

# OVERVIEW

THE AUDITOR  
STATE OF HAWAII

## Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve

### Summary

Over the past thirty years, the University of Hawaii and the Department of Land and Natural Resources have managed the Mauna Kea summit and the Mauna Kea Science Reserve primarily for the development of astronomy facilities. With growing concerns over the protection of Mauna Kea's natural environment, the 1997 Hawaii State Legislature, through Senate Concurrent Resolution No. 109, requested the State Auditor to conduct an audit of the management of Mauna Kea and the Mauna Kea Science Reserve.

The development of astronomy facilities on Mauna Kea has a long history. While interest can be traced back to the early 1900s, increased federal funding during the 1960s allowed the University of Hawaii to explore Mauna Kea as a site for astronomical facilities. In 1968, the Board of Land and Natural Resources recognized the university's interest in astronomy and approved a 65-year lease for lands above the 12,000-foot level of Mauna Kea. In 1969, the university established the Institute for Astronomy and began to actively develop telescopes on the summit. Thirteen separate telescopes and one antenna have been built or are under construction on Mauna Kea. An estimated \$600 million was spent to construct these facilities.

We found that the University of Hawaii's management of the Mauna Kea Science Reserve is inadequate to ensure the protection of natural resources. The university focused primarily on the development of Mauna Kea and tied the benefits gained to its research program. Controls were outlined in the management plans that were often late and weakly implemented. The university's control over public access was weak and its efforts to protect natural resources were piecemeal. The university neglected historic preservation, and the cultural value of Mauna Kea was largely unrecognized. Efforts to gather information on the Weiku bug came after damage had already been done. Trash from construction was cleaned up only after concerns were raised by the public. Old testing equipment constructed in the early years of development has not been removed as required by the lease agreement.

We found that new technology requires the university to change its approach to future development within the Mauna Kea Science Reserve. While recent development of interferometers was not part of the original master plan, interferometers serve as an important component to astronomical research. Interferometers, however, have multiple antennas that spread out over a much



wider land area than traditional telescopes. The development of these types of instruments, as well as other new technology, requires the university to reassess its methodology for managing future telescope development.

We found that the Department of Land and Natural Resources needs to improve its protection of Mauna Kea's natural resources. The Conservation District permitting process could be strengthened by ensuring the setting of specific conditions relating to the Environmental Impact Statement's mitigating measures and implementation of management plans. We also found that permit conditions, requirements, and regulations were not always enforced. Finally, administrative requirements were frequently overlooked or not completed in a timely manner.

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## Recommendations and Response

We recommend that the university ensure that the Institute for Astronomy begin the planning process for the next master plan. In doing so, the university should seek input from DLNR and the general public early in the planning process. The master plan and attending environmental impact statement should clearly identify areas suitable for astronomical development; critical habitats of plants, invertebrates, and other rare or endangered species; and areas where no development should be planned. We also recommend that the university develop rules and regulations; hire rangers/guards; require the public to register at the visitor station; conduct periodic inspections for trash; remove old equipment; and develop a forum for continuous community input.

We recommend that the university develop a new methodology to measure the impact of future development on Mauna Kea. The new method should assess the impact of each project, as well as the impact on the total development. In addition, this new methodology should be approved by the Board of Land and Natural Resources.

Finally, we recommend that DLNR do the following: (1) review and rewrite applicable environmental impact statement mitigating measures as specific Conservation District Use Permit conditions; (2) include permit conditions (and time frames) that require the implementation of management plans that are approved by its board; (3) establish controls to ensure the timely completion of administrative requirements; (4) ensure that enforcement of rules not related to the department clearly rest with the university; (5) complete and implement the Historic Preservation plan; and (6) adopt rules for the Historic Preservation Program, Chapter 6E, HRS.

The university and the department generally agreed with our findings. Some of the additional information provided by both agencies was incorporated in the final report.

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