DAVID Y. IGE
GOVERNOR

JOSH GREEN M.D.
LT. GOVERNOR

RONA M. SUZUKI
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DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF TAXATION
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To: The Honorable Henry J.C. Aquino, Chair;
The Honorable Troy N. Hashimoto, Vice Chair;
and Members of the House Committee on Transportation

From: Rona M. Suzuki, Director
Department of Taxation

Re: **H.B. 2590, Relating to Autonomous Vehicles**
Date: Friday, January 31, 2020
Time: 10:00 A.M.
Place: Conference Room 423, State Capitol

The Department of Taxation (Department) appreciates the intent of this measure and provides the following comments regarding H.B. 2590.

This measure authorizes the use of automated-driving-system-equipped vehicles, automated driving systems, driverless-capable vehicles, and on-demand driverless-capable vehicle networks (collectively referred herein as "systems") in the State, and establishes requirements, restrictions, and limitations for the use of these systems.

The measure provides that no tax may be imposed on such systems. It is arguable that this prohibition includes the imposition of existing Hawaii taxes, such as income tax and general excise tax that might otherwise be due from the operations of such systems (e.g., rental car businesses). If this was not the intent, the Department suggests the following amendments:

To proposed subsection 291C-G(b):

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     (b)  The department shall have exclusive authority
over all matters subject to this part, except for any
taxes that otherwise due under title 14.
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And to proposed subsection 291C-G(c)(2):

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(2)  Impose a tax or other requirement on any
     automated-driving-system-equipped vehicle,
     automated driving system, or on-demand driverless-
     capable vehicle network, where the tax or other
     requirement imposed relates specifically to the
     operation of automated-driving-system-equipped
     vehicles, provided that this subsection shall not
     prohibit a tax that otherwise due under title 14,
     as enacted on July 1, 2020.
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Thank you for the opportunity to provide comments.

DAVID Y. IGE
GOVERNOR

TESTIMONY BY:

JADE T. BUTAY
DIRECTOR

Deputy Directors
LYNN A.S. ARAKI-REGAN
DEREK J. CHOW
ROSS M. HIGASHI
EDWIN H. SNIFFEN

LATE

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

January 31, 2020
10:00 A.M.
State Capitol, Room 423

H.B. 2590
RELATING TO AUTONOMOUS VEHICLES

House Committee on Transportation

The Department of Transportation (DOT) **supports** H.B. 2590 which authorizes automated driving system equipped vehicles on public roads as we believe these types of vehicles will ultimately lead to reducing the severity and number of vehicle crashes, injuries, and fatalities on our roads, as well as reduce pollution levels.

Thank you for the opportunity to provide testimony.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

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HONOLULU, HAWAII 96813
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KIRK CALDWELL
MAYOR

WES FRYSZTACKI
DIRECTOR

JON Y. NOUCHI
DEPUTY DIRECTOR

TESTIMONY TO THE
HOUSE COMMITTEE ON TRANSPORTATION (TRN)

JANUARY 31, 2020
10:00 AM

IN SUPPORT OF
HB 2590 – RELATING TO AUTONOMOUS VEHICLES

Chair Aquino, Vice Chair Hashimoto, and Members of the Committee:

The Department of Transportation Services supports this measure as it aligns with our vision of innovative autonomous transportation integrating with our multimodal public transit system.

The City and County of Honolulu is planning for a comprehensive system of first/last mile connections to the fully automated electric rail system and to expand access to job opportunities across Oahu. Our office is currently working to integrate low-speed autonomous shuttles into this network, and aims to serve certain rail stations with dedicated pathways for autonomous vehicles. This legislation supports our ongoing efforts.

Thank you for consideration of this measure and for the opportunity to provide this testimony.

SanHi
GOVERNMENT STRATEGIES
A LIMITED LIABILITY LAW PARTNERSHIP

DATE: January 29, 2020

TO: Representative Henry Aquino
Chair, Committee on Transportation
Submitted Via Capitol Website

FROM: Tiffany Yajima

RE: **H.B. 2590 – Relating to Autonomous Vehicles**
Hearing Date: Friday, January 31, 2020 at 10:00a.m.
Conference Room: 423

Dear Chair Aquino and Members of the Committee on Transportation:

We submit this testimony on behalf of the Alliance for Automotive Innovation ("Alliance").

The Alliance for Automotive Innovation is the singular, authoritative and respected voice of the automotive industry. Focused on creating a safe and transformative path for sustainable industry growth, the Alliance for Automotive Innovation represents the manufacturers producing nearly 99 percent of cars and light trucks sold in the U.S. Members include motor vehicle manufacturers, original equipment suppliers, technology, and other automotive-related companies and trade associations.

The Alliance supports H.B. 2590, which authorizes the use of automated vehicle technology in Hawaii and establishes the regulatory framework for these vehicles, systems, and networks to operate in the state.

The automotive industry is rapidly evolving. The vehicles on our roads today are more advanced than ever and feature remarkable capabilities. These capabilities have a primary goal in mind: passenger safety and saving lives. According to the U.S. Department of Transportation, more than 37,000 lives were lost on U.S. roadways by the end of 2017, with human error accounting for more than 94 percent of these fatalities. These outcomes underscore the importance for manufacturers to deliver life-saving automated vehicle technologies.

In addition to saving lives, AVs can provide expanded mobility options – allowing individuals to further participate and navigate their communities – and has the potential to reduce congestion and create land development efficiencies.

H.B. 2590 authorizes the use of automated-driving-system ("ADS") equipped vehicles on any road in the state with or without a conventional driver physically present in the vehicle. While in driverless operation, the driverless-capable vehicle

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must comply with all applicable state traffic laws. If a conventional driver is present, the driver must hold a valid driver's license and comply with all insurance requirements, and the vehicle must follow the rules of the road. This measure also establishes accident reporting requirements in the event of a collision and authorizes the transportation of persons and goods in an autonomous vehicle.

Similar legislation has been adopted by several other states and is currently being considered in several more. This measure would establish Hawaii as a leader in AV policy and open the doors to this innovative and potentially lifesaving technology.

As the technology for autonomous vehicles continues to develop, it is vital for governments to avoid creating barriers to autonomous vehicle testing and deployment.

For these reasons, we urge you to pass this measure. Thank you for the opportunity to submit testimony on this bill.

Hawaii Automobile Dealers' Association

John Uekawa, President
Dave Rolf Executive Director

HADA Testimony in SUPPORT of HB2590
RELATING TO AUTONOMOUS VEHICLES
Presented to the House Committee On Transportation
at the Public Hearing 10 a.m., Friday, January 31, 2020
in Room 423 Hawaii State Capitol
by David H. Rolf for members of the Hawaii Automobile Dealers Association,
Hawaii's franchised new car dealers, who provide sales, warranty work and other factory-certified maintenance service for Hawaii's privately-owned and fleet-owned cars and light trucks

Chair Aquino, Vice chair Hashimoto and members of the committee:

HADA supports the testing and development of autonomous vehicles in Hawaii. We are in support of HB2590 which HB2590 authorizes the use of automated-driving-system-equipped vehicles, automated driving systems, driverless-capable vehicles, and on-demand driverless-capable vehicle networks in the State and establishes requirements, restrictions, and limitations for the use of these vehicles, systems, and networks.

HADA was one of the founding members of the Hawaii Autonomous Vehicle Institute, which is dedicated to safely bringing automated vehicles (AVs) to the state of Hawaii. HAVI addresses all aspects of automated vehicles, including AV technology and sensors, the social impact of AV adoption, the economic impact of the move toward automated transportation systems, and the legislative and governmental oversight required for the safe and efficient use of automated vehicle technology.

HADA has been actively pursuing ways to support Governor David Ige's Executive Order 17-07 relating to driverless car introduction in Hawaii, which states: "Hawaii, with its optimal conditions for testing connected autonomous vehicles (CAVs), has stepped out ahead—extending open arms to motor vehicle manufacturers and technology companies from around the world, signaling that the Aloha State is open for business for testing and deploying the new driverless vehicle technology."

The governor's Executive Order goes on to state that, "today there is something akin to a space race to see who will develop driverless vehicles and advanced wireless technologies--both of which have the power to influence the future outcomes for the daily lives of all Americans. Hawaii, with its unique, favorable conditions, has become the ideal locale for testing…(and) autonomous driving technology offers the possibilities of personal transportation that can be safer and more efficient in saving time and mitigating traffic."

This past year, HADA members and other stakeholders participated in the Autonomous Vehicle Legal Preparation Task Force formed by 2019's HCR 220 HD1 SD1 which resulted in a 92-page preliminary report of its findings and submitted to the Legislature on December 1, 2019.

We understand that the Alliance of Automobile Manufacturers, which represents domestic and international automobile brands, has supported the AV-testing and development language in other states that is like the language found here in HB2590.

HADA feels it important to have support of the world's major auto manufacturers, who are spending billions of dollars for the testing and development of driverless cars.

Indeed, international auto manufacturers have made Hawaii one of their first roll-out markets for new automotive technologies.

HADA members encourage an open environment for autonomous vehicle testing that encourages all forms of AV technology and all forms of vehicle powertrain propulsion for these autonomous vehicles.

The objective of Hawaii legislation should be to enable testing and deployment of this new technology.

HADA dealers feel that HB2590 is a measure that will encourage international auto manufacturers to favorably consider our state, for the testing and deployment of their new technologies.

HADA respectfully requests that the committee pass the measure and forward to its next committee for favorable consideration.

Respectfully submitted,
David H. Rolf
For the members of the Hawaii Automobile Dealers Association

183 Pinana St., Kailua, HI 96734 • 808-262-1285 • info@350Hawaii.org

To: The House Committee on Transportation
From: Sherry Pollack, Co-Founder, 350Hawaii.org
Date: Friday, January 31, 2020, 10:00 am

Comments on HB 2590

Dear Chair Aquino, Vice Chair Hashimoto, and members:

350Hawaii offers comments on HB 2590.

In 2019, HCR 220 HD1 SD1 formed an Autonomous Vehicle Legal Preparation Task Force to report on "the legal and regulatory implications of transitioning to autonomous vehicles."

As requested, the Task Force submitted the preliminary report of its findings and recommendations to the Legislature on December 1, 2019. The report makes three recommendations.

On page 6, it says, "consistent implementation of standards and recommendations from the U.S. Department of Transportation's Manual of Uniform Traffic Control Devices is essential to the safe operation of self-driving vehicles."

On pages 77-79, it recommends that all Autonomous Vehicles (AVs) in Hawaii be electric, and shared:

By combining the emissions reduction potential of electric powertrain technologies with the added benefit of small, shared AVs, and assuming a future low-carbon grid as planned for Hawaii, GHG emissions could be reduced by about 90% when compared with today's vehicles.

The transportation sector contributes more to the Climate Crisis than any other sector in Hawaii. More than two-thirds of the fossil fuel imported into the State is used for transportation. The thorough adoption of electric vehicles (EVs) in Hawaii would reduce our greenhouse gas emissions enormously.

Most auto industry watchers predict that AVs will be adopted surprisingly quickly and eventually replace a huge percentage of traditional vehicles.

McKinsey says, "We expect Level 4 autonomy—operating within virtual geographic boundaries—to be disruptive and available between 2020 and 2022" [1].

Gartner forecasts that by 2023, worldwide net additions of vehicles equipped with hardware that could enable autonomous driving without human supervision will reach 745,705 units [2].

HCR 220 says, "current autonomous vehicle industry trends suggest overwhelmingly that all autonomous vehicles will be electric, which could contribute significantly to Hawaii's clean energy goals."

But several AV manufacturers are converting gas-burning cars into their prototype AVs. This is trying to fit tomorrow's driving technology into yesterday's vehicles. Gas-burning cars should be going extinct, not promoted to the future of transportation.

HCR 220 says, "autonomous vehicles benefit society by ... lessening greenhouse gas emissions [and] easing traffic congestion."

With the introduction of AVs to Hawaii comes a tremendous opportunity to help retire gas-burning cars, and increase our adoption of EVs.

HB 2590 should seize the opportunity to move Hawaii farther into a world of EVs. From the very start, it should allow only electric AVs from manufacturers who want to test and sell here.

350Hawaii strongly urges the committee to add language to this effect to HB 2590. Missing this chance to mothball gas cars and promote EVs would be a tragic oversight.

Sherry Pollack
Co-Founder, 350Hawaii.org

[1] https://www.mckinsey.com/features/mckinsey-center-for-future-mobility/overview/autonomous-driving
[2] https://www.gartner.com/en/newsroom/press-releases/2019-11-14-gartner-forecasts-more-than-740000-autonomous-ready-vehicles-to-be-added-to-global-market-in-2023

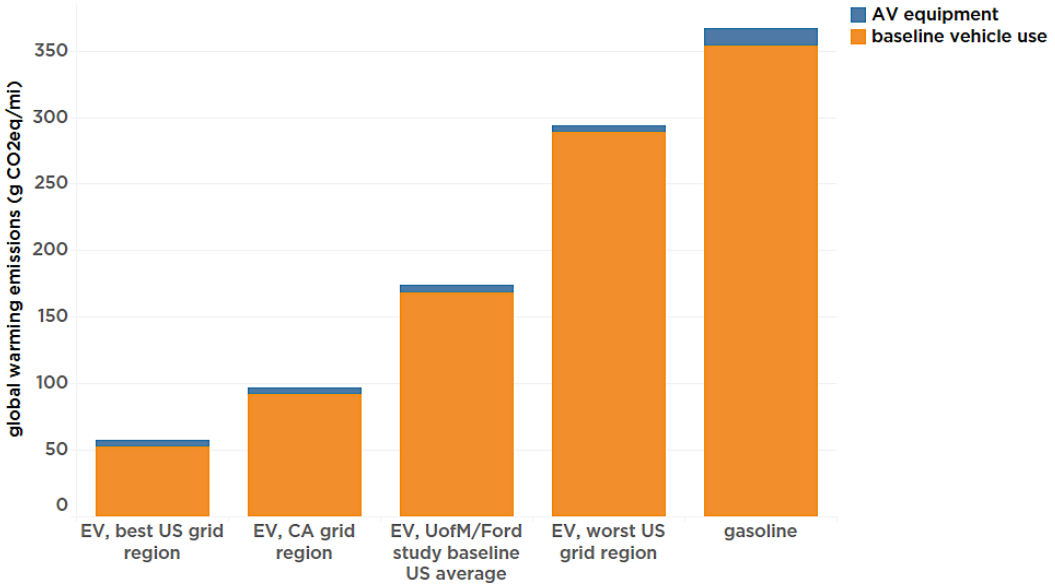
From the PRELIMINARY REPORT OF THE HAWAII AUTONOMOUS VEHICLES LEGAL PREPARATION TASK FORCE:

- Successfully deploying a combination of automated vehicles, shared mobility systems, and electric/zero emission vehicles could reduce energy consumption and related emissions by 60% over the next 30 years with other benefits in safety and greater access to opportunity for non-drivers.
- Conversely, a combination of automated vehicles, zero-occupancy vehicles, increased VMT, access for new user groups, and continued reliance on fossil fuels could increase energy consumption and related emissions by up to 200% over this same time period. [29]

[Irrelevant text omitted here.]

Make them electric

As discussed previously, the most important determinant for direct emissions from AVs is their fuel source. The figure below shows the difference in emissions between an EV powered from a grid fed by renewable resources and a vehicle powered by gasoline, including technology and fuel variations in between, clearly demonstrating how electric matters. [30]

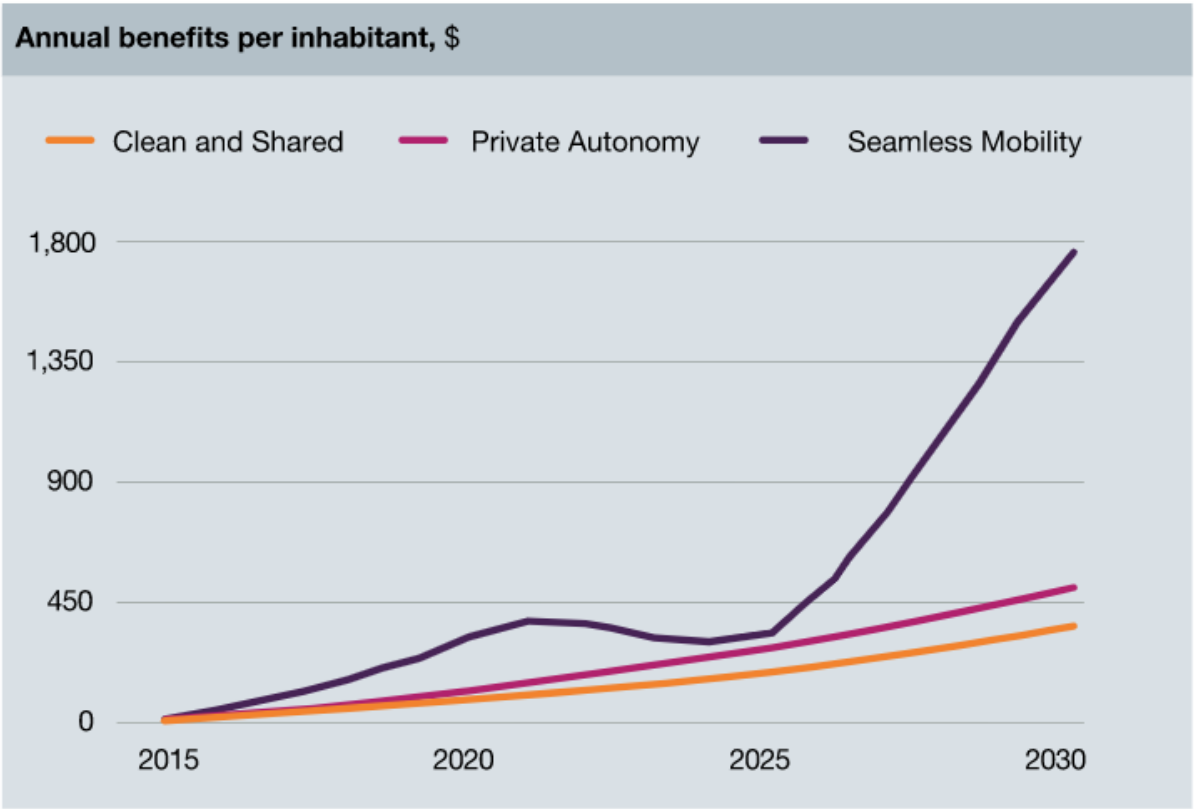


It should not be assumed that all autonomous vehicles of the future will operate on electric powertrains. While GM and Waymo invest in zero-emission autonomous vehicles, other companies like Uber and Ford are piloting AV technology on gasoline-powered vehicles. Boston University's Institute for Sustainability argues that one important way to shape this future is to demand that electric (battery or hydrogen) AVs be part of testing fleets. As companies want to expand testing to new cities, cities have the ability to demand the types of vehicles operated on their roads. [31]

Make them shared

One of the critical concerns with AVs is that they will dramatically increase vehicle miles travelled. What used to be one trip (you going to work) is now two trips (one trip to pick you up via ridehail and then another to get you to your destination). With AVs, those miles driven increase even more as the vehicle circles aimlessly until you are ready to leave your destination. Early estimates suggest that 40% of trips will be of the cruising variety—driving with no passengers. [32] This means that there must be a push from policymakers to make them shared to avoid increased congestion and energy use. Using AV technology for public transit vehicles and microtransit is a key opportunity and will help to ensure that AVs complement pubic transit rather than displace it. It is also important to provide incentives for shared options, which may encourage fleets or AV transportation services rather than individual ownership.

Individually these elements are critical, but collectively they can be even more powerful. McKinsey assessed three potential scenarios for the future of mobility – private autonomy, clean and shared, and then seamless mobility. Seamless mobility is a future in which clean and shared vehicles are deployed within an urban framework to provide the greatest



individual and societal benefit. [33]

By combining the emissions reduction potential of electric powertrain technologies with the added benefit of small, shared AVs, and assuming a future low-carbon grid as planned for Hawaii, GHG emissions could be reduced by about 90% when compared with today's vehicles. [34]

29. http://onlinepubs.trb.org/onlinepubs/circulars/ec236.pdf

30. https://blog.ucsusa.org/dave-reichmuth/how-important-is-it-for-self-driving-cars-to-be-electric

31. Hatch, J. & Halveston, J. (2018, August). Will Autonomous Vehicles be Electric? Boston University Institute for Sustainability. https://www.bu.edu/ise/2018/08/27/will-autonomous-vehicles-be-electric/

32. https://www.businessinsider.com/self-driving-cars-traffic-worse-research-2019-2

33. https://www.mckinsey.com/business-functions/sustainability/our-insights/the-futures-of-mobility-how-cities-can-benefit

34. Greenblatt, J.B., & Saxena, S. (2015). Autonomous taxis could greatly reduce greenhouse gas emissions of U.S. light-duty vehicles. *Nature Climate Change*. Doi: 10.1038/nclimate2685 https://www.nature.com/articles/nclimate2685

Email: communications@ulupono.com

HOUSE COMMITTEE ON TRANSPORTATION
Friday, January 31, 2020 — 10:00 a.m. — Room 423

Ulupono Initiative supports HB 2590, Relating to Autonomous Vehicles

Dear Chair Aquino and Members of the Committee:

My name is Amy Hennessey, and I am the Senior Vice President of Communications & External Affairs at Ulupono Initiative. We are a Hawai'i-based impact investment firm that strives to improve our community's quality of life by creating more locally produced food; increasing affordable clean renewable energy and transportation options; and better managing waste and fresh water resources.

Ulupono supports HB 2590, which authorizes the use of automated-driving-system-equipped vehicles, automated driving systems, driverless -capable vehicles, and on-demand driverless-capable vehicle networks in the State and establishes requirements, restrictions, and limitations for the use of these vehicles. Broadly, under these terms, Autonomous vehicles (AVs) have the opportunity to provide significant benefits to our community.

However, these benefits will not necessarily accrue on their own but require community conversations on not just what AV may provide but should. Transportation Research Board, one of our national academies of science, outlines two broad ends of the spectrum for the impacts of AVs:

1) Successfully deploying a combination of automated vehicles, shared mobility systems, and electric/zero-emission vehicles could reduce energy consumption and related emissions by 60 percent over the next 30 years with other benefits in safety and greater access to opportunity for non-drivers.
2) Conversely, a combination of automated vehicles, zero-occupancy vehicles, increased vehicles miles traveled, access for new user groups, and continued reliance on fossil fuels could increase energy consumption and related emissions by up to 200 percent over this same time period.[1]

As mentioned in the Environment and Energy section of the Preliminary Report of the Hawaii Autonomous Vehicles Legal Preparation Task Force, creating a mechanism for AVs' legality, although necessary, is not sufficient to ensure congestion reduction, energy efficiency, or even improved accessibility for those currently underserved by our transportation system.

At this point, the intent of Section 291C-G Jurisdiction, that reads *Neither the State nor any county*

[1] http://onlinepubs.trb.org/onlinepubs/circulars/ec236.pdf

shall: (1) impose requirements, including performance standards. Does this statement specifically prohibit evaluation criteria of any AV pilot? Although we do not want to proactively limit pilots based on certain criteria, we believe it remains imperative that a part of that framework enables the State, or any county, to evaluate and assess pilots on agreed upon community goals, which could be enhanced safety, improved accessibility, reduced congestion and/or lower emissions. We believe this section may intend to ensure the State does not pick one specific AV technology, or company, over another, but the language may have the unintended consequences of not allowing for larger evaluations.

More broadly, we believe any AV legislation should work to align with the State's broader goals and therefore promote not just AVs, but A2CES - AVs that are accessible, automated, connected, electric, and shared. We look forward to working with our larger community to help realize the benefits of A2CES – leveraging the innovations of AVs for a stronger, more resilient Hawai'i.

Thank you for this opportunity to testify.

Respectfully,

Amy Hennessey, APR
Senior Vice President, Communications & External Affairs