



UNIVERSITY OF HAWAI'I SYSTEM

Legislative Testimony

**Testimony Related to
House Bill 155**

RELATING TO TRANSPORTATION

**Presented before the
House Committee on Finance
The Twenty-Fourth Legislature**

February 22, 2007

**by
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and

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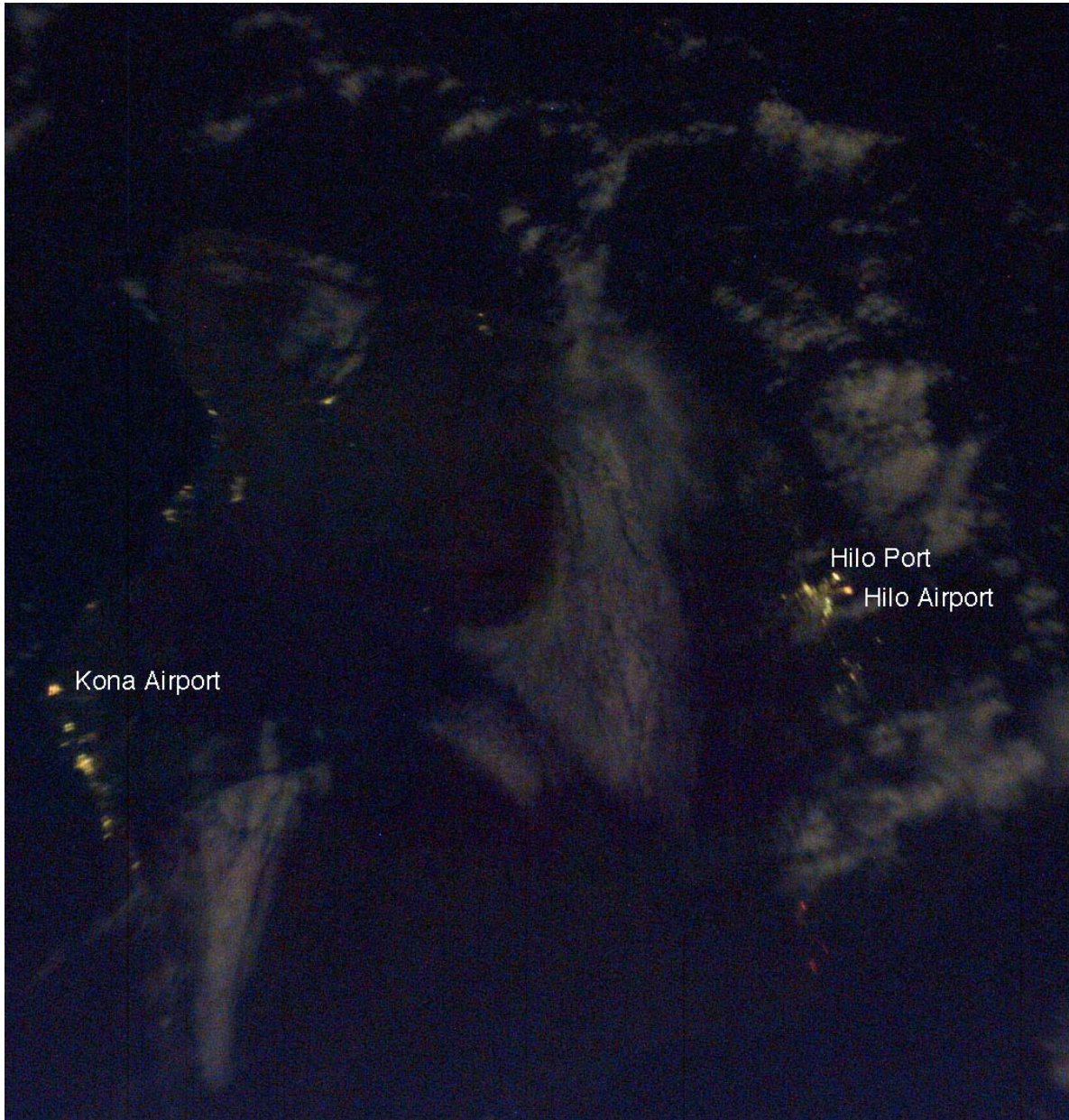
Chair Oshiro, Vice-Chair Lee, and members of the Committee. My name is Mike Maberry and I am here today to submit this testimony in my capacity as an Assistant Director of the University of Hawaii, Institute for Astronomy.

Over the last decade, artificial lighting on the Islands of Hawaii and Maui has slowly increased, and is now threatening the ability of the telescopes on Mauna Kea and Haleakala to study faint objects in the night sky. A dark night sky is essential to the continued success of the Mauna Kea and Haleakala observatories. Every 1% of artificial brightening of the night sky results in an effective loss of telescope aperture by 1%.

This bill will help to preserve the dark skies over the observatories by requiring that new lighting systems being installed at airports, harbors, and on state highways conform to the lighting ordinances already enacted by the counties of Hawaii and Maui. The University of Hawaii strongly supports this bill.

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At the request of the Institute for Astronomy, NASA astronaut Dr. Ed Lu, a former University of Hawaii researcher, obtained two nighttime images of Hawaii from the International Space Station. These images show that some of the major sources of light at night on the islands of Hawaii and Maui are the airports, harbors, and roadways. The nighttime photograph of the Island of Hawaii is shown below, with the Kona and Hilo airports and Hilo harbor marked.



The Kawaihae harbor and Waimea-Kohala airport are also visible in the photograph.

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Lighting has been installed at the airports and harbors on the Island of Hawaii that does not conform to the county lighting ordinance. For example, bright, unshielded lamps have recently been installed at the federal inspection area at Kona airport. These are among the most damaging lights at Kona airport for astronomy. Lighting in the ramp areas, along some airport roadways, and in the Hilo airport parking lot does not conform to the Hawaii county ordinance.

This bill will have minimal, if any, cost impact to the state because it only affects new lighting installations. The more efficient shielded light fixtures required by the Hawaii and Maui county ordinances directs the light we are generating, which comes at great expense to our economy and environment, downward to illuminate the area where people, which will likely save the state money in terms of energy costs. Shielded light fixtures are already in use in some parts of the H-1 and H-3 freeways on Oahu.

The University of Hawaii also believes that adoption of this bill will result in safety improvements at our airports, harbors, and highways by reducing glare from poor lighting.

The University of Hawaii recommends that the reference to runway lights in this bill be removed. The University recognizes the need for navigational lighting, believes that national standards for navigational lights should be followed, and believes that the impact on astronomy from navigational lights at the airports and harbors is negligible.

A dark night sky has tremendous value to all citizens—not just astronomers. The residents of Honolulu have lost their ability to see the Milky Way, and only about the 20 brightest stars can be seen in the sky from central Honolulu. From a dark location, you can see 2,000 stars or more.

Some human health problems have recently been linked to artificial nightlight. Artificial lights can confuse endangered night flying birds and sea turtles. Well-designed lighting systems mitigate these problems.

Thank you for your support of our program and for the opportunity to present this testimony.