



**STATE OF HAWAII
HAWAII CLIMATE CHANGE MITIGATION & ADAPTATION
COMMISSION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809**

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Director, OPSD

Commissioners:
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Chair, Senate WTL
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The Adjutant General
Manager, CZM

**Testimony of
Leah Laramee
Coordinator, Hawai'i Climate Change Mitigation and Adaptation Commission**

**Before the Senate Committees on
AGRICULTURE AND THE ENVIRONMENT
&
WATER AND LAND**

**Wednesday, March 22, 2023
1:00 PM
State Capitol, Via Videoconference, Conference Room 224**

**In consideration of
HOUSEE BILL 837 HOUSE DRAFT 1
RELATING TO THE STATE PLAN**

House Bill 837 HD1 establishes green infrastructure objectives, policies, and priority guidelines for state facility systems, infrastructure, and transit projects in the Hawai'i State Planning Act to improve the quality of life for residents and visitors. Adds definition of "green infrastructure". Requires the office of planning and sustainable development (OPSD), in partnership with the greenhouse gas sequestration task force, to submit a report to the legislature making recommendations for implementing the green infrastructure objectives, policies, and priority guidelines. **The Climate Change Mitigation and Adaptation Commission (Commission) supports this bill.**

The Hawai'i Climate Change Mitigation and Adaptation Commission consists of a multi-jurisdictional effort between 20 different departments, committees, and counties. According to the Intergovernmental Panel on Climate Change's 2022 report, nature-based or "green" infrastructure and ecosystem services provide significant benefits when installed in urban and infrastructure systems. While several nature-based solutions have the ability to innately adapt to rising sea levels, commonly used man-made materials or "gray" strategies to protect coastal infrastructure that rely on hardening shorelines may not be adaptable or must be specifically designed to adapt to rising sea levels, which can be costly. Gray solutions can also have unintended consequences, such as increased erosion or deposition, along other parts of the coastline. Nature-based solutions that rely on existing or enhanced landscapes help improve roadway resiliency by reducing impacts to coastal roads from hazards such as rising sea level, storm surge, and "nuisance" flooding (such as high tide or windblown flooding). Often these "green" strategies are both more effective and less costly than traditional engineering or gray solutions on their own.

Nature-based solutions also provide a natural aesthetic and other benefits. In addition, research suggests that trees may improve driving safety. One study found a 46% decrease in crash rates across urban arterial and highway sites after landscape improvements were installed.ⁱ Another study found that placing trees and planters in urban arterial roadsides reduced mid-block crashes by 5% to 20%.ⁱⁱ Increasing tree canopy can reduce heat island effect, provide shade to encourage walking and biking, and provide storm water mitigation and sequester carbon. Recent instances such as the HDOT lighting project along sections of the Moanalua Fwy, which removed *Nerium Oleander* plantings on sections of the Moanalua Fwy in Halawa indicate that this has not been a priority. Restoration of native coastal plants along shorelines makes those shorelines less susceptible to erosion from high storm waves. The native plant root systems hold the sand and soil in place, and plants such as naupaka, hala, pōhuehue, and ‘ānapanapa are able to withstand vigorous wave action without breaking and separating from their roots. Intensive native coastal plant restoration makai of coastal roads may extend road longevity. Creating a strategy to increase the number of nature-based solutions and green infrastructure including trees and native plant restoration would support the State’s ability to both mitigate and adapt to climate change.

The Commission supports this measure and respectfully requests that funding and staff be added to assist in the development of this strategy.

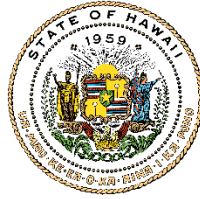
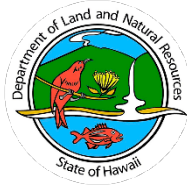
Mahalo for the opportunity to testify in support of this measure.

ⁱ Lee, J., and F. Mannering. 1999 (December). *Analysis of Roadside Accident Frequency and Severity and Roadside Safety Management*. Washington State Department of Transportation, Olympia, WA, 137 pp.

ⁱⁱ Naderi, J.R. 2003. Landscape Design in the Clear Zone: Effect of Landscape Variables on Pedestrian Health and Driver Safety. *Transportation Research Record* 1851:119-130.

JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA



**STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA**

P.O. BOX 621
HONOLULU, HAWAII 96809

**Testimony of
DAWN N. S. CHANG
Chairperson**

**Before the Senate Committees on
AGRICULTURE AND ENVIRONMENT
and
WATER AND LAND**

**Wednesday, March 22, 2023
1:00 PM**

State Capitol, Conference Room 224

**In consideration of
HOUSE BILL 837, HOUSE DRAFT 1
RELATING TO THE STATE PLAN**

House Bill 837, House Draft 1 proposes to: 1) establish green infrastructure objectives, policies, and priority guidelines for state facility systems, infrastructure, and transit projects in the Hawai'i State Planning Act to improve the quality of life for residents and visitors; 2) add a definition of "green infrastructure"; and 3) require the Office of Planning and Sustainable Development (OPSD), in partnership with the greenhouse gas sequestration task force, to submit a report to the legislature making recommendations for implementing the green infrastructure objectives, policies, and priority guidelines. **The Department of Land and Natural Resources (Department) supports this measure.**

This measure is aligned with the mission of the Department's Kaulunani Urban and Community Forestry Program. The Kaulunani Program builds capacity in our communities to plan for, establish, manage, and protect green infrastructure including street-trees, urban forests, green spaces, bioswales and related natural areas. Recent analyses using data from the Hawai'i Tree Canopy Viewer (EarthDefine LLC et al 2021) show that 84% of Hawai'i residents statewide (and 93% of the population of urban Honolulu) have less than 30% canopy coverage, which is the minimum recommended in order to realize the health and well-being benefits that urban tree canopy provides (Konijnendijk, C.C., 2022). For example, green infrastructure, and trees specifically, can reduce surface temperatures as much as 45 degrees (F) and reduce ambient air temperatures by as much as 25 degrees (F). More green infrastructure, including trees, is needed to sustain our communities statewide. The Department encourages collaboration with OPSD on this topic.

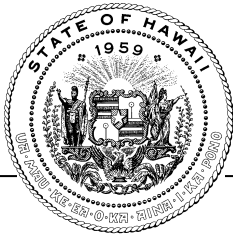
Mahalo for the opportunity to provide testimony in support of this measure.

DAWN N.S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

LAURA H.E. KAAKUA
FIRST DEPUTY

M. KALEO MANUEL
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE
MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES
ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS



**STATE OF HAWAII
OFFICE OF PLANNING
& SUSTAINABLE DEVELOPMENT**

JOSH GREEN, M.D.
GOVERNOR

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Statement of
SCOTT GLENN, Director

before the
**SENATE COMMITTEE ON AGRICULTURE AND ENVIRONMENT
SENATE COMMITTEE ON WATER AND LAND**

Wednesday, March 22, 2023, 1:00PM
State Capitol, Conference Room 224

in consideration of
**HB 837, HD1
RELATING TO THE STATE PLAN**

Chair Gabbard, Chair Inouye, Vice Chair Richards, Vice Chair Elefante, and Members of the Senate Committees on Agriculture and Environment and Water and Land.

The Office of Planning and Sustainable Development (OPSD) **supports** and offers **comments** on HB 837, HD1 which amends the Hawaii State Planning Act, Ch. 226-104, HRS, to establish green infrastructure objectives, policies, and priority guidelines for state facilities, infrastructure, and transit systems to improve the quality of life for residents and visitors.

OPSD strongly supports this measure which adds to the duties assigned to OPSD in administering the Hawaii State Planning Act, in partnership with the Greenhouse Gas Sequestration Task Force (Ch. 225P-4, HRS), a requirement to submit a report to the Legislature making recommendations for implementing the green infrastructure objectives.

OPSD offers the following comment. The Greenhouse Gas Sequestration Task Force currently has no staff or funds for the required research and reports to the Legislature. All of OPSD employees are assigned to specific programs or hired under federal grants.

If the Committees are inclined to pass this measure, OPSD requests that two new sections be added to HB 837, HD1: first, establishing one exempt policy analyst position; and second, an appropriation for \$150,000 for salary and program funding.

Thank you for the opportunity to testify on this measure.

HB-837-HD-1

Submitted on: 3/18/2023 7:41:34 PM

Testimony for AEN on 3/22/2023 1:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Logan Lee	Testifying for Climate Future Forum	Support	Written Testimony Only

Comments:

Aloha Chair Gabbard, Chair Inouye, and Members of the AEN and WTL Committees:

On behalf of the Climate Future Forum, I'm writing in strong support of HB837 HD1.

-saves money and improves water quality by recapturing water rather than letting it run off;

-improves air quality and reduces acute respiratory symptoms and deaths from heart and respiratory problems;

-improves quality of life and mental health; and

-reduces atmospheric greenhouse gases.

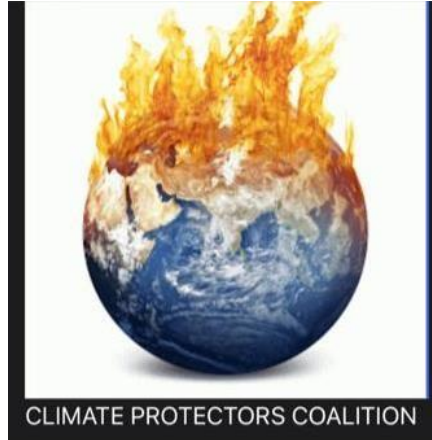
Therefore, the Hawaii Planning Act should include guidelines for State facilities to incorporate green infrastructure, vegetation and trees in State facilities, infrastructure and transit projects.

The Climate Future Forum is supporting the legislative agenda that about 80 students developed with eight Hawai'i state legislators on December 3rd, 2022. (website: www.climatefuturehawaii.org)

Respectfully,

Logan Lee

Climate Future Forum Steering Committee Member



To: The Honorable Chairs Mike Gabbard and Lorraine Inouye, The Honorable Vice-chairs Tim Richards, III, and Brandon Elefante, and members of the Senate Committees on Agriculture and Environment and Water and Land

From: Hawai'i Reef and Ocean Coalition (by Ted Bohlen)

Re: **Hearing HB837 HD1 RELATING TO THE STATE PLAN**

Hearing: Wednesday, March 22, 2023, 1:00 p.m.

Aloha Chairs Gabbard and Inouye, Vice Chairs Richards and Elefante, and members of the Committees on Senate Committees on Agriculture and Environment and Water and Land:

The Hawai'i Reef and Ocean Coalition (HIROC) is a group of scientists, educators, filmmakers and environmental advocates who have been working since 2017 to protect Hawaii's coral reefs and ocean. We support green infrastructure measures that reduce polluted runoff.

The Climate Protectors Hawai'i seek to educate and engage the local community in climate change action, to help Hawai'i show the world the way back to a safe and stable climate. We support the use of trees and other design measures that reduce heat, save energy, and reduce the climate impact.

Hawai'i Reef and Ocean Coalition and Climate Protectors Hawai'i STRONGLY SUPPORT HB837 HD1.

Sustainable design concepts for public infrastructure **use green vegetation and trees to decrease urban temperatures, reduce carbon emissions, improve air quality, and capture water to replenish the water table.** The so-called “green infrastructure” is a range of measures that **use plant or soil systems, including trees, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to conserve water and reduce flows to sewer systems or to surface waters.**

The effects of climate change have made implementing sustainable design concepts more critical, as each passing year has seen increased temperatures and other impacts from climate change.

Studies have found that individuals who live in areas with more trees and green space are less likely to have acute respiratory symptoms and less likely to die of heart disease or respiratory disease. Hawai'i is world-renowned for its vegetation. Citizens and tourists alike actively seek out green spaces. Increasing the number of parks and green spaces in Honolulu's urban core will enhance the quality of life of residents and visitors alike.

This bill would establish objectives, policies, and priority guidelines for State facility systems under the Hawai'i State Planning Act to achieve the **use of green infrastructure, vegetation, and trees in State facility systems, infrastructure, and transit projects.** It would require the Office of Planning and Sustainable Development, in partnership with the Greenhouse Gas Sequestration Task Force, to make recommendations for implementing the green infrastructure objectives, policies, and priority guidelines established by this Act.

This bill would make our infrastructure more sustainable and save water and energy. Please pass this bill! Mahalo!

Hawai'i Reef and Ocean Coalition and Climate Protectors Hawai'i (by Ted Bohlen)

HB-837-HD-1

Submitted on: 3/18/2023 12:20:55 PM

Testimony for AEN on 3/22/2023 1:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Virginia Tincher	Individual	Support	Written Testimony Only

Comments:

Members of the Agriculture and Environment Committee and the Water and Land Committee,

I am in strong support of all the objectives in the bill description -

“Establishes green infrastructure objectives, policies, and priority guidelines for state facility systems, infrastructure, and transit projects in the Hawai‘i State Planning Act to improve the quality of life for residents and visitors. Adds definition of "green infrastructure". Requires the office of planning and sustainable development, in partnership with the greenhouse gas sequestration task force, to submit a report to the legislature making recommendations for implementing the green infrastructure objectives, policies, and priority guidelines.”

It’s important to me to support all efforts to benefit our climate.

I am a strong supporter of HB837 HD1.

Mahalo for this opportunity to testify,

Virginia Tincher, Oahu

HB-837-HD-1

Submitted on: 3/19/2023 2:13:10 PM

Testimony for AEN on 3/22/2023 1:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Douglas Perrine	Individual	Support	Written Testimony Only

Comments:

HB837 encourages the use of free natural services, such as provided by trees, to improve quality of life and reduce costs of maintaining our built infrastructure. I support passage of this bill to maximize our advantage from landscaping, etc.

HB-837-HD-1

Submitted on: 3/21/2023 11:16:50 AM

Testimony for AEN on 3/22/2023 1:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Dylan P. Armstrong	Individual	Support	Written Testimony Only

Comments:

Committee on Agriculture and Environment
The Honorable Mike Gabbard
The Honorable Tim Richards

Aloha mai kākou,

RE: HB837 HD1

I write in support of House Bill 837 HD1, which would amend the "green infrastructure" requirements of the state's Hawai'i Revised Statutes and make administrative changes to the state's activities.

I support the proposed amendments originating from the state's Office of Planning and Sustainable Development (OPSD) to fund the measure's mandate for research and execution, with funding and programmed positions to carry out the enabling of this measure if and when enacted.

Thank you for your consideration.

Best,
DP Armstrong

HB-837-HD-1

Submitted on: 3/21/2023 12:41:43 PM

Testimony for AEN on 3/22/2023 1:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Molly Whiteley	Individual	Support	Written Testimony Only

Comments:

Please support HB837.

Mahalo!

M. Whiteley

Kihei