



University of Hawai'i at Hilo

640 N. A'ohoku Place, Room 203, Hilo, Hawai'i 96720

Telephone: (808) 933-0734 Fax: (808) 933-3208

Mailing Address: 200 W. Kawili Street, Hilo, Hawai'i 96720

**Minutes
Regular Meeting**

Mauna Kea Management Board
Wednesday, May 15, 2013

Kukahau'ula, Room 131
640 N. A'ohoku Place
Hilo, Hawai'i 96720

Attending

MKMB: Chair Gregory Mooers, 1st Vice Chair Herring Kalua, 2nd Vice Chair/Secretary Lisa Hadway, Taft Armandroff, Patricia Bergin and Gregory Chun

Kahu Kū Mauna: Chad Kalepa Baybayan

OMKM: Jessica Kirkpatrick, Fritz Klasner, Stephanie Nagata and Dawn Pamarang

Others: Lars Bergknut, Jerry Chang, Rob Christensen, Nikki Easter-Green, Jesse Eiben, Cory Harden, Saeko Hayashi, Nelson Ho, Stewart Hunter, Joe McDonough, Jesica Pacheco, Cheyenne Perry, Dwight Vicente and Ross Wilson

I. CALL TO ORDER

Chair Mooers called the meeting of the Mauna Kea Management Board (MKMB) to order at 10:00 a.m.

II. APPROVAL OF MINUTES

Upon motion by Herring Kalua and seconded by Patricia Bergin the minutes of the February 20, 2013, meeting of the MKMB were unanimously approved.

III. DIRECTOR'S REPORT

A. Thirty-Meter Telescope (TMT)

On April 12, 2013, the Board of Land and Natural Resources issued their final decision granting the Conservation District Use Permit for the Thirty-Meter Telescope project. The issuance of the final decision triggered a 30-day period during which an appeal may be filed. On Monday, May 13, 2013, the plaintiffs filed an appeal with the Third Circuit Court.

B. Speed Bumps

Mauna Kea Observatory Support Services (MKSS) and Chief Ranger Scotty Paiva have been working with the County of Hawaii on addressing road safety concerns, in particular potential accidents in front of the Visitor Information Station (VIS). After much discussion it was determined that although the County does not own the road, it is responsible for maintaining it. The County is donating rubber speed bumps and signs and will be assisting with the design, layout and painting of the road surface warning signs. MKSS will be installing the speed bumps and signs. Anticipated installation date is May or June.

C. Road Maintenance

MKSS will be undertaking road maintenance activities this summer to prevent accelerated deterioration of the upper portion of the summit access road. Since the road was paved 20 years ago only minor maintenance has been done, mostly restriping and sealing cracks with tar. Age, erosion and normal wear and tear have begun to cause problems

including the need to de-clog gutters and culverts. MKSS is filling up separation cracks in the asphalt with hot tar, as well as shoring up the asphalt along the edge of the road to prevent further erosion.

D. Automated Vehicle Counter System

A proposal for the installation of a vehicle counter will be submitted to the Department of Land and Natural Resources (DLNR) for a permit to install a vehicle counter just above Hale Pohaku. This system will be able to track observatory, University of Hawaii (UH), and commercial tour vehicles. These vehicles will be required to attach a programmable, passive radio frequency detection sticker which will be read by a detector as they pass by. The counter is a wire buried in the pavement that will detect all vehicles as they pass over the counter and providing real time data of the number of vehicles above Hale Pohaku. This will allow rangers to better manage traffic flow and parking, particularly during snow days.

E. Lower Access Road Guardrails

DLNR approved the installation of guardrails along the outer edges of sections of the gravel portion of the summit access road. These guardrails will help to prevent vehicles from going over the edge. The anticipated installation date is July.

F. Programmable Light-emitting Diode (LED) Sign

A proposal to install a LED sign at the VIS will be submitted to DLNR. This sign will be used to keep visitors informed about summit conditions, including weather and road closures and openings. This will help to free up our rangers whose services are needed elsewhere on property. The sign can be programmed from the VIS desk computer either through WiFi or a data line buried with the power line. [The dimensions of the sign are 2.2' high x 6.4' wide x 7" deep. It will be mounted approximately 8-feet high on two vertical support posts with a rock facade around the base.]

G. Pacific Internship Programs for Exploring Science (PIPES) – Interns

The Office is sponsoring two PIPES interns this summer. Amber Stillman, a graduate of Kamehameha Schools and a recent graduate of San Diego State majoring in Geography will be working with the UH Hilo geographic information system (GIS) lab. She will help integrate external mapping data into our GIS mapping program. Kerri Nakatsu, a Waiakea High School graduate and a third year biology major at UH Hilo, will be working with the Big Island Invasive Species Committee (BIISC) on the development of our Invasive Species Plan.

H. Anne Nakamoto

In our March eNewsletter we wrote about Anne Nakamoto, a student at Waiakea Intermediate who won the Animal Sciences Junior Research category in addition to several other awards in the Hawaii District Science & Engineering Fair. Anne went on to compete in the State Science Fair. She was awarded first place in the Animal Sciences Division, as well as first place in the Hawaiian Entomological Society and the Hawaii Audubon Society awards. Anne's topic "Two Bees or not Two Bees" was a project set in the Hale Pohaku area where she compared the visitation of the native and non-native bees to native mamane trees and introduced invasive fireweed. Based on her observations, she concluded that both types of bees visited mamane trees more than fireweed.

IV. KAHU KŪ MAUNA COUNCIL (KKMC)

Chad Kalepa Baybayan reported the Council met on May 7, 2013, at which time they reviewed and approved project proposals submitted by Subaru Telescope, MKSS, and NASA Infrared Telescope, all of which are being presented today for action by the Board.

On non-action items the Council reviewed TMT's geotechnical borings and construction documents, heard a presentation on MKSS' road updates, and reviewed the Office's resources brochure.

V. Committee Reports

Environment Committee – Fritz Klasner

A volunteer weed pull event was held on Saturday, May 11. Besides continuing with invasive plant removal around Hale Pohaku, volunteers also helped with Mauna Kea silversword restoration. The Division of Forestry and Wildlife provided 100 silversword plants which were planted in the silversword enclosure behind the VIS. The speaker for the day was Jim Kauahikaua who spoke about Mauna Kea geology. To date we have over 1,500 volunteer hours since the program started 1-1/2 years ago. The next volunteer event is scheduled for July 27, sponsored by the Hawaii Island Chamber of Commerce.

In March the 2013 Hawaii Invasive Species Council Community Hero Award was presented to the Hawaii Island Chamber of Commerce and Mary Begier for their help in our volunteer program in managing invasive species on Mauna Kea.

Monthly and quarterly invasive species monitoring continue and we are happy to report there are no new threats. We continue to work on our invasive species prevention protocols.

One cat was caught yesterday at Hale Pohaku and it has been taken to the shelter.

We are gearing up for the annual invasive arthropod species surveys in June and July. In the past the Bishop Museum did the surveys. This year Office staff will do the field work and will coordinate with Bishop Museum to identify specimens.

Dr. Eiben's preliminary results from his arthropod biodiversity survey show that roughly half of the arthropods that are at Hale Pohaku and higher elevations are native. One noteworthy item is that native species are more consistently found throughout the year.

The Environment Committee and Kahu Ku Mauna have reviewed and commented on the draft resource brochure. We hope to have the new brochure out this summer.

Chair Mooers asked if there was a timeline for the invasive species plan. Mr. Klasner replied he is currently working with Springer Kaye, BIISC, with hiring of her replacement. He hopes to have a draft of the final plan out in the next six months.

VI. OLD BUSINESS

A. Review and Comment - Thirty-Meter Telescope: Geotechnical Borings and Phase I Construction Document

Director Nagata explained that in order for TMT to finalize its construction documents it needs to do geotechnical borings to get detailed data of the soil composition and subsurface conditions to complete its structural design, in particular, the telescope pier which will bear the weight of the telescope. Last year, TMT was allowed to do surface geotechnical tests to get a general idea of the subsurface conditions. Those tests do not provide the level of detail needed to finalize the structural engineering design. In addition, the boring data will determine the type and size of fill that will be needed to improve the road to the site.

TMT plans to begin drilling the bore holes in August. It will take about two months to complete provided there is good weather, there are no equipment malfunctions, and they do not encounter unforeseen site conditions requiring the need for extra time. TMT will analyze the bore core data before they begin construction, which is not expected until sometime next year.

The first phase of construction involves grading and improving the road, followed by grading the site.

Design Review Committee, Kahu Kū Mauna and Mauna Kea Management Board (MKMB)

The Design Review Committee met on March 21, 2013 to review the geotechnical and Phase I documents. TMT made one change to the road. It will be paving the road instead of constructing a gravel road. There were two reasons for this change: 1) upon review by the County, they indicated that if left as a gravel road they would not be able to get an emergency vehicle to the site; and 2) a paved road would reduce the amount of dust. The Design Review Committee did not raise any objections to changing the road from gravel to a paved road.

Pursuant to the sequence of steps, Kahu Kū Mauna and MKMB are required to review the construction documents prior to submittal to DLNR. Kahu Ku Mauna reviewed the documents on May 7, 2013. The Council raised the question about why the County was concerned about paving the TMT access road to allow emergency vehicles to the TMT site when part of the lower summit access road was not paved. We do not know the County's thinking, but perhaps the County was only looking at the TMT access road and did not consider the whole picture, that is the lower portion of the access road. Director Nagata indicated that at some point the University will want to improve the summit access road, in which case, County emergency vehicles would be able to access the summit including the TMT site.

Dwight Vicente asked when TMT would start doing the borings. Director Nagata replied TMT will start sometime this summer and it will take time for them to analyze the borings and finalize their construction drawings. Mr. Vicente asked if the recently filed appeal would have an effect on that. Chair Mooers replied it would not.

Gregory Chun asked how deep the borings would be. Director Nagata replied the borings will range from about 15 feet for the road to possibly 185 feet for under the pier. Chair Mooers added the borings basically go down as far as they go up.

Nelson Ho asked for the diameter of the borings. Director Nagata replied they were about six inches.

VII. NEW BUSINESS

A. NASA Infrared Telescope Facility (IRTF): Removal and Replacement of a Chiller System

NASA IRTF's current chiller system does not have the capacity to sufficiently cool the inside of the summit facility. Over the years the addition of electronic equipment and computers has increased the amount of heat. In order to obtain better images the inside dome temperature must closely match that of the outside to reduce air turbulence around the telescope caused by the mixture of air with different temperatures. The more stable the air the better the seeing conditions, thus resulting in better images. The work to be performed is primarily inside with the exception of louvers extending through the walls, on the north side (new) and on the east side (replacement). A primary staging area will be set up at Hale Pohaku and materials will be brought up as needed daily. A fork lift or man lift will be needed at times but will only be on property on an as needed basis.

IRTF must begin the installation process by the end of the month otherwise it will lose the funding for this project.

Kahu Kū Mauna Council

Kahu Kū Mauna reviewed the proposal on May 7, 2013, and voted in favor of the project as it does not increase the existing footprint of the structure and upgrades will take place internally.

DLNR

Pursuant to administrative rules pertaining to the Conservation District (HAR 13-5-22, P-8, Structures and Land Uses, Existing), a permit is not required. The rules state: *Minor repair, maintenance, and operation to an existing structure, facility, use, land and equipment, whether it is nonconforming or permitted, that involves mostly cosmetic work or like-to-like replacement of component parts, and that results on negligible change to or impact to land, or a natural and cultural resource.*

DLNR was consulted to confirm that this project does not need a permit.

CMP Compliance

NASA IRTF reviewed the CMP for compliance and where applicable IRTF addressed the CMP condition for compliance.

OMKM Recommendations

OMKM recommends the MKMB classify this proposal a minimal impact project based on the following:

1. The proposed request does not increase the size of facility, except the replacement vent hoods are slightly larger than the existing ones.
2. There are no archaeological sites in the immediate area.
3. No excavation is involved.
4. The majority of the activities will take place inside the IRTF facility.
5. The impact to the immediate surroundings and summit region are negligible.

Conditions

OMKM recommends the following conditions:

1. Notify OMKM in writing when it plans to install the chiller.
2. Ensure that loose tools or equipment are not left on the job site.
3. In the event of high wind conditions precautions will be taken to prevent debris from being blown from the job site.
4. The site is to be kept clean and free of debris.
5. All waste material generated will be removed and disposed of properly; all perishable items including food, food wrappers and containers, etc. shall be removed from the site at the end of each day.
6. Heavy vehicles must be power washed, in particular the wheels and wheel wells prior to driving onto UH's managed lands, in particular, the summit.
 - Submit a copy of the inspection report of the crates/containers and transport vehicle including the date, location and name of inspector to OMKM.

7. Comply with all actions and measures described in the proposal including the CMP compliance actions.
8. Allow OMKM rangers to visit and monitor activities.
9. Notify OMKM in writing when the project is completed.

Action

It was moved by Patricia Bergin and seconded by Herring Kalua to accept OMKM's recommendation to classify this project as Minimal Impact. The motion was carried unanimously.

Discussion

Mr. Chun asked about polypropylene glycol refrigerant and its environmental characteristics. Lars Bergknot, IRTF manager, replied he did not have a material safety data sheet (MSDS) for the polypropylene, but polypropylene is supposed to be a food grade type of product so it is not harmful to the environment. Also, it will be used in a closed system.

Mr. Ho asked about the quantities in the system in use and the total quantities that would be on site. Mr. Bergknot was not prepared for this question, but his best guess would be ~100 gallons at most would be used in the system.

Action

It was moved by Gregory Chun and seconded by Herring Kalua to approve the project and allow the applicant to proceed with conditions as stated. The motion was carried unanimously.

B. Mauna Kea Observatories Support Services: Request to Install a Remote Road Surface Condition Sensor on the Old Summit Lunchroom

MKSS is requesting approval to install a road surface sensor onto a pole attached to the summit lunchroom. This sensor is designed to detect the presence of "black ice" on the road which is difficult to see. The sensor will automatically generate warning emails to Mauna Kea workers and to a public posted website, or to other forms of communication devices. This device measures 17 inches long and about 5.25 inches in height. It would be installed about 5 – 10 feet above the roof of the old summit lunchroom.

Only one sensor will be installed to test its effectiveness. If it proves effective, MKSS would like to install additional sensors (6 – 7) in areas prone to the formation of "black ice."

Benefits

This project will benefit everyone driving on the Mauna Kea Access Road by providing advance warning of hazardous road conditions. The sensor output will be used to not only automatically generate a warning email to Mauna Kea workers, but will also be available to the public on via a website or LED warning sign. It can also send a robo-call to wake up personnel to close the road. All data will be publicly available on the Mauna Kea Weather Center website.

Kahu Kū Mauna Council

Kahu Kū Mauna reviewed the proposal on May 7, 2013, and voted in favor of the project.

DLNR Rules

Pursuant to administrative rules pertaining to the Conservation District (HAR 13-5-22, P-8, Structures and Land Uses, Existing), a permit is not required. The rules state: *Minor repair, maintenance, and operation to an existing structure, facility, use, land and equipment, whether it is nonconforming or permitted, that involves mostly cosmetic work or like-to-like replacement of component parts, and that results on negligible change to or impact to land, or a natural and cultural resource.*

An inquiry will be made with DLNR to confirm that a permit is not required.

CMP Compliance

MKSS reviewed the CMP and where applicable, MKSS addressed the CMP condition for compliance.

OMKM Recommendation

OMKM recommends the MKMB classify this proposal a minimal impact project based on the following:

1. The proposed request does not increase the size of facility.
2. There are no archaeological sites in the immediate area.
3. No excavation is involved.
4. The impact to the immediate surroundings and summit region are negligible.

Conditions

OMKM recommends the following conditions:

1. If a permit from DLNR is required, notify OMKM that a permit is required and provide a copy of the permit to OMKM
2. Notify OMKM in writing when it plans to install the sensor.
3. Ensure that loose tools or equipment are not left on the job site.
4. In the event of high wind conditions precautions will be taken to prevent debris from being blown from the job site.
5. The site is to be kept clean and free of debris.
6. All waste material generated will be removed and disposed of properly; all perishable items including food, food wrappers and containers, etc. shall be removed from the site at the end of each day.
7. Comply with all actions and measures described in the proposal including the CMP compliance actions.
8. Allow OMKM rangers to visit and monitor activities.
9. Notify OMKM in writing when the project is completed.

Action

It was moved by Herring Kalua and seconded by Patricia Bergin to accept OMKM's recommendation to classify this project as Minimal Impact. The motion was carried unanimously.

It was moved by Herring Kalua and seconded by Gregory Chun to approve the project and allow the applicant to proceed with conditions as stated. The motion was carried unanimously.

Discussion

Lisa Hadway asked if the testing phase will last the next winter season and MKSS will come back to the Board with results. Stewart Hunter replied yes.

C. Subaru Telescope: Remove and Replace Existing Sound Detection and Ranging (SODAR) System with a Surface Layer Non-Doppler Acoustics Radar (SNODAR) on the Roof of its Summit Support Facility

Background

In July 2007, the Mauna Kea Management Board approved Subaru's request to install a SODAR on the roof of its summit support building. The SODAR measures meteorological parameters between 25m and 1,000m above the ground by sending a ping into the air and analyzing the echo. The SODAR measures the echo strength at various heights whereby obtaining wind speeds and the thermodynamic structure of the atmosphere such as turbulence. The information from the SODAR is used in conjunction with Subaru's adaptive optics system to derive better images.

To address concerns of MKMB, Subaru did a noise study to determine the decibel levels of the ping made by the SODAR. The report indicated that the ping was audible above the wind noise only when it was close to the building and was buried in the wind away from the facility. Also, to address concerns expressed by Kahu Kū Mauna, Subaru agreed to a 5-year term and was given the opportunity to extend.

The five years have expired and Subaru is requesting to replace the SODAR with a SNODAR which can measure turbulence at levels that are closer to telescope height (3 feet above the SNODAR). The SODAR measures turbulence at about 30 feet. Measurements of turbulence closer to the telescope provides more accurate data for determining the compensation needed to adjust for image blur caused by turbulence in the atmosphere. This compensation factor results in better image quality.

Kahu Kū Mauna Council

Kahu Kū Mauna reviewed the proposal on May 7, 2013, and voted in favor of the project.

DLNR Rules

Pursuant to administrative rules pertaining to the Conservation District (HAR 13-5-22, P-8, Structures and Land Uses, Existing), a permit is not required. The rules state: *Minor repair, maintenance, and operation to an existing structure, facility, use, land and equipment, whether it is nonconforming or permitted, that involves mostly cosmetic*

work or like-to-like replacement of component parts, and that results on negligible change to or impact to land, or a natural and cultural resource.

An inquiry will be made with DLNR to confirm that a permit is not required.

CMP Compliance

Subaru reviewed the CMP for compliance. Where applicable, Subaru addressed the CMP condition for compliance.

OMKM Recommendation

OMKM recommends the MKMB classify this proposal a minimal impact project based on the following:

1. The proposed request does not increase the size of facility.
2. There are no archaeological sites in the immediate area.
3. No excavation is involved and the activity will take place on the roof of the Subaru support building.
4. The impact to the immediate surroundings and summit region are negligible.

Conditions

OMKM recommends the following conditions:

1. If a permit from DLNR is required, notify OMKM that a permit is required and provide a copy of the permit to OMKM.
2. Notify OMKM in writing when it plans to install the SNODAR.
3. Ensure that loose tools or equipment are not left on the job site.
4. In the event of high wind conditions precautions will be taken to prevent debris from being blown from the job site.
5. The site is to be kept clean and free of debris.
6. All waste material generated will be removed and disposed of properly; all perishable items including food, food wrappers and containers, etc. shall be removed from the site at the end of each day.
7. Comply with all actions and measures described in the proposal including the CMP compliance actions.
8. Allow OMKM rangers to visit and monitor activities.
9. Notify OMKM in writing when the project is completed.

Discussions

Mr. Chun stated the unit stands taller than the existing unit and asked how will it be attached to the roof and what is the wind rating to insure that this will stay put. Dr. Saeko Hayashi, with Subaru Telescope, replied the guy wires minimize making holes in the roof. According to the specifications this system withstands winds up to 150 mph.

Ms. Hadway asked about the frequency between the two units. Is there a difference in the pitch? Dr. Hayashi stated the existing one is like a “chirping” sound while the new one is more like a “bubbly” sound.

Action

It was moved by Herring Kalua and seconded by Lisa Hadway to accept OMKM’s recommendation to classify this project as Minimal Impact. The motion was carried unanimously.

It was moved by Herring Kalua and seconded by Gregory Chun to approve the project and allow the applicant to proceed with conditions as stated. The motion was carried unanimously.

D. Mauna Kea iPhone Application – Presentation

Mr. Klasner introduced Mike Purvis, a senior in UHH’s software engineering class, whose team developed a Smartphone application to help document existing and new native and invasive plant species on Mauna Kea. Mr. Purvis presented a slideshow demonstrating the *Mauna Kea Guide* application. This application will take a picture, record photograph location, allow the user to identify species using an existing plant list, and upload the picture to a web database when data/phone service is available. The user receives tools to help identify Mauna Kea plant species while OMKM gets information about where different species are found.

Cheyenne Perry stated the information could be used in a management context and asked if it would also provide mapping of areas for managers. Mr. Klasner replied yes, the next step is to refine functionality to meet program needs. Mr. Perry also asked if cultural information on the plants were included. There are a lot of medicinal plants up there. Mr. Klasner replied that right now it is more scientific information, but other information could be readily added.

UH Hilo's Team Poliahu, with Mike Purvis as captain, recently won the 2013 U.S. Microsoft Imagine Cup Championship held in California. Their application entitled "Help Me Help" focused on community help for disaster relief efforts (originally evolved from the Mauna Kea invasive species application). The team will head to Russia for the Imagine Cup Worldwide Finals in July.

E. Office of Mauna Kea Management Web Page – Presentation

The Office will be releasing a new version of its website. The address (www.malamamaunakea.org) will remain the same. Mr. Klasner gave a brief presentation of the new website. Notice will go out to the Board and various committees once the new website is up.

VIII. ANNOUNCEMENTS

There were no announcements.

IX. NEXT MEETING

The next meeting is scheduled for Wednesday, August 14, 2013.

X. ADJOURNMENT

There being no further business Chair Mooers adjourned the meeting at 11:05 a.m.

Respectfully submitted:

Signed by Lisa Hadway
Lisa Hadway, Secretary, MKMB

8/14/13
Date