



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

February 15, 2011

TESTIMONY OF THE DEPARTMENT OF TRANSPORTATION

HOUSE BILL NO. 1473, H.D. 1

COMMITTEE ON ENERGY AND ENVIRONMENTAL PROTECTION

The Department of Transportation opposes House Bill 1473, which requires, commencing January 1, 2012, all new lighting fixtures that are installed or replaced on public highways to be fully or partially shielded, to minimize glare and light pollution.

Federal highway standards dictate the amount of illumination provided by lighting fixtures on federally funded highways. In short, brighter-illuminating fixtures allow the light-poles to be placed farther apart than those fixtures with less illumination. Fully or partially shielded lighting fixtures diminish the degree of illumination. As such, this requirement will increase the cost of new highway projects because it will require more light-poles to be installed to meet the federal highway safety standards. In general, for every 10 light-poles with universal lenses, we will require 12 light-poles with shielded or directional lenses.

The Department has been using directional flat lenses on highways in areas with county ordinances requiring its use, such as west Hawaii, and in areas with concerns regarding Section 7, or US Fish and Wildlife issues, such as Kauai. The Department takes its commitment to the environment seriously, and will utilize directional lenses where currently required, and where future requirements are anticipated. However, the Department believes that any lighting requirements that are to be imposed on public highways should be further discussed by the various agencies involved in this matter. Federal and State safety, engineering, costs, planning and scheduling of lighting change outs and applicable environmental requirements must be considered. Before mandating the use of full or semi-cutoff lighting fixtures, the consequences of the use of such fixtures should be thoroughly vetted so as not to jeopardize the safety of the public highway users. To this end, the DOT is willing and available to continue dialog on this matter. Until then, the DOT opposes House Bill No. 1473, H.D. 1.

Testimony Related to
House Bill 1473 HD1
RELATING TO HIGHWAYS
Presented before the
House Committee on Energy and Environmental Protection
The Twenty-Sixth Legislature
February 15, 2011
by
Richard J. Wainscoat
Chair
Starlight Reserve Committee

Chair Morita, and members of the Committee. My name is Richard Wainscoat and I am here today to submit this testimony in my capacity as Chair of the Hawaii Starlight Reserve Committee. I support the intent of this bill to reduce glare and reduce light pollution, but believe that it should be strengthened and clarified. I believe that proper shielding of highway lighting will improve safety, conserve energy, reduce the impact of nighttime lighting on endangered species, and help astronomy by reducing unnecessary emission of light into the night sky.

The Starlight Reserve Committee was established by the 2009 legislature. It held its first meeting in July 2010, and has met on four occasions. The Committee received extensive input from regarding the lighting situation on Kauai that is affected endangered birds, including the Newell's shearwater, and heard presentations from representatives of the US Fish and Wildlife Service and NOAA regarding endangered species and lighting. The US Fish and Wildlife Service representatives indicated that they were hoping for statewide legislation to regulate outdoor lighting, because the endangered species problems (including birds and turtles) are not isolated to Kauai, but are present on all the Hawaiian Islands. The principal method presently being employed on Kauai is to use proper (full) shielding and, short of turning lights off (which was done for the recreational facilities on Kauai), full shielding of lights is the best method presently known to protect endangered birds.

Full shielding of lights is also the best technique for protecting the astronomical sites on the islands of Hawaii and Maui, which presently suffer from unnecessary light pollution. Full shielding also reduces glare, which is a very important safety factor, particularly for older drivers.

Testimony Related to House Bill 1473 HD1
House Committee on Energy and Environmental Protection
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I recommend that the committee remove the option of partial cutoff highway lighting. The state Department of Transportation is already using fully shielded lights on all new highway lighting, and the improvement in the lighting is those sections where fully shielded lighting is used is remarkable. The allowance of 10 percent uplight from partial cutoff fixtures in the present version of the bill is excessive and unnecessary. It will result in direct energy waste of up to 10 percent. Modern fully shielded lighting fixtures can achieve adequate uniformity; use of partially shielded fixtures is no longer necessary or advisable for safety/glare reasons.

I recommend 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 Hawaii and Maui already require full shielding of all roadway lighting. All highway lighting is already fully shielded on the island of Kauai because of the endangered birds.

Finally, I 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.

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU

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February 14, 2011

The Honorable Hermina M. Morita, Chair
and Members
Energy and Environmental Protection Committee
State Capitol
Honolulu, Hawaii 96813

Dear Chair Morita and Members:

Subject: House Bill No. 1473 HD1, Relating to Highways

The Department of Design and Construction (DDC) supports the intent of HB1473 HB1 and respectfully offers the following comment to improve the practicality of implementing the bill:

Section (b) (2) should be revised to read, "Existing and legally installed, prior to January 1, 2012; provided that any lighting fixture exempt under this subsection that subsequently becomes inoperable shall be replaced with a full-cutoff or semi-cutoff lighting fixture that provides equal or better illumination and uniformity as recommended by the Illuminating Engineering Society of North America (IES). If such fixture is not available for the existing light pole spacing, a non-complying fixture that meets the IES illumination and uniformity design criteria shall be allowed." At some locations, full- and semi-cutoff light fixtures may not be capable of providing the IES standard of illumination, used by the City & County of Honolulu, with the existing light pole spacing. Replacement of existing light poles with more closely spaced light poles in order to satisfy both the illumination and shielding requirements due to a single inoperable fixture would be impractical and prohibitively expensive.

Thank you for the opportunity to testify.

Very truly yours,

A handwritten signature in black ink, appearing to read "Collins D. Lam".

Collins D. Lam, P.E.
Director

CDL:WB:hm



UNIVERSITY OF HAWAII SYSTEM

Legislative Testimony

Written Testimony Presented Before the
House Committee on Energy and Environmental Protection
Tuesday, February 15, 2011 at 9:30 a.m.

by

Virginia S. Hinshaw, Chancellor

and

Richard J. Wainscoat

Astronomer, University of Hawai'i at Mānoa

Chair, Light Pollution Working Group, International Astronomical Union

HB 1473 HD1 RELATING TO HIGHWAYS

Chair Morita, 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 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 O'ahu have a major and growing impact on Haleakalā. 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 Hawai'i.

TO: Members of the Committee on Energy and Environment

FROM: Natalie Iwasa
Honolulu, HI 96825
808-395-3233

HEARING: 9:30 a.m. Tuesday, February 15, 2011

SUBJECT: HB1473, HD1 - SUPPORT

Aloha Chair Morita, Vice Chair Coffman and Committee Members,

Thank you for allowing me to provide testimony in support of HB1473, which would require partially- or fully-shielded lights on all public streets. You may recall the news reports regarding the Lunalilo Home Road (LHR) street lighting project. The county had planned to install three times the amount of light using 40-year-old lighting technology. After residents questioned the City and County of Honolulu regarding their plans, they agreed to reduce lighting to double the amount and install fully-shielded lights. The fully-shielded lights reduce glare and are a big improvement over the old globe type of fixture.

Roadway classification is a very important component in the amount of lighting that is required to be used on our roadways. In the case of LHR, the city applied the same classification all the way from Kalaniana'ole Hwy. to Hawaii Kai Drive, even though there is no medial strip or commercial/busy pedestrian areas past Wailua Street. Please consider adding a recommendation or requirement that the counties and state not needlessly bump up the classifications as this increases the cost to upgrade as well as increases energy consumption for years to come.

Please vote "yes" on this measure.