CSET Newsletter
rural • isolated • tribal • indigenous
Volume 4, Issue 4

Center for Safety Equity in Transportation

If you have a right to get there, you have a right to get there safely.

November 2021

CSET Research Showcase

Assessing the Vulnerability of Transportation Infrastructure to Sea Level Rise

Sea level rise (SLR) and more frequent, extreme weather events are a concern for transportation infrastructure. According to the National Research Council, Committee on Climate Change, approximately 60,000 miles of coastal roads in the United States are already exposed to flooding from coastal storms and high waves. In particular, the livelihoods and transportation safety of indigenous rural communities may be at higher risk to sea-level rise and exacerbated coastal flooding due to their heavy dependence on natural resources, settlements in relatively isolated fringe land, limited accessibility to services, alternative economic activities, and lack of resources and tools for adaptation. Despite existing studies on sea-level rise's impacts, there is a lack of understanding of how the impacts of tidal flooding and sea-level rise may be unevenly distributed both spatially and socially, and how vulnerable (e.g. rural, relatively isolated) communities may have experienced such impacts and perceive future risks. It is also unclear what types of travel means, purposes, and resources the at-risk communities would highly value and prioritize, not to mention whether these concerns and perceptions are consistent with the climate vulnerability assessment findings and adaptation priorities. Through community surveys, this project helped to better understand the experiences and risk perception of different communities when facing sea-level rise and more frequent coastal flooding. It aimed to understand different communities' perceived travel challenges with coastal flooding, the social sensitivity to different types of challenges, and the priorities and concerns regarding the access to various types of resources, to support decision making that improves communities' safe access to highly valued resources and activities.

The findings show that currently, coastal communities in the study area, the City and County of Honolulu, Hawai'i, are most frequently affected by the indirect effects of rising sea levels such as storm surge, coastal erosion, and construction/ maintenance on coastal roads as compared to direct coastal flooding, emphasizing the importance of taking ripple effects into consideration in transportation vulnerability studies. It also reveals that the most vulnerable residents such as the elderly, households with children, rural residents, and Native Hawaiian and other Pacific Islanders, who currently are experiencing more frequent and severe impacts, are more

continued on page 2

Announcements

CSET has positions open for post-doctoral researchers, graduate and undergraduate students interested in RITI transportation equity and safety research. Please contact us at cset.utc@alaska.edu.

Groundwater innundation in Honolulu, Hawai'i, May 10, 2021. Photo by Suwan Shen.

Sandy Beach Park, Oahu, Hawai'i. December 26, 2020. Photo by Suwan Shen.

CSET has been funded through the 2016 University Transportation Center Program by the US Department of Transportation as part of the FAST Act at approximately $1.4 million in each of the next five years.

Safe Driving in Wet Conditions

Fall frequently brings wet and stormy weather around the country. Flooding from large volumes of rain and storm surge can make for treacherous driving conditions. Here are some basic tips for driving safely in wet weather.

1) Wait Until the Weather Improves , if Possible

2) Know the Limits of Your Abilities and Those of Your Vehicle

3) Avoid Flooded Areas and Areas Prone to Flooding

4)Do Not Enter Rapidly Flowing Water or Water of Unknown Depth

5) Turn On Headlights

6) Slow Down and Maintain a Safe Distance Between Vehicles

7)Avoid Heavy Braking and Sudden Changes in Direction

8) Let Off the Gas if the Vehicle Begins to Hydroplane

9) Ventilate Your Car/Turn on the Defroster

10) Be Aware of What is Happening Around You.

Top: Flood waters crossing a driveway near Valdez, Alaska. Bottom: Flood waters washing out the main highway into Valdez, Alaska. Photos by Alaska DOT&PF.

Sea Level Rise (continued from page 1)

concerned about future sea-level rise, regardless of their income or car ownership in general. The findings highlight the importance of integrating the planning of vulnerable populations' residences, workspaces, schools, health care, and emergency facilities into consideration in future transportation adaptation to sea-level rise. By comparing the study's findings with the literature, it also found that the coastal communities highly valued and are concerned about the park, recreational access, and culture and cultural activities access with sea-level rise. The findings and lessons learned not only have practical significance in understanding the distribution of transportation impacts and priorities in sea level rise adaptation in Hawai'i but also have the potential to be generalized to vulnerable communities in similar coastal regions.

Storm surge crossing the road at Laniakea, Hawai'i November 26, 2018. Photo by Suwan Shen.

Flooded Parking on the North Shore of Oahu, Hawai'i, November 18, 2018. Photo by Suwan Shen.

Come study with us!

The University of Alaska Fairbanks is actively seeking graduate students interested in research related to rural, isolated, tribal and indigenous transportation safety. Civil engineering is preferred, but also looking for interdisciplinary and Alaskan Native students. For more information contact Nathan Belz at npbelz@alaska.edu.