**Name:** Office of Maunakea Management, University of Hawai‘i,

**Project Name:** Safety Improvements: Interim Visitor Traffic Signs and Road Barrier

**Brief Description of the Project**
- a) Install traffic control signs below Visitor Information Station and b) road barrier in summit region

**Identified Land Use (see HAR § 13-5-22 through 13-5-25)**
- a) HAR §13-5-22, P7: Signs (B-1) Signs, including safety signs, danger signs, no trespassing signs, and other informational signs.
- b) HAR §13-5-22, P13: Land and Resource Management (A-1) Basic land management… in an area less than one acre.

**Identify the existing CDUP this proposal alters or affects, if any**
- a) HA 1819: Mid-Level Facilities (1986)
- b) General Lease: S-4191 (Science Reserve)

**Identify University of Hawai‘i exemption per HAR § 11-200-8(a), if any**
- a) Exemption Class #6, Construction or placement of minor structures accessory to existing facilities; Subclass 1-c Construction or placement of scoreboard, signs and flag poles.
- b) Exemption Class #1, Operation, repair or maintenance of existing structures, facilities, equipment or topographical features, involving negligible or no expansion or change of use beyond that previously existing; Subclass 1-m Operation, repair or maintenance of roads, walkways, parking lots, bike paths, and vehicular ramps.

**Tax Map Key(s):**
- a) 4-4-015:012 – Halepōhaku;
- b) 4-4-015:009 – Mauna Kea Science Reserve (por.)

**Proposed Commencement Date:** As soon as approved

**Proposed Completion Date:** March 31, 2017

**Estimated Project Cost:** $500

**Total size / area of proposed use:** less than 1 acre

**Background**

This project request contains two proposed actions.
- a) Provide traffic control signs for visitor parking at Halepōhaku.
b) Road barriers to prevent off-road vehicle use in the Astronomy Precinct (in coordination with DLNR Division of Conservation and Resources Enforcement (DOCARE)).

Project Purpose and Need

a) Traffic Control Signs at Halepōhaku Increasing visitation at the VIS is causing safety concerns due to inadequate existing parking, poorly designed traffic flow, confusing parking configuration, and periods of intense traffic activity. While a long-term solution via the proposed VIS Ingress/Egress Conservation District Use Application will address many of these concerns, an interim solution is needed to address immediate pedestrian, staff, and traffic safety. The temporary signs will only be placed in the currently unpaved (gravel and cinder areas used for public parking).

b) Road Barriers

Prevent damage to the resources by preventing vehicles from driving off of designated roads. Off-road vehicle use tracks have been documented in the Maunakea Science Reserve in recent months, by both OMKM Rangers and DOCARE officers. Preventing off-road vehicle use ensures consistency with the covenants of the Science Reserve Master Lease (S-4191).

Existing Conditions at Project Site(s)

NOTE: “a)” refers to the Halepōhaku area; and “b)” refers to the area at the terminus of the Smithsonian Submillimeter Array antennae road.

Geology, Climate, & Hazards

a) The Halepōhaku parking areas are located at the base of Maunakea’s upper slopes at an elevation of 9,200 feet and has a semi-arid, sub-alpine climate. The proposed activity will only occur within an existing gravel/cinder area used for equipment and material storage, etc. described above, and along the eastern edge of the existing paved summit access road, adjacent to and below the existing long-houses.

b) Maunakea is considered an active, post-shield phase volcano (USGS) rising to nearly 13,800 ft. Climate conditions at altitudes of 12,500 ft and above are often below freezing and, when combined with humidity above 100% or precipitation, geophysical processes result in natural cinder movement. The project site is at a terminus of an unpaved roadway used primarily by the Smithsonian Submillimeter Array for maintenance and research operations, and periodically by the Maunakea Rangers and OMKM for sublease and resource monitoring.

Flora, Fauna, Ecology, Water Resources

a) Māmane are in the project area but will not be affected by the proposed project. Regular invasive species monitoring of the project site is conducted by OMKM. No surface water resources are present.

b) No vegetation is present in the existing vehicle use area where there will be a road barrier. Insects and other arthropods may be present. No surface water features are present.

Cultural Resources
a) The nearest historic property to the project area is approximately 120 feet away in the Mauna Kea Forest Reserve. No impact to historic properties is anticipated by placing signs along the delineated gravel area and paved summit access road.

b) The nearest constructed Historic Property (SIHP # 16166) is over [300 feet] from the proposed use. The “Archaeological Inventory Survey of the Mauna Kea Science Reserve” was completed in 2010, and annual routine monitoring continues by OMKM.

Recreation

a) The Construction staging area portion of the proposed use is sometimes used for overflow parking for the Visitor Information Station. When equipment and material are present, the parking area will be closed to the public.

b) The area blocked from off-road vehicle use will remain accessible for hikers and cultural practitioners travelling on foot.

Built Infrastructure

a) The project area is an existing cinder and gravel area used for parking, equipment, and material storage. The proposed activity will be limited to areas that are already disturbed.

b) The project site is at the access way to the adjacent SMA pad, from which a jeep road has been present since at least the mid-1980s, and is slowly disappearing due to decreased use and natural solifluction.

Landscaping & Visual Conditions

a) The landscape consists of cinder and rocks interspersed with clumps of vegetation. The proposed activity will not affect scenic views from the project area to surrounding areas, nor will the project affect views from surrounding areas.

b) The site is alpine desert consisting of cinder and lava rock. SMA antenna pad #21 is a manmade, cylindrical structure in the vicinity, painted to blend with the surrounding natural rock.

Description of the Project

Describe the process of completing the project.

a) Install up to nine traffic safety signs throughout the gravel area in places highly conspicuous to passing motorists. Depending to the sign type, signs may be placed on sawhorse-type traffic barricades that can be quickly and easily moved, or attached to existing guardrails and sign poles. Signs are of durable, retro-reflective aluminum, bearing standard traffic control messages in black and white such as “One Way” with arrow, “Exit” with arrow, “Do Not Enter” and “Visitor Center Public Parking Next Right.” Sizes range from 12”x36” rectangle to 30”x30” square and are in conformance with Department of Transportation Manual on Uniform Traffic Control Devices (MUTCD) regulations and standards and Conservation District Rules (HAR 13-5: less than 12 sq ft and top portion no more than 8 ft above reference grade).

b) A small work crew will place rocks from the surrounding area, two to four feet in diameter, at the edge of the pad access way to prevent vehicle passage onto the jeep trail. Vehicles are not expected to be able to ‘go around’ the placed rocks as the surrounding terrain is uneven with many large boulders and unpassable to private vehicles. Rocks will be sourced from road grading activities.
Location

a) The proposed activity will only occur within already disturbed gravel and cinder areas at Halepōhaku that is used for equipment and material storage, etc. described above.

Manual on Uniform Traffic Devices (MUTCD) signs and reference ID shown when available

- MUTCD R5-1
- MUTCD R6-1 (L & R)

Is not MUTCD approved (similar size and style to R6-2 for low-volume use). “Local signs” are used for non-standard parking lot design and lack of pavement which precludes pavement marking.

Destination Guide Sign (see MUTCH section 2M.09). Brown sign with white border and lettering.

All non-conforming signs in and for parking Zone 3, except for an existing “Additional Parking” sign currently mounted on the upper long-house will be removed.
Traffic flow shown via grey arrows and sign placement is approximate. Signs will be mounted on existing barricades or temporary barricades and will be oriented according to the direction of traffic flow.
b) The project site is at a terminus of an unpaved roadway utilized primarily by the Smithsonian Submillimeter Array for maintenance and research operations. This SMA pad location is also periodically used by the Maunakea Rangers and OMKM for sublease and resource monitoring.

Red mark is approximately 100 feet in length (maximum). Blocking access to the old jeep road that extends along the northwest -to- north aspect of the cinder cone. Existing pedestrian will remain unaffected.
Who will do the work?

a) Rangers will install signage.

b) Maunakea Observatories Support Services (MKSS) staff will place vehicle stops.

Equipment & Transportation

a) Only the Maunakea Rangers’ vehicles will be used. No oversized vehicles will be required to transport materials or equipment.

b) Only MKSS’ normal-use maintenance vehicles will be used. No oversized vehicles will be required to transport materials or equipment.
Measures to protect the environment and/or mitigate impacts

Protective Measures applicable to both project requests:

- All project participants must attend a Maunakea orientation prior to participating in field work.
- Use of 4-wheel drive vehicles when traveling above Halepōhaku is required.
- Comply with all actions and measures described in the proposal, including (community) benefits, CMP compliance list, and mitigation measures.
- Ensure that loose tools or equipment are not left unattended and are properly stored at the end of each day.
- 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.
- 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.
- Motorized equipment, when stationary, must have a drain-pan in place suitable for catching fuel or fluid leaks. To allow for expansion with reduced atmospheric pressure, fuel tanks should not be more than 3/4 full prior to transport to the summit (unless used as the fuel source for transport to the summit).
- 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. 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).
- Placement of permanent: markers, monuments, mag nails, survey pins, etc. is not allowed without explicit prior approval from OMKM (and the State if required) for this purpose. ALL surveyors work must be shared with OMKM in digital format (i.e. CAD file as well as PDF) with coordinate info stored in and using a common, transferrable coordinate reference system such as “State Plane Coordinates (NAD83), Hawaii Zone 1”.
- The project must be completed within the time frame specified in the proposal and (when applicable) DLNR approval. Projects not completed within this timeframe are not allowed to continue (or commence) without explicit, prior, written approval from OMKM.

Compliance with Lease, Sublease, or Comprehensive Management Plan (CMP)

This proposal has been reviewed to ensure consistency with the Maunakea Sign Plan (EO-4. Development of a signage plan), available at http://www.malamamaunakea.org/uploads/management/plans/Maunakea_SignPlan_2017-02-14.pdf. The signs deviate from the plan only in to the extent that this is an interim step to address immediate public safety issues and a long-term solution is being sought through a Conservation District Use Application (CDUA). Placement of Road barriers is consistent with the Master Lease to prevent resource damage. Both actions are being presented after discussion with DOCARE officers to address public safety and potential resource damage concerns.

Identify other required or associated permits

None.

Five Year Outlook
OMKM has not previously submitted a Five Year Outlook.

Community Benefits

c) Benefits to other Maunakea entities and/or global astronomy community

Primary benefit is ensuring public safety and prevent resource damage.

d) Benefits to the Hawaii Island community

1. Maintain public safety by communicating traffic flow patterns.
2. Prevent environmental damage caused by vehicles traveling outside of designated areas.

e) Will data, publications, or other products be free and available to the public?

Not applicable.
DLNR Evaluation Criteria

After approval by the Maunakea Management Board, the Department of Land & Natural Resources or Board of Land & Natural Resources will evaluate the merits and approve the project based on the following eight criteria (§13-5-30). See [http://dlnr.hawaii.gov/occl/files/2013/08/13-5-2013.pdf](http://dlnr.hawaii.gov/occl/files/2013/08/13-5-2013.pdf)

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 their implementation using the resources that are available to it. The proposed use addresses OMKM and DLNR-identified public safety and resource damage concerns, using existing natural materials when possible.

2. How is the proposed use consistent with the objectives of the Resource subzone of the land on which the land use will occur? (§13-5-13 The objective of this subzone is to ensure, with proper management, the sustainable use of the natural resources of those areas. This subzone shall encompass: lands necessary for providing future parkland and lands presently used for national, state, county, or private parks. Land suitable for outdoor recreational uses such as hunting, fishing, hiking, camping, and picnicking. [And other lands not applicable to Maunakea.])

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 road barriers will prevent resource damage while providing for recreation and cultural activities specified in Master Lease S-4191. Parking signs address public safety concerns associated with visitor use in the Halepōhaku area.

3. Describe how the proposed land use complies with the provisions and guidelines contained in chapter 205A, HRS, entitled “Coastal Zone Management”.

This activity is not in the coastal zone. The recreation aspects of Coastal Zone Management will not be affected other than this activity will both make recreational visitors safer when parking or walking in the Halepōhaku area and will preclude use of vehicles off of roads consistent with the Master Lease S-4191.

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 signs will be mounted on existing infrastructure or temporary barricades, preventing or limiting unintended vehicle access to undisturbed areas. The road barrier will use existing rocks recovered in the roadway to prevent future use of vehicles off roads.

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 road barriers are an example of using local, natural materials to prevent unauthorized activities. The signs at Halepōhaku address the Maunakea Sign Plan and Federal "Manual on Uniform Traffic Control Devices" requirements, while replacing existing signs without requiring ground disturbance.

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.

   Natural beauty and open space characteristics will be improved upon in the summit region by preventing landscape alteration via unauthorized vehicle use off of roads. At Halepōhaku the signs proposed address public safety.

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 uses are explicitly intended to remedy identified public health, safety, and welfare.