CSET Newsletter
rural • isolated • tribal • indigenous
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Center for Safety Equity in Transportation

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

March 2021

CSET Research Showcase

Drones for Improving Traffic Safety in Washington State

Traffic safety is a major concern in the State of Washington's Rural, Isolated, Tribal or Indigenous (RITI) communities. The Fatality Analysis Reporting System of US Department of Transportation in 2017 reports that approximately 41% of the vehicle crash-caused-deaths happened along the rural roads in Washington which indicates the importance of developing effective, context-sensitive solutions.

This research explores, acknowledges and synthesizes the opportunities and challenges of applying drone technologies to alleviate or resolve the traffic safety related issues within RITI communities. While drones are being widely applied in both urban and rural areas for several purposes (e.g., search and rescue, delivery, etc.), applying drones toward the traffic safety in RITI communities has not been completely explored. Drones likely provide an economic and effective way to solve RITI issues. However, limitations on drones, especially for RITI communities like flight restrictions, must be noted and addressed.

Comprehensive use of drone technologies and applications that address the traffic safety needs of any community must recognize the unique culture of that community. Understanding the potential use of drones for traffic safety within the culture of communities is the foundation for future research regarding drone applications in RITI communities.

To achieve this, literature about current drone technologies (e.g., power, sensing), applications (e.g., incident management, infrastructure monitoring), and related pros and cons has been reviewed and summarized. Several RITI communities on the outer Pacific coast of Washington State, including the City of Westport, Grays Harbor County, Ocosta School District, and Shoalwater Bay Tribe were selected as our study area because they face social and economic challenges (such as unemployment, poverty, low education and residential instability).

Outreach activities were conducted in concert with a survey designed to enhance our understanding of concerns regarding the traffic safety needs of these communities. Through the application of drone technologies in addressing transportation and traffic safety needs and RITI communities, viable and context-sensitive drone applications are provided. Recommendations of this research lay the foundation for future drone applications in RITI communities.

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.

Drone flown in Westport during the partner workshop to demonstrate its capabilities.

Project workshop held with the community representatives in planning and emergency management to discuss hazard scenarios and mitigation.

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.

UAF University of Alaska Fairbanks · University of Washington · University of Idaho · University of Hawai'i Mānoa

CSET Student of the Year Samuel Ricord

Samuel Ricord was named the CSET Student of the Year for 2020. Sam has been a graduate research assistant in the Department of Civil and Environmental Engineering at University of Washington (UW) since September 2019. He received his bachelor's degree in Civil Engineering in June 2019 from UW and spent time during his undergraduate studies funded to work in the project as well.

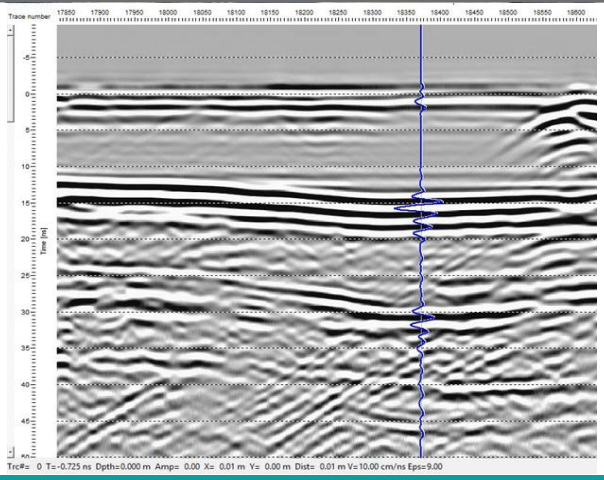
Sam was assigned to work on a CSET project involving outreach and coordination with WA state tribes in order to create a traffic safety management database. Through his hard work and efforts, the project has yielded many positive interactions with tribal leaders who have been very excited to build this relationship. Sam provides the soft skills required to network with tribal leaders and present the project goals in a concise way, moving the project towards collaboration. He has attended multiple different meetings and conferences for tribal leaders and created significant interest in the project, which resulted in our invitation to join the Tribal Transportation Planning Organization during their October meeting. He has also been highlighted previously in the CSET newsletter for his contribution on promoting tribal leadership outreach activities. Meeting these leaders and learning their stories and traffic data management needs has been eye-opening and invaluable, and he also presented his research findings at the PacTrans/CSET conference in October 2019.

Samuel Ricord

CSET at TRB

CSET researchers presented 7 posters at the 2021 Transportation Research Board Annual Meeting. The posters covered the results from research projects funded through the center on a wide range of topics related to transportation safety and equity. Nathan Belz of UAF presented *A Comparison of Traditional and Non-Standard Sources of Accident Reporting and Safety Data in Alaska*. Yuntao Guo, Hao Yu and Guohui Zhang of UHM presented *Understanding the Relationship between Travel-related Behavior and COVID-19 Spread within the Communities*. Kevin Chang and Cody Hodgson of UI presented *Using Drone Technology to Collect School Transportation Data*. Details about these and the other 4 CSET posters can be found through the TRB at https://annualmeeting.mytrb.org/OnlineProgram/Browse.

A team from UAF uses Ground Penetrating Radar (GPR) to measure ice thickness on the Yukon Ice Crossing, Tanana, Alaska. Pictured below is an ice core and the results of a GPR transect.



UAF 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.