

Chapter 343 Draft EIS Summary Sheet

Project Name and Location:

Name: Thirty Meter Telescope (TMT) Project

Location: TMT Observatory – Mauna Kea Science Reserve (MKSR), TMK 4-4-15: 9, Hāmākua, Hawai‘i
TMT Mid-Level Facility – Hale Pōhaku, TMK 4-4-15:12, Hāmākua, Hawai‘i
Headquarters – UH Hilo University Park, TMK 2-4-1: 7, South Hilo, Hawai‘i
Satellite Office – vacant commercial lot, Kamuela (Waimea), South Kohala, Hawai‘i

Description of Project and Action:

The Project would consist of the construction, operation, and ultimate decommissioning of the TMT Observatory, with a 98-foot (30-meter) diameter optical/infrared telescope, below the summit of Maunakea, and the construction and operation of associated ancillary facilities (Access Way, TMT Mid-Level Facility, Headquarters, and Satellite Office). The proposed action is the issuance of a Conservation District Use Permit (CDUP) allowing construction and operation of select Project components within the State of Hawai‘i Conservation District, resource subzone.

Project Purpose, Need, and Objectives:

The TMT would address the outstanding constraints in astronomy and astrophysics research. The 2001 Decadal Survey for Astronomy identified a TMT-like ground-based telescope as its top need and recommendation to trace the evolution of galaxies and the formation of stars and planets. The Project’s primary purposes and objectives are to:

- Provide powerful and precise scientific tool capable of exploring almost every aspect of the Universe.
- Locate the TMT in Hawai‘i to help the U.S. maintain its leadership position in astronomy research, discovery, and innovation.
- Leverage the capacity and abilities of the TMT partners’ existing astronomy facilities on Maunakea.
- Utilize the Project as an important educational tool to attract students to the science and technology fields.
- Integrate science, culture, sustainability, and education.

Substantial Beneficial and Adverse Environmental Impacts:

The potential Project impacts are evaluated within the framework of the Project’s compliance with all applicable rules, regulations, and requirements for its action type and location. There are two broad opinions concerning the Project’s potential impact on cultural resources: (a) that Hawaiian culture and astronomy can co-exist on Maunakea and impacts can be mitigated; and (b) any development on Maunakea would result in a significant adverse impact that could not be mitigated. Potential less than significant adverse impacts associated with the Project include:

- Displacement of a limited area of non-sensitive lava flow habitat and not unique geologic resources
- Visual impacts associated with the TMT Observatory, primarily to the northern portion of the island
- Increase in number of trips to the summit area of Maunakea and associated production of dust and noise
- Use of energy to power the Project
- Temporary effects during construction, primarily noise and traffic

A potentially significant adverse impact would occur if Access Way Option 3 were selected. The Access Way Option 3 could significantly impact the integrity of the Kūkahau‘ula Traditional Cultural Property (TCP), if selected.

Substantial potential benefits are primarily related to the employment opportunities created by the Project, direct contributions to the local and State economies, and realizing the Project’s objectives. Higher education and community benefit packages would be negotiated and would become a part of a lease or sublease, if TMT decides to come to Hawai‘i.

From a cumulative perspective, the impact on cultural resources has been, and would continue to be, substantial, adverse, and significant. The cumulative impact to geological resources in the Astronomy Precinct has been substantial, adverse, and significant. The cumulative impact to the alpine shrublands and grasslands and māmane subalpine woodlands has also been substantial, adverse and significant, primarily due to grazing by hoofed animals. The magnitude of significance of cumulative impact to the alpine stone desert ecosystem is not yet fully determined.

The cumulative socioeconomic impact has been and would continue to be substantial and beneficial.

Proposed Mitigation Measures:

To ensure compliance with applicable rules, regulations, and requirements, the Project would (a) design its facilities to comply and/or facilitate compliance, and (b) develop and implement a range of plans and programs outlined in this Draft EIS. These plans and programs would include a Cultural and Natural Resources Training Program, Invasive Species Prevention and Control Program, Waste Minimization Plan, Materials Storage/Waste Management Plan and component Spill Prevention and Response Plan, Workforce Pipeline Program, and Ride-Sharing Program.

Compliance requirements would include (a) designing the TMT Observatory to limit its visual and other potential impact; (b) a zero-discharge wastewater system at the TMT Observatory; (c) and implementing a Habitat Restoration Plan if a sensitive habitat is disturbed.

Additional proposed mitigation measures include (a) providing informational signs to manage public access; (b) furnishing Project facilities with items to provide a sense of place and remind personnel of Maunakea's cultural sensitivity and spiritual quality; (c) helping fund the palila recovery effort; (d) using soil-binding stabilizers to control dust; and (e) paving the portion of the Access Way through the SMA core to control dust.

Compatibility with Land Use Plans and Policies:

The Project would comply with all applicable land use plans and policies.

The building and operation of the TMT Observatory on Maunakea would require a sublease from UH, which leases this ceded land from the DLNR. The sublease, which would likely include benefits for the Island of Hawai'i community as well as observing time for UH, would be negotiated. The current UH lease expires in 2033 and the TMT Observatory would be required to be decommissioned and restore the site at that time, unless a new lease or a lease extension is obtained.

Alternatives Considered:

The alternatives considered include locating the TMT Observatory at another nearby site on Maunakea, referred to as E2, and the no action alternative.

Unresolved Issues:

- Selection of one of the three Access Way Option through or around the SMA core
- Selection of the final Headquarters location in Hilo and final Satellite Office location in Kamuela (Waimea)
- Selection of the level of reflectivity for the TMT Observatory dome exterior finish
- The level of site restoration cannot be selected until the time of decommissioning approaches

Permits and Approvals:

The permits and approvals required for the TMT Observatory, Access Way, and TMT Mid-Level Facility would include:

- Complete the State Historic Preservation, HRS Chapter 6E Consultation process
- Complete the Office of Mauna Kea Management (OMKM) Project Review/Approval Process
- Conservation District Use Permit (CDUP)
- National Pollutant Discharge Elimination System Permit (NPDES)

A variety of State and County Permits would be required for the Headquarters and Satellite Office, but the OMKM review and CDUP would not be required.

Proposing Agency:

University of Hawai'i at Hilo

Accepting Authority:

Governor, State of Hawai'i