



# UNIVERSITY OF HAWAII SYSTEM

## Legislative Testimony

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Written Testimony Presented Before the  
House Committee on Transportation  
Wednesday, March 16, 2011 at 9:00 a.m.

by

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and

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Chair, Light Pollution Working Group

International Astronomical Union — Commission 50

### SB 1493 SD1 RELATING TO LIGHT POLLUTION

Chair Souki and members of the Committee. My name is Richard Wainscoat and I am here today to submit this testimony on behalf of the University of Hawai'i. The University of Hawai'i strongly supports this bill that will require full shielding of new and replacement bright lights in Hawai'i.

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, and also affect Mauna Kea. Statewide legislation is needed to protect the observatories.

Astronomy in Hawai'i has a major economic impact. The present economic impact of astronomy is estimated to be \$150 to \$200 million per year.

Full shielding of lights is one of the most important techniques for protecting astronomical observatories from light pollution. Light emitted from poorly 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 species that are affected by light at night, including endangered birds and turtles. Fully shielded lights also deliver more light to the roadway, producing brighter average illuminance per Watt of energy used, and allowing the possible selection of lower Wattage fixtures, thereby reducing energy usage.

The University feels that the effective date of July 1, 2013 in the present draft of the bill is too far in the future, and that substantial damage to the quality of the night sky will be caused by the two year delay in implementation of full shielding of lights. An important factor is that Light Emitting Diodes are likely to come into widespread usage during the next two years. Most light emitting diodes emit a large amount of blue light that is very damaging to astronomy and to the environment. It is therefore very important that these lights are fully shielded. The University suggests changing the effective date to January 1, 2012, as a compromise that will allow existing inventory of spare lights to be used, while affording protection to astronomy and the environment.