. For more than 10 years, the community has called for comprehensive management of the sacred summit of Mauna Kea. This demand was echoed by a court decision in 2007 against the State and the University of Hawaii, which halted all construction on the summit of Mauna Kea until a comprehensive management plan is adopted. In April 2009, the University presented what they described as an "imperfect first step" to a management plan for state approval. The state offered the University conditional approval of the plan provided that significant changes were made to the plan, including the addition of specific steps to protect cultural resources, natural resources, and public access. The University has yet to provide these important improvements to their management plan. Thus, the management plan remains incomplete and construction on the summit is prohibited. Moreover, how can the TMT advocates claim to be in compliance with a document that has not been completed, yet?

Katy Fogg
207 - 18th Ave SW
Boston Harbor, WA 98501

1

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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 23 Jun 2009 19:23:59 -0400 (EDT)
From: Richard Rodrigues <hpfgrants@lava.net>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1

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Richard Rodrigues
949 Kapiolani Blvd. Suite 100
Honolulu, HI 96814

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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 23 Jun 2009 19:25:47 -0400 (EDT)
From: Annette Kaohelauli'i <annettesadventures@juno.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

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Annette Kaohelaulii
45-403 Koa Kahiko Street
Kaneohe, HI 96744

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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 23 Jun 2009 19:38:22 -0400 (EDT)
From: Curt Sumida <hokulea78@hotmail.com>
To: rtseng@hawaii.edu

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Curt Sumida
Waimanalo, HI 96795

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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 23 Jun 2009 20:08:16 -0400 (EDT)
From: Garid Faria <garid@hawaii.edu>
To: rtseng@hawaii.edu

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1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Garid Faria
Honolulu, HI 96826

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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 23 Jun 2009 20:46:38 -0400 (EDT)
From: paahana kincaid <paahana21@hotmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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paahana kincaid
Honolulu, HI 96822

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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 23 Jun 2009 21:02:20 -0400 (EDT)
From: Summer Nemeth <kaimalia@yahoo.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

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Summer Nemeth
Mililani, HI 96789

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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 23 Jun 2009 21:15:43 -0400 (EDT)
From: Dave Kisor <panther_dave@yahoo.com>
To: rtseng@hawaii.edu

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Dave Kisor
Kaneohe, HI 96744

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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 23 Jun 2009 21:26:28 -0400 (EDT)
From: kehaulani kea <kkea@hawaii.rr.com>
To: rtseng@hawaii.edu

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kehaulani kea
honolulu, HI 96817

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The observatory dome will be roughly 180 feet high, not 360 feet.

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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 23 Jun 2009 21:28:41 -0400 (EDT)
From: B.A. McClintock <redahi@hawaii.rr.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

Significant and Adverse Impact Prohibited

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Comprehensive Management Plan Incomplete

3 Despite the University's spin, in reality a final comprehensive management plan has still not been approved for the summit of Mauna Kea. For more than 10 years, the community has called for comprehensive management of the sacred summit of Mauna Kea. This demand was echoed by a court decision in 2007 against the State and the University of Hawaii, which halted all construction on the summit of Mauna Kea until a comprehensive management plan is adopted. In April 2009, the University presented what they described as an "imperfect first step" to a management plan for state approval. The state offered the University conditional approval of the plan provided that significant changes were made to the plan, including the addition of specific steps to protect cultural resources, natural resources, and public access. The University has yet to provide these important improvements to their management plan. Thus, the management plan remains incomplete and construction on the summit is prohibited. Moreover, how can the TMT advocates claim to be in compliance with a document that has not been completed, yet?

B.A. McClintock
Honolulu, HI 96825

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The summit region on Maunakea is classified by the State of Hawai'i as a conservation district, resource subzone, which are managed by the State of Hawai'i Department of Land and Natural Resources (DNLR) Office of Conservation and Coastal Lands (OCCL). The summit region is also designated as a National Natural Landmark (NNL) by the U.S. Department of the Interior (DOI). The Thirty Meter Telescope Project has been coordinating with the DLNR-OCCL and DOI in regards to land use within the conservation district and the NNL. In addition, the Project has been coordinating with DLNR's State Historic Preservation Division (SHPD), which has designated a large portion of the summit area as a Historic District; no official designation has been made at the Federal level.
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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 23 Jun 2009 21:43:18 -0400 (EDT)
From: Britany Edwards <MirrorMirrorInTheButsudan@yahoo.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Britany Edwards
Wai"anae, HI 96792

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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 23 Jun 2009 22:26:02 -0400 (EDT)
From: Becky moylan <beckymoylan@hotmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Becky moylan
Honolulu, HI 96815

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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 23 Jun 2009 22:41:28 -0400 (EDT)
From: Saw Ching <sawching2@yahoo.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

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Saw Ching
Honolulu, HI 96826

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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 23 Jun 2009 23:25:45 -0400 (EDT)
From: pono kealoha <alwayz_aloha@msn.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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pono kealoha
Pearlcity, HI 96782

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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 23 Jun 2009 19:27:50 -0400 (EDT)
From: Brenda Kwon <brenda.kwon@gmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Brenda Kwon
874 Dillingham Blvd.
Honolulu, ID 96817

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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 23 Jun 2009 20:41:46 -0400 (EDT)
From: suzanne garrett <feettogo2@yahoo.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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suzanne garrett
Honolulu, HI 96826

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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 23 Jun 2009 22:26:53 -0400 (EDT)
From: Alana Bryant <alanaisforlovers@aol.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

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Alana Bryant
Honolulu, HI 96822

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 24 Jun 2009 02:54:38 -0400 (EDT)
From: Dwynn Kamai <dwynn@hawaii.rr.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Dwynn Kamai
Honolulu, HI 96825

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The observatory dome will be roughly 180 feet high, not 360 feet.

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 24 Jun 2009 03:15:08 -0400 (EDT)
From: CHRISTINE Kauahikaua <cchow78@hotmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

Significant and Adverse Impact Prohibited

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Comprehensive Management Plan Incomplete

3 Despite the University's spin, in reality a final comprehensive management plan has still not been approved for the summit of Mauna Kea. For more than 10 years, the community has called for comprehensive management of the sacred summit of Mauna Kea. This demand was echoed by a court decision in 2007 against the State and the University of Hawaii, which halted all construction on the summit of Mauna Kea until a comprehensive management plan is adopted. In April 2009, the University presented what they described as an "imperfect first step" to a management plan for state approval. The state offered the University conditional approval of the plan provided that significant changes were made to the plan, including the addition of specific steps to protect cultural resources, natural resources, and public access. The University has yet to provide these important improvements to their management plan. Thus, the management plan remains incomplete and construction on the summit is prohibited. Moreover, how can the TMT advocates claim to be in compliance with a document that has not been completed, yet?

CHRISTINE Kauahikaua
WAIMANALO, HI 96795

1
The summit region on Maunakea is classified by the State of Hawai'i as a conservation district, resource subzone, which are managed by the State of Hawai'i Department of Land and Natural Resources (DNLR) Office of Conservation and Coastal Lands (OCCL). The summit region is also designated as a National Natural Landmark (NNL) by the U.S. Department of the Interior (DOI). The Thirty Meter Telescope Project has been coordinating with the DLNR-OCCL and DOI in regards to land use within the conservation district and the NNL. In addition, the Project has been coordinating with DLNR's State Historic Preservation Division (SHPD), which has designated a large portion of the summit area as a Historic District; no official designation has been made at the Federal level.
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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 24 Jun 2009 03:19:13 -0400 (EDT)
From: Sheldon Brown <skeahib@yahoo.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Comprehensive Management Plan Incomplete

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Sheldon Brown
Wailuku, HI 96792

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 24 Jun 2009 03:33:40 -0400 (EDT)
From: A. Ku`ulei Snyder <kuuleinani@earthlink.net>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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A. Ku`ulei Snyder
Honolulu, HI 96816

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 24 Jun 2009 00:39:57 -0400 (EDT)
From: Patricia Blair <patriciablair@msn.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1

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Patricia Blair
Kailua, HI 96734

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 24 Jun 2009 03:57:09 -0400 (EDT)
From: Suzanne IIDA <smkiida@yahoo.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the beautiful summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources should be protected as unique and special.

1

The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island, etc. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized Public Trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Suzanne IIDA
Kaneohe, HI 96744

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The observatory dome will be roughly 180 feet high, not 360 feet.

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 24 Jun 2009 04:56:53 -0400 (EDT)
From: Vince Dodge <aipohaku@hotmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Vince Dodge
Wai`anae, HI 96792

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 24 Jun 2009 05:02:19 -0400 (EDT)
From: Margaret Primacio <stibbardm003@hawaii.rr.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Margaret Primacio
Kahuku, HI 96731

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 24 Jun 2009 06:44:44 -0400 (EDT)
From: Valerie Loh <vallohfoto@yahoo.com>
To: rtseng@hawaii.edu

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Valerie Loh
Honolulu, HI 96816

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 24 Jun 2009 13:39:28 -0400 (EDT)
From: Katrin O'Leary <Jikacabr@aol.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Katrin O'Leary
Honolulu, HI 96825

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 24 Jun 2009 14:15:45 -0400 (EDT)
From: Megan Stevens <>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1

The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

Significant and Adverse Impact Prohibited

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The TMT should not be built because it will cause "significant, adverse, and substantial impact" to the resources of Mauna Kea conservation district, which is prohibited by state law. In 2003, a federal court compelled NASA to complete the first EIS ever conducted on Mauna Kea since telescope construction began there in 1968. The EIS unequivocally states that "the cumulative impact of 30 years of astronomy development has resulted in significant, adverse and substantial impact to the cultural and natural resources of Mauna Kea." State law provides that only activities that do NOT have a "significant and adverse" impact maybe permitted in conservation districts. Because the massive 360-foot dome of the TMT will do nothing to alleviate the significant and adverse harm suffered at the summit, and it fact will only add to that harm, it is highly unlikely that the BLNR will be allowed to grant a permit to build the TMT in the conservation district at the summit of Mauna Kea. (See, NASA Federal Environmental Impact Statement and accompanying court records OHA v. Sean O`Keefe, Civil. No. 02-00227 SOM/BMK filed July 15, 2003).

Comprehensive Management Plan Incomplete

3

Despite the University's spin, in reality a final comprehensive management plan has still not been approved for the summit of Mauna Kea. For more than 10 years, the community has called for comprehensive management of the sacred summit of Mauna Kea. This demand was echoed by a court decision in 2007 against the State and the University of Hawaii, which halted all construction on the summit of Mauna Kea until a comprehensive management plan is adopted. In April 2009, the University presented what they described as an "imperfect first step" to a management plan for state approval. The state offered the University conditional approval of the plan provided that significant changes were made to the plan, including the addition of specific steps to protect cultural resources, natural resources, and public access. The University has yet to provide these important improvements to their management plan. Thus, the management plan remains incomplete and construction on the summit is prohibited. Moreover, how can the TMT advocates claim to be in compliance with a document that has not been completed, yet?

Megan Stevens
Fairfeild, CA 94533

1

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 24 Jun 2009 16:00:38 -0400 (EDT)
From: pablo yurkievich <pyurkievich@hotmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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pablo yurkievich
honolulu, HI 96814

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 24 Jun 2009 16:05:18 -0400 (EDT)
From: Pualani Kauila <kauila@hawaii.edu>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Pualani Kauila
Honolulu, HI 96816

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 24 Jun 2009 16:49:03 -0400 (EDT)
From: Thomas Tizard <tizard8@hawaii.rr.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Thomas Tizard
Kailua, HI 96734

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 24 Jun 2009 18:43:58 -0400 (EDT)
From: Cynthia Simms <choldersimms@yahoo.com>
To: rtseng@hawaii.edu

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Cynthia Simms
Laguna Beach, CA 92677

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 24 Jun 2009 19:21:15 -0400 (EDT)
From: Fred Dodge <makuakauka@hotmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Fred Dodge
Wai'anae, HI 96792

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Subject: In Opposition to the TMT on Mauna Kea
Date: Wed, 24 Jun 2009 22:15:18 -0400 (EDT)
From: Keoki Baclayon <baclayon@hawaii.edu>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

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Keoki Baclayon
Ewa Beach, HI 96706

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 25 Jun 2009 02:30:18 -0400 (EDT)
From: Solvejg Raabe <>
To: rtseng@hawaii.edu

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Solvejg Raabe
Frankfurt, Germany, ot

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 25 Jun 2009 14:17:54 -0400 (EDT)
From: Kapua Keliikoa-Kamai <dkapua@hawaii.rr.com>
To: rtseng@hawaii.edu

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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 25 Jun 2009 14:19:57 -0400 (EDT)
From: Kapua Keliikoa-Kamai <dkapua@hawaii.rr.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

Significant and Adverse Impact Prohibited

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Comprehensive Management Plan Incomplete

3 Despite the University's spin, in reality a final comprehensive management plan has still not been approved for the summit of Mauna Kea. For more than 10 years, the community has called for comprehensive management of the sacred summit of Mauna Kea. This demand was echoed by a court decision in 2007 against the State and the University of Hawaii, which halted all construction on the summit of Mauna Kea until a comprehensive management plan is adopted. In April 2009, the University presented what they described as an "imperfect first step" to a management plan for state approval. The state offered the University conditional approval of the plan provided that significant changes were made to the plan, including the addition of specific steps to protect cultural resources, natural resources, and public access. The University has yet to provide these important improvements to their management plan. Thus, the management plan remains incomplete and construction on the summit is prohibited. Moreover, how can the TMT advocates claim to be in compliance with a document that has not been completed, yet?

Me ka ha'aha'a,
Kapua Keliikoa-Kamai
Waianae, HI 96792

1
The summit region on Maunakea is classified by the State of Hawai'i as a conservation district, resource subzone, which are managed by the State of Hawai'i Department of Land and Natural Resources (DNLR) Office of Conservation and Coastal Lands (OCCL). The summit region is also designated as a National Natural Landmark (NNL) by the U.S. Department of the Interior (DOI). The Thirty Meter Telescope Project has been coordinating with the DLNR-OCCL and DOI in regards to land use within the conservation district and the NNL. In addition, the Project has been coordinating with DLNR's State Historic Preservation Division (SHPD), which has designated a large portion of the summit area as a Historic District; no official designation has been made at the Federal level.
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While the Outrigger EIS was the first Federal NEPA EIS prepared for a project in the summit region of Maunakea, other State of Hawaii HRS Chapter 343 EIS documents had been prepared for various actions in the summit region of Maunakea prior to the Outrigger EIS. Uses with potential environmental impacts may be authorized in the conservation district provided those impacts are disclosed in the EIS and are avoided, minimized, and mitigated to the extent practicable. As the Draft and Final EIS discuss in Section 3.16, past and current actions have resulted in substantial, significant, and adverse impacts to certain resources and those impacts would continue to be substantial, significant, and adverse if the Project proceeds. However, as outlined in Final EIS Sections 3.2 through 3.15, the TMT Project individually will not result in any significant and adverse impacts. The DNLR-OCCL and Chairperson of the BLNR have not indicated one way or another the likelihood of granting a Conservation District Use Permit (CDUP) for the Thirty Meter Telescope Project, nor would it be appropriate for them to do so.
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Subject: In Opposition to the TMT on Mauna Kea
Date: Thu, 25 Jun 2009 05:34:28 -0400 (EDT)
From: Krista Steinfeld <>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized publictrust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Krista Steinfeld
Kane'ohe, HI 96744

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Subject: In Opposition to the TMT on Mauna Kea
Date: Fri, 26 Jun 2009 13:17:34 -0400 (EDT)
From: Loui Cabebe <warriordesigns@juno.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Loui Cabebe
Hanapepe, HI 96716

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Subject: In Opposition to the TMT on Mauna Kea
Date: Sat, 27 Jun 2009 02:37:31 -0400 (EDT)
From: Virginia Walden <blueskyhealingarts@hawaii.rr.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

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Virginia Walden
Waimanalo, HI 96795

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Subject: In Opposition to the TMT on Mauna Kea
Date: Sun, 28 Jun 2009 23:43:34 -0400 (EDT)
From: mark temkin <justmemt@gmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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mark temkin
Oxnard, CA 93035

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Subject: In Opposition to the TMT on Mauna Kea
Date: Sun, 28 Jun 2009 14:44:09 -0400 (EDT)
From: Christiane Betz <>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1

The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

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Christiane Betz
Seligenstadt, ot 63500

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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 30 Jun 2009 17:54:30 -0400 (EDT)
From: Miranda Watson <CelticHipi@hotmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

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Miranda Watson
Keauhou, HI 96739

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Subject: In Opposition to the TMT on Mauna Kea
Date: Mon, 29 Jun 2009 20:11:31 -0400 (EDT)
From: Sabrina Baxter-Thrower <sbaxterthrower@yahoo.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

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Sabrina Baxter-Thrower
Pleasanton, CA 94566

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Subject: In Opposition to the TMT on Mauna Kea
Date: Tue, 07 Jul 2009 22:30:40 -0400 (EDT)
From: mikel Athon <drathon@birch.net>
To: rtseng@hawaii.edu

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mikel Athon
cedar hill, TX 75104

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Subject: In Opposition to the TMT on Mauna Kea
Date: Sat, 04 Jul 2009 02:54:29 -0400 (EDT)
From: Jeff Sacher <>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized publictrust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

Significant and Adverse Impact Prohibited

2 The TMT should not be built because it will cause "significant, adverse, and substantial impact" to the resources of Mauna Kea conservation district, which is prohibited by state law. In 2003, a federal court compelledNASA to complete the first EIS ever conducted on Mauna Kea since telescope construction began there in 1968. The EIS unequivocally states that "the cumulative impact of 30 years of astronomy development has resulted in significant, adverse and substantial impact to the cultural and naturalresources of Mauna Kea." State law provides that only activities that do NOT have a "significant and adverse" impact maybe permitted in conservation districts. Because the massive 360-foot dome of the TMT will do nothing to alleviate the significant and adverse harm suffered at the summit, and it fact will only add to that harm, it is highly unlikely that the BLNR will be allowed to grant a permit to build the TMT in the conservation district at the summit of Mauna Kea. (See, NASA Federal Environmental Impact Statement and accompanying court records OHA v. Sean O`Keefe, Civil. No. 02-00227 SOM/BMK filed July 15, 2003).

Comprehensive Management Plan Incomplete

3 Despite the University's spin, in reality a final comprehensive management plan has still not been approved for the summit of Mauna Kea. For morethan 10 years, the community has called for comprehensive management of the sacred summit of Mauna Kea. This demand was echoed by a court decision in 2007 against the State and the University of Hawaii, which halted all construction on the summit of Mauna Kea until a comprehensive management plan is adopted. In April 2009, the University presented what they described as an "imperfect first step" to a management plan for state approval. The state offered the University conditional approval of the plan provided that significant changes were made to the plan, including the addition of specific steps to protect cultural resources, natural resources,and public access. The University has yet to provide these important improvements to their management plan. Thus, the management plan remains incomplete and construction on the summit is prohibited. Moreover, how can the TMT advocates claim to be in compliance with a document that has not been completed, yet?

Jeff Sacher
Kamuela, HI 96743

1
The summit region on Maunakea is classified by the State of Hawai'i as a conservation district, resource subzone, which are managed by the State of Hawai'i Department of Land and Natural Resources (DNLR) Office of Conservation and Coastal Lands (OCCL). The summit region is also designated as a National Natural Landmark (NNL) by the U.S. Department of the Interior (DOI). The Thirty Meter Telescope Project has been coordinating with the DLNR-OCCL and DOI in regards to land use within the conservation district and the NNL. In addition, the Project has been coordinating with DLNR's State Historic Preservation Division (SHPD), which has designated a large portion of the summit area as a Historic District; no official designation has been made at the Federal level.
Telescope activities are not "an exception to the rules" under applicable rules and regulations. Hawai'i Administrative Rules (HAR) Chapter 13-5-13 provides, "The objective of [the conservation district resource] subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas." HAR Chapter 13-5-24 specifically includes "R-3 Astronomy Facilities; (D-1) Astronomy facilities under an approved management plan." as one of the "identified land uses in the resource subzone".

2
While the Outrigger EIS was the first Federal NEPA EIS prepared for a project in the summit region of Maunakea, other State of Hawaii HRS Chapter 343 EIS documents had been prepared for various actions in the summit region of Maunakea prior to the Outrigger EIS. Uses with potential environmental impacts may be authorized in the conservation district provided those impacts are disclosed in the EIS and are avoided, minimized, and mitigated to the extent practicable. As the Draft and Final EIS discuss in Section 3.16, past and current actions have resulted in substantial, significant, and adverse impacts to certain resources and those impacts would continue to be substantial, significant, and adverse if the Project proceeds. However, as outlined in Final EIS Sections 3.2 through 3.15, the TMT Project individually will not result in any significant and adverse impacts. The DNLR-OCCL and Chairperson of the BLNR have not indicated one way or another the likelihood of granting a Conservation District Use Permit (CDUP) for the Thirty Meter Telescope Project, nor would it be appropriate for them to do so.
The observatory dome will be roughly 180 feet high, not 360 feet.

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The Thirty Meter Telescope Project has been working diligently to assure the Project will be in compliance with the Comprehensive Management Plan (CMP), the body of which has been available since January 2009 and was approved by the BLNR on April 9, 2009, with conditions. The four sub plans required by CMP approval conditions have become available as follows: the Natural Resources Management Plan (NRMP) was available in September 2009, the Cultural Resources Management Plan (CRMP) was available in October 2009, and the Decommissioning Plan (DP) and Public Access Plan (PAP) were made available in January 2010. All four sub plans were approved by the Board of Land and Natural Resources (BLNR) on March 25, 2010.
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Subject: TMT = To Many Telescopes on Mauna Kea
Date: Wed, 17 Jun 2009 21:07:30 -0400 (EDT)
From: Leimomi Wheeler <oopu_5@yahoo.com>
To: rtseng@hawaii.edu

I stand with my kupuna of Lononuiakea in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Mauna Kea's Natural and Cultural Resources should be respected and protected!

1

The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawai'i Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawai'i's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

Significant and Adverse Impact Prohibited

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The TMT should not be built because it will cause "significant, adverse, and substantial impact" to the resources of Mauna Kea conservation district, which is prohibited by state law. In 2003, a federal court compelled NASA to complete the first EIS ever conducted on Mauna Kea since telescope construction began there in 1968. The EIS unequivocally states that "the cumulative impact of 30 years of astronomy development has resulted in significant, adverse and substantial impact to the cultural and natural resources of Mauna Kea." State law provides that only activities that do NOT have a "significant and adverse" impact maybe permitted in conservation districts. Because the massive 360-foot dome of the TMT will do nothing to alleviate the significant and adverse harm suffered at the summit, and it fact will only add to that harm, it is highly unlikely that the BLNR will be allowed to grant a permit to build the TMT in the conservation district at the summit of Mauna Kea. (See, NASA Federal Environmental Impact Statement and accompanying court records OHA v. Sean O`Keefe, Civil. No. 02-00227 SOM/BMK filed July 15, 2003).

Comprehensive Management Plan Incomplete

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Despite the University's spin, in reality a final comprehensive management plan has still not been approved for the summit of Mauna Kea. For more than 10 years, the community has called for comprehensive management of the sacred summit of Mauna Kea. This demand was echoed by a court decision in 2007 against the State and the University of Hawai'i, which halted all construction on the summit of Mauna Kea until a comprehensive management plan is adopted. In April 2009, the University presented what they described as an "imperfect first step" to a management plan for state approval. The state offered the University conditional approval of the plan provided that significant changes were made to the plan, including the addition of specific steps to protect cultural resources, natural resources, and public access. The University has yet to provide these important improvements to their management plan. Thus, the management plan remains incomplete and construction on the summit is prohibited. Moreover, how can the TMT advocates claim to be in compliance with a document that has not been completed, yet?
Pop da Pimples: before you look into space, you need to MALAMA this place!!
Aloha 'Aina,
Leimomi Wheeler

Leimomi Wheeler
HCR 2 Box 6865
Keaau, HI 96749

1
The summit region on Maunakea is classified by the State of Hawai'i as a conservation district, resource subzone, which are managed by the State of Hawai'i Department of Land and Natural Resources (DNLR) Office of Conservation and Coastal Lands (OCCL). The summit region is also designated as a National Natural Landmark (NNL) by the U.S. Department of the Interior (DOI). The Thirty Meter Telescope Project has been coordinating with the DLNR-OCCL and DOI in regards to land use within the conservation district and the NNL. In addition, the Project has been coordinating with DLNR's State Historic Preservation Division (SHPD), which has designated a large portion of the summit area as a Historic District; no official designation has been made at the Federal level.
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The observatory dome will be roughly 180 feet high, not 360 feet.

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Subject: NO TMT on Mauna Kea
Date: Fri, 19 Jun 2009 17:46:49 -0400 (EDT)
From: Leslie Ann Laing <lesliеannlaing@yahoo.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea.

Keep Mauna Kea's Natural and Cultural Resources Protected

1 The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

All significant and Adverse Impacts are prohibited!

2 The TMT should not be built because it will cause "significant, adverse, and substantial impact" to the resources of Mauna Kea conservation district, which is prohibited by state law. In 2003, a federal court compelled NASA to complete the first EIS ever conducted on Mauna Kea since telescope construction began there in 1968. The EIS unequivocally states that "the cumulative impact of 30 years of astronomy development has resulted in significant, adverse and substantial impact to the cultural and natural resources of Mauna Kea." State law provides that only activities that do NOT have a "significant and adverse" impact maybe permitted in conservation districts.

Because the massive 360-foot dome of the TMT will do nothing to alleviate the significant and adverse harm suffered at the summit, and it fact will only add to that harm, it is highly unlikely that the BLNR will be allowed to grant a permit to build the TMT in the conservation district at the summit of Mauna Kea. (See, NASA Federal Environmental Impact Statement and accompanying court records OHA v. Sean O`Keefe, Civil. No. 02-00227 SOM/BMK filed July 15, 2003).

The Comprehensive Management Plan is incomplete!

3 Despite the University's spin, in reality a final comprehensive management plan has still not been approved for the summit of Mauna Kea. For more than 10 years, the community has called for comprehensive management of the sacred summit of Mauna Kea. This demand was echoed by a court decision in 2007 against the State and the University of Hawaii, which halted all construction on the summit of Mauna Kea until a comprehensive management plan is adopted.

In April 2009, the University presented what they described as an "imperfect first step" to a management plan for state approval. The state offered the University conditional approval of the plan provided that significant changes were made to the plan, including the addition of specific steps to protect cultural resources, natural resources, and public access. The University has yet to provide these important improvements to their management plan. Thus, the management plan remains incomplete and construction on the summit is prohibited.

Moreover, how can the TMT advocates claim to be in compliance with a document that has not been completed, yet?

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The summit region on Maunakea is classified by the State of Hawai'i as a conservation district, resource subzone, which are managed by the State of Hawai'i Department of Land and Natural Resources (DNLR) Office of Conservation and Coastal Lands (OCCL). The summit region is also designated as a National Natural Landmark (NNL) by the U.S. Department of the Interior (DOI). The Thirty Meter Telescope Project has been coordinating with the DLNR-OCCL and DOI in regards to land use within the conservation district and the NNL. In addition, the Project has been coordinating with DLNR's State Historic Preservation Division (SHPD), which has designated a large portion of the summit area as a Historic District; no official designation has been made at the Federal level.
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The observatory dome will be roughly 180 feet high, not 360 feet.

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My only conclusion after considering all of the above facts is that NO TELESCOPE CAN BE BUILT. I SUPPORT NO BUILDING OF ANY KIND ON TOP OF MAUNA KEA!

Leslie Ann Laing
P.O.Box 989
Kapa"a, Kaua"i, HI 96746

Subject: In Severe Opposition to the TMT on Mauna Kea
Date: Sat, 27 Jun 2009 04:21:28 -0400 (EDT)
From: Gerald Taber <solidlava@hotmail.com>
To: rtseng@hawaii.edu

I stand with the people of Hawaii Island in opposition to the construction the Thirty Meter Telescope on the sacred summit of Mauna Kea. I also have seen and heard so much of this nonsense for way too long and can no longer tolerate continued ignorance of federal laws as well as moral values in these most important issues and times.

Mauna Kea's Natural and Cultural Resources must be Protected, and your continued ignorance will no longer be tolerated with the gracious and kind nature I have delivered up to this point.

1

The summit of Mauna Kea is protected as a state conservation district, National Landmark, and National Historic District because it is a unique environment and extremely sacred place. It is home to many unique and endangered species like the U`au (dark rump petrel), Palila, Wekiu, and Ahinahina; the headwaters of the primary aquifer on Hawaii Island; the pinnacle of traditional Hawaiian astronomy; the connection between Papa and Wakea; and the dwelling of Poliahu and many sacred deities. These natural resources are part of the public trust recognized in Hawaii's Admission Act, the Hawai'i State Constitution, and in the judicially recognized public trust duties and responsibilities of the State. Telescope construction, however valuable it may be, is not on the list of legal and moral protections for Mauna Kea. Telescope activities are an exception to the rules; one that has been abused for far too long.

Significant and Adverse Impact Prohibited

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Comprehensive Management Plan Incomplete

3

Despite the University's spin, in reality a final comprehensive management plan has still not been approved for the summit of Mauna Kea. For more than 10 years, the community has called for comprehensive management of the sacred summit of Mauna Kea. This demand was echoed by a court decision in 2007 against the State and the University of Hawaii, which halted all construction on the summit of Mauna Kea until a comprehensive management plan is adopted. In April 2009, the University presented what they described as an "imperfect first step" to a management plan for state approval. The state offered the University conditional approval of the plan provided that significant changes were made to the plan, including the addition of specific steps to protect cultural resources, natural resources, and public access. The University has yet to provide these important improvements to their management plan. Thus, the management plan remains incomplete and construction on the summit is prohibited. Moreover, how can the TMT advocates claim to be in compliance with a document that has not been completed, yet?

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This is more than an opposition, this is a firm notice to all those that continue to ignore the voice of reason, the law and morality of these projects and the issues and damages they have and continue to cause, stop this madness now, or suffer consequences.

Gerald Taber
Wailuku, HI 96793