

Center for Safety Equity in Transportation

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

August 2020

CSET Research Showcase

Safety Analysis of Off-Highway Vehicles Use Within Public Right-of-Ways in Alaska

Off-highway vehicles (OHVs) are an essential mode of transportation for Alaskans living in rural villages. Meanwhile, OHVs are frequently used for recreational riding in higher population communities. Yet current legislation does little to address these discrepant needs other than a general ban preventing OHVs from operating on State roadways. While local jurisdictions may allow OHV use on their roads, the needs of many residents remain unmet. While state law prohibits OTVs on state roads, there is no enforcement in villages.

On-road OHV use has resulted in a significant number of crashes in Alaska. There have been on average 80 crashes annually including five fatalities per year involving OHVs on roads between 2000 and 2016. Rates have not changed significantly over this period. These crash rates resulted in the placement of on-road OHV crashes in the Alaska State Highway Safety Plan as an area of concern.

The research to quantify the on-road OHV use rates and trends in crashes had three areas of focus: a pilot field observation study of OHV use on or near roadways, an analysis of crash parameters on crash severity

outcome, and a spatial analysis of crashes. The field observation study results indicate that the highest rates of risk-tolerant behaviors (lack of helmet use, passengers riding without a seat, and unlawful on-road use) occur in the jurisdictions which allow on-road use. Risk-tolerant behaviors were frequently observed in all locations. Overrepresented risk factors for high crash severity incidents included riding at night, summer, on unpaved roads, on local roads or collectors, in rural areas, and for single-vehicle crashes the occupant not using safety equipment (e.g. helmet, seat belt), and riding under the influence of alcohol. Crashes clustered around towns with the highest density of crashes occurring near town centers.

The prevalence of risk-tolerant riding behaviors and unlawful on-road riding indicates the need for improvements to existing laws and the education and enforcement thereof. The highest crash densities, i.e. in town centers, indicates many trips made using OHVs occur exclusively on the road. While this behavior is required in rural villages as many residents do not have access to passenger cars, its prevalence in large communities such as Fairbanks and Anchorage is

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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.



ATV operating unlawfully on multiuse path with passenger in Fairbanks, AK



UTV operating lawfully in right-of-way in Fairbanks, AK

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 through 2022.

COVID-19 and Transportation

The COVID-19 pandemic has significantly influenced almost every aspect of daily life, including urban traffic patterns. But how much has transportation been impacted by COVID-19? Researchers in STAR Lab (<http://www.uwstarlab.org/>) at the University of Washington now attempt to answer that question by developing a new scoring metric, traffic performance score (TPS), for measuring network-wide traffic performance. A perfect score of 100% represents that roadway users can travel at free-flow speed without encountering any traffic congestion. An interactive web-based TPS platform (<http://tps.uwstarlab.org/>) provides the analysis of the impact of COVID-19 on different road segments and the traffic network in the greater Seattle area. The impact of the government responses to COVID-19 on transportation can be illustrated by the variation of TPS. Figure 1 shows the weekday rush hour TPS on freeway general purpose (GP) lanes. The average weekday TPS during the rush hour was 83.5% before COVID-19. By March 2, the TPS began to increase, implying that residents started to decrease or stagger their traveling activities. After tech companies shut down offices on March 6 and UW moved classes online on March 9, the TPS increased to 92.7%. The orders of statewide school closure and restaurants/bars shutdown led the further increase of the TPS to 95.9%. Finally, once the governor's stay-home order was

announced, the TPS leveled out at its highest point around 98%.

Safety is a key concern for transport activities during COVID-19. Because travel demand during COVID-19 has changed, the traffic scenarios for drivers has also changed. Thus, an individual's driving behavior might also be influenced by COVID-19. News [1] reported a rise in speeding in many States in the U.S. However, the speeding analysis from researchers at STAR Lab clearly shows that speeding rates during COVID-19 were significantly less than those before COVID-19. As shown in Figure 2, the speeding rates reached a peak before COVID-19 around mid-February. In March, the speeding rates gradually reduced and reached their lowest points at the end of March. Since then, the speeding rates have started to increase. The development of TPS is supported by PacTrans and CSET. For more detailed analysis of the impact of COVID-19 on transportation, please refer to the paper [2].

- [1] SULLIVAN, C., Washington sees rise in speeding on empty freeways, 2020, <https://17mynorthwest.com/1831406/drivers-speeding-roads-empty/>
- [2] Cui, Z., Zhu, M., Wang, S., Wang, P., Zhou, Y., Cao, Q., Kopca, C. and Wang, Y., 2020. Traffic Performance Score for Measuring the Impact of COVID-19 on Urban Mobility. arXiv preprint arXiv:2007.00648.

OHV Use (continued from page 1)

concerning. Across the state, the education and enforcement of safe riding behaviors is needed to improve safety and compliance. Exploration of changes that address the unique needs of users by jurisdiction is recommended. Specifically, OHV-specific infrastructure should be considered for locations where they represent a primary mode of transport.

Alaska DOT&PF (2003). Snowmobiles and all-terrain vehicles. http://www.dot.state.ak.us/highwaysafety/snowmach_atv.shtml.

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.

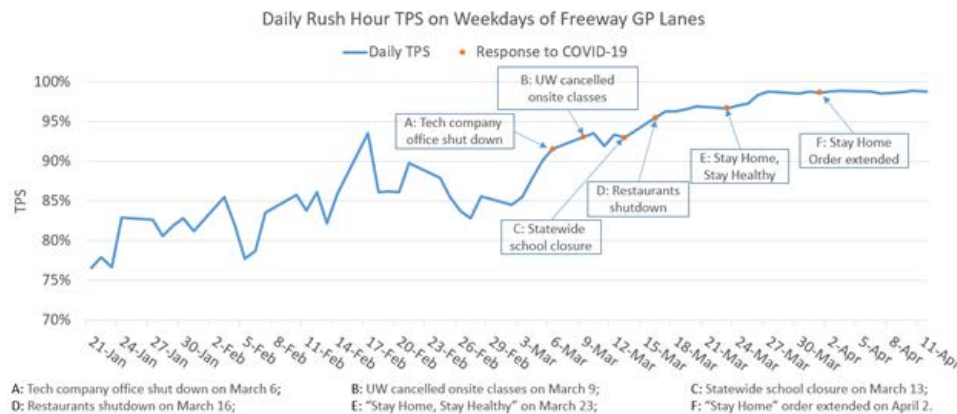


Figure 1 Weekday rush hour TPS of freeway general purpose (GP) lanes.

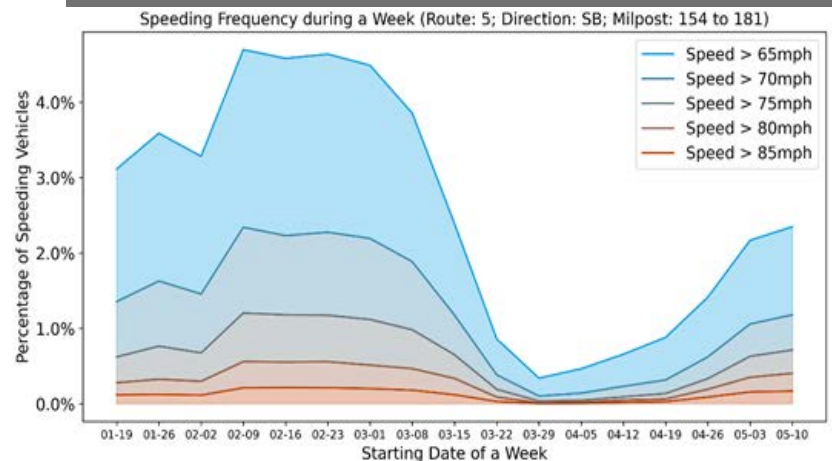


Figure 2 Percentages of speeding vehicles on major freeways, taking freeway I-5 southbound as an example, in the Greater Seattle area before- and during- COVID-19.