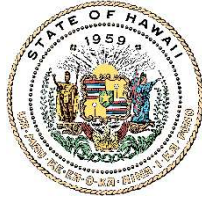


JOSH GREEN, M.D.  
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE  
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA



STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAI'I  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
KA 'OIHANA KUMUWAIWAI 'ĀINA

P.O. BOX 621  
HONOLULU, HAWAII 96809

DAWN N.S. CHANG  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE  
MANAGEMENT  
RYAN K.P. KANAKA'OLE  
FIRST DEPUTY  
DEAN D. UYENO  
ACTING DEPUTY DIRECTOR - WATER  
AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
BUREAU OF CONVEYANCES  
COMMISSION ON WATER RESOURCE  
MANAGEMENT  
CONSERVATION AND COASTAL LANDS  
CONSERVATION AND RESOURCES  
ENFORCEMENT  
ENGINEERING  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
KAHOOLAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

REF: OCCL: TF

COR: MA 24-72

**MEMORANDUM**

Apr 8, 2024

TO: Mary Alice Evans, Interim Director  
Office of Planning and Sustainable Development  
Environmental Review Program

From: Dawn N. S. Chang, Chairperson  
Board of Land and Natural Resources

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN)  
For the Department of the Air Force (DAF) Maui Optical and Supercomputing Site Small  
Telescope Advanced Research Facility  
Located near the Haleakala Observatory  
Por. of Kula, Makawao, Maui  
Tax Map Keys (TMKs): (2) 2-2-007:016 and (2) 2-2-007:008

With this memorandum, the State of Hawaii Department of Land and Natural Resources (DLNR) requests the Environmental Impact Statement Preparation Notice (EISPN) for the proposed Department of the Air Force (DAF) Maui Optical and Supercomputing Site Small Telescope Advanced Research Facility be published in the April 23, 2024, issue of the Environmental Review Program's (ERP) periodic bulletin, *The Environmental Notice*.

So as to not overlook any potentially significant impacts to the natural and human environment, the DAF and their agents have determined at the outset that an Environmental Impact Statement (EIS) is required for the proposal pursuant to Hawaii Revised Statutes (HRS) § 343-5(e) and Hawaii Administrative Rules (HAR) § 11-200.1-14(d)(2).

The required publication forms and files, including an electronic copy of the EISPN in pdf format, have been provided via the ERP online submission platform. Concurrently with the electronic filing, and as required by HAR § 11-200.1-5(e)(4)(b), paper copies of the EISPN shall be submitted to the Hana Public Library, Makawao Public Library, Kahului Public Library, Wailuku Public Library, Kihei Public Library, and the Hawaii Documents Center.

Should there be any questions regarding this memo, please contact Trevor Fitzpatrick of the Office of Conservation and Coastal Lands (OCCL) at (808) 798-6660 or [trevor.j.fitzpatrick@hawaii.gov](mailto:trevor.j.fitzpatrick@hawaii.gov) . If there any questions regarding the EISPN and the proposed project, please contact DAF project manager Mavourneen Wilcox at (808) 891-7723 or [mavourneen.wilcox.1@spaceforce.mil](mailto:mavourneen.wilcox.1@spaceforce.mil) .

**From:** [webmaster@hawaii.gov](mailto:webmaster@hawaii.gov)  
**To:** [DBEDT OPSD Environmental Review Program](#)  
**Subject:** New online submission for The Environmental Notice  
**Date:** Thursday, April 11, 2024 9:26:34 AM

---

**Action Name**

Air Force Maui Optical and Supercomputing Site Small Telescope Advanced Research Facility

**Type of Document/Determination**

Environmental impact statement preparation notice (EISPN)

**HRS §343-5(a) Trigger(s)**

- (1) Propose the use of state or county lands or the use of state or county funds
- (2) Propose any use within any land classified as a conservation district

**Judicial district**

Makawao, Maui

**Tax Map Key(s) (TMK(s))**

TMKs (2) 2-2-007:016 (portion) and (2) 2-2-007:008 (portion)

**Action type**

Applicant

**Other required permits and approvals**

Numerous

**Discretionary consent required**

Conservation District Use Permit; easement (if required)

**Approving agency**

State of Hawaii Board of Land and Natural Resources

**Agency contact name**

Michael Cain

**Agency contact email (for info about the action)**

[michael.cain@hawaii.gov](mailto:michael.cain@hawaii.gov)

**Agency contact phone**

(808) 587-0377

**Agency address**

Kalanimoku Building  
1151 Punchbowl St., Room 131  
Honolulu, HI 96813  
United States  
[Map It](#)

**Public Scoping Meeting information**

May 13, 14, and 15, 2024 from 6-9 Kahului Community CTR, Mayor H. Tavares Community Center, and the Kihei Community Center

**Accepting authority**

State of Hawaii Board of Land and Natural Resources

**Applicant**

Department of the Air Force

**Applicant contact name**

Mavourneen Wilcox

**Applicant contact email**

[mavourneen.wilcox.1@spaceforce.mil](mailto:mavourneen.wilcox.1@spaceforce.mil)

**Applicant contact phone**

(808) 891-7723

**Applicant address**

Mavourneen Wilcox, USSF Chief Engineer, 15th Space Surveillance Squadron Air Force Maui Optical & Supercomputing (AMOS) Site MAF, Rm 206  
550 Lipoa Pkwy  
Kihei, HI 96753  
United States  
[Map It](#)

**Is there a consultant for this action?**

Yes

**Consultant**

Tetra Tech

**Consultant contact name**

Greg Hippert

**Consultant contact email**

[greg.hippert@tetrattech.com](mailto:greg.hippert@tetrattech.com)

**Consultant contact phone**

(704) 433-1524

**Consultant address**

1230 Columbia Street, Suite 1000  
San Diego, CA 92101  
United States  
[Map It](#)

**Action summary**

The Department of the Air Force is proposing to construct and operate the Air Force Maui Optical and Supercomputing Site Small Telescope Advanced Research (AMOS STAR) facility on the island of Maui, Hawai'i. The proposed facility would consist of up to seven telescopes enclosed in domes that would be constructed on a developed site adjacent to the Haleakalā Observatory and the 15th Space Surveillance Squadron (15 SPSS) Maui

Space Surveillance Complex (MSSC). If constructed, the proposed facility would be connected to and operated primarily remotely from the Air Force Research Laboratory and 15 SPSS facilities in the MSSC Advanced Electro-Optical System control room and other sites with remote access. The proposed AMOS STAR facility would require utilities, including fiber optic links from the MSSC, a paved access drive and parking facilities, surface water runoff management measures, and other site improvements.

#### **Attached documents (signed agency letter & EA/EIS)**

- [Final-EISPN\\_12-Feb-2024\\_new-scoping-meeting-dates-added.pdf](#)
- [COR-MA-24-72\\_EISPN-Transmittal-ltr-to-ERP\\_DAF-AMOS-STAR-Facility\\_Haleakala-part-1-signed.pdf](#)

#### **Action location map**

- [AMOSite\\_Tt.zip](#)

#### **Authorized individual**

Mavourneen Wilcox

#### **Authorization**

- The above named authorized individual hereby certifies that he/she has the authority to make this submission.

**ENVIRONMENTAL IMPACT STATEMENT  
PREPARATION NOTICE  
FOR THE  
AIR FORCE MAUI OPTICAL AND SUPERCOMPUTING SITE  
SMALL TELESCOPE ADVANCED RESEARCH FACILITY  
MAUI, HAWAI'I**



February 2024

**Department of the Air Force**

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## ACRONYMS AND ABBREVIATIONS

15 SPSS	15th Space Surveillance Squadron
AEOS	Advanced Electro-Optical System
AFRL	Air Force Research Laboratory
AIS	archaeological inventory survey
AMOS	Air Force Maui Optical and Supercomputing Observatory
AST	aboveground storage tank
BA	Biological Assessment
BLNR	Board of Land and Natural Resources
CAB	Clean Air Branch
CDUA	Conservation District Use Application
CDUP	Conservation District Use Permit
CEJST	Climate and Economic Justice Screening Tool
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CIA	cultural impact assessment
CMP	Comprehensive Management Plan
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
COC	Community of Comparison
CZM	Coastal Zone Management
CZMA	Coastal Zone Management Act
DAF	Department of the Air Force
DLNR	Department of Land and Natural Resources
DoD	Department of Defense
DOH	Department of Health
EIAP	Environmental Impact Assessment Process
EIS	Environmental Impact Statement
EISPN	Environmental Impact Statement Preparation Notice
EO	Executive Order
ESA	Endangered Species Act of 1973
FAA	Federal Aviation Administration
ft	feet
GHG	Greenhouse gases
HAR	Hawai'i Administrative Rules
HEPA	Hawai'i Environmental Policy Act
HO	Haleakalā High Altitude Observatory
HRS	Hawai'i Revised Statutes
LADAR	Laser Detection and Ranging
LCH	Laser Clearinghouse
M RTP	Maui Research and Technology Park
MSSC	Maui Space Surveillance Complex
NAAQS	national ambient air quality standards
NEPA	National Environmental Policy Act of 1969
NHO	Native Hawaiian Organization
NO <sub>2</sub>	nitrogen dioxide
NOI	Notice of Intent
NPS	National Park Service
NRHP	National Register of Historic Places
O <sub>3</sub>	ozone

OSHA	Occupational Safety and Health Administration
Pb	lead
PM <sub>2.5</sub>	particulate matter, less than or equal to 2.5 microns in diameter
PM <sub>10</sub>	particulate matter, less than or equal to 10 microns in diameter
rCL	Cinder Land
RME	Remote Maui Experiment
ROD	Record of Decision
ROI	region of influence
SDA	space domain awareness
SHPD	State Historic Preservation Division
SHPO	State Historic Preservation Officer
SISL	Secure Integration Support Laboratory
SMA	Special Management Area
SNL	Sandia National Laboratories
SO <sub>2</sub>	sulfur dioxide
STAR	Small Telescope Advanced Research
TMK	tax map key
UFC	Unified Facilities Criteria
UH	University of Hawai'i
UHF	Ultra-High Frequency
U.S.	United States (adjective only)
U.S.C.	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USSF	U.S. Space Force
VHF	Very High Frequency
VOC	volatile organic compounds

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## SECTION 1.0 INTRODUCTION

### 1.1 PROJECT SUMMARY

**Type of Document:** Environmental Impact Statement Preparation Notice (EISPN)

**Project Name:** Air Force Maui Optical and Supercomputing Site Small Telescope Advanced Research Facility, Maui, Hawai'i

**Applicant:** Department of the Air Force (DAF)

**Applicant Contact Information:**

Mavourneen K. Wilcox, USSF  
Chief Engineer, 15th Space Surveillance Squadron  
Air Force Maui Optical & Supercomputing (AMOS) Site  
MAF, Rm 206  
550 Lipoa Pkwy, Kihei, HI 96753  
Telephone Number (808) 891-7723  
Email [mavourneen.wilcox.1@spaceforce.mil](mailto:mavourneen.wilcox.1@spaceforce.mil)

**Agent:** Tetra Tech, Inc.

**Accepting Authority:** State of Hawai'i Department of Land and Natural Resources

**HRS §343-5(a) Trigger(s):** Propose any use within any land classified as a conservation district (Use of any land classified as Conservation District by the State land use commission under Chapter 205 (HRS 343-5(a)(2)); and propose the use of state or county lands or the use of state or county funds

**Project Location:** Island of Maui, Hawai'i

**Judicial District:** Makawao, Maui

**Tax Map Key(s) (TMK(s)):** (2) 2-2-007:016 (portion) and (2) 2-2-007:008 (portion)

**State Land Use District:** Conservation (General Subzone)

**County of Maui Zoning Designation:** Interim

### 1.2 PROJECT BACKGROUND

The DAF is preparing an Environmental Impact Statement (EIS) to analyze the potential effects on the human and natural environments of constructing and operating the proposed Air Force Maui Optical and Supercomputing Site Small Telescope Advanced Research (AMOS STAR) facility (the Proposed Action). The project involves the proposed construction and operation of telescopes enclosed in individual domes on the island of Maui, Hawai'i. If constructed, the facility would be connected to and operated primarily remotely from Air Force Research Laboratory (AFRL) and 15th Space Surveillance Squadron (15 SPSS) facilities in the Maui Space Surveillance Complex (MSSC) Advanced Electro-Optical System (AEOS) control room and other sites with remote access. The project proponent is the 15 SPSS, a blended asset unit with assigned personnel from the U.S. Space Force (USSF) Space Operations Command and AFRL.

The AFRL is responsible for advancing technologies that improve the nation's capability to maintain space domain awareness (SDA). One responsibility is to track the approximately 19,000 space objects and pieces of debris larger than 4 inches in diameter in Earth's orbit. The AFRL must continuously improve its ability to maintain SDA as the number, sizes, locations, and capabilities of man-made objects in space change over time.

The AFRL has nine directorates, including the Air Force Office of Scientific Research, which provides command and control for the AMOS site. The 15 SPSS oversees all AMOS assets for facilitating and conducting SDA research and development. This includes the MSSC, the AEOS facility near the summit of Haleakalā, and the Remote Maui Experiment (RME) complex, which is about one-half mile east of the Maui Research and Technology Park (MRTP) in Kīhei, Maui. The MSSC maintains multiple telescopes and laboratories on Haleakalā and the RME complex in Kīhei. Other 15 SPSS support operations include the Maui High Performance Computing Center in the MRTP and a logistics warehouse in Kahului, which is approximately 12 miles from the MRTP. The AFRL has assessed under a separate NEPA document, *Environmental Assessment for Secure Integration Support Laboratory for Air Force Research Laboratory Maui, Hawai'i* (DAF 2022), the construction and operation of a Secure Integration Support Laboratory (SISL) that would consolidate all 15 SPSS operations into one facility within the MRTP. Like the existing operations, the SISL would be connected to the MSSC using existing high-speed fiber optic links.

### 1.3 PURPOSE AND NEED

The purpose of the Proposed Action is to provide dedicated satellite tracking and communication capability to allow the characterization, cataloging, and tracking of objects in space and to enable advanced research that expands the DAF's understanding of objects in the Pacific Theater.

The DAF needs to expand the capabilities of AMOS regarding space domain awareness. To expand this capability, additional telescopes need to be located at a site where there are favorable viewing conditions for observing objects in space in the Pacific Theater. Additionally, the 15 SPSS must be able to readily provide operational control and support to the additional telescopes.

### 1.4 NEPA/HEPA PROCESS

The DAF is preparing the EIS in compliance with the National Environmental Policy Act of 1969 as amended (NEPA) (Title 42 of the *United States Code* [U.S.C.] § 4321 *et seq.*); Council on Environmental Quality (CEQ) *National Environmental Policy Act Implementing Regulations* (Title 40 of the *Code of Federal Regulations* [CFR] parts 1500–1508); and the DAF's *Environmental Impact Analysis Process (EIAP)* regulations in 32 CFR Part 989. NEPA requires federal agencies to assess the environmental effects of their proposed actions prior to making decisions, including the evaluation of environmental, social, and economic effects. To notify the public of the DAF's intention to prepare an EIS and initiate the public scoping process, the DAF will publish a Notice of Intent (NOI) for this EIS in the *Federal Register* on or about April 23, 2024, initiating a 45-day comment period.

The EIS will also be developed in accordance with the provisions of the Hawai'i Environmental Policy Act (HEPA) (Chapter 343, Hawai'i Revised Statutes [HRS]) and Hawai'i Administrative Rules (HAR) Title 11, Chapter 200.1, *Environmental Impact Statement Rules*. HEPA requires an EISPN to notify the public of an agency's intention to prepare an EIS. HEPA also establishes

nine “triggers” that require preparation of either an environmental assessment or an EIS (HRS § 343-5). The EIS is being developed in accordance with HEPA because a proposed utility easement between the MSSC and the proposed AMOS STAR site would involve the use of state or county lands; and involve the use of land within the State Conservation District (HRS § 343-5(a)(1 and 2)). The state land where the utility corridor is proposed is part of the Haleakalā High Altitude Observatory (HO) that is managed and operated by the University of Hawai‘i (UH). The UH HO supports high-quality, high-impact research, education, and space surveillance. The state Department of Land and Natural Resources (DLNR) is the State agency with the greatest responsibility for approving the action as the accepting authority under HEPA (HAR § 11-200.1-2). The EIS document is intended to satisfy HEPA content requirements as well as NEPA in accordance with the NEPA regulations that provide, to the fullest extent practicable, unless specifically prohibited by law, agencies shall cooperate with state agencies to reduce duplication between NEPA and comparable State requirements, so that one process and document meets the requirements of both laws (40 CFR § 1506.2(c)). HEPA allows draft and final federal EIS documents to be submitted in compliance with HRS Chapter 343 as long as the federal EIS satisfies the content requirements identified in HEPA, including addressing potential cultural resources impacts (HAR § 11-200.1-31 (4) and (5)).

The DAF will coordinate with the DLNR to ensure that a comprehensive environmental impact review is developed in accordance with requirements unique to Hawai‘i law, such as the requirement under HEPA to prepare a cultural impact assessment (CIA). Because aspects of the Proposed Action would occur in the conservation district and on land owned by the state, it is appropriate that the State conduct an environmental review consistent with current regulations (HAR Chapter 11-200.1) regarding its implementation.

Both the NEPA and HEPA processes require public involvement in an EIS. Public involvement must include notifications; an opportunity for agencies, citizen groups, and individuals to participate in scoping the EIS and participate in at least one public scoping meeting with the opportunity for oral comments; and the opportunity to provide comments on the merits of the draft EIS and participate in a public hearing on the draft EIS during which comments can be provided orally.

## **1.5 DECISION TO BE MADE**

### **1.5.1 Federal Decision**

Based on the findings of the Final EIS, the DAF and the 15 SPSS will select an alternative based on which alternative best meets the purpose and need for the Proposed Action, substantive public comments on the draft EIS, and the environmental analysis for each alternative. The final decision and rationale for selection of an alternative will be presented in a Record of Decision (ROD) following issuance of the Final EIS. The ROD will indicate the decision made, provide a supporting explanation, and codify mitigation measures. It will explain the pertinent factors relied on in making the decision and how the selected alternative meets the purpose of, and need for, the Proposed Action.

### **1.5.2 State Decision**

Under HRS Chapter 343, the agency with the greatest responsibility for approving the action overall is the accepting authority. Under HAR Section 11-200.1-28, the accepting authority evaluates whether the EIS fulfills the intent and provisions of HRS Chapter 343, adequately discloses and describes identifiable impacts, and satisfactorily responds to comments provided

during public review. In this case, decisions would be made by the Hawai'i Department of Land and Natural Resources (DLNR) Board of Land and Natural Resources (BLNR), which manages the State-owned lands.

BLNR has the greatest responsibility for approving the action because it would also need to approve a Conservation District Use Permit (CDUP) for the use of state land before the project could advance. In this case, the state land is the utility easement on UH-managed land between the MSSC and the proposed AMOS STAR facility. The Final EIS will inform and be appended to a Conservation District Use Application (CDUA) to be submitted to DLNR by the DAF. The BLNR, informed by the Final EIS, the CDUA, its staff, and public input, may then issue a CDUP. The CDUP would include standard and project-specific conditions; frequently, a condition of a CDUP is that the mitigation measures outlined in the Final EIS be implemented.

## 1.6 LIST OF REQUIRED PERMITS AND REVIEWS

A list of permits and approvals from federal and state agencies necessary for implementation of the Proposed Action is required to be included in the EIS under 40 CFR Section 1502.24 and HAR Section 11-200.1-23. Table 1-1 lists the anticipated permits and reviews.

**Table 1-1. Anticipated Permits and Reviews**

<b>Permits and Reviews</b>	<b>Agency</b>
<b>Federal</b>	
Coastal Zone Management Act (Section 307)	State Office of Planning
Endangered Species Act (Section 7)	U.S. Fish and Wildlife Service
Outgrant Permit (for use of the land for proposed purposes)	Federal Aviation Administration
National Historic Preservation Act (Section 106)	DLNR State Historic Preservation Division
Special Use Permit (for construction vehicles using the National Parks Service road to the proposed AMOS STAR facility)	National Park Service
<b>State</b>	
Conservation District Use Permit	DLNR Board of Land and Natural Resources
Hawai'i Historic Preservation Review HRS Chapter 6E-8 and HAR Chapter 13-275	DLNR Land Division State Historic Preservation Division



## SECTION 2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

### 2.1 PROPOSED ACTION

The Proposed Action is the construction and operation of the AMOS STAR facility on the island of Maui, Hawai'i. The proposed facility would consist of up to seven telescopes enclosed in domes. Figures 2-1 shows the location of the proposed AMOS STAR site on Maui and Figure 2-2 shows the AMOS STAR site boundary in relation to the FAA, MSSC, and HO site boundaries. Figure 2-3 provides the proposed site layout. The proposed telescope domes are small in scale when compared to the existing telescope domes on Haleakalā (see Figures 2-4 and 2-5). If constructed, the proposed facility would be connected to and operated primarily remotely from the 15 SPSS MSSC AEOS control room and other sites with remote access. Access to the facility would be necessary to conduct operations and maintenance over the operational period. Communication between the 15 SPSS sea level facilities and MSSC facilities would be through existing high-speed fiber optic links and microwave transmissions. The AMOS STAR facility would require utilities, including fiber optic links from the MSSC, a paved access drive and parking facilities, surface water runoff management measures, and other site improvements.

### 2.2 ALTERNATIVES CONSIDERED

Alternatives for implementing the Proposed Action are limited and, because of the telescopes' technical requirements. The DAF initially considered five alternatives to meet the purpose and need, but the critical importance of being at a high elevation on the island of Maui made it evident that only the two alternatives near the MSSC would be suitable. The two alternatives being carried forward for analysis in the EIS are described below.

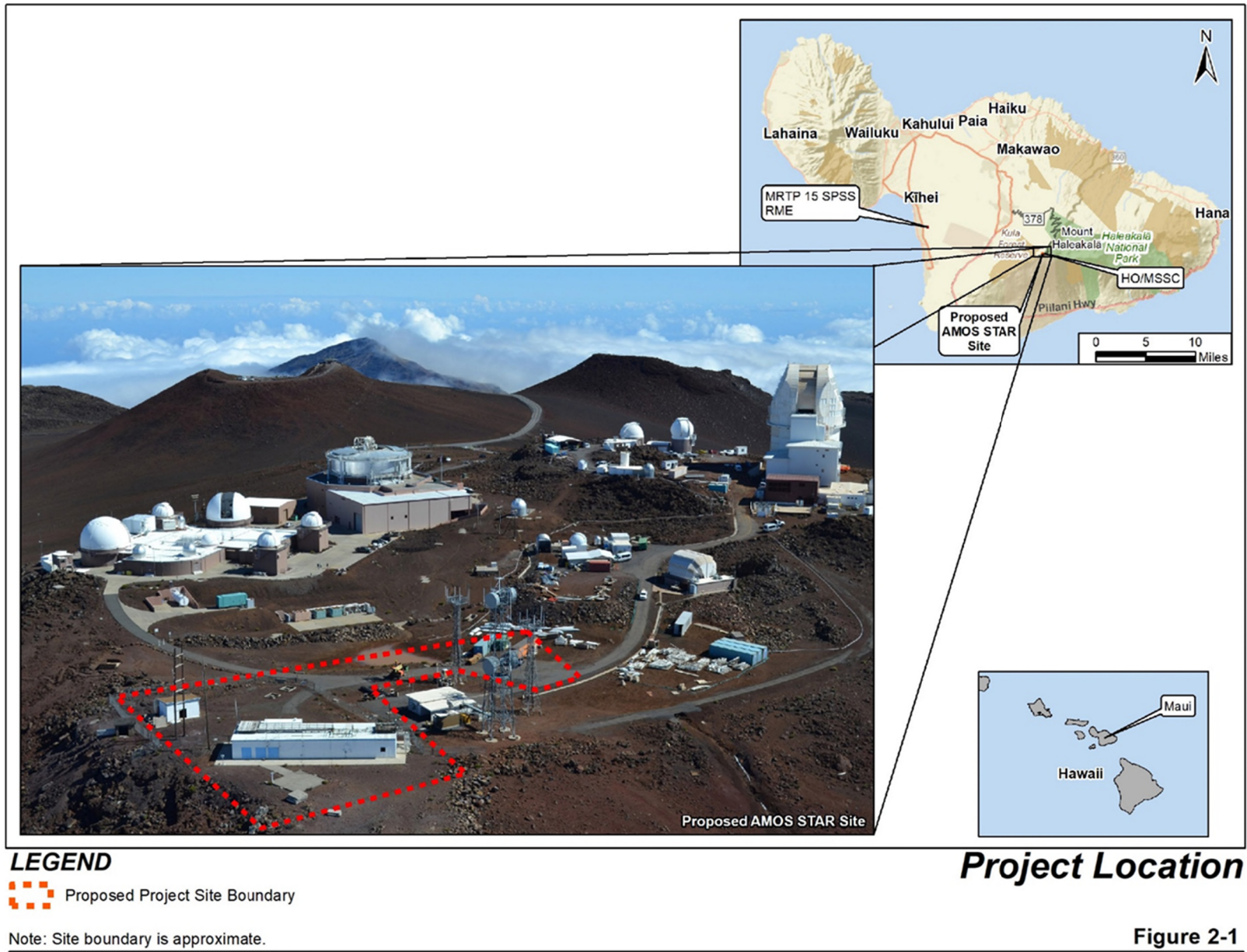
#### 2.2.1 Alternative 1: AMOS STAR Facility Full Build-out near the MSSC on Haleakalā (Preferred Alternative)

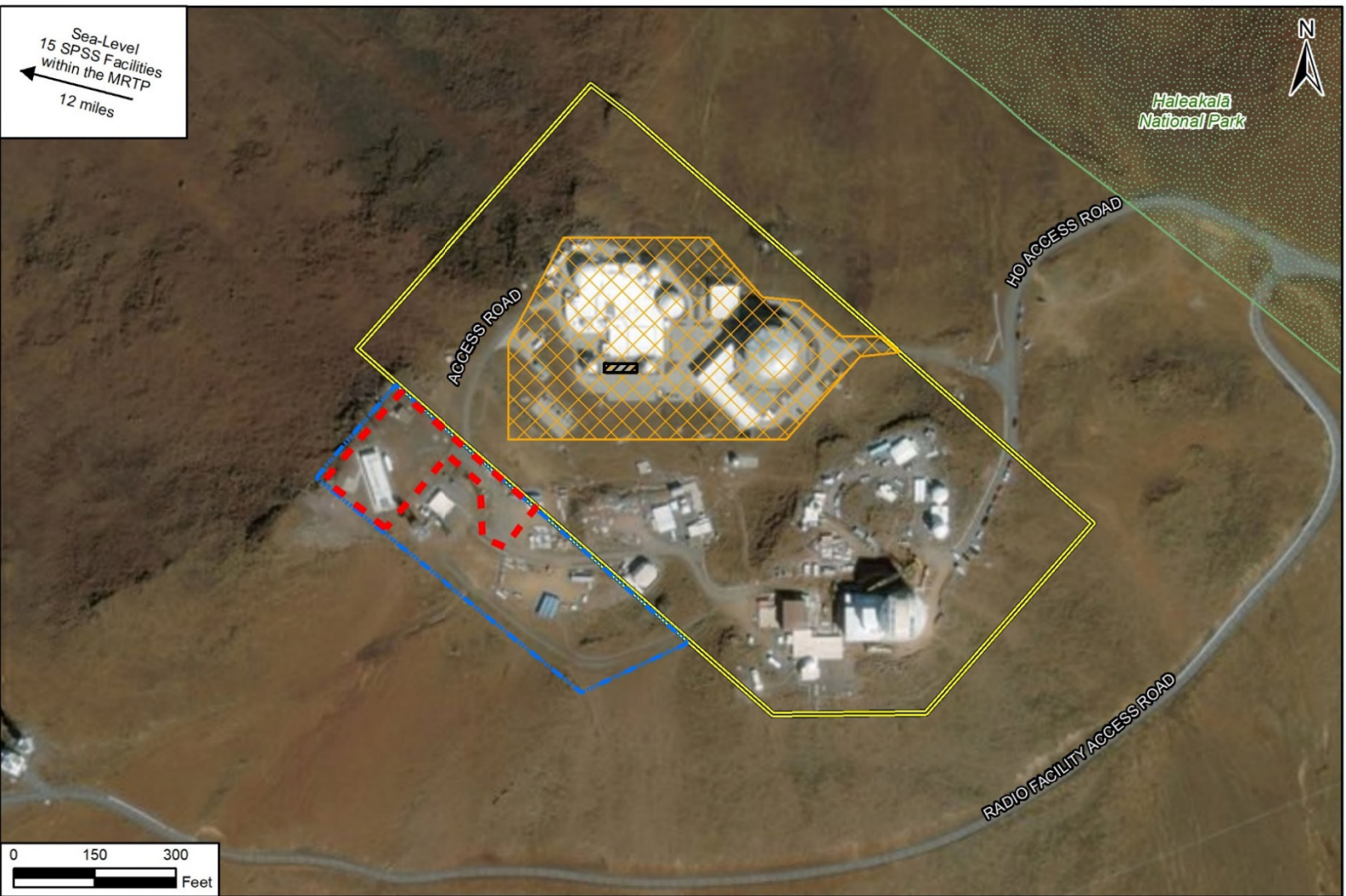
Under Alternative 1, the DAF would construct and operate the proposed AMOS STAR facility on the 0.878-acre proposed project site (Figure 2-2). The Federal Aviation Administration (FAA) would issue an outgrant permit with a 5-year term to the DAF for the proposed use of the site. The outgrant permit would be renegotiated every 5 years. Ownership of an existing building (Building 1010) within the site was transferred from the DOE to the DAF<sup>1</sup>.

The proposed project site is part of a larger FAA parcel set aside for federal use through Executive Order (EO) 1808. That EO, which was issued by the Governor of the Territory of Hawai'i in 1957, set aside 2.956 acres of public land near the summit of Haleakalā for the "uses and purposes of the United States of America." The "Haleakalā Peripheral HI Site," as it was termed, was initially under the control and management of the Civil Aeronautics Administration, which subsequently became the U.S. Department of Transportation's FAA. The land is identified

---

<sup>1</sup> The outgrant permit for use of the land and the transfer of Building 1010 ownership was addressed independently and considered under U.S. Air Force Categorical Exclusion A2.3.16.





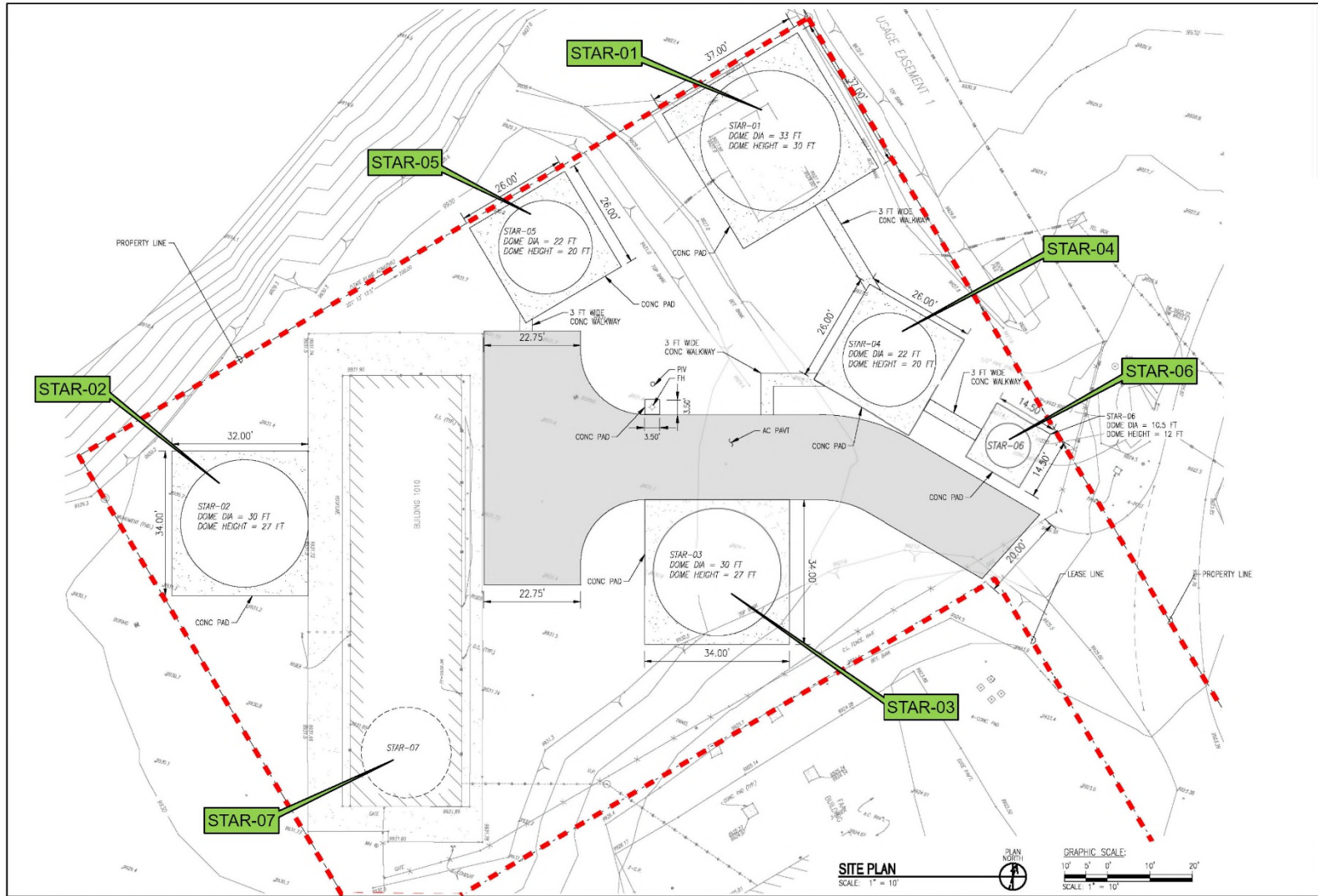
- LEGEND**
- - - Proposed Project Site Boundary – Proposed Action
  - Haleakalā High Altitude Observatory (HO) Property Boundary
  - Maui Space Surveillance Complex (MSSC)
  - Federal Aviation Administration Parcel
  - Haleakalā National Park
  - Construction Staging Area

## Proposed AMOS STAR Site Boundary

**Figure 2-2**

Sources: County of Maui Planning Department 2020; NPS 2019.

Notes: Site boundaries are approximate. Staging would be located within the proposed project site boundary or at the location shown on this figure.



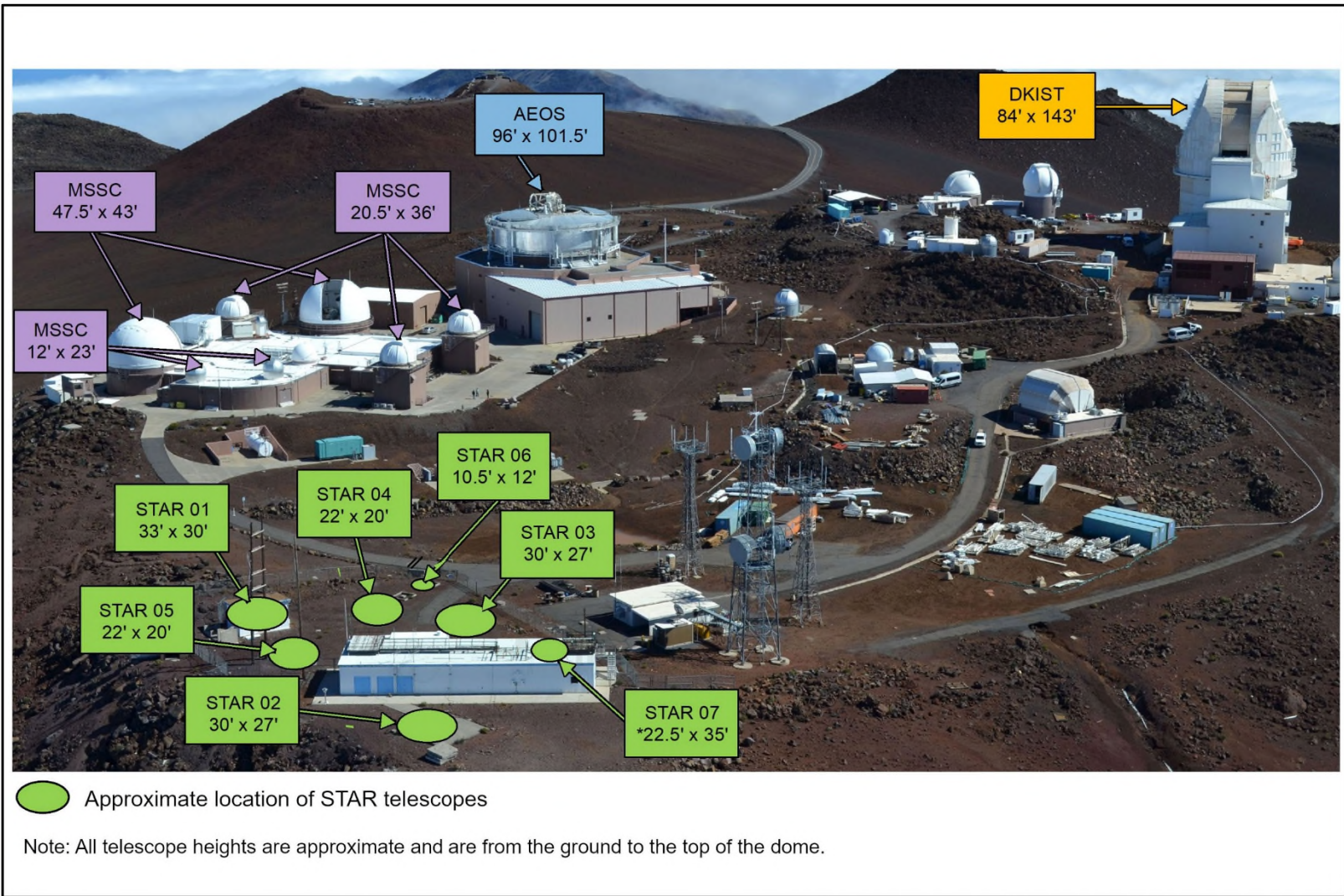
**LEGEND**

--- Proposed Project Site Boundary – Proposed Action

Note: The design is conceptual and subject to change.

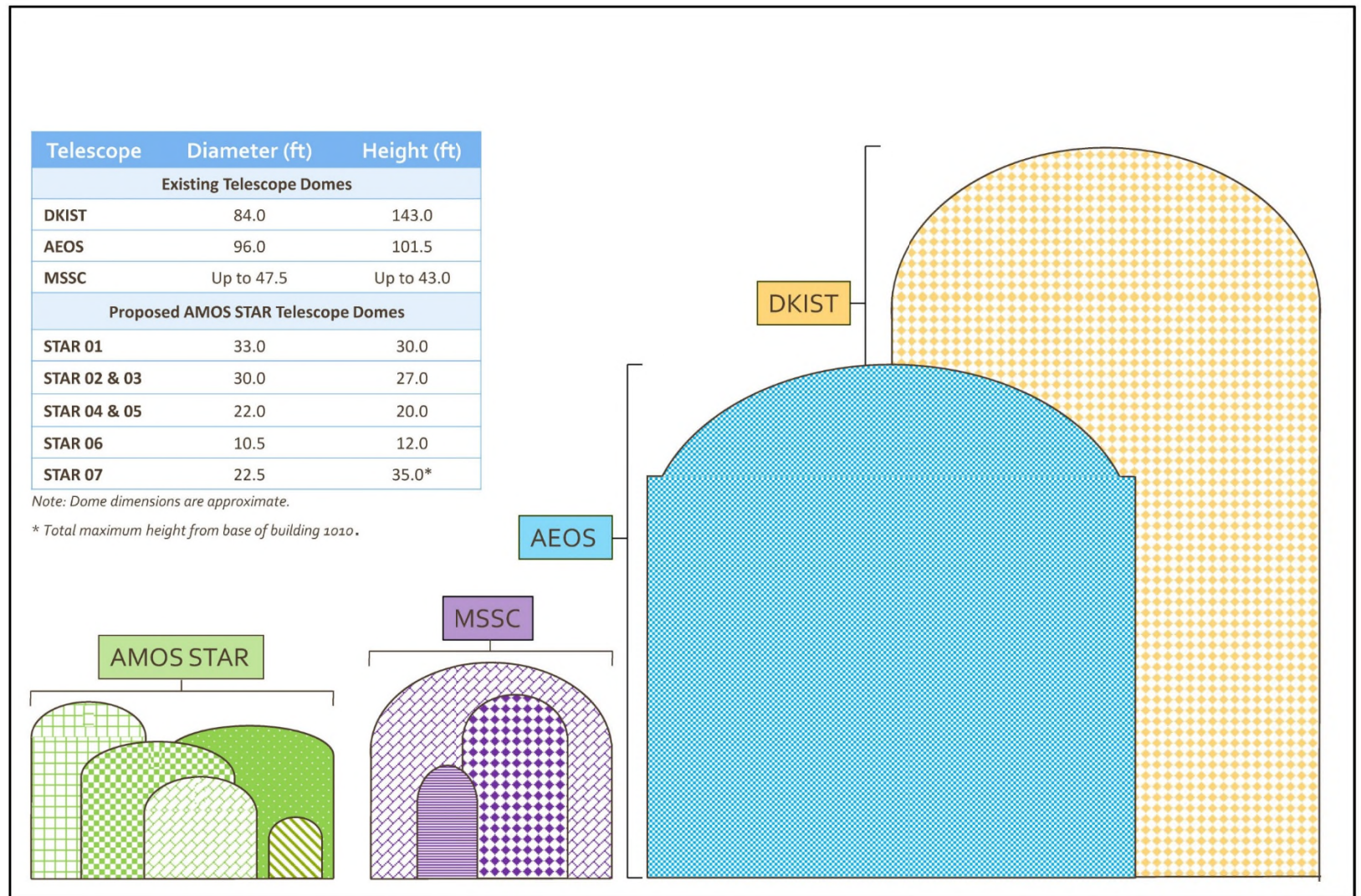
**Proposed Site Layout**

**Figure 2-3**



**Telescope Dome Dimensions**

**Figure 2-4**



**Telescope Dome Scale Comparison**

**Figure 2-5**

as TMK (2) 2-2-007:016. The state of Hawai'i is the recorded fee owner of the parcel, while the FAA remains the federal entity responsible for managing it. EO 1808, and subsequent amendments to it, also set aside easements for access and utility services to the parcel.

Use of a portion of the FAA property for the proposed AMOS STAR facility is consistent with the purposes under which the area was set aside for the FAA in the Governor's EO in 1957. However, because the AMOS STAR facility would require a utility easement through UH HO-property (TMK (2) 2-2-007:008 (portion)) that is state owned and within the General subzone of the State Conservation District, the DAF would be required to obtain a Conservation District Use Permit from the state of Hawai'i BLNR.

The proposed project site is abutted to the north and east by the HO, which includes AFRL's MSSC and other astronomy facilities. The developed area to the south includes two FAA remote communication air-to-ground towers with supporting infrastructure and another tower operated by the U.S. Coast Guard. To the west and northwest is undeveloped state land.

The proposed project site is developed and has been used by the FAA and other federal entities since the 1950s for tracking and observation missions. In 2020, many of the structural improvements made by those prior missions were demolished; however, Building 1010, some concrete pads, fencing, and utility connections remain.

With implementation of Alternative 1, the DAF would construct and operate the AMOS STAR facility on the proposed project site. During the construction phase, Building 1010, an approximately 2,600-square-foot building constructed in the 1950s, would be renovated and used for communication equipment and an optics laboratory and to support a rooftop-mounted domed telescope. Six additional dome-enclosed telescopes also would be assembled onsite and mounted on new concrete pads, as described in Table 2-1. Figure 2-3 shows the conceptual placement of the proposed domes near and on Building 1010. It is estimated that full project buildout would take about 2 years. Once operational, the facility would only be visited by the DAF employees and contractors to conduct calibration and maintenance that would be carried out in accordance with established MSSC management plans. Calibration and maintenance of security systems, weather monitoring systems, telescope operating systems, telescope mounts, and information technology systems would be conducted weekly or monthly, or as needed. Structures, including Building 1010 and telescope domes, would be painted approximately every 5-8 years. The telescopes would be remotely operated from sea level facilities in the MRTP.

The proposed project site is accessible from an unnamed paved road that also provides access to the west side of the MSSC and to the HO parcel. The HO is accessible only from the Haleakalā Highway (also known as Route 378 and Crater Road) and Skyline Road. The National Park Service (NPS) has exclusive jurisdiction over 10.6 miles of the road leading up to the summit.

Sustainable strategies and features would be integrated into the design of the AMOS STAR facility to minimize nonrenewable energy consumption; conserve resources; and minimize adverse effects on the environment.

**Table 2-1. Proposed Telescopes and Domes**

<b>Dome number</b>	<b>Telescope<sup>a</sup></b>	<b>Purpose</b>	<b>Dome diameter (ft)<sup>b</sup></b>	<b>Dome height (ft)<sup>b</sup></b>	<b>Dome concrete pad dimensions (ft)<sup>b</sup></b>
STAR-01	Multi-Mission Prototype Sensor	Prototype capability to address future space surveillance needs for USSF "multi-phenomenology characterization" and "space object custody".	33	30	37 x 37
STAR-02	Space Test 2-meter class telescope	Instrumentation to support testing of new on-orbit space capabilities through characterization and tracking observations.	30	27	32 x 34
STAR-03	Space Test 2-meter class planewave telescope	Test instrumentation to evaluate space surveillance characterization and tracking capabilities.	30	27	34 x 34
STAR-04	Meter-class telescope (1 of 2)	Provide follow-up for a persistent wide-field sensor operating nearby to satisfy the AFRL requirement to support science and technology for a broader set of DoD stakeholders involved with the AMOS site. <sup>c</sup>	22	20	26 x 26
STAR-05	Meter-class telescope (2 of 2)	A second meter-class telescope would be needed to provide sufficient operational time and simultaneous viewing of different areas of the sky.	22	20	26 x 26
STAR-06	Lasercom—A Conex box containing supporting equipment would be sited next to this dome. <sup>d</sup>	Provide optical communication that would support both USSF and USAF mission partners.	10.5	12	14.5 x 14.5
STAR-07	1-meter class telescope/Laser Detection and Ranging (LADAR) <sup>e</sup>	Rooftop telescope capable of laser transmission would facilitate future space surveillance needs and provide laser projection and ranging capabilities from inside the optics room within Building 1010.	22.5	35 (includes height of Building 1010)	Rooftop-mounted (Building 1010)

*Notes:*

<sup>a</sup> Proposed equipment would not emit new frequencies.

<sup>b</sup> Estimated.

<sup>c</sup> A "persistent wide-field sensor" is a telescope that monitors a relatively large portion of the sky for an extended period of time. It identifies objects that other assets, usually narrow field telescopes, then investigate.

<sup>d</sup> Lasercom is a high-bandwidth, low-wavelength laser communication system used to transmit data from ground to satellite or satellite to ground. The system would propagate an eye safe, 1.55-micron laser that would not disrupt air travel; however, since laser transmission would be directed through navigable airspace, DAF would coordinate its use with the FAA.

<sup>e</sup> LADAR would operate in the 500-nanometer-to-10-micron waveband range and would be used to transmit data from ground to satellite or satellite to ground and/or other space debris objects to determine their distance. Use would not disrupt air travel; however, since laser transmission would be directed through navigable airspace, DAF would coordinate its use with the FAA and the Laser Clearinghouse (LCH) prior to operations to get appropriate approvals. The LCH considers DoD laser programs and is tasked with ensuring orbital assets are not negatively impacted by laser use.



### **2.2.1.1 Antiterrorism/Force Protection Measures**

Antiterrorism/Force Protection measures would be consistent with other such measures followed at the MSSC.

### **2.2.1.2 Parking**

A paved access drive and parking area for a few vehicles would be required. Curbing would be constructed to direct stormwater away from structures and to existing drainage swales.

### **2.2.1.3 Utilities and Infrastructure**

Available utilities that would be required for the proposed facility are water for fire suppression, electricity, and communication systems. The proposed routes of those utilities are in the design phase and have not yet been determined.

Communications and water for fire suppression connections would be supplied from existing MSSC corridors. Electricity would be supplied from the island-wide grid; however, during power grid interruptions, power to the proposed AMOS STAR facility would be supplied by the diesel generator located on the south side of MSSC about 200 feet northeast of the AMOS STAR facility site. A diesel fuel spill occurred at the generator in January 2023 and is being addressed by the DAF through an ongoing multiphase cleanup action. To prevent future spills, the DAF plans to relocate the generator next to an aboveground storage tank (AST) that has spill containment features. The AST that supplies fuel to the generator is about 40 feet north of the generator. Additional spill protection measures, including a return fuel line from the generator to the AST, also will be installed.

### **2.2.1.4 Exterior Lighting**

An exterior fixture equipped with a red lamp directing light downward would be installed at the primary entrance of Building 1010.

### **2.2.1.5 Stormwater Management**

On-site stormwater management measures would be designed to accommodate surface runoff from proposed impervious site coverings that include an access drive and parking area, telescope pads and walkways. Combined, those areas would consist of about 12,000 square feet. Low impact development design would be implemented as described in to provide decentralized hydrologic source control for stormwater while maintaining existing predevelopment hydrology to the maximum extent practicable. The design also would comply with local regulations for stormwater management.

### **2.2.1.6 Construction Staging Areas**

Construction staging areas would be established on the proposed project site or on a paved portion of the MSSC as shown on Figure 2-2. The staging areas would be used temporarily to store construction equipment and materials.

### **2.2.1.7 Anticipated Schedule**

Construction of the AMOS STAR facility is expected to take about 2 years; however, implementation may be incremental and contingent on DAF programming and funding.

### **2.2.2 Alternative 2: AMOS STAR Facility Reduced Build-out near the MSSC on Haleakalā**

With implementation of Alternative 2, the DAF would construct and operate the AMOS STAR facility on the proposed project site as described under Alternative 1 but would not include the roof-mounted STAR-07 telescope or an optics laboratory in the renovation of Building 1010. This alternative would consist of constructing and operating only six telescopes enclosed in ground-mounted domes STAR-01 through STAR-06, as described in Table 2-1. The facility also would use Building 1010 for communication equipment to support facility operations.

Like Alternative 1, it is estimated that construction would take about 2 years. Once operational, the remotely operated facility would be visited only by DAF employees and contractors to perform calibration and maintenance that would be carried out in accordance with established MSSC management plans.

### **2.2.3 No Action Alternative**

Inclusion of the No Action Alternative, prescribed in CEQ regulations, serves to provide a benchmark against which the potential effects of federal actions can be evaluated. Under the No Action Alternative, the DAF would not construct and operate the proposed AMOS STAR facility at any location on Maui for the foreseeable future. Building 1010 and the land area, however, would continue being used for mission storage. Although the No Action Alternative does not fulfill the purpose of or need for the Proposed Action, it has been carried forward for detailed analysis in this EIS as required under NEPA.

## SECTION 3.0 AFFECTED ENVIRONMENT

This section provides an overview of the existing environmental conditions for the resources within the proposed project site and surrounding areas where applicable.

A preliminary overview of existing conditions relevant to the analysis of the Proposed Action are presented below and include land use, visual resources, cultural, archaeological and historic resources, biological resources, water resources, geology and soils, air quality, climate and greenhouse gases, noise, socioeconomics and environmental justice, utilities, transportation and traffic, airspace, health and safety, and hazardous materials and waste. Through the development of the EIS some resource areas may be eliminated from detailed analysis. In such cases, details supporting elimination of a particular resource area would be provided.

### 3.1 AIR QUALITY, CLIMATE, AND GREENHOUSE GASES

#### 3.1.1 Air Quality

The Draft EIS will provide information for the affected environment related to air quality. The U.S. Environmental Protection Agency (USEPA) has established national ambient air quality standards (NAAQS) for several different air pollutants that are considered harmful to public health and the environment. These pollutants, referred to as criteria pollutants, are sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), ozone (O<sub>3</sub>), suspended particulate matter (measured less than or equal to 10 microns in diameter [PM<sub>10</sub>] and less than or equal to 2.5 microns in diameter [PM<sub>2.5</sub>]), and lead (Pb). CO, SO<sub>2</sub>, Pb, and some particulates are emitted directly into the atmosphere from emissions sources. O<sub>3</sub>, NO<sub>2</sub>, and some particulates are formed through atmospheric chemical reactions that are influenced by weather, ultraviolet light, and other atmospheric processes. Volatile organic compounds (VOCs) and nitrogen oxide emissions are used to represent O<sub>3</sub> generation because they are precursors to O<sub>3</sub>. The Hawai'i Department of Health (DOH), Clean Air Branch (CAB) regulates and monitors air pollutants under HAR Chapter 11-59, Ambient Air Quality Standards, and HAR Chapter 11-60.1, Air Pollution Control. The CAB has established its own ambient air quality standards for the criteria pollutants, and these standards are stricter than the NAAQS for some pollutants. The CAB also has promulgated an additional air quality standard for hydrogen sulfide.

All the islands of Hawai'i, including Maui, have relatively good air quality due to persistent northeast trade winds, which limit air pollutants from accumulating. Based on ambient air monitoring results, the USEPA has designated the island of Maui as attainment for all criteria pollutants, whereas the criteria pollutants are less than the NAAQS (USEPA 2022).

#### 3.1.2 Climate Change and Greenhouse Gases

Greenhouse gases (GHG) are compounds found naturally within the Earth's atmosphere that trap and convert sunlight into infrared heat. Increased levels of GHGs have been correlated to a greater overall temperature on Earth and global climate change. Global climate change refers to long-term fluctuations in temperature, precipitation, wind, sea level, and other elements of Earth's climate system. The most common GHGs emitted from natural processes and human activities include carbon dioxide (CO<sub>2</sub>), methane, and nitrous oxide. CO<sub>2</sub> is the primary GHG emitted by human activities in the U.S., with the largest source generated from fossil fuel combustion. Scientific evidence indicates a trend of increasing global temperature over the past century due to an increase in GHG emissions from human activities. The climate change

associated with this global warming is predicted to produce negative economic and social consequences across the globe.

Ongoing global climate change has the potential to increase average temperatures, alter precipitation patterns, and raise sea level within the state. As a result, the availability of freshwater, potential for coastal flooding, distribution and abundance of native plants and animals, and the health of native populations could be adversely impacted from ongoing climate change (USGCRP 2018).

## 3.2 AIRSPACE

The Draft EIS will provide information on use of airspace at the proposed project site and the summit area of Haleakalā. Analysis will identify potential impacts on airfields, airspace management, and air traffic. The FAA governs regulatory and non-regulatory airspace within the National Airspace System. FAA jurisdiction applies to all airspace users, including the Department of Defense (DoD).

Impacts to uses of airspace are not anticipated as the proposed facilities are relatively short (23 feet) and nearby facilities are substantially taller (143 feet), the nearest airport is roughly 17 miles away, and Haleakalā National Park is considering the implementation of an Air Tour Management Plan. Furthermore, the proposed facilities do not require that the regional airspace be controlled or managed in a manner different than it is now.

## 3.3 BIOLOGICAL RESOURCES

The Draft EIS will provide information on the affected environment for biological resources on the proposed project site. The project is subject to compliance with Section 7 of the Endangered Species Act (ESA) and implementing regulations (50 CFR Part 402) that requires communication with the U.S. Fish and Wildlife Service (USFWS) in cases where a federal action could affect listed threatened or endangered species, species proposed for listing, or candidate species for listing. The primary focus of this consultation is to request a determination of whether any of these species occur in the project area. If any are present, a determination would be made of the potential for any adverse effects to occur. Early coordination through scoping and informal consultation with USFWS - Pacific Islands Fish and Wildlife Office was initiated on June 7, 2023.

Through the consultation process, a Biological Assessment (BA) could be required to support section 7 consultation with the USFWS. If required, the findings from a BA, including the USFWS determination, would be incorporated into the EIS.

### 3.3.1 Vegetation and Wildlife

The plant community in the summit area can be characterized as an alpine dry shrubland. Vegetation cover is very sparse, due mostly to the severe conditions found at the summit, such as frequent nightly frosts that occur even in the summer months, low rainfall, and strong winds. Vegetation covers approximately 5 percent of the surface, with the remainder consisting of barren rock and cinder. The most prominent plant on the proposed project site is the native bunchgrass *Deschampsia nubigena*. Besides the *Deschampsia*, only two other vascular plants commonly occur in proximity to the site; these are the hairy cat's ear *Hypochoeris radicata* and dandelion *Taraxacum officinale*. Both are considered alien or introduced species. Other plants in proximity to the site occur as a few scattered individuals. On the adjacent areas, outside of

the site, a few shrubs of kupaoa, pukiawe, and pilo (*Coprosma montana*) are found. *Tetramolopium humile*, a dwarfed tufted shrub with white flowers, occurs on cinder pockets among the rock outcrops. The 'iwa'iwa fern (*Asplenium adiantum-nigrum*) can also be found among the rock outcrops. The pawale (*Rumex giganteus*), a scandent shrub belonging to the buckwheat family, occurs in the nearby cinder pits (FAA 2020).

Avian species that can be found on or near the summit of Haleakalā include quails, francolins, pheasants, chukars (*Alectoris chukar*), plovers, sandpipers, doves, pigeons, short-eared owls (*Asio flammeus*) northern mockingbird (*Mimus polyglottos*), common myna (*Acridotheres tristis*), house finch (*Carpodacus mexicanus*), common 'amakihi (*Hernignathus virens*), and 'i'iwi (*Vestiaria coccinea*). Mammals that can be found within the summit area include the feral goat (*Capra hircus*), Polynesian rat (*Rattus exulans*), roof rat (*Rattus rattus*), cat (*Felis catus*), mouse (*Mus musculus*), and Indian mongoose (*Herpestes auropunctatus*) (KC Environmental, Inc. 2010, NSF 2009).

A diverse fauna of insects and spiders reside at the highest elevations of Haleakalā. There is an aeolian ecosystem extending up the summit from about the 7,550 feet elevation. It is characterized by relatively low precipitation, porous lava substrates that retain relatively little moisture, little plant cover, and high solar radiation. The dark, heat-absorbing cinder provides only slight protection from the extreme temperatures, and thermal regulation and moisture conservation are critical adaptations of arthropods occurring in this unusual habitat. Due to the harsh environment, fewer insects are present at upper elevations on Haleakalā than are found in the warm, moist lowlands. Arthropod surveys at HO and other areas of the summit conducted between 1992 and 2009 have identified several types of spiders, including a large endemic wolf spider, *Lycosa hawaiiensis*; numerous beetles, including at least ten species of native ground beetles (five being restricted to within 150 ft of the summit) and two species of long horn beetles of the genus *Plagithmysus*; a number of noctuid moth species, including several endemic species; a non-indigenous earwig; several species of flies; several species of true bugs, including the native stinkbug, *Oechalia pacifica*; several species of *Hymenoptera*, including the yellow-jacket (*Vespula pensylvanica*) two species of endemic bees; and the Argentine ant (*Iridomyrmex humilis*), and two other species of ant (FAA 2020, NSF 2009).

### 3.3.2 Threatened and Endangered Species

Eleven federally threatened or endangered species that may occur in the project area or may be affected by the project are listed in Table 3-1. This is based on a current USFWS species list for the proposed project site and vicinity. There are no critical habitats in the vicinity of the site (USFWS 2023). The state of Hawai'i status for each of these species is also provided in Table 3-1. In addition to the state status, all species in Table 3-1 are considered Species of Greatest Conservation Need by the Hawai'i DLNR (DLNR 2015). A review of relevant FAA files and interviews with Sandia National Laboratories (SNL) and FAA personnel were conducted for the 2020 Environmental Baseline Survey and did not reveal any sensitive habitat associated with the proposed project site (FAA 2020).

**Table 3-1. Federally Threatened or Endangered Species to be Assessed in the Draft EIS**

Common Name	Scientific Name	Federal Status <sup>a</sup>	State Status <sup>b</sup>
<b>Mammals</b>			
Hawaiian Hoary Bat ('ope'ape'a)	<i>Lasiurus cinereus semotus</i>	E	E
<b>Birds</b>			
Band-rumped Storm-petrel	<i>Oceanodroma castro</i>	E	E
Hawaiian (=koloa) Duck	<i>Anas wyvilliana</i>	E	E
Hawaiian Coot	<i>Fulica americana alai</i>	E	E
Hawaiian Goose (nēnē)	<i>Branta (=Nesochen) sandwicensis</i>	T	E
Hawaiian Petrel ('ua'u)	<i>Pterodroma sandwichensis</i>	E	E
Hawaiian Stilt	<i>Himantopus mexicanus knudseni</i>	E	E
Newell's Townsend's Shearwater	<i>Puffinus auricularis newelli</i>	T	T
<b>Flowering Plants</b>			
Native cudweed ('ena'ena)	<i>Pseudognaphalium sandwicense</i> var. <i>molokaiense</i>	E	—
Haleakalā silversword ('ahinahina)	<i>Argyroxiphium sandwicense</i> ssp. <i>macrocephalum</i>	T	—
Ihi	<i>Portulaca villosa</i>	E	—
No common name	<i>Sanicula sandwicensis</i>	E	—

**Sources:**<sup>a</sup> USFWS 2023<sup>b</sup> DLNR 2015

Notes: Hawai'i adopts federal listings for plants.

Reports characterizing biological resources at the summit of Haleakalā, including the 2020 FAA Environmental Baseline Survey of the project site and the 2009 EIS for the Advanced Technology Solar Telescope, indicate that habitat for four of the federally threatened or endangered species listed in Table 3-1, including a bat, two birds, and a plant, occurs in the vicinity of the summit area of Haleakalā (FAA 2020, NSF 2009). Those species are described below.

**Hawaiian hoary bat ('ope'ape'a)**

The Hawaiian hoary bat, or 'ope'ape'a (*Lasiurus cinereus semotus*) is a federally endangered species that has occasionally been observed at elevations up to 13,000 ft. It is the only native terrestrial mammal known to occur in the Hawaiian archipelago, and is found on Hawai'i Island, Maui, O'ahu, Kaua'i, and Moloka'i. NPS records indicate that, on Maui, one bat was found in the south park boundary fence and another near Kalahaku Overlook, at an elevation of about 9,200 ft. Other individual bats have been found dead at about the same elevation, and observations of the bat flying in the summit area have been reported. It is considered extremely unlikely that this species is a resident at the summit of Haleakalā, however, due to the relatively cold temperatures and the lack of flying insects in the area, which is the preferred food source. Bats

are most often observed foraging in open areas, near the edges of native and non-native forests, or over both marine and fresh open water, and over lava flows. Most of the available data suggests that this elusive bat roosts solitarily in the foliage among trees in forested areas. Breeding probably occurs mostly between September and December, with young being born in May or June. Hawaiian hoary bats do not migrate off island, although seasonal elevation movements and island-wide migrations may occur. The recovery plan for the Hawaiian hoary bat (USFWS 1998) suggests the subspecies is experiencing a moderate degree of threat and has a high potential for recovery (USFWS 1998). Critical habitat has not been designated for this species. Threats to this subspecies include direct and indirect effects of pesticides, predation, alteration of prey availability (introduced insects), and roost disturbance (FAA 2020, KC Environmental, Inc. 2010, NSF 2009).

### **Hawaiian goose (nēnē)**

The Hawaiian goose, or nēnē (*Branta sandvicensis*), is a federally threatened goose that occurs only on the islands of Maui (atop Haleakalā), Kaua'i, and Hawai'i (atop Mauna Loa and Hualalai) at elevations ranging from sea level to almost 8,200 feet. A Hawaiian goose sanctuary on Haleakalā is located on the northeast slope, between the 5,000-ft and 6,900-ft elevations. The species seems to be adaptable and is found in a variety of habitats, including non-native grasslands, sparsely vegetated, high elevation lava flows, cinder deserts, native alpine grasslands and shrublands, open native and non-native alpine shrubland-woodland community interfaces, mid-elevation (approximately 2,300 to 3,900 feet) native and non-native shrubland, and early successional cinder fall. The nesting periods for this non-migrating, terrestrial goose occur from October to March. Preferred nest sites include sparsely to densely vegetated beach strands, shrublands, grasslands and woodlands on well-drained soil, volcanic ash, cinder, and lava rock substrates. They are ground-nesters and their nests are usually well hidden in the dense shade of a shrub or other native vegetation. Hawaiian geese are browsing grazers, eating over 50 species of native and introduced plants. Critical habitat has not been designated for the Hawaiian goose. Current threats to the species include predation, nutritional deficiency due to habitat degradation, lack of lowland habitat, human-caused disturbance, road-kills, behavioral problems, and inbreeding depression. Suitable habitat does not occur in the vicinity of the proposed project site, and the Hawaiian goose is not known to occur at the summit (FAA 2020, KC Environmental, Inc. 2010, NSF 2009).

### **Hawaiian petrel ('ua'u)**

The Hawaiian petrel, or 'ua'u (*Pterodroma sandwichensis*), is a federally endangered pelagic seabird, known to nest on the summit of Haleakalā between the months of February to November, and to spend the remainder of the year at sea. Although they occur regularly on the islands of Maui, Lanai, and Hawai'i, the only known breeding colony is at the summit of Haleakalā. The birds make their nests in burrows and return to the same burrow every year. Approximately 77 percent of the known burrows are located in three subcolonies, along the inner wall of Haleakalā's west crater rim and about 3,200 ft northeast of the adjacent HO site. Three subcolonies have been observed in the vicinity of HO, with a fourth on the outside of the crater's west rim. The 'ua'u typically leave their nests just before sunrise to feed on ocean fish near the surface of the water and just before sunset transit from the ocean back to Haleakalā. These birds have limited vision and their high speed and erratic nocturnal flight patterns may increase the possibility of collisions with fences, utility lines, and utility poles. Critical habitat has not been designated for the Hawaiian petrel. 'Ua'u are believed to navigate by stars, so man-made lights may confuse the birds while in flight. In addition, confirmed causes of 'ua'u mortality include nest collapse by wild goats, predation by native owls and introduced predators, road-

kills, collision with such objects as buildings, utility poles, fences, lights, and vehicles, and disturbance from road resurfacing activity (FAA 2020, KC Environmental, Inc. 2010, NSF 2009).

### ***Haleakalā silversword ('ahinahina)***

The Haleakalā silversword, or 'ahinahina, (*Argyroxiphium sandwicense macrocephalum*) is a federally threatened plant that occurs within the summit area, including on the adjacent HO property. This species is found only on Haleakalā and on Mauna Kea on the Island of Hawai'i , growing at elevations between 7,000 and 12,300 ft. The Haleakalā silversword is adapted to the intense, ultraviolet-light and cold, dry atmosphere indicative of the summit environment. It generally flowers from June to September, with annual numbers of flowering plants varying dramatically from year to year (FAA 2020, KC Environmental, Inc. 2010). The Haleakalā silversword is a globe-shaped rosette plant, with a dense covering of silver hairs that completely hide the leaf surface. The plant is usually single-stemmed, with sword-like, rigid, and succulent leaves. The flowering stalk grows 1.6-9.8 feet tall and contains numerous flowering heads. Plants mature from seed to its final growth stage in approximately 15-50 years. The plant remains a compact rosette until it sends up an erect, central flowering stalk, sets seed, and dies (AFRL 2016). Critical habitat for the Haleakalā silversword is not present in the immediate vicinity of the project site, however, approximately seven miles of the Park road through Haleakalā National Park, which must be used to access the site, traverse through designated critical habitat for the species (NSF 2009, USFWS 2023).

### ***Migratory Birds***

All migratory birds are protected by the Migratory Bird Treaty Act, and the bald eagle is protected under the Bald and Golden Eagle Protection Act. The nearest bird habitat area identified by the state of Hawai'i lies approximately 1.8 mi southwest of the proposed project site (FAA 2020).

## **3.4 CULTURAL, ARCHAEOLOGICAL, AND HISTORIC RESOURCES**

The Draft EIS will characterize the affected environment for cultural, archaeological, and historic resources within the proposed project site and the surrounding area. The project is subject to compliance with Section 106 of the NHPA and its implementing regulations, and a utility easement for the project is subject to compliance with the Hawai'i State historic preservation review requirements in HRS § 6E-8, and Title 13, Chapter 275. To fulfill those requirements, the DAF initiated consultation with the Hawai'i DLNR State Historic Preservation Division (SHPD) and with federal and state agencies responsible for managing lands included in the Proposed Action through the NEPA scoping process and in correspondence focused on the Section 106 compliance process. Through the consultation process, Native Hawaiian Organizations (NHOs) will also be consulted.

The State and its agencies have an affirmative obligation to preserve and protect Native Hawaiians' customarily and traditionally exercised rights to the extent feasible under the Hawai'i State Constitution Article XII, Section 7. State law further recognizes that the cultural landscapes provide living and valuable cultural resources where Native Hawaiians have and continue to exercise traditional and customary practices, including hunting, fishing, gathering, and religious practices.

A CIA will be prepared under HRS Chapter 343 and Act 50. The appropriate information concerning the area ahupua'a will be collected, focusing on areas near or adjacent to the



proposed project site. A thorough analysis of potential impacts on cultural resources, historical resources, and traditional and customary practices will be included in the CIA.

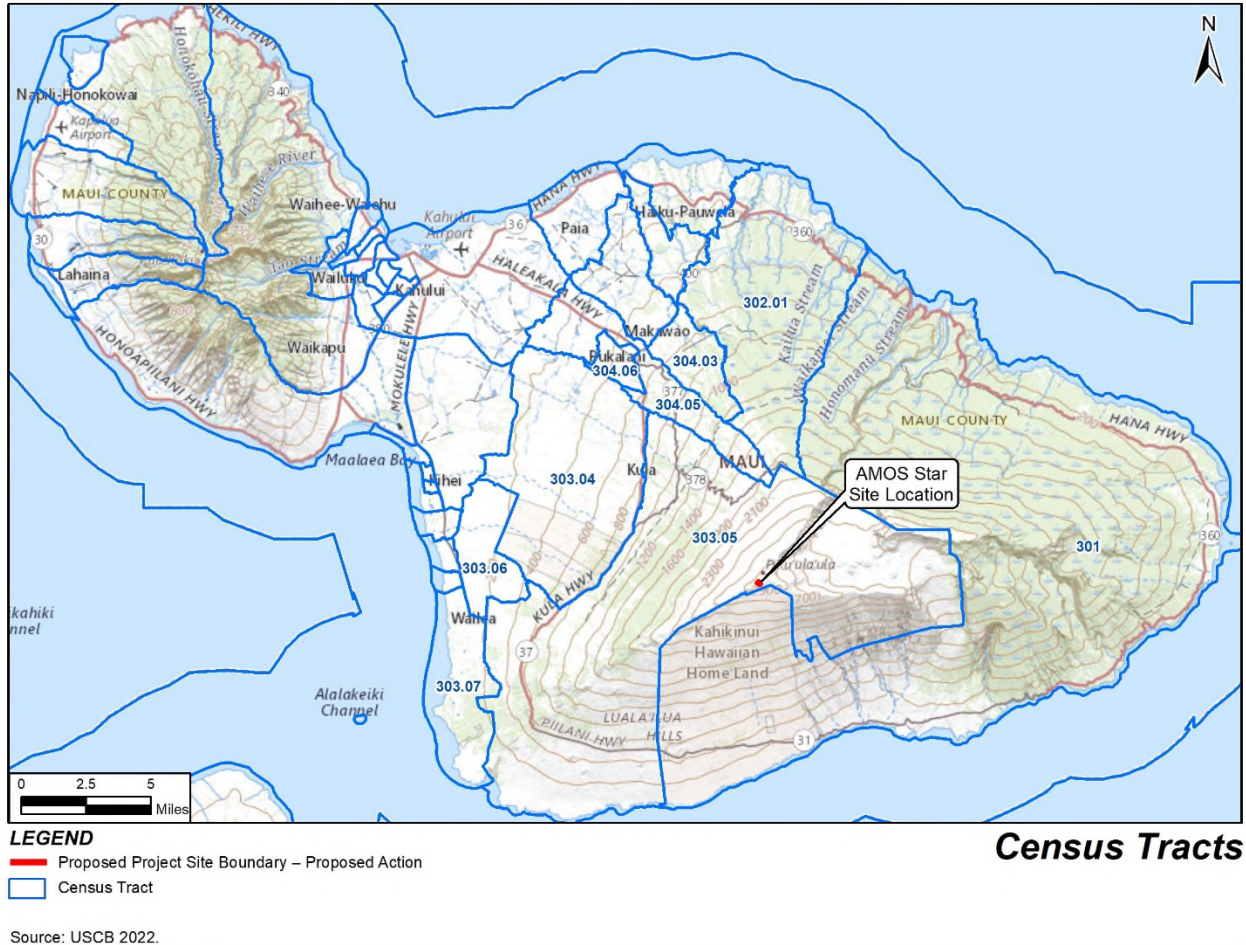
The entire complex has been surveyed for historic properties and all surface sites have been mapped and identified and none were found within the proposed project area. Limited subsurface testing has occurred, and no historic properties were identified subsurface. However, through the consultation process, stakeholders may request additional subsurface archaeological investigations (archaeological monitoring) at the time of construction since the majority of the area is already developed and is capped by the road and existing facilities. If any areas are found to be not previously disturbed and are easily accessible without having to disrupt current foundations or roadways, then there may be a request to conduct additional subsurface archaeological investigations known as an Archaeological Inventory Survey (AIS). An AIS identifies and records archaeological resources within the area of potential effect that are on, or potentially eligible for inclusion on, the National Register of Historic Places (NRHP) and the Hawai'i Register of Historic Places. The survey, if required, would be conducted in compliance with Section 106 of the National Historic Preservation Act of 1966 as amended and the Advisory Council on Historic Preservation's regulations for compliance with Section 106, codified as 36 CFR Part 800. Investigations would be consistent with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation and conducted consistent with HAR Chapter 276 of Title 13, which governs the standards for surveys and reports. Based on the findings of an AIS, either an archaeological survey report or an archaeological assessment report would be prepared. If required, reported findings from the AIS and the State Historic Preservation Officer (SHPO)/SHPD's determination could be incorporated into the EIS.

### 3.5 ENVIRONMENTAL JUSTICE AND PROTECTION OF CHILDREN

The Draft EIS will provide information on the affected environment for environmental justice and the protection of children for the proposed project site and surrounding area. EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, EO 14008, *Tackling the Climate Crisis at Home and Abroad*, and EO 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All*, require that federal agencies consider disproportionately high and adverse human health, environmental, and climate-related effects or hazards of federal government decisions, policies, projects, and programs on communities with environmental justice concerns. Communities with environmental justice concerns can include people of color (referred to as minority populations in EO 12898) and low-incomes communities. People of color are identified in U.S. Census Bureau data as Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and other Pacific Islander, persons of two or more races, and persons of Hispanic or Latino origin. People who have low incomes are identified using the U.S. Census Bureau data on income and poverty. EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, seeks to protect children from disproportionately incurring environmental health or safety risks that might arise as a result of federal policies, programs, activities, and standards. Child populations are identified using U.S. Census Bureau data.

**Environmental Justice.** Communities with environmental justice concerns will be identified following guidance from CEQ's *Environmental Justice Guidance under the National Environmental Policy Act* (CEQ 1997) and the DAF's *Guide for Environmental Justice Analysis under the Environmental Impact Analysis Process* (DAF 1997).

Per CEQ and DAF guidance, people of color populations should be identified where the populations in the affected area either (1) exceed 50 percent or (2) are meaningfully greater than the percentage in the general population or other appropriate unit of geographic analysis (CEQ 1997, DAF 1997). Per the DAF guidance, the other appropriate unit of geographic analysis is called the Community of Comparison (COC). The COC is an area surrounding the environmental justice ROI and is the demographic area used to compare and analyze potential environmental justice effects (DAF 1997). For this analysis, the environmental justice ROI will be the census tract where the Proposed Action would be implemented and the surrounding tracts. Census tracts are subdivisions of a county and are shown on Figure 3-1. The COC will be Maui County.



**Figure 3-1. Map of Census Tracts**

Poverty thresholds established by the U.S. Census Bureau are used to identify low-income communities (CEQ 1997). The U.S. Census Bureau defined the poverty level for 2022 as an annual income of \$15,225 or less for an individual under age 65 and \$29,678 or less for a family of four (USCB 2023a). Per the DAF guidance, low-income communities are identified where the percentage of people who have low-income in a census tract is greater than the COC or exceeds 50 percent. The COC will be Maui County.

EPA's EJScreen will be used to gather data for the EO 12898 and 14096 environmental justice analysis. EPA developed the EJScreen environmental justice mapping and screening tool to provide a nationally consistent dataset and approach that combines environmental and demographic indicators in maps and reports (USEPA 2023a). EJScreen demographic data is from the U.S. Census Bureau. EPA defines "people of color" as all people other than non-Hispanic white-alone individuals (the word "alone" in this case indicates that the person is of a single race, not multiracial) (USEPA 2023b). EPA defines "low-income" as the percent of population in households where the household income is less than or equal to twice the federal poverty level (USEPA 2023b).

Table 3-2 presents data for people of color and people who have low-income for the environmental justice ROI census tracts and the COC. As shown by the data presented in the table, communities with environmental justice concerns are present in all but one of the census tracts because the tracts have either a higher percentage of people of color or a higher percentage of people who have low-incomes than the COC, or that exceeds 50 percent.

**Table 3-2. People of Color and Low-Income Population Data**

Location	Percent people of color	Environmental justice people of color populations present (yes or no) <sup>a</sup>	Percent low income	Environmental justice low-income populations present (yes or no) <sup>a</sup>
United States	39%	--	31%	--
Hawai'i	74%	--	21%	--
<b>COC</b>				
Maui County	70%	--	21%	--
<b>Census tract</b>				
301	73%	Yes	29%	Yes
302.01	43%	No	31%	Yes
303.04	80%	Yes	14%	No
303.05 (includes proposed AMOS STAR site)	45%	No	24%	Yes
303.06	33%	No	29%	Yes
303.07	17%	No	16%	No
304.03	59%	Yes	17%	No
304.05	68%	Yes	10%	No
304.06	63%	Yes	23%	Yes

Source: USEPA 2023c.

Note:

<sup>a</sup> A tract is deemed to have a community with environmental justice concerns if the tract's percentage of people of color or people who have low-income is higher than that of the COC (which is defined as the county where the tract is located) or exceeds 50 percent.

Census tract 301 includes the Kahikinui Hawaiian Home Land, on the southern side of Maui Island (Figure 3-1). The Kahikinui Kuleana Homestead Program created 104 lots of 10-20 acres each in the Kahikinui mid-elevation levels between 2,000-4,000 feet, available for lease by native Hawaiians for subsistence living (DHHL 2011). As of 2020, Kahikinui had a population of 34. Kahikinui has 17 housing units, of which 13 are occupied and 4 are vacant (USCB 2020a,b).

CEQ's Climate and Economic Justice Screening Tool (CEJST) will be used for the EO 14008 environmental justice analysis. EO 14008 tasked federal agencies to identify disadvantaged communities and, per the EO's Justice40 Initiative, direct certain federal investments in the areas of climate, clean energy, and related areas<sup>2</sup> with a goal that 40 percent of the overall benefits would flow to disadvantaged communities. The EO also directed CEQ to develop a tool to identify disadvantaged communities. CEQ's CEJST, available on the internet, uses interactive maps and datasets to identify communities that are disadvantaged because they are overburdened and underserved in terms of climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, or workforce development (CEQ 2023a). Per the CEJST, two census tracts on Maui are identified as disadvantaged communities, one in Kahului and one in Wailuku. The tracts are about 20 miles northwest of the proposed project site (CEQ 2023b).

**Protection of Children.** EO 13045 recognizes scientific knowledge that demonstrates children might suffer disproportionately from environmental health and safety risks. Those risks arise because children's bodily systems are not fully developed; children breathe, drink, and eat more in proportion to their body weight; their size and weight might diminish protection from standard safety features; and their behavior patterns might make them more susceptible to accidents.

Data from EPA's EJScreen reports there is no population residing within a 2-mile radius of the proposed project site. Within a 10-mile radius of the project site, EJScreen reports a total population of 19,299, of which 19 percent (or 3,667) are children (USEPA 2023c). Table 3-3 presents data on the number and percent of children in the population for the ROI census tracts and the COC (Maui County), as well as for the state and the nation. The percentage of persons under the age of 18 in Maui County is 22 percent, which is very nearly the same as for Hawai'i at 21 percent and the United States at 23 percent. For all of the census tracts, children represent about the same or lower share of the population than they do in the county. As a result, it does not appear that statistically significant populations of children are present.

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<sup>2</sup> Per EO 14008, the areas of federal investment under the Justice40 initiative are clean energy and energy efficiency; clean transit; affordable and sustainable housing; training and workforce development; the remediation and reduction of legacy pollution; and the development of critical clean water infrastructure.

**Table 3-3. People under 18 Years of Age**

Location	Total Population, 2021	Number of children, 2021	Share of total population
Nation and State			
United States	329,725,481	74,234,075	23%
Hawai'i	1,453,498	311,020	21%
COC			
Maui County	164,568	35,787	22%
Census tract			
301	1,195	186	16%
302.01	2,505	309	12%
303.04	3,701	891	24%
303.05 (includes proposed AMOS STAR site)	5,671	1,140	20%
303.06	2,321	171	7%
303.07	1,815	183	10%
304.03	3,626	731	20%
304.05	2,228	343	15%
304.06	6,280	986	16%

Source: USEPA 2023c, USCB 2023b.

### 3.6 GEOLOGY, TOPOGRAPHY AND SOILS

The Draft EIS will provide information on the affected environment for geology, topography and soils on the proposed project site and surrounding area.

#### 3.6.1 Geology

Over the course of Haleakalā's formation, three distinct phases of eruption have taken place. The first, called the Honomanu Volcanic Series, is responsible for the formation of Haleakalā's primitive shield and most likely, its three prominent rift zones. Honomanu lavas are exposed over less than 1 percent of Haleakalā, but they are believed to form the foundation of the entire mountain to an unknown depth below sea level. The second series, or Kula Volcanic Series, overlaid the previous Honomanu Series with its lava flows. Eruptions of this series were considerably more explosive than its predecessor, leading to the formation of most of the cinder cones along the three rift zones. A period of inactivity followed the Kula Series, during which time, erosion began to predominate the formation of Haleakalā crater, by forming great valleys leading to the coast. After this long period of erosion, the final volcanic eruptions, called the Hana Volcanic Series, partially filled the deep valleys. Several cinder cones and ash deposits, lined the East and Southwest Rift Zones, ranging from a few feet high, to large cones more than 1 mi across at the base and 600 ft high. Lava flows within the Haleakalā Southwest Rift Zone range from 200 years to 20,000 years old. Six flows have erupted in this area within the last 1,000 yr. During the latest eruption, in 1790, lava emerged from two vents and flowed into La Perouse Bay, where a small peninsula was constructed. Although Haleakalā volcano is

considered dormant, in light of this eruption within historic times, renewed activity in the future is not improbable. Earthquakes in Hawai'i are mostly volcanic in nature, resulting from near surface magma movements, and historically have caused little direct damage to manmade structures (FAA 2020, KC Environmental, Inc. 2010).

On oceanic islands, such as the Hawaiian Islands, freshwater commonly occurs as a body of water called a freshwater lens that floats on saltwater and is separated from the saltwater by a transition zone of brackish water. Haleakalā is underlain by a basal freshwater lens, which is tapped in nearshore areas by means of inclined shafts. Basal groundwater in Haleakalā's rift zones is confined in permeable segmented dikes. Dike water is found in the Southwest Rift Zone on which the summit facilities are located. This water is thousands of feet beneath the summit, however, far too deep to be tapped economically by wells. Perched aquifers contain rainwater that has proceeded in its downward percolation by impermeable or low-permeable structures, such as intrusive rocks, ash beds, and soil. These aquifers are relatively small compared to the basal or dike-confined aquifers. Most of the springs located on the middle and upper slopes of Haleakalā are fed by perched water, but few exist in the crater area. There are no groundwater wells used for drinking water within an 11-mi radius of the summit (FAA 2020).

Surface-water runoff down the slopes of Haleakalā is seasonal and sporadic. Heavy rain from impermeable surfaces drains onto the surrounding areas and infiltrates quickly into the highly permeable cinder surface. The volcanic topography is young and does not lend itself to the development of well-defined drainage courses (FAA 2020).

Groundwater models of the Haleakalā area estimate that the water table below the subject property lies approximately 4,500 - 6,800 ft. above sea level. As the Subject Property sits at approximately 9935 ft. above sea level, this model suggests that average depth of groundwater is approximately 4285 ft. The recharge of groundwater in areas around the project site are estimated to range from 6-20 to 21-75 inches per year. When the recharge reaches the aquifer, it flows radially out from the central highlands to discharge areas along the coast. The proposed project site lies elevated above the radial point at this intersection of multiple aquifers (FAA 2020).

### **3.6.2 Topography**

The summit area of Haleakalā is rugged and barren, consisting of lava and pyroclastic materials. Within a 4-mile radius of HO, the elevation drops to approximately 3,600 feet above sea level, with an average slope greater than 30 percent (KC Environmental, Inc. 2010). The topography of the project site encompasses a somewhat flattened area surrounded by generally mountainous terrain. The north, northwestern, and southern borders of the proposed project site are close to a steep gradient that characterizes the vertical form of Haleakalā. The elevation of the site is approximately 9935 feet (3028 meters) above mean sea level (FAA 2020).

### **3.6.3 Soils**

The project site is not underlain by soil. The summit area is covered with volcanic ejecta consisting of lava, cinder, and ash of the Kula and Hana Volcanic Series; there is no soil development in the immediate vicinity of the proposed project site. Soil development occurs with increased distance (greater than 1.5 miles) from the summit. Most of the area is situated on Cinder Land (rCl), which is thought to be of the Kula period of volcanism. A foundation investigation conducted in 1985 in the HO area revealed that the cinder in this area is underlain by 5 ft of volcanic clinker and 16 ft of volcanic cinder (FAA 2020, KC Environmental, Inc. 2010).

### 3.7 HAZARDOUS MATERIALS AND WASTE

The handling, use and management of hazardous materials and waste used or generated at the MSSC are conducted as required by applicable federal, state, and local laws and regulations and Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention. As required, the DAF maintains hazardous materials and hazardous waste management plans that establish procedures and standards that govern their management and disposal. The Draft EIS will provide more detailed information on these procedures and management measures that are required to support mission functions.

### 3.8 HEALTH AND SAFETY

The Draft EIS will provide information on health and safety concerns from implementation of the proposed action. Health and safety includes risks to the public and workers from conducting daily activities and exposure to unsafe or unhealthful environments. Although many routine activities involve some degree of risk, this risk can be minimized through adherence to regulatory requirements that specify operational practices to reduce risks of illness, injury, death, and property damage.

The health and safety of onsite military and civilian workers, the public, and the environment are safeguarded by DoD and DAF regulations designed to comply with standards issued by the Occupational Safety and Health Administration (OSHA), EPA and as applicable, the Hawai'i Occupational Safety and Health Division.

### 3.9 LAND USE

The Draft EIS will provide specific, detailed information on the history of land use, zoning designations, permits, lease provisions, acreage, and additional information that will provide a baseline for the analysis of potential impacts. As described above in section 2.2.1, the proposed project site is part of a larger parcel set aside for federal use through EO 1808. That EO, which was issued by the Governor of the Territory of Hawai'i in 1957, set aside 2.956 acres of public land near the summit of Haleakalā for the "uses and purposes of the United States of America." The "Haleakalā Peripheral HI Site," as it was termed, was initially under the control and management of the Civil Aeronautics Administration, which subsequently became the U.S. Department of Transportation's FAA. The land is now identified as TMK (2) 2-2-007:016. The state of Hawai'i is the recorded fee owner of the parcel, while the FAA remains the federal entity responsible for managing it. EO 1808, and subsequent amendments to it, also set aside easements for access and utility services to the parcel.

All lands in Hawai'i are classified into four districts: urban, rural, agricultural, and conservation. The counties make all land use decisions within the Urban District in accordance with their respective county general plans, development plans, and zoning ordinances. The counties also regulate land use in the State Rural and Agricultural Districts, but within the limits specified by HRS, Chapter 205. The state makes all land use decisions within the Conservation District.

The upper portion of Haleakalā, including all areas above roughly 8,200 feet, is classified as a Conservation District. According to HAR §13-5-1, the intent of the Conservation District is to regulate land use within it: "for the purpose of conserving, protecting, and preserving 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." Conservation District lands are categorized into five subzones (HAR §13-5-10): protective,

limited, resource, general, or special. The HO, proposed project site, and nearby area is in the general subzone; other portions of the summit region are in the limited or resource subzone. The rules specify several “identified uses” within the various Conservation District subzones. HAR §§ 13-5-24 and 13-5-25 indicate that such facilities are an identified land use in the resource and general subzones.

Per the rules, such land use requires a CDUP issued by the BLNR (HAR §13-5-34). An approved Comprehensive Management Plan (CMP) (HAR §13-5-39) must be included with the permit application and be approved at the same time as the permit for facility use.

The proposed action is consistent with nearby land uses in the HO site, FAA parcel, and nearby areas. Outside of Haleakalā National Park, those land uses are predominantly astronomy facilities and communication facilities.<sup>3</sup> Within the park existing land uses are related to public recreation, including roads, parking areas, shelters, and trails.

### 3.10 NOISE

The Draft EIS will provide information on the affected environment for noise on the proposed project site and surrounding area. Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise intrusive. Human response to noise varies depending on the type and characteristics of the noise, distance between the noise source and the receptor, receptor sensitivity, and time of day. Noise is often generated by activities essential to a community’s quality of life, such as aircraft operations, construction, and vehicular traffic. Sound varies by both intensity and frequency. Sound pressure level, described in dB, is used to quantify sound intensity. The dB is a logarithmic unit that expresses the ratio of a sound pressure level to a standard reference level. Hertz are used to quantify sound frequency. The human ear responds differently to different frequencies. “A-weighting,” measured in dBA, approximates a frequency response expressing the perception of sound by humans.

Within the State, the DOH Indoor and Radiological Health Branch regulates noise in accordance with HAR Title 11, Chapter 46, Community Noise Control. HAR Section 11-46-3 describes the zoning districts as specified in Table 1, maximum permissible sound levels in dBA, found in HAR Section 11-46-4. The primary source of noise at and near the proposed site is vehicular traffic accessing the existing facilities and the Haleakalā National Park with some audible high-altitude aircraft overflights.

### 3.11 SOCIOECONOMICS

The Draft EIS will provide information for socioeconomics related to implementing the Proposed Action. Socioeconomics is the relationship between economic, human, and social factors in a region. There are numerous factors that can be used as indicators of socioeconomic conditions for a geographic area such as population, employment and unemployment, income, and industry. The socioeconomic region of influence (ROI) is defined as the area in which the effects from implementation of the alternatives would likely occur and, for the Proposed Action, is

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<sup>3</sup> Communications facilities are considered “public purpose uses” under the Conservation District rules and are an “identified land use” in all subzones.



defined as Maui County, Hawai'i. Additional information will be provided for the state and the United States to provide context.

**Population Characteristics.** Table 3-4 presents population data. In 2022, the estimated population of Maui County was 164,351, representing 11.4 percent of the population of the state of Hawai'i. Maui County's population grew 6.1 percent from 2010 to 2022. This growth was about the same as for the state (5.9 percent) but was lower than for the United States (7.9 percent) over the same time period (USCB 2023c).

**Table 3-4. Population**

Location	2010	2022	Percent Change
Maui County	154,834	164,351	6.1%
Hawai'i	1,360,301	1,440,196	5.9%
United States	308,745,538	333,287,557	7.9%

Source: USCB 2023c.

**Employment, Income, and Industry Characteristics.** Table 3-5 presents employment and income data. In 2022, an estimated 84,237 individuals in Maui County were employed. The Bureau of Labor Statistics reported a 3.5 percent 2022 annual unemployment rate for Maui County, which was consistent with the state unemployment rate of 3.5 percent and the United States unemployment rate of 3.6 percent (BLS 2023). Maui County's economy is predominantly in tourism. As of 2021, the two largest industries in Maui County in terms of percentage of the workforce employed within an industry were accommodation and food services (19 percent) and retail trade (11 percent), accounting for more than a quarter of the county's total employment (BEA 2023). Maui County's income levels were about the same as for the state, but higher than for the nation, reflecting the higher cost of living in Hawai'i. The median household income (in 2021 dollars) for Maui County was estimated at \$88,249, very similar to Hawai'i's at \$88,005, but higher than the United States median household income of \$69,021 (USCB 2023c).

**Table 3-5. Employment and Income**

Location	2022 Annual Employment	2022 Annual Unemployment Rate	Median Household Income (2021 dollars)
Maui County	84,237	3.5%	\$88,249
Hawai'i	652,677	3.5%	\$88,005
United States	158,291,000	3.6%	\$69,021

Source: BLS 2023, USCB 2023c.

### 3.12 TRANSPORTATION AND TRAFFIC

The Draft EIS will provide information on the affected environment for transportation and traffic related to the site and surrounding area. Transportation and traffic are defined as the movement of goods and individuals and the vehicles that use infrastructure to travel from place to place, respectively. In general, transportation refers to air, water, and ground vehicles; the services that make use of them; and their associated infrastructure. The Draft EIS will outline existing conditions of the roadway network in the project regions and focus on vehicular ground transportation and traffic to and from the proposed site, and particularly along the access road

to the Haleakalā National Park. The Draft EIS will be informed by a focus assessment on the traffic that would access the site during the construction and operation of the proposed facilities. Air and rail transportation will not be included in the assessment, as no elements of the Proposed Action would be transported by those modes.

### **3.13 UTILITIES**

The Draft EIS will provide information for utilities on the proposed project site and the surrounding area. The HO and the MSSC have potable water, wastewater, solid waste management, electricity, and communications infrastructure. Each service, if needed, will be considered in more detail the EIS. An overview of each utility or service is provided below.

#### **3.13.1 Potable Water**

The HO and MSSC do not have a continuous source or supply of potable water. Water catchment systems store rainwater collected from building roofs, etc. for non-potable uses. Potable water is hauled in by each facility in certified tanks where it is stored onsite. Users maintain their own collection systems and storage tanks for potable and/or non-potable water, as well as their individual pumping and distribution systems (NSF 2009).

#### **3.13.2 Wastewater**

Septic tanks are the primary means of sewage management within the summit area. Each user provides for the collection and proper storage of wastewater and sewage (NSF 2009).

#### **3.13.3 Solid Waste**

Municipal solid waste is collected and transported off the summit area and for disposal at a licensed Maui Landfill. Other wastes associated operations and maintenance, such as used oil, are collected and transported off-site for disposal as non-hazardous waste.

#### **3.13.4 Electricity**

Electricity to Haleakalā-based facilities is supplied by Hawaiian Electric Company by overhead distribution lines that terminate at a summit substation. Electricity is then distributed from the substation to facilities. In the event of power interruptions, facilities utilize emergency generators.

#### **3.13.5 Communications**

The Haleakalā-based facilities are served by a range of copper, fiber-optic, and microwave lines. The MSSC is served by a dedicated fiber cable.

The FAA operates and maintains transmitters and receiving equipment for remote air/ground interisland and trans-Pacific communications to and from aircraft. The antennas for these transmitters/receivers are located on two towers within the FAA property adjacent to the proposed project site. The frequencies for transmission and receiving are in the Very High Frequency (VHF) and Ultra-High Frequency (UHF) radio bands, to and from transiting aircraft at altitudes from 8,000 to 50,000 feet (NSF 2009).

### 3.14 VISUAL RESOURCES

The Draft EIS will provide specific, detailed information on visual resources found at the proposed project site and the surrounding area of Haleakalā. Generally, the site is visible or potentially visible from two main portions of Maui: (a) within the summit region, with most people viewing the area from Pu'u'ula'ula (the summit observation deck) within Haleakalā National Park; and (b) the lower, populated portions of Maui to the west, including Kīhei, Wailuku, and Kahului. Those within the summit region are relatively close to the proposed project site and could discern objects the size/type of those proposed, if they are within the project's viewshed. Those in the lower portions of Maui are roughly between 5 (upcountry) and 21 (Wailuku) miles from the site and would be unable to distinguish objects the size/type of those proposed within the context of the existing view unless they utilized a visual aid such as binoculars.

The Draft EIS will provide:

- A viewshed analysis that would use the topography of Maui and the maximum elevation of the proposed project's features (e.g., 23 feet) to identify locations from which the project features would theoretically be visible via an unobstructed or partial line-of-sight. This analysis assumes no obstructions (e.g., buildings, vegetation) and good air quality (e.g., clear sky and low levels of particulate matter).
- Photographs and simulations of the proposed project from various viewpoints within the viewshed. Viewpoints will include the publicly accessible nearby area, such as Pu'u'ula'ula within Haleakalā National Park; locations where cultural practices reportedly occur, including within HO; scenic vistas and view planes identified in state and county plans or studies; and from the major towns.
- An analysis of whether the proposed project would have a substantial adverse effect on scenic vistas and view planes identified in state and county plans or studies.

### 3.15 WATER RESOURCES

The Draft EIS will provide information on water resources at and adjacent to the proposed project site. Water resources include surface water (lakes, ponds, rivers, streams, and wetlands), floodplains, stormwater, groundwater, coastal zone, and marine water that compose the hydrology of a watershed.

#### 3.15.1 Surface Water

The proposed project site is within the Waiakoa watershed, which drains to the northwest (ArcGIS 2022). The site contains no surface waters and no known wetlands. Most streams on Haleakalā are intermittent, even on the rainy northeast slope, because of the steep, permeable lava terrain. Perennial streams that do exist occur at lower elevations and originate from groundwater springs. No perennial streams or other surface-water bodies are in the summit area near the proposed project site. The site is also not within the 100- or 500-yr floodplain. It is located at the summit of Haleakalā, which is the highest point on Maui (FAA 2020).

#### 3.15.2 Stormwater

Surface-water runoff down the slopes of Haleakalā is seasonal and sporadic. Heavy rain from impermeable surfaces drains onto the surrounding areas and infiltrates quickly into the highly

permeable cinder surface. The volcanic topography is young and does not lend itself to the development of well-defined drainage courses (FAA 2020). Stormwater discharge from the proposed project site generally flows in a southwesterly direction through natural flow paths. A culvert crossing the access road on the site carries runoff from a concrete channel into an infiltration basin on the HO property (NSF 2009).

### **3.15.3 Groundwater**

There are no groundwater wells used for drinking water within a 4-mi radius of the summit. Groundwater models of the Haleakalā area estimate that the water table below the subject property lies approximately 4,500 - 6,800 ft. above sea level. As the project site sits at approximately 9935 ft. above sea level, this model suggests that average depth of groundwater is approximately 4285 ft. Groundwater at the Subject Property generally flows away from the site following the flow of aquifers toward the coastline (FAA 2020).

### **3.15.4 Coastal Consistency**

The proposed project site is not located within the Special Management Area (SMA) limits for the Island of Maui, which is that area of land in proximity to Maui's shoreline that would fall under county authority. Therefore, the project does not require an SMA permit. However, the Coastal Zone Management (CZM) area that is regulated under the Coastal Zone Management Act (CZMA) encompasses the entire state of Hawai'i and proposed federal actions affecting any coastal use or resource must be reviewed by the state's CZM Program to ensure that those actions are consistent with state-enforceable policies. A CZM federal consistency review will be conducted in association with the EIS.

## **SECTION 4.0 RELATIONSHIP TO PLANS, POLICIES, AND CONTROLS**

The EIS will include a discussion on the Proposed Action's conformance with relevant State, and County of Maui land use plans, policies, and controls, with the intent to provide decisionmakers with a comprehensive overview of the regulatory compliance framework associated with the Proposed Action.

### **State of Hawai'i**

State Conservation District, HRS Chapter 183C and Conservation District Rules, HAR Title 13, Chapter 5

Coastal Zone Management, HRS Chapter 205A

Hawai'i State Planning Act, HRS Chapter 226

### **County of Maui**

County of Maui 2030 General Plan

## **SECTION 5.0 DETERMINATION AND RATIONALE**

In accordance with HRS Section 343-5(a)(2), this project involves the use of land within a State Conservation District and the use of state or county lands, which requires the preparation of an environmental assessment or EIS. The state of Hawai'i DLNR is the State agency with the greatest responsibility for approving the action as the accepting authority under HEPA (HAR § 11-200.1-2).

HRS Section 343-5(e), enacted by Act 172 (2012), allows an applicant to prepare an EIS rather than an environmental assessment if the accepting authority determines, through its judgment and experience, that an EIS is likely to be required. The preparation of such an EIS begins with the preparation of an EISPN.

The DAF does not anticipate that it could be affirmatively concluded that activities associated with the Proposed Action would not have a significant effect on the human or natural environment. Additionally, the DAF recognizes the culturally sensitive nature of the proposed project site and desires to provide the public with the opportunity to be fully engaged in the decision-making process which is provided by preparing an EIS under NEPA and HEPA. For these reasons, The DAF determined it prudent to proceed with a full environmental review that will be provided through the completion of an EIS, and therefore the environmental review should proceed directly to the preparation of an EIS through this EISPN.

## SECTION 6.0 PUBLIC SCOPING PROCESS

Preparation of an EIS includes both a process and a document. Public input is formalized during public scoping and the Draft EIS review processes. HEPA requires an EISPN be prepared to notify the public that an EIS process will be undertaken. This EISPN has been prepared per the requirements codified in HAR Section 11-200.1-23. The EIS being prepared will be a joint EIS document involving federal environmental review under NEPA. Requirements for public involvement are codified in 40 CFR Section 1506.6, and the DAF public involvement requirements are identified in 32 CFR Part 989.24. The NEPA and HEPA public involvement processes will be run concurrently to the degree possible, based on required publication dates and public review periods. The DAF will observe a 45-day scoping period that will begin with publication of the NOI in the *Federal Register* on or about April 23, 2024. Comments under either the NEPA or HEPA process are requested to be submitted or postmarked by June 7, 2024 to ensure their full consideration in the Draft EIS. Substantive comments received in response to this EISPN during the public scoping process will help determine the significant issues to be analyzed in depth in the Draft EIS. The NEPA-HEPA process is discussed in Section 1.4. Scoping meetings for the AMOS STAR EIS will be held on Maui in May 2024 at the following locations from 6:00 p.m.–9:00 p.m.:

1. May 13, 2024, Kahului Community Center, 275 Uhu St., Kahului, Maui, HI, 96732
2. May 14, 2024, Mayor H. Tavares Community Center, 91 Pukalani St., Pukalani, Maui, HI 96768
3. May 15, 2024, Kīhei Community Center, 303 E. Lipoa St., Kīhei, Maui, HI 96753

The scoping process provides for public and agency meetings and a public comment period. Scoping serves as an opportunity to obtain input from the community regarding issues and resources they would like to see addressed or analyzed throughout the EIS process. In this regard, it helps to define the scope of issues and analyses addressed in the EIS. The intent of the scoping process for this EISPN is to start the communication process early and engage a broad range of stakeholders with the purpose of informing, eliciting input, building relationships, and minimizing misinterpretations. Federal, State, and local agencies, Native Hawaiian organizations, and the public are invited to participate in the scoping process. Information about the Proposed Action and scoping dates are available on the project website at [www.amosstareis.com](http://www.amosstareis.com).

The scoping meetings will provide an overview of the Proposed Action and alternatives and provide an opportunity for public input. Comments can be provided orally during the scoping meetings or provided in writing in a variety of ways during the scoping period. Written comments can be provided on the comment card provided at the scoping meetings, via by the online comment tool on the project website at [www.amosstareis.com](http://www.amosstareis.com), by email to [amosstareis@tetrattech.com](mailto:amosstareis@tetrattech.com), or by US mail to AMOS STAR EIS c/o Tetra Tech, 1230 Columbia St., Ste. 1000, San Diego, CA 92101. The scoping comment period is being extended under HAR 11-200.1-23 to better align the NEPA and HEPA scoping periods according to publication dates. The 45-day scoping period established for this EIS allows the public more time to the participate in the scoping process. All written comments received in person at the scoping meetings or in writing during the 45-day scoping period will be considered in development of the draft EIS and responded to in the Draft EIS in accordance with HEPA. Scoping is an iterative process and comments are welcomed at any point during the development of the draft EIS. However, the DAF respectfully requests they be provided or postmarked by the end of the 45-day scoping period to ensure their full consideration in the development of the draft EIS.

Consultation and community engagement with cultural practitioners, Native Hawaiians, and other stakeholders will be conducted pursuant to HRS Chapter 6E; HRS Chapter 343; HAR Title 11, Chapter 200.1. The intent is to provide accurate and meaningful information about the project, as well as an opportunity to obtain input on the Proposed Action, alternatives, and the potential for impact to cultural properties, beliefs, practices and resources of Native Hawaiians and other ethnic groups. The outcome of this dialog will be documented in a CIA that will be published with the Draft EIS.



## SECTION 7.0 CONSULTED PARTIES FOR PREPARATION OF THE EIS

As discussed in Chapter 6, consultation is a requirement of the scoping process. Information collected during the scoping process will help determine the scope of issues to be addressed and to help identify significant environmental issues to be analyzed in depth in the draft EIS. The following list of agencies, organizations, and individuals (see Table 7-1) will be consulted, invited to a public scoping meeting, and/or will receive a copy of the EISPN during the 45-day scoping period. Additional stakeholders may be identified during the scoping period.

**Table 7-1. Consulted Parties**

<b>Federal Agencies</b>
Federal Aviation Administration
Federal Highway Administration Hawai'i Division
Haleakalā National Park
National Oceanic and Atmospheric Administration Pacific Islands Regional Office
National Park Service
U.S. Army Corps of Engineers - Honolulu District
U.S. Department of Agriculture, Natural Resources Conservation Service, Pacific Islands Area State Office
U.S. Department of the Interior
U.S. Environmental Protection Agency, Pacific Southwest Region (Region 9)
U.S. Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office
<b>Elected Officials</b>
Governor Josh Green, State of Hawai'i
Lieutenant Governor Sylvia Luke, State of Hawai'i
State House Representative Terez Amato
State House Representative Mahina Poepoe
State House Representative Justin Woodson
State House Representative Kyle Yamashita
State House Representative Elle Cochran
State Senator Lynn DeCoite
State Senator Troy Hashimoto
State Senator Ronald Kouchi
State Senator Angus Mckelvey

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U.S. Representative Ed Case

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U.S. Representative Jill Tokuda

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U.S. Senator Brian Schatz

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U.S. Senator Mazie Hirono

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**State of Hawai'i Agencies**

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Department of Business, Economic Development & Tourism

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Department of Defense Office of the Adjutant General

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Department of Hawaiian Home Lands

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Department of Health

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Environmental Health Administration

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Department of Land and Natural Resources

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Department of Transportation

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Hawai'i Emergency Management Agency

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Office of Hawaiian Affairs

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Office of Planning and Sustainable Development

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State Historic Preservation Division

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UH - Manoa, Department of Ethnic Studies

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University of Hawai'i , Office of the Vice President for Research and Innovation

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**County of Maui Representatives, Agencies, and Departments**

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Councilmember Tom Cook

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Councilmember Gabe Johnson

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Councilmember Tasha Kama

---

Councilmember Alice L. Lee

---

Councilmember Tamara Paltin

---

Councilmember Keani Rawlins-Fernandez

---

Councilmember Shane Sinenci

---

Councilmember Yuki Lei Sugimura

---

Councilmember Nohelani U'u-Hodgins

---

Mayor Richard Bissen, Jr.

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County of Maui Emergency Management Agency

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Department of Environmental Management

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Department of Fire and Public Safety

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Department of Planning, Current Division

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Department of Public Works

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Department of Transportation

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Department of Water Supply

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Police Department

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**Community Organizations and Other Stakeholders**

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‘Aha Mālama, Corp.

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‘Āina Momona

---

‘Ohana Keaweamaahi

---

‘Ohana Keohokālole

---

Aha Moku O Kahikinui

---

Aha Moku o Kaupo

---

Aha Moku O Maui Inc.

---

Association of Hawaiian Civic Clubs

---

Association of Hawaiians for Homestead Lands

---

Au Puni O Hawai‘i

---

Brian Kaniela Nae‘ole Naauao

---

Council for Native Hawaiian Advancement

---

Friends of ‘Iolani Palace

---

George K. Cypher ‘Ohana

---

Hawaiian Community Assets, Inc.

---

Hawaiian Electric

---

Hawaiian Kingdom Task Force

---

Hui Huliau Inc.

---

Hui O Wa‘a Kaulua

---

Imua Hawai‘i

---

Ka Pou Nui

---

Kako‘o O Haleakalā

---

Kamehameha Schools - Community Relations and Communications Group, Government Relations

---

Kanu o ka ‘Āina Learning ‘Ohana

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Kawaileo Law A Limited Liability Law Company

---

Kila Kila O Haleakalā

---

Kingdom of Hawai'i

---

Ko'olau Foundation

---

Kula Community Association

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Kuloloi'a Lineage – I ke Kai 'o Kuloloi'a

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Living Indigenous Forest Ecosystems

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Mainland Council Association of Hawaiian Civic Clubs

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Malama Kakanilua

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Malama Maui Nui

---

Maui Conservation Alliance

---

Maui Tomorrow Foundation, Inc.

---

Meleana Kawaiaea, LLC

---

Na Aikane O Maui

---

Na Koa Ikaika Ka Lahui Hawai'i

---

Na Ku'auhau 'o Kahiwakaneikopolei

---

Na Mookupuna O Wailua

---

Nanakuli Housing Corporation

---

Native Hawaiian Education Council

---

Nekaifes Ohana

---

Order of Kamehameha I

---

Papa Ola Lokahi

---

Partners in Development Foundation

---

Paukukalo Hawaiian Homes Community Association

---

Royal Hawaiian Academy of Traditional Arts

---

Sierra Club of Hawai'i

---

Sovereign Council of Hawaiian Homestead Associations

---

The I Mua Group

---

The Makua Group

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The Mary Kawena Pūku'i Cultural Preservation Society

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Waiehu Kou Phase 3 Association

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