



UNIVERSITY of HAWAII*at HILO
CENTER FOR MAUNAKEA
STEWARDSHIP

MEMORANDUM

September 19, 2023

TO: Maunakea Advisory Review Group

FROM: Greg Chun, Executive Director

SUBJECT: Request to Construct VIS Storage Enclosure

- Date proposal rec'd: 7/11/2023
- Type **A** / B / C
- CMS MIP #: 343
- ED review: 8/1/2023
- EC review: 8/17/2023
- KKM review: 8/3/2023
- MKMB review: 9/12/2023
- MKSOA review: 10/12/2023
- Site Plan mailed: _____

I. Project Description

The Center for Maunakea Stewardship (CMS) requests to enclose a portion of the existing roof overhang on the west corner of the Onizuka Visitor Information Station (VIS), originally approved under CDUP HA-1430.

The purpose is to create additional storage ahead of a planned redesign of the VIS indoor exhibits which will require all available indoor floorspace. Currently, some indoor space is used to store a daytime solar telescope and a Rowe-Ackermann Schmidt Astrograph (RASA); these will need to be stored outside. The new enclosure will also store numerous educational posters after-hours. The installation work will be completed by CMS staff over about a week. The action is expected to have temporary and either minimal or no significant effects.

The request was reviewed by Kahu Kū Mauna during their regular meeting on August 3, 2023; by the Environment Committee on August 17, 2023; and by the Maunakea Management Board on September 12, 2023. No concerns were expressed any committee.

II. Department of Land and Natural Resources Rules

The project presumes the following land use under HAR §13-5-22, P-8, Structures and Land Uses, Existing, (B-1) *Demolition, removal, or minor alteration of existing structures, facilities, land, and equipment.*

III. Identified Impacts

The nearest identified cultural resource may include an ahū-lele within the DLNR-managed silversword enclosure. The proposed land use is not anticipated to have any effect on this cultural resource. CMS has also determined the project will not extend or enlarge the VIS footprint and does not change the permitted use of the facility. No impacts

are anticipated to any identified historic properties or cultural resources, nor to any natural (geological and water), biological, or recreational resources.

IV. Comprehensive Management Plan Compliance

The request is consistent with the Comprehensive Management Plan (CMP) and the University's lease for the Halepōhaku parcel. Further, CMS' review of this proposal complies with the following CMP Actions:

- NR-1: Limit threats to natural resources through management of permitted activities and uses.
- AR-2: Prevent light pollution, radio frequency interference (RF) and dust.
 - Contractors and staff will be informed not to use cell phones, two-way radios, or other electromagnetic frequency emitting devices, and to keep within posted speed limits. All work will be done during daylight hours so as not to affect nighttime operations of other observatories.
- P-1: Comply with all applicable federal, state, and local laws, regulations, and permit conditions related to activities in the UH management Areas.
- P-4: Educate management staff and users of the mountain about all applicable rules and permit requirements
 - All project workers will be required to attend cultural and environmental training prior to onsite arrival.
- IM-5: Develop and implement a Debris Removal, Monitoring and Prevention Plan.
 - Crating material shall be removed daily. All incidental rubbish and debris shall be kept in a windproof rubbish bin or inside the VIS behind closed doors. All perishable materials such as food and food wrappers shall be removed daily.
- C-9: Inspection of construction materials
 - Shipping containers and crates will be inspected by a DLNR-approved biologist or by Department of Agriculture personnel prior to arriving at Maunakea. Identified mitigation measures will be complied with.
- EO-2: Require orientation of users

V. Center for Maunakea Stewardship (CMS) Recommendation

CMS recommends these conditions should this request receive OCCL Site Plan Approval:

- Best Management Practices will be employed.
- The work area will be clearly delineated to warn the public of any hazards.
- All project participants must attend a Maunakea Orientation prior to work.
- Allow Maunakea Rangers to visit and monitor activities.
- Ensure that loose tools or equipment are not left unattended and are properly stored at the end of each day.
- In preparation for high wind conditions protocols must include measures to ensure debris and equipment are not blown from the job site. Projects occurring in the summit region must verify that temporary and permanent infrastructure can sustain 120 mph winds.
- All improvements shall be designed and installed to withstand the severe weather conditions on the mountain.

- Removal and proper disposal of all waste material. All perishable items including food, food wrappers and containers, etc. shall be removed from the site at the end of each day and properly disposed.
- Use of lighting from sunset to sunrise is prohibited unless otherwise stated in the project proposal and approved.
- Employ invasive species prevention best practices, including inspections of materials by a DLNR-approved biologist, as identified in the *Maunakea Invasive Species Management Plan* prior to entering UH managed lands. Inspections shall not occur on UH managed lands on Maunakea, at State or County parks, along public roadsides, or on Department of Hawaiian Home Lands.
- Motorized equipment, when stationary, must have a drain-pan in place suitable for catching fuel or fluid leaks.
- Nēnē (*Branta sandvicensis*) may be present. If a nēnē appears within 100 feet (30.5 meters) of ongoing work, all activity shall be temporarily suspended until the animal leaves the area of its own accord. Feeding of nēnē is prohibited.
- The project approval/permit may not be transferred or assigned without prior authorization. A copy of the approval/permit must be present on-site and available for review at all times while working on University-managed lands.
- No use of mechanized equipment is allowed unless authorized by this permit.
- Identify and comply with other permit requirements, such as County of Hawaii building permits or Department of Land & Natural Resources (see both any applicable DLNR permit and HAR §13-5-42 Standard conditions).
- Notify CMS in writing when field activity associated with the project is completed.
- The project must be completed within the time frame specified in the proposal and (when applicable) as provided for in DLNR approval.

If you have any questions, please do not hesitate to contact Joy Yoshina via email, yoshina9@hawaii.edu, or by calling 808-933-0743.

Sincerely,

Greg Chun
Executive Director, CMS



SITE PLAN APPROVAL APPLICATION (SPA)

File No:

Acceptance Date:

30-Day Expiration Date:

Assigned Planner:

for DLNR Use

Pursuant to Hawai'i Administrative Rules (HAR) §§13-5-22 through 24, identified land uses beginning with letter (B) require a site plan approval by the department.

PROJECT NAME: VIS Storage Enclosure

Conservation District Subzone: Resource

Identified Land Use: HAR § 13-5-22, P8 STRUCTURES AND LAND USES, EXISTING. (A-1) 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 in negligible change to or impact to a land, or a natural and cultural resource;

(Identified Land Uses are found in HAR §13-5-22 through §13-5-25)

Project Address: Halepōhaku, Maunakea

Tax Map Key(s): 3-4-4-015:012 – Halepōhaku

Ahupua`a:Ka'ohe Mauka

District: Hamakua

Island: Hawai'i

Proposed Commencement Date: September 2023

Proposed Completion Date: One week

Estimated Project Cost: \$5,000

Total size / area of proposed use: North wall (door), approx 80 sq ft; West wall, approx 54 sq ft; south wall, approx 80 sq ft.

ATTACHMENTS

- \$50 application fee (*ref §13-5-32 through 34*)
- Location map
- Site plan
- Construction, grading, site restoration, landscaping, or fire buffer plans, as applicable

Note: The application fee for State projects is waived pursuant to HAR §13-5-32.

REQUIRED SIGNATURES

Applicant

Name / Agency: University of Hawai'i at Hilo

Street Address: 200 W. Kawili Street

Hilo, Hawaii 96720

Contact Person & Title: Greg Chun, Executive Director, Center for Maunakea Stewardship, UH Hilo

Phone: 808-933-0734

Fax: 808-933-3208

Email: cmshilo@hawaii.edu

Interest in Property: DLNR lands leased to University of Hawai'i, with management delegated to the Center for Maunakea Stewardship, under General Lease S-5529, issued by the State of Hawaii, Land Division.

Signature: _____ **Date:**

Signed by an authorized officer if for a Corporation, Partnership, Agency or Organization

Landowner (if different than the applicant)

Name: State of Hawai'i, with management control administered by University of Hawai'i under General Lease S-5529

Title; Agency: Nahua Guilloz, Director of Stewardship Programs, CMS, UH Hilo

Mailing Address: 200 W. Kawili Street

Hilo, Hawaii 96720

Phone: 808-933-0734

Fax: 808-933-3208

Email: guilloz@hawaii.edu

Signature: _____ **Date:**

For State and public lands, the State of Hawai'i or government entity with management control over the parcel shall sign as landowner.

Agent

Agency:

Contact Person & Title:

Mailing Address:

Phone:

Fax:

Email:

Signature: _____ **Date:**

For DLNR Managed Lands

State of Hawai'i

Chairperson, Board of Land and Natural Resources

State of Hawai'i

Department of Land and Natural Resources

P.O. Box 621

Honolulu, Hawai'i 96809-0621

Signature _____ **Date:**

PROPOSED USE

Please provide a detailed description of the proposed land use. Please also include information regarding secondary improvements including, but not limited to, grading and grubbing, placement of accessory equipment, installation of utilities, roads, driveways, fences, landscaping, etc. Description of project should include dimensions and quantities of materials as applicable.

The project will enclose a portion of the existing roof overhang on the West side of the Visitor Information Station, originally approved under CDUP HA 1430, issued 1982, and located within the University of Hawaii managed-lands on Maunakea.

CMS identifies the land use as HAR §13-5-22, P-8, Structures and Land Uses, Existing (A-1) Minor repair, maintenance, and operation to an existing structure, facility, use, land, and equipment. The proposed use will involve installation of plywood and a metal, roll-up door to create a secure, enclosed storage area in the building's southwest corner. The space will utilize existing structural posts, beams and roof, and will and remain within the current building footprint. An alternative design depicts the modification with built-in windows.

The purpose of the installation is to create additional storage ahead of a planned redesign of the VIS indoor exhibits which will require all available indoor floorspace. Currently, some indoor space is used to store a daytime solar telescope and a Rowe-Ackermann Schmidt Astrograph (RASA), used for nighttime imaging. The new enclosure will also store numerous educational posters when the posters are put away after-hours. The installation work will be completed by CMS staff over the course of a few days.

The attached photographs and illustrations show the current conditions of the target storage area along with anticipated modifications for comparison.

EXISTING CONDITIONS

Please describe existing conditions on the parcel (geology, ecology, cultural and recreational resources, historic resources, structures, landscaping, etc). Provide information regarding existing buildings and structures as well as infrastructure and utilities as applicable.

Geology, Climate, & Hazards

The Halepōhaku area is located at the base of Maunakea's upper slopes at an elevation of 9,200 feet and has a semi-arid, sub-alpine climate. Soils are a mix of cinder and ash. The proposed activity will only occur within an existing disturbed use.

Flora, Fauna, Ecology, Water Resources

The ecosystem is considered subalpine, with vegetation a mixture of abundant non-native grasses, native māmane (*Sophora chrysophylla*) and xeriphitic scrub. Of native plant species, the most abundant are māmane and native grasses. There are no federally listed threatened or endangered plant species within the HP parcel itself, although numerous planted *Argyroxiphium sandwicense* subsp. *sandwicense*, 'āhinahina, are found within the Forest Reserve silversword enclosure adjacent to the HP parcel. No impact to any of the silverswords, silversword habitat, or visitors to the enclosure is anticipated. HP is located within the Onomea aquifer system. There are no surface water resources. Groundwater levels are assumed to be at significant depth, likely more than 3,000 ft below ground surface. Water-quality analyses have not detected any levels of bacterial or other pollutants in Maunakea water resources.

Cultural Resources

The nearest identified cultural resource may include an ahu-lele within the DLNR-managed silversword enclosure. The proposed land use is not anticipated to have any effect on this cultural resource. The nearest historic property is immediately adjacent to the cinder road along the North-East boundary of the Halepōhaku parcel with the Mauna Kea Forest Reserve (site 10312). No adverse impact to this or any historic properties is anticipated.

Recreation

Various public recreation opportunities exist at the midlevel area, including sightseeing, self-guided walking trails and night-sky viewing. No impacts to recreational resources are anticipated.

Built Infrastructure

The proposed site is in an already-disturbed area with permitted, built infrastructure. The existing buildings and structures at HP include the Onizuka Center for International Astronomy Visitor Information Station (VIS) and parking areas, astronomy support facilities and parking, Utilities/Maintenance shop, three stone buildings, four cabins and one longhouse. Utilities throughout the area include electricity, telecommunications, underground fuel storage tanks, aboveground water tanks, culverts and earthen swale.

Landscaping & Visual Conditions

The local vegetation is a mixture of various native and exotic grasses and forbs, subalpine xerophitic scrub, and native shrubs and trees including māmane (*Sophora chrysophylla*) . Built structures are described in the foregoing section. Other prominent natural features include views of Mauna Loa's northern slopes, nearby cinder cones, and the rugged, steep south face of Maunakea.

EVALUATION CRITERIA

The Department or Board will evaluate the merits of a proposed land use based upon the following eight criteria (*ref §13-5-30 (c)*):

1. The purpose of the Conservation District is to conserve, protect, and preserve the important natural and cultural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare. (*ref §13-5-1*) How is the proposed land use consistent with the purpose of the conservation district?

The Board of Land and Natural Resources has adopted the Comprehensive Management Plan and subplans (Cultural Resources Management Plan, Natural Resources Management Plan, Public Access Plan, and Decommissioning Plan) as the approved management documents for land use and activities in the UH Management Areas. The CMP and subplans provide management strategies designed to preserve and protect the resources located in the UH Management Areas. The University is committed to the implementation of these plans using the resources available to it. The proposed use is a minor modification to the existing built infrastructure that complies with the approved management frameworks, HAR 13-5-1, and conserves, protects and preserves the natural and cultural resources.

2. How is the proposed use consistent with the objectives of the subzone of the land on which the land use will occur? (*ref §13-5-11 through §13-5-15*)

The objective of the Resource subzone "...is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas." The use that is proposed in this application is within the Conservation District Resource subzone. The proposed enclosure will not damage native natural resources and assists with management of activities specified in General Lease S-5529 and CDUP HA 1430.

3. Describe how the proposed land use complies with the provisions and guidelines contained in chapter 205A, HRS, entitled "Coastal Zone Management" (*see 205A objectives on p. 8*).

The site of the proposed use is above 9,000 feet elevation and over 20 miles from the coastal zone. The project will have no effect on any of the coastal resources identified in HRS 205A, including, but not limited to, recreational opportunities, historic resources, scenic and open space, ecosystems, economic uses, beach and coastal dune protection, and/or marine and coastal resources. The project is also not a coastal development. Consequently, the project complies with objectives of HRS 205A.

4. Describe how the proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region.

The installation will be transported on and located wholly within existing infrastructure using hand tools. This will have no impact, and no substantial adverse impact, to existing natural resources within the surrounding area, community or region.

5. Describe how the proposed land use, including buildings, structures and facilities, is compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels.

The proposed installation allows for existing approved recreational and educational uses in the area and will occur within and complement existing infrastructure.

6. Describe how the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon.

The project will have minimal visual affect as it will enclose an already partially-walled area. The same siding material that is currently used on the East side of the building will be utilized in the enclosure to maintain the current aesthetics of the building. The natural beauty and open space characteristics will be preserved.

7. If applicable, describe how subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District.

No subdivision of land is involved.

8. Describe how the proposed land use will not be materially detrimental to the public health, safety and welfare.

The use is intended to make more efficient use of existing space and should not affect public health, safety and welfare.

CERTIFICATION

I hereby certify that I have read this completed application and that, to the best of my knowledge, the information in this application and all attachments and exhibits is complete and correct. I understand that the failure to provide any requested information or misstatements submitted in support of the application shall be grounds for either refusing to accept this application, for denying the permit, or for suspending or revoking a permit issued on the basis of such misrepresentations, or for seeking of such further relief as may seem proper to the Land Board.

I hereby authorize representatives of the Department of Land and Natural Resources to conduct site inspections on my property. Unless arranged otherwise, these site inspections shall take place between the hours of 8:00 a.m. and 4:30 p.m.

Signature of authorized agent(s) or if no agent, signature of applicant

AUTHORIZATION OF AGENT

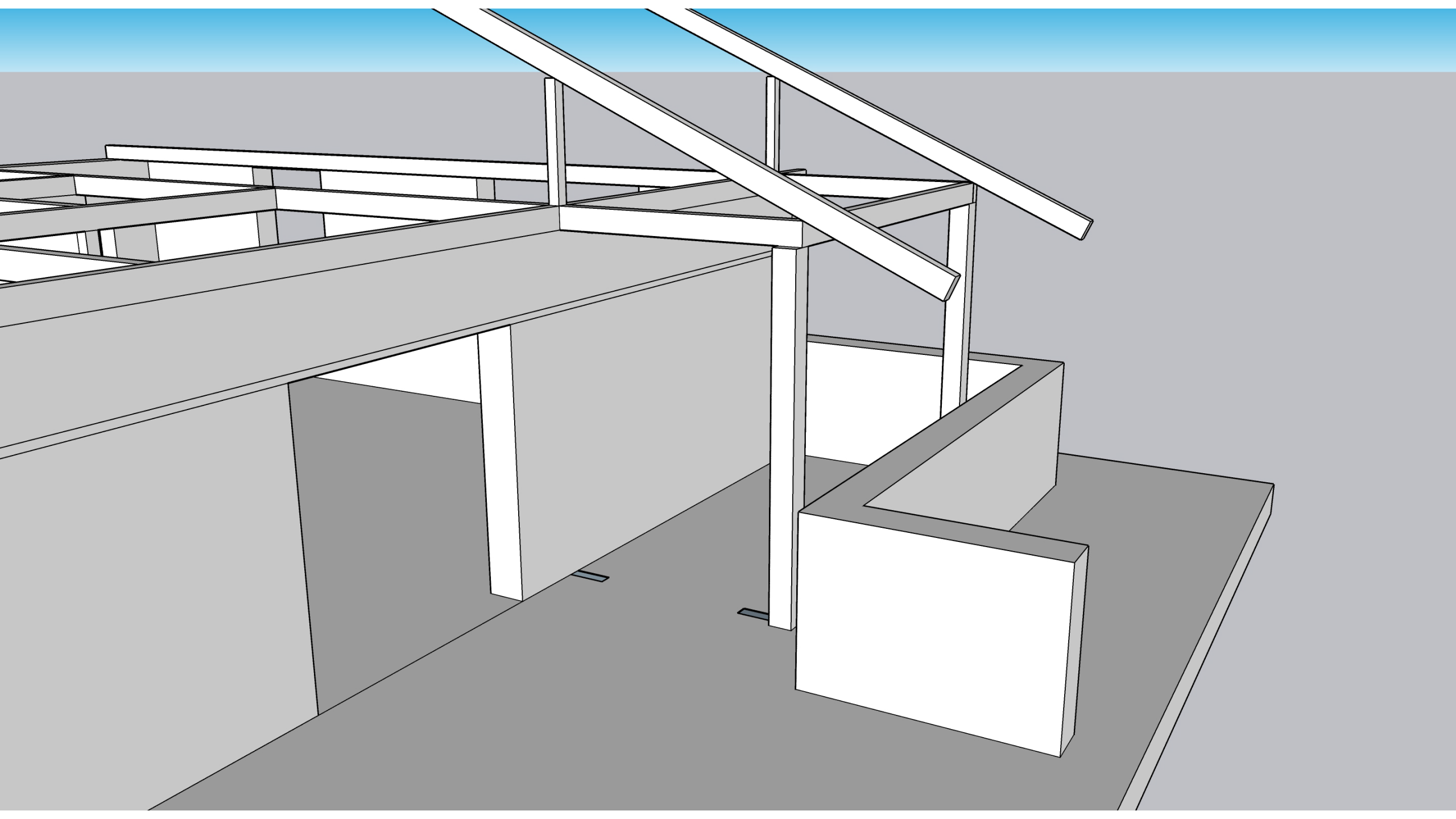
I hereby authorize _____ to act as my representative and to bind me in all matters concerning this application.

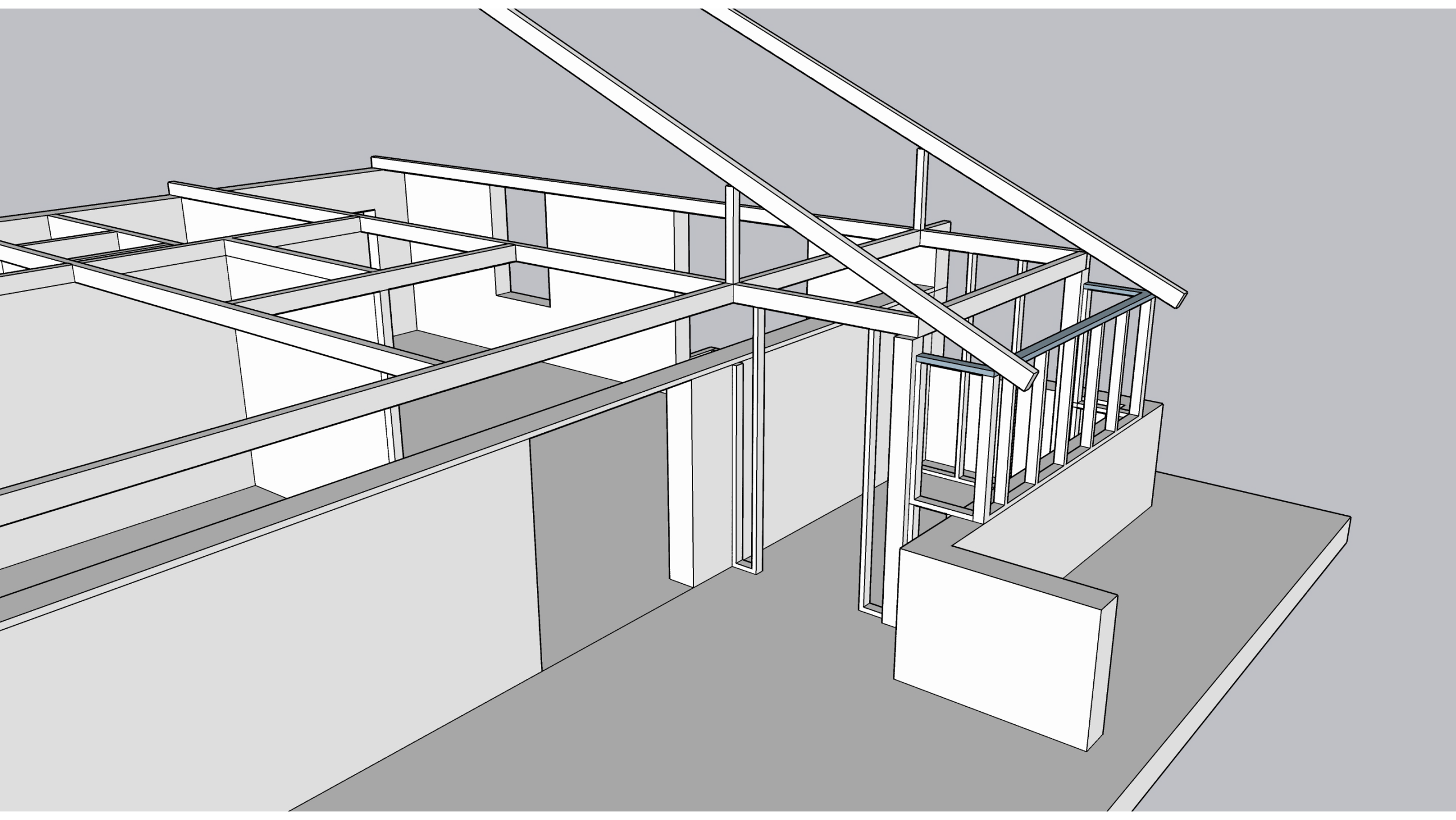
Signature of applicant(s)

VISITOR INFORMATION STATION

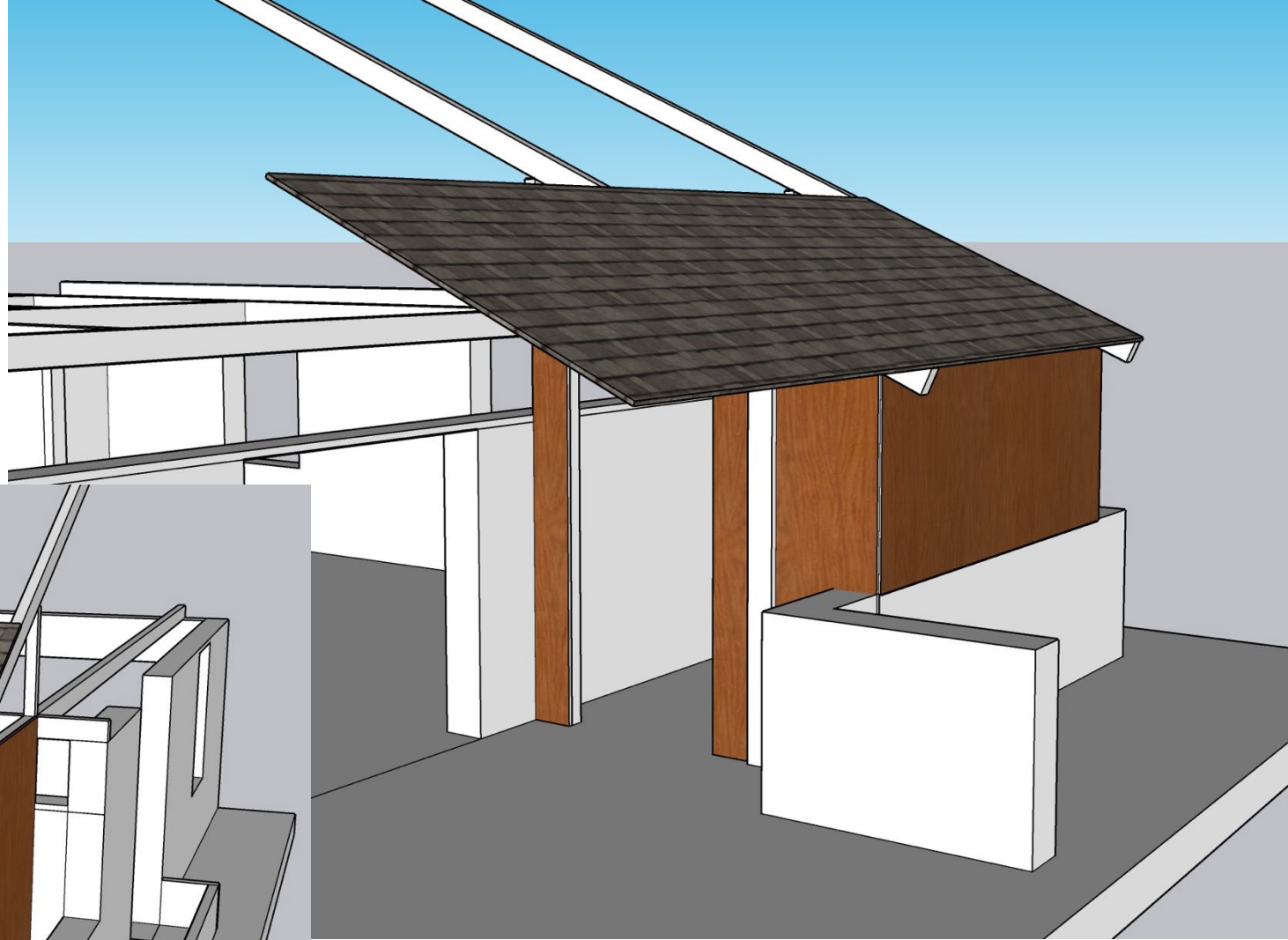
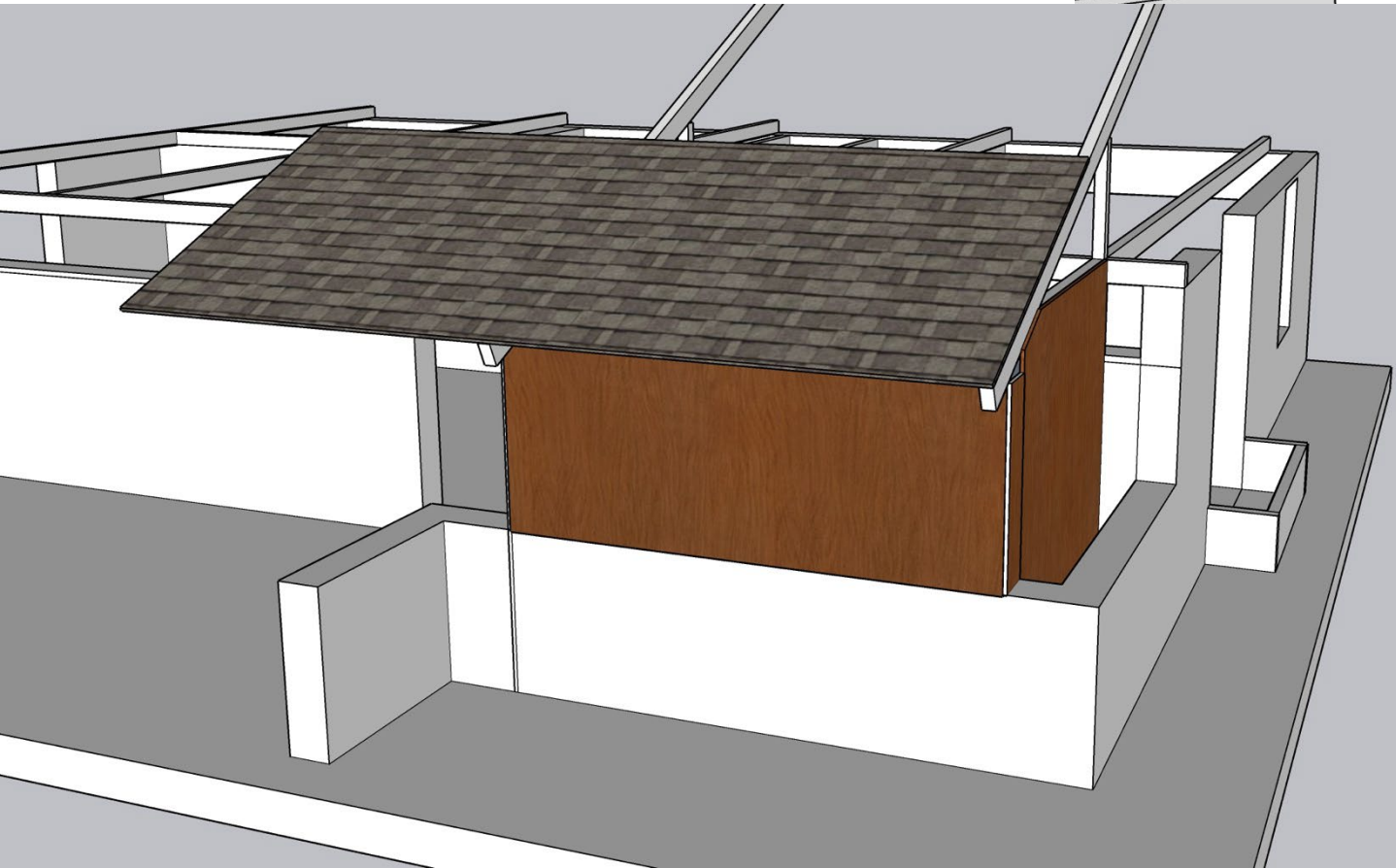
OUTSIDE STORAGE AREA





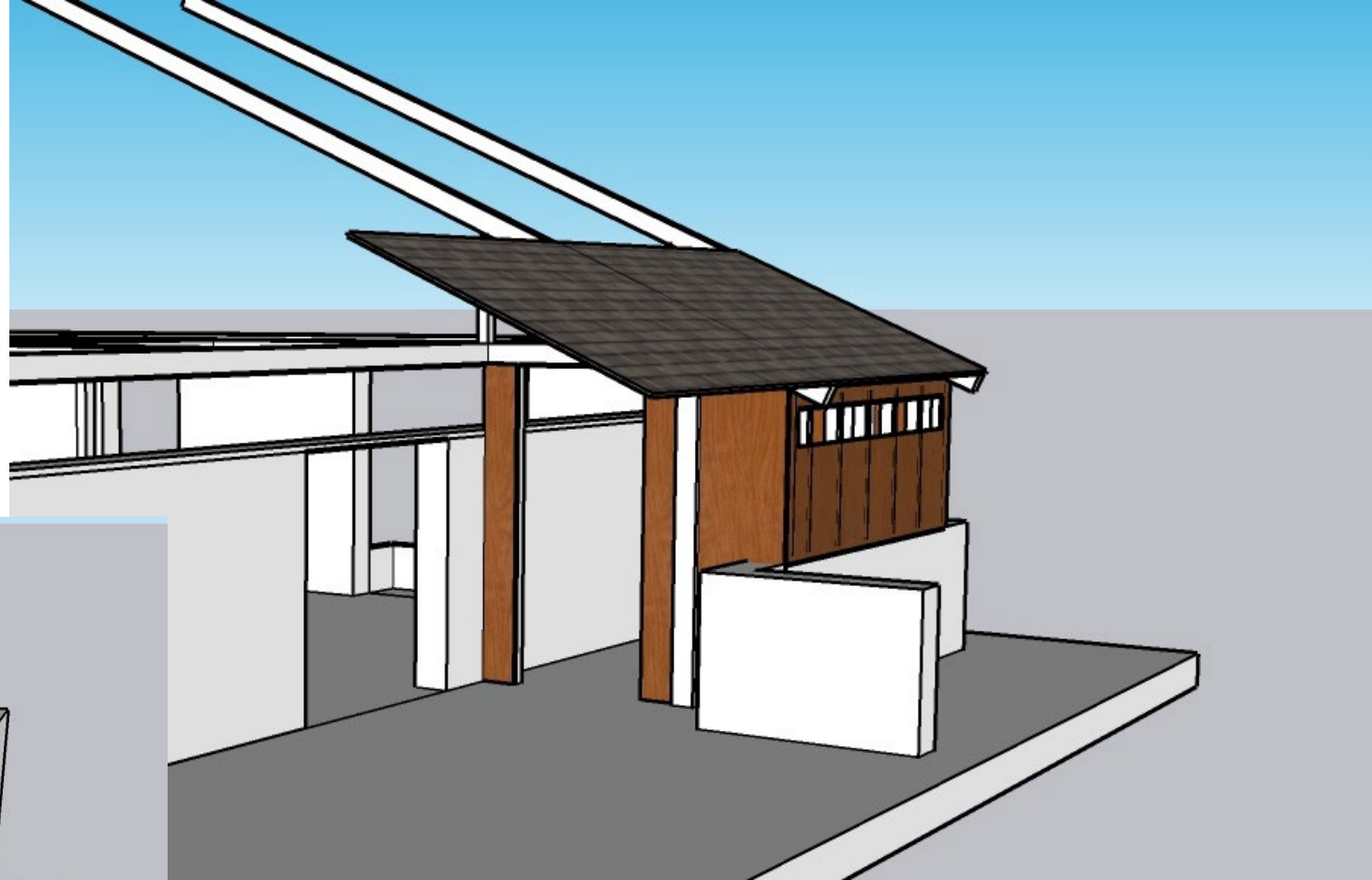
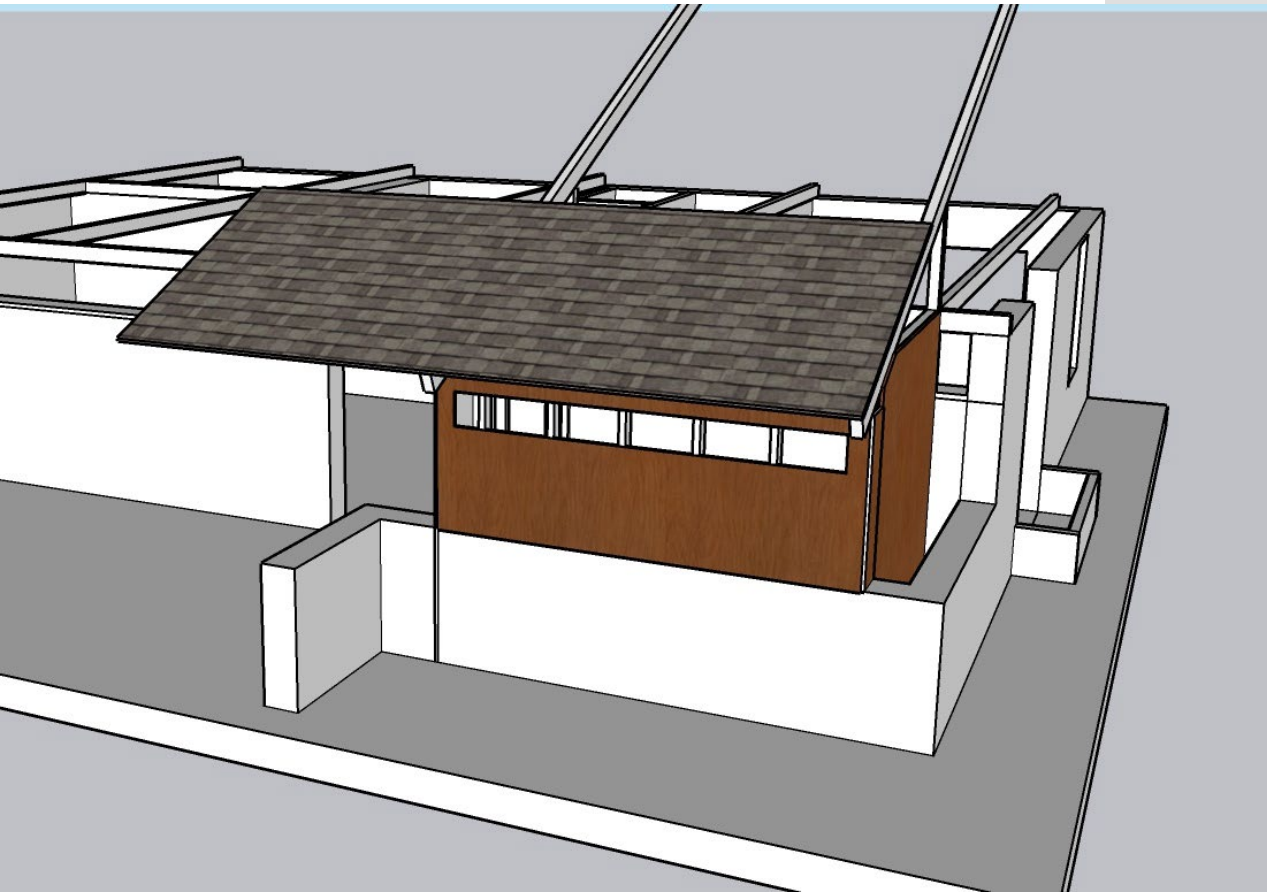


Closed W wall, no windows





W Wall with windows



East Side of Visitor Information Station

Same type of siding used here will be applied to the new enclosure to maintain a homogeneous look on the building.





Top L: Solar telescope at Patio
Top R: Storage of telescopes
inside VIS
Bottom L: RASA Night imaging
telescope
Bottom R: Daytime portable
posters



MAUNA KEA COMPREHENSIVE MANAGEMENT PLAN

COMPONENT PLAN: UNDERSTANDING AND PROTECTING MAUNA KEA'S RESOURCES

NATIVE HAWAIIAN CULTURAL RESOURCES			
		Subplans	Comments
Management			
CR-1	Kahu Kū Mauna shall work with families with lineal and historical connections to Mauna Kea, cultural practitioners, and other Native Hawaiian groups, including the Mauna Kea Management Board's Hawaiian Culture Committee, toward the development of appropriate procedures and protocols regarding cultural issues.	NRMP 5.1.1 CRMP 4.2.1 PAP 2.3, 6.1, 6.3, 6.8	N/A
CR-2	Support application for designation of the summit region of Mauna Kea as a Traditional Cultural Property, per the National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470 et seq. in consultation with the larger community.	CRMP 2.4.2.1	N/A
CR-3	Conduct educational efforts to generate public awareness about the importance of preserving the cultural landscape.	NRMP 4.4.2 CRMP 4.3.3 PAP 4.2, 5.2, 6.1	N/A
Cultural Practices			
CR-4	Establish a process for ongoing collection of information on traditional, contemporary, and customary cultural practices.	CRMP 4.2.1.1	N/A
CR-5	Develop and adopt guidelines for the culturally appropriate placement and removal of offerings	CRMP 4.2.1.3 PAP 6.3, 6.8	N/A
CR-6	Develop and adopt guidelines for the visitation and use of ancient shrines.	CRMP 4.2.1.5 PAP 2.7.2, 6.3	N/A
CR-7	Kahu Kū Mauna shall take the lead in determining the appropriateness of constructing new Hawaiian cultural features.	CRMP 4.2.1.6	N/A
CR-8	Develop and adopt a management policy for the UH Management Areas on the scattering of cremated human remains.	CRMP 4.2.1.7	N/A
CR-9	A management policy for the cultural appropriateness of building ahu or "stacking of rocks" will need to be developed by Kahu Kū Mauna who may consider similar policies adopted by Hawai'i Volcanoes National Park.	CRMP 4.2.1.8 PAP 6.8	N/A
NATIVE HAWAIIAN CULTURAL RESOURCES			
		Subplans	Comments
Historic Properties			
CR-10	Develop and implement a historic property monitoring program to systematically monitor the condition of the historic district and all historic properties, including cultural sites and burials.	CRMP 4.3.1 PAP 5.2	N/A
CR-11	Complete an archaeological survey of the portions of the Summit Access Road corridor that are under UH management.	CRMP 4.3.7	N/A
CR-12	Consult with Kahu Kū Mauna about establishing buffers (preservation zones) around known historic sites in the Astronomy Precinct, to protect them from potential future development.	CRMP 4.2.7	N/A
CR-13	Develop and implement a burial treatment plan for the UH Management Areas in consultation with Kahu Kū Mauna Council, MKMB's Hawaiian Culture Committee, the Hawai'i Island Burial Council, recognized lineal or cultural descendants, and SHPD.	CRMP 4.3.2, 4.3.7	N/A
CR-14	Immediately report any disturbance of a shrine or burial site to the rangers, DOCARE, Kahu Kū Mauna Council, and SHPD.	CRMP 4.3.1.6 PAP 2.5.1	N/A

NATURAL RESOURCES		Subplans	Comments
Threat Prevention and Control			
NR-1	Limit threats to natural resources through management of permitted activities and uses.	NRMP 4.2.3	Project will comply with permit conditions.
NR-2	Limit damage caused by invasive species through creation of an invasive species prevention and control program.	NRMP 4.2.3.7, 4.3 PAP 2.7.1, 6.3	Project will follow invasive species protection standard operating procedures.
NR-3	Maintain native plant and animal populations and biological diversity.	NRMP 4.2.3.8	N/A
NR-4	Minimize barriers to species migration, to help maintain populations and protect ecosystem processes and development.	NRMP 4.2.3.11	N/A
NR-5	Manage ecosystems to allow for response to climate change.	NRMP 4.2.3.11	N/A
NR-6	Reduce threats to natural resources by educating stakeholders and the public about Mauna Kea's unique natural resources.	NRMP 4.4 PAP 2.7.1, 4.2 5.2, 6.1, 6.3, 6.6	N/A
Ecosystem Protection, Enhancement & Restoration			
NR-7	Delineate areas of high native diversity, unique communities, or unique geological features within the Astronomy Precinct and at Hale Pōhaku and consider protection from development.	NRMP 4.1, 4.2.3.1	N/A
NR-8	Consider fencing areas of high native biodiversity or populations of endangered species to keep out feral ungulates (applies to areas below 12,800 ft. elevation).	NRMP 4.2.3.7, 4.3	N/A
NR-9	Increase native plant density and diversity through an outplanting program.	NRMP 4.3, 4.4	N/A
NR-10	Incorporate mitigation plans into project planning and conduct mitigation following new development.	NRMP 4.3	N/A
NR-11	Conduct habitat rehabilitation projects following unplanned disturbances.	NRMP 4.3	N/A
NR-12	Create restoration plans and conduct habitat restoration activities, as needed.	NRMP 4.3	N/A
Program Management			
NR-13	Increase communication, networking, and collaborative opportunities, to support management and protection of natural resources.	NRMP 4.1.3.3, 4.3, 5.1.3 PAP 4.2, 4.5	N/A
NR-14	Use the principles of adaptive management when developing programs and methodologies. Review programs annually and revise any component plans every five years, based on the results of the program review.	NRMP 5.2 PAP 5.1, 5.2, 6.4, 6.7, 7	N/A
Inventory, Monitoring and Research			
NR-15	Conduct baseline inventories of high-priority resources, as outlined in an inventory, monitoring, and research plan.	NRMP 4.1	N/A
NR-16	Conduct regular long-term monitoring, as outlined in an inventory, monitoring, and research plan.	NRMP 4.1 PAP 6.4	N/A
NR-17	Conduct research to fill knowledge gaps that cannot be addressed through inventory and monitoring.	NRMP 4.1.2.3	N/A
NR-18	Develop geo-spatial database of all known natural resources and their locations in the UH Management Areas that can serve as baseline documentation against change and provide information essential for decision-making.	NRMP 4.1, 4.5	N/A

EDUCATION AND OUTREACH		Subplans	Comments
Program Development			
EO-1	Develop and implement education and outreach program	NRMP 4.1 CRMP 4.3.3 PAP 2.7.1, 4.2, 5.2, 6.1, 6.3, 6.6	N/A
Education			
EO-2	Require orientation of users, with periodic updates and a certificate of completion, including but not limited to visitors, employees, observatory staff, contractors, and commercial and recreational users.	NRMP 4.4.2 PAP 6.1, 6.6	All staff involved with this project will have current orientation certification.
EO-3	Continue to develop, update, and distribute materials explaining important aspects of Mauna Kea.	CRMP 4.3.3 PAP 6.1	N/A
EO-4	Develop and implement a signage plan to improve signage throughout the UH Management Areas (interpretive, safety, rules and regulations).	NRMP 4.4.2 PAP 4.2, 5.2, 6.2	N/A
EO-5	Develop interpretive features such as self-guided cultural walks and volunteer-maintained native plant gardens.	NRMP 4.3, 4.4.2 CRMP 4.3.3 PAP 6.2	N/A
EO-6	Engage in outreach and partnerships with schools, by collaborating with local experts, teachers, and university researchers, and by working with the 'Imiloa Astronomy Center of Hawai'i.	NRMP 4.4.2 PAP 5.2, 6.1	N/A
Outreach			
EO-7	Continue and increase opportunities for community members to provide input to cultural and natural resources management activities on Mauna Kea, to ensure systematic input regarding planning, management, and operational decisions that affect natural resources, sacred materials or places, or other ethnographic resources with which they are associated.	NRMP 4.4.2 CRMP 5.3 PAP 5.2, 6.3, 6.8	N/A
EO-8	Provide opportunities for community members to participate in stewardship activities.	NRMP 4.4.2	N/A
ASTRONOMICAL RESOURCES		Subplans	Comments
Protection of Astronomical Resources			
AR-1	Operate the UH Management Areas to prohibit activities resulting in negative impacts to astronomical resources.	PAP 5.1	N/A
AR-2	Prevent light pollution, radio frequency interference (RFI) and dust.	NRMP 4.2.3.2	No light pollution will be generated from this project, which will occur during daylight hours only. RFI and dust will also be negligible.

COMPONENT PLAN: MANAGING ACCESS, ACTIVITIES AND USES

ACTIVITIES AND USES		Subplans	Comments
General Management			
ACT-1	Continue and update managed access policy of 1995 Management Plan.	NRMP 4.2, 4.4 PAP 2.5.2, 5.2, 7	N/A
ACT-2	Develop parking and visitor traffic plan.	NRMP 3.1.1.2 PAP 5.2, 6.4, 6.6, 6.7	N/A
ACT-3	Maintain a presence of interpretive and enforcement personnel on the mountain at all times to educate users, deter violations, and encourage adherence to restrictions.	NRMP 5.1.2 CRMP 4.1.1 PAP 4.2, 4.4, 4.5, 4.6, 5.2, 6.1, 6.2, 6.5, 6.6, 6.7	N/A
ACT-4	Develop and enforce a policy that maintains current prohibitions on off-road vehicle use in the UH Management Areas and that strengthens measures to prevent or deter vehicles from leaving established roads and designated parking areas.	NRMP 4.2.3.1 CRMP 4.1.2 PAP 2.5.1, 2.5.2, 2.6.3, 5.2, 6.3, 6.5	N/A
Recreational			
ACT-5	Implement policies to reduce impacts of recreational hiking	NRMP 4.2.3.1 CRMP 4.2.3.4 PAP 3.3.7, 5.2, 6.2, 6.3	N/A
ACT-6	Define and maintain areas where snow-related activities can occur and confine activities to slopes that have a protective layer of snow.	NRMP 4.2.3.1 CRMP 4.2.3.2 PAP 3.3.5, 5.2, 6.1, 6.3, 6.4	N/A
ACT-7	Confine University or other sponsored tours and star-gazing activities to previously disturbed ground surfaces and established parking areas.	NRMP 6.2.3 CRMP 4.2.3.1 PAP 2.5.3, 2.6.2, 3.3.3, 5.2	N/A
ACT-8	Coordinate with DLNR in the development of a policy regarding hunting in the UH Management Areas.	NRMP 3.1.3.5 3.2.12 CRMP 4.2.3.3 PAP 2.5.1, 3.3.6, 5.2	N/A
Commercial			
ACT-9	Maintain commercial tour permitting process; evaluate and issue permits annually.	NRMP 3.1.4 PAP 2.5.3, 2.5.4, 3.3.3, 4.3, 5.2, 6.1, 6.7	N/A
ACT-10	Ensure OMKM input on permits for filming activities	NRMP 3.1.4.2 PAP 2.5.3, 3.3.3, 4.3, 6.1, 6.7	N/A
ACT-11	Seek statutory authority for the University to regulate commercial activities in the UH Management Areas.	NRMP 1.4.2.3	N/A
Scientific Research			
ACT-12	Ensure input by OMKM, MKMB, and Kahu Kū Mauna on all scientific research permits and establish system of reporting results of research to OMKM.	NRMP 4.2.3.1, 4.2.3.7, 4.2.3.9 CRMP 4.2.6	N/A
PERMITTING AND ENFORCEMENT		Subplans	Comments
Laws and Regulations			
P-1	Comply with all applicable federal, state, and local laws, regulations, and permit conditions related to activities in the UH Management Areas.	NRMP 1.4.3 PAP 2.4, 2.5, 2.5.1, 2.5.2, 2.5.3, 5.1	CMS will comply with all applicable laws, administrative rules, regulations and permit requirements.
P-2	Strengthen CMP implementation by recommending to the BLNR that the CMP conditions be included in any Conservation District Use Permit or other permit.	NRMP 1.4.3.2	N/A

P-3	Obtain statutory rule-making authority from the legislature, authorizing the University of Hawai'i to adopt administrative rules pursuant to Chapter 91 to implement and enforce the management actions.	NRMP 1.4.3.2	N/A
P-4	Educate management staff and users of the mountain about all applicable rules and permit requirements.	NRMP 4.4 PAP 4.2, 5.2, 6.1, 6.2, 6.5	CMS will comply with all applicable laws, administrative rules, regulations and permit requirements.
Enforcement			
P-5	Continue coordinating with other agencies on enforcement needs.	NRMP 5.1 PAP 4, 6.5	N/A
P-6	Obtain legal authority for establishing, and then establish, a law enforcement presence on the mountain that can enforce rules for the UH Management Areas on Mauna Kea.	NRMP 1.4.2.3, 3.1.3.2, 5.1 PAP 4.4, 4.5, 4.6, 5.2, 6.5, 6.6	N/A
P-7	Develop and implement protocol for oversight and compliance with Conservation District Use Permits.	NRMP 1.4.2.3	N/A
P-8	Enforce conditions contained in commercial and Special Use permits.	NRMP 3.1.4 PAP 2.5.3, 3.3.3, 4.3, 4.5, 4.6, 6.5	N/A

COMPONENT PLAN: MANAGING THE BUILT ENVIRONMENT

INFRASTRUCTURE AND MAINTENANCE		Subplans	Comments
Routine Maintenance			
IM-1	Develop and implement an OMMP.		N/A
IM-2	Reduce impacts from operations and maintenance activities by educating personnel about Mauna Kea's unique resources.	NRMP 4.4	All staff involved with this project will have current orientation certification.
IM-3	Conduct historic preservation review for maintenance activities that will have an adverse effect on historic properties.	CRMP 4.1.3	N/A
IM-4	Evaluate need for and feasibility of a vehicle wash station near Hale Pōhaku, and requiring that vehicles be cleaned.	NRMP 4.2.3.7	N/A
IM-5	Develop and implement a Debris Removal, Monitoring and Prevention Plan.	NRMP 4.2.3.5 CRMP 4.1.4, 4.3.4	Protocols will be in place to prevent debris, material, and equipment from being blown away by high winds. Materials and tools will be secured at the end of each work day. All waste material will be removed and properly disposed of.
IM-6	Develop and implement an erosion inventory and assessment plan.	NRMP 3.2.4, 4.1.4.2, 4.2.3.4 PAP 2.6.3, 6.3, 6.4	N/A
IM-7	Prepare a plan, in collaboration with the Department of Defense, to remove military wreckage from a remote area of the UH Management Areas, while ensuring protection of natural and cultural resources.	CRMP 4.3.4.1	N/A
Infrastructure			
IM-8	Assess feasibility of paving the Summit Access Road.	NRMP 4.2.3	N/A
IM-9	Evaluate need for additional parking lots and vehicle pullouts and install if necessary.	NRMP 3.1.1.2.3 PAP 5.2, 5.4, 6.7	N/A
IM-10	Evaluate need for additional public restroom facilities in the summit region and at Hale Pōhaku, and install close-contained zero waste systems if necessary.	NRMP 3.1.3.1, 3.2.3, 4.2.3.3 PAP 5.2, 6.4, 6.6, 6.7, 6.8	N/A
Sustainable Technologies			
IM-11	Encourage existing facilities and new development to incorporate sustainable technologies, energy efficient technologies, and LEED standards, whenever possible, into facility design and operations.		N/A
IM-12	Conduct energy audits to identify energy use and system inefficiencies, and develop solutions to reduce energy usage.	NRMP 4.2.3.3	N/A
IM-13	Conduct feasibility assessment, in consultation with Hawaii Electric Light Company, on developing locally-based alternative energy sources.	NRMP 3.1.1.2.3	N/A
IM-14	Encourage observatories to investigate options to reduce the use of hazardous materials in telescope operations.		N/A

CONSTRUCTION GUIDELINES		Subplans	Comments
General Requirements			
C-1	Require an independent construction monitor who has oversight and authority to insure that all aspects of ground based work comply with protocols and permit requirements.	NRMP 3.2, 4.2	N/A
Best Management Practices			
C-2	Require use of Best Management Practices Plan for Construction Practices.	NRMP 4.2.3	CMS will utilize construction BMPs such as for worksite safety, waste handling and disposal, ensure infrastructure integrity against hurricane-force winds, and limit activity to daytime only.
C-3	Develop, prior to construction, a rock movement plan.	NRMP 4.2.3.1	N/A
C-4	Require contractors to provide information from construction activities to OMKM for input into OMKM information databases.		N/A
C-5	Require on-site monitors (e.g., archaeologist, cultural resources specialist, entomologist) during construction, as determined by the appropriate agency.	CRMP 4.2.7	N/A
C-6	Conduct required archaeological monitoring during construction projects per SHPD approved plan.	CRMP 4.2.7	N/A
C-7	Education regarding historical and cultural significance	NRMP 4.4	All staff will have successfully completed the resource orientation.
C-8	Education regarding environment, ecology and natural resources	NRMP 4.4	All staff will have successfully completed the resource orientation.
C-9	Inspection of construction materials	NRMP 4.2.3.7	Deliveries subject to invasive species inspections will be inspected.
SITE RECYCLING, DECOMMISSIONING, DEMOLITION AND RESTORATION		Subplans	Comments
Site Recycling, Decommissioning, Demolition, and Restoration			
SR-1	Require observatories to develop plans to recycle or demolish facilities once their useful life has ended, in accordance with their sublease requirements, identifying all proposed actions.	NRMP 4.3.3.4.1	N/A
SR-2	Require observatories to develop a restoration plan in association with decommissioning, to include an environmental cost-benefit analysis and a cultural assessment.	NRMP 4.3.3.4.1	N/A
SR-3	Require any future observatories to consider site restoration during project planning and include provisions in subleases for funding of full restoration.	NRMP 4.3.3.4.1	N/A
CONSIDERING OF FUTURE LAND USE		Subplans	Comments
Facility Planning Guidelines			
FLU-1	Follow design guidelines presented in the 2000 Master Plan.	NRMP 5.1.1	The enclosure appearance should have minimal impact on the overall appearance of the VIS.
FLU-2	Develop a map with land-use zones in the Astronomy Precinct based on updated inventories of cultural and natural resources, to delineate areas where future land use will not be allowed and areas where future land use will be allowed but will require compliance with prerequisite studies or analysis prior to approval of Conservation District Use Permit.	NRMP 4.3.3.1	N/A
FLU-3	Require cataloguing of initial site conditions for use when conducting site restoration.		N/A
FLU-4	Require project specific visual rendering of both pre- and post-project settings to facilitate analysis of potential impacts to view planes.	NRMP 4.1.4.11	N/A
FLU-5	Require an airflow analysis on the design of proposed structures to assess potential impacts to aeolian ecosystems.	NRMP 4.1.4.4	N/A
FLU-6	Incorporate habitat mitigation plans into project planning process.	NRMP 4.3.3.3	N/A
FLU-7	Require use of close-contained zero-discharge waste systems for any future development in the summit region, from portable toilets to observatory restrooms, if feasible.	NRMP 3.1.1.2.6	N/A

COMPONENT PLAN: MANAGING OPERATIONS

OPERATIONS AND IMPLEMENTATION		Subplans	Comments
OI-1	Maintain OMKM, MKMB, and Kahu Kū Mauna in current roles, with OMKM providing local management of the UH Management Areas, and MKSS providing operational and maintenance services.		Project underwent community board review.
OI-2	Develop training plan for staff and volunteers.	NRMP 5.1 CRMP 5.2 PAP 5.1, 5.2, 6.1, 6.4, 6.5	N/A
OI-3	Maintain and expand regular interaction and dialogue with stakeholders, community members, surrounding landowners, and overseeing agencies to provide a coordinated approach to resource management.	NRMP 5.1 PAP 5.1	N/A
OI-4	Establish grievance procedures for OMKM, to address issues as they arise.	PAP 6.6	N/A
OI-5	Update and implement emergency response plan.	CRMP 4.1.6, 4.3.5 PAP 6.1, 6.4, 6.5, 6.7	N/A
MONITORING, EVALUATION AND UPDATES		Subplans	
MEU-1	Establish a reporting system to ensure that the MKMB, DLNR, and the public are informed of results of management activities in a timely manner.	NRMP 4.1.3.3 PAP 6.4, 6.6, 7	N/A
MEU-2	Conduct regular updates of the CMP that reflect outcomes of the evaluation process, and that incorporate new information about resources.	NRMP 5.2 CRMP 5.5 PAP 7	N/A
MEU-3	Revise and update planning documents, including the master plan, leases, and subleases, so that they will clearly assign roles and responsibilities for managing Mauna Kea and reflect stewardship matters resolved with DLNR.	PAP 7	N/A

VEHICLE COUNTS TO MAUNAKEA

There are currently two methods being employed to record data related to the number of vehicles that drive up to Maunakea. The first method includes a pneumatic axle pulse counter located just below the main access to the Visitor Information Station (VIS). The second is a hand count performed by the Rangers of all the vehicles that drive past the VIS and up to the summit. A third method consisting of a Radio Frequency Identification (RFID) System is being worked on.

Axle Pulse Counter:

This system, installed just below the VIS turn in sign generates a pulse every time a vehicle drives over it. The system does not make a distinction between private vehicles, CMS, commercial tour vehicles or observatory vehicles, nor does it differentiate between vehicles just going to the VIS or those going to the summit. The system does not provide a head count either. While limited in the differentiation of the type of vehicle, this system provides valuable information related to the number of vehicles that drive up to the VIS (and potentially to the summit) at different time periods. The data is collected in 4 hour intervals that range from (00:00 – 03:59, 04:00 – 07:59, 08:00 – 11:59, 12:00 – 15:59, 16:00 – 19:59, 20:00 – 23:59).

Ranger Manual Count:

Rangers are posted at a safety check point at the exit of the VIS parking area. They stop every vehicle that is heading to the summit to ensure that they have the proper type of vehicle (AWD or 4x4), enough gas in their tank, ensure that there are no children under the age of 13, that the vehicle is clean and free of potential invasive species and provide the drivers with a safety briefing on how to safely drive to and from the summit and what to do in case of any one in the vehicle experiencing high altitude sickness symptoms. Rangers will turn vehicles around if they don't meet the necessary safety requirements. Rangers are not at the check point 24 hours a day, the check point is manned from 05:00 – 21:00/21:30. This means that they do not record any vehicles going up outside of that window, however, based on the pulse counter, the number of cars that go up between 21:00 – 03:00 is small compared to the rest of the day. The most significant advantage of the Ranger hand count is that they can differentiate between private vehicles, commercial tour vans and observatory vehicles as well as the number of passengers per vehicle, providing valuable data related to the demographics that go to the summit. Besides vehicle counts, Rangers also track the number of hikers that decide to hike the Humu'ula trail and what their final destination is (mountain trail, Lake Waiau, Summit, etc).

RFID Counter

This system will be used primarily to determine the % usage of the road by the various observatories, CMS and their related contractors. This data is used then to estimate the use factors that are applied to the budget to determine the multiplier that is used for every observatory to determine their contribution to the operations of MKSS.

Data available & dates of significance

Data from these various sources goes as far back as 2005. Some dates that are important to consider when looking at the data include:

- July-Dec 2019: Road closure due to TMT protests.
- Jan 2020: Gov Ige signs new rules that ban 2WD vehicles from summit road.
- Ep 2019 – May 2020 Axle Counter System was down
- 2020-2021 COVID-19.

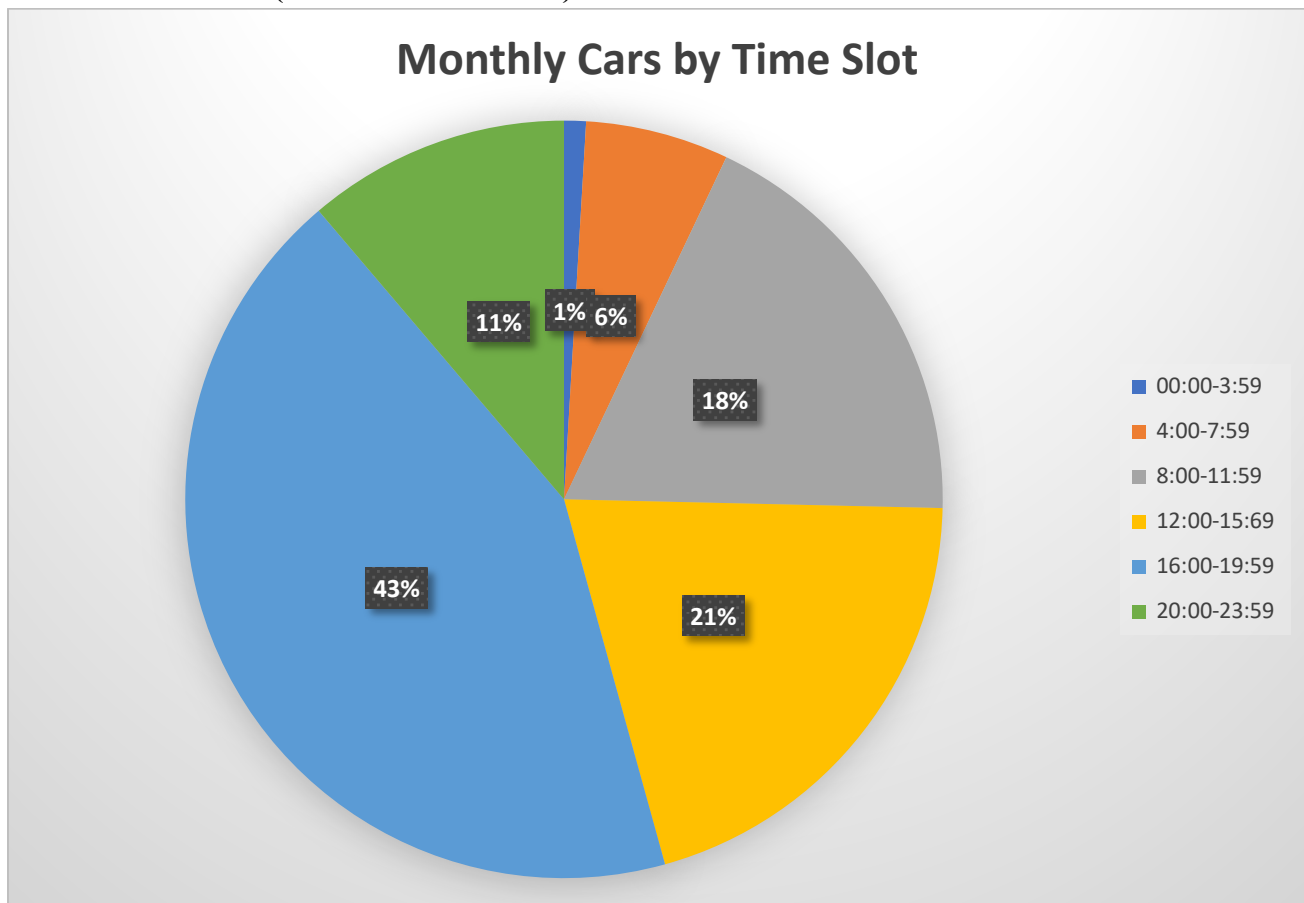
Factors Affecting Vehicle Counts

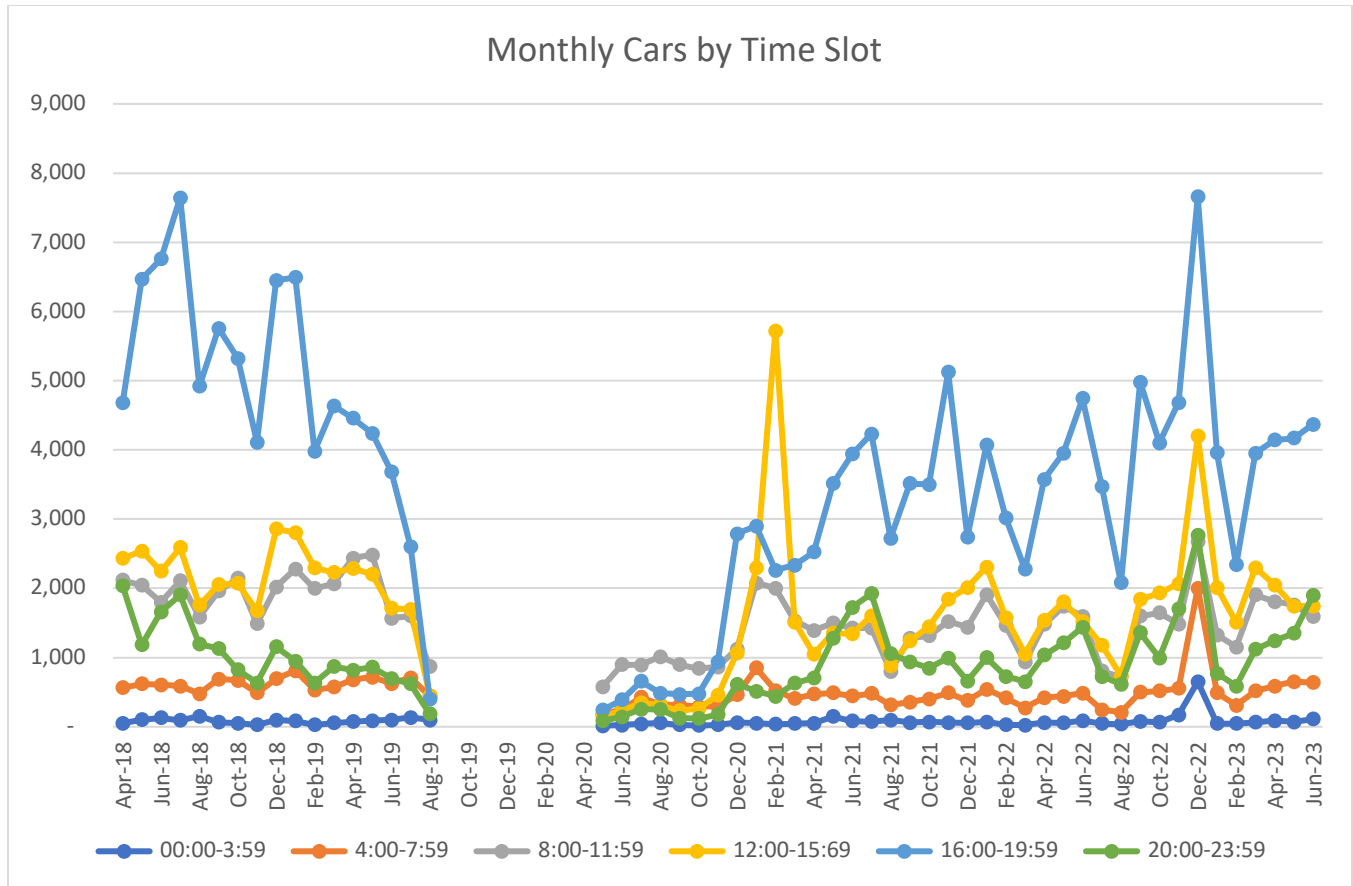
There are two main types of factors that affect the number of vehicles visiting the summit, these are seasonal and weather related.

Under seasonal factors we see an increase in vehicles during winter and summer breaks (also during spring break), whereas weather events, such as snow on the mountain can result in an increase in vehicles when the road is open, and a drop in vehicles if the road is closed due to environmental conditions.

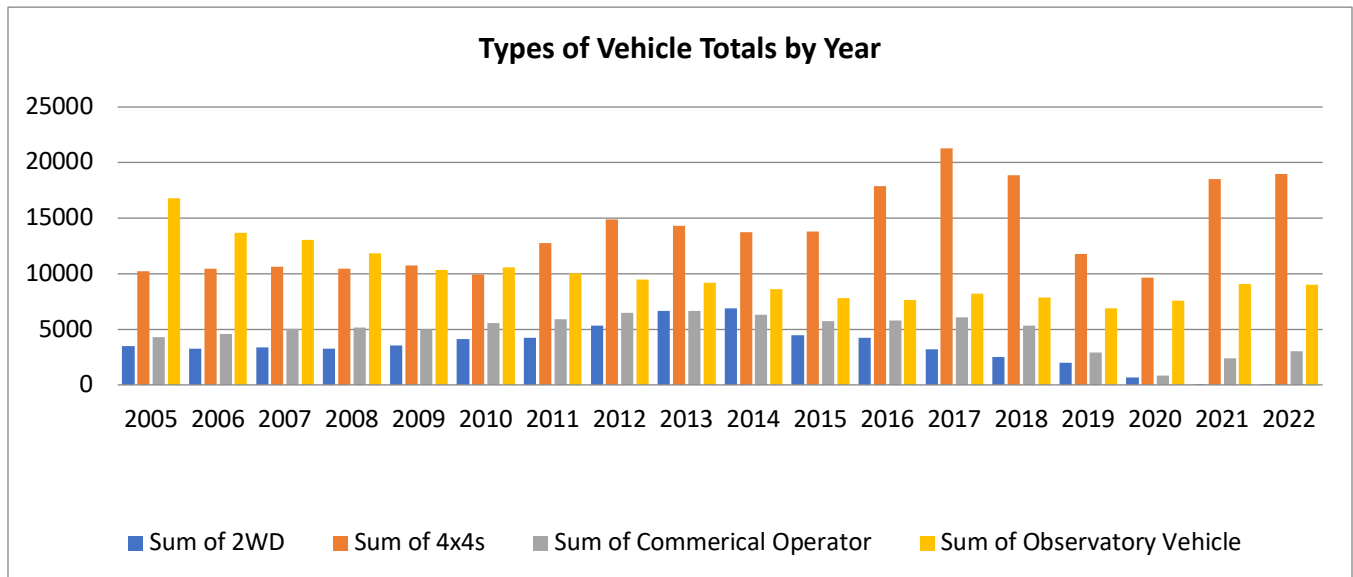
DATA

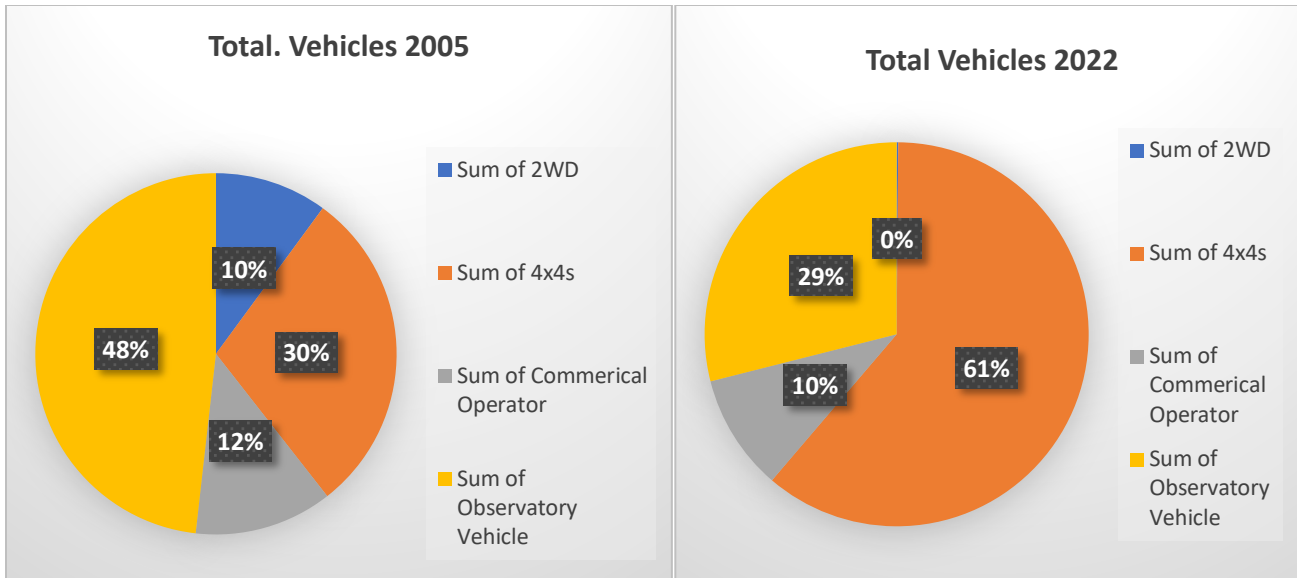
AXLE COUNTER (Jun 2018 – Jun 2023)





RANGER HAND COUNTS





These two pie charts show the impact of our adminstrative rules banning 2WD vehicles going to the summit.

KAHEA & MAUNA KEA 'ANAINA HOU

NOMINATION OF MAUNAKEA AS A TRADITIONAL CULTURAL PROPERTY (TCP)

JULY 20, 2023

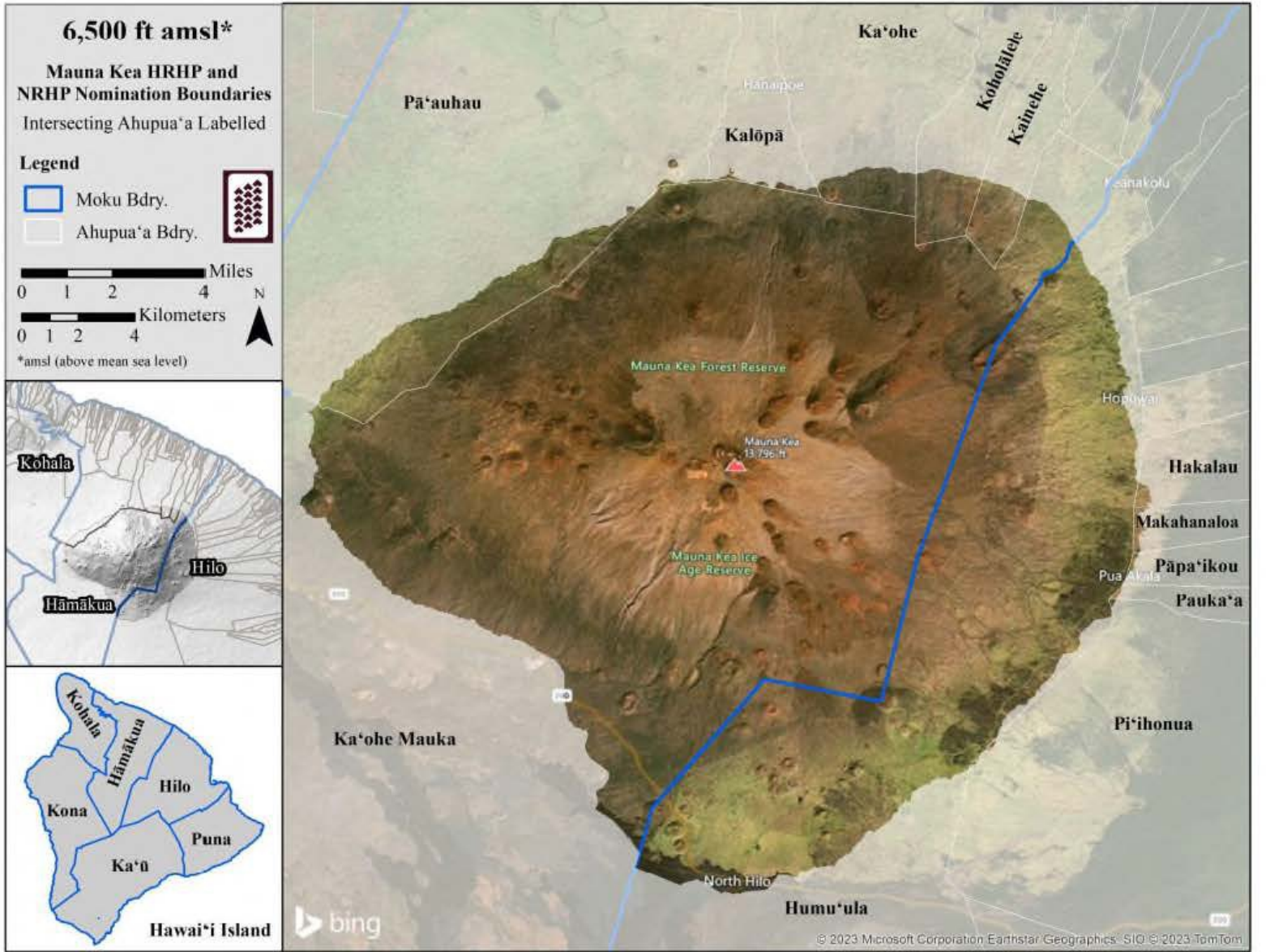


Figure 1. Mauna Kea is boundless. Per Hawaiian primary source records and the requirements of the HRHP and NRHP nomination, the boundary for Mauna Kea as a TCP and district is set at 6500 amsl, which encompasses the Wao Akua and the upper reaches of the Wao Kānaka.

ISSUES & IMPLICATIONS

- ❖ Seeks designation of Maunakea from the 6500' elevation and above as a TCP on both the National and Hawai'i Historic Registers
- ❖ National Park Service and DLNR determines eligibility respectively
- ❖ If listed (or deemed eligible for listing), raises the level of analysis/consultation/mitigation for projects involving federal actions (e.g., TMT) under Section 106 of the National Historic Preservation Act (NHPA) and State actions (e.g., leases) under HRS Chapter 6E Historic Preservation
 - Area of potential effect (APE) increases significantly
- ❖ Unclear whether/how determination would impact our CMP or Administrative Rules
 - CMS doesn't believe it does
- ❖ UH took the position in our 2022 CMP Update that we would not oppose such a nomination and would share our relevant studies and reports related to our UH managed lands
- ❖ Lengthy process requiring petitioners to consult with affected landowners and conduct their own studies
 - At least some neighboring land owners have received notification
- ❖ DLNR/MKSOA jurisdiction