



# UNIVERSITY OF HAWAII SYSTEM

## Legislative Testimony

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Written Testimony Presented Before the  
House Committee on Transportation  
Monday, February 7, 2011 at 9:00 a.m.

by

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and

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And

Chair

Light Pollution Working Group

International Astronomical Union — Commission 50

### HB 1473 RELATING TO HIGHWAYS

Chair Souki, and members of the Committees. My name is Richard Wainscoat and I am here to offer testimony on behalf of the University of Hawai'i at Mānoa. The University supports the intent of this bill to reduce glare and reduce light pollution, but believes that it should be strengthened by removing the option of partially shielded lighting and extended to include all roadway lighting.

Mauna Kea on the island of Hawai'i, and Haleakalā on the island of Maui, are two of the best astronomy sites in the world. Dark night skies are essential for these observatories to continue to operate. However, increasing urban lighting is threatening the dark night skies over these observatories. Light pollution extends well beyond county boundaries; lights from Oahu have a major and growing impact on Haleakala. Statewide legislation is needed to protect the observatories.

Full shielding of lights is one of the most important techniques for protecting astronomical observatories. Light emitted from partially shielded fixtures at small angles above the horizontal travels enormous distances through the atmosphere, and is a major contributor to light pollution — it increases sky glow at remote locations, making it difficult or impossible to see faint objects. Fully shielded light fixtures emit no light above the horizontal, and therefore have much less impact on remote locations.

Full shielding also reduces glare, which is a very important safety factor, particularly for older drivers, and greatly reduces the impact of nighttime lighting on endangered species.

The University recommends that care be taken to ensure that this bill does not weaken the existing state laws that require the state department of transportation to follow county lighting ordinances. County lighting ordinances in the Counties of Hawai'i and Maui already require full shielding of all roadway lighting. All highway lighting is already fully shielded on the island of Kaua'i because of the endangered birds.

The University recommends that the committee remove the option of partially shielded highway lighting. The state Department of Transportation is already using fully shielded lights on all new highway lighting, and the improvement in the quality of the lighting in the sections where fully shielded lighting is used is remarkable. The definition of “partially shielded” lighting in the bill allows an excessive amount of up light, which is higher than most typical partially shielded lights presently being used in Hawaii.

Finally, the University would like the committee to clarify the intent of this law by making it clear whether the law applies only to lighting on state and county highways, or whether it applies to lighting on all roadways. If possible, the University would like this law extended to apply to all new nighttime roadway lighting. Poor roadway lighting is presently a major contributor to the light pollution that we experience on Haleakala and Mauna Kea. Improperly shielded roadway lighting causes unnecessary energy loss and, because of its glare, is less safe than fully shielded roadway lighting.

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. Poor lighting that is directly lighting the night sky is wasting a tremendous amount of energy and money. Human health problems, including breast cancer, have now been linked to light at night. Endangered species such as turtles and birds are confused by lights at night—properly shielded lighting mitigates this problem.

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