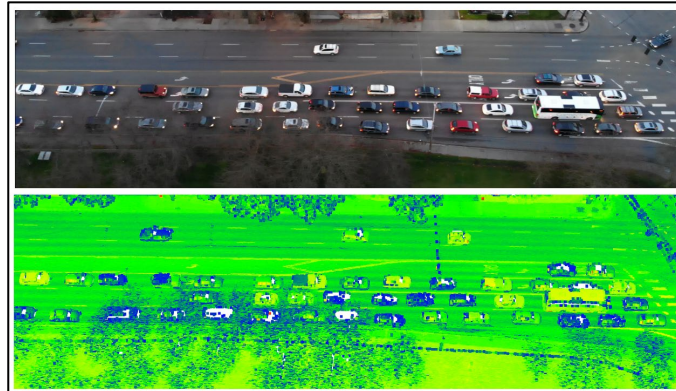| UTC Project Information	
Project Title	An Airborne Lidar Scanning and Deep Learning System for Real-time Event Extraction and Control Policies in Urban Transportation Networks
University	Oregon State University
Principal Investigator	Chris Parrish
PI Contact Information	christopher.parrish@oregonstate.edu
Funding Source(s) and Amounts Provided (by each agency or organization)	University of Washington PacTrans $180,000 University of Idaho $80,000 Oregon Department of Transportation $100,000
Total Project Cost	$360,000
Agency ID or Contract Number	69A3551747110
Start and End Dates	August 16, 2017 – August 15, 2019
Brief Description of Research Project	This project investigates two potentially game-changing technologies with the capability to transform the way in which transportation agencies plan, design, construct, monitor and maintain their transportation networks: 1) unmanned aircraft systems (UAS), also known as "drones," and 2) light detection and ranging (lidar). By applying new deep learning algorithms to multi-temporal, 3D point clouds generated from UAS lidar, it may be possible to rapidly extract features of interest to aid in decisions concerning: emergency response, clearance, congestion, accidents, fire, and parking utilization, as well as a range of multimodal transportation activities.

Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	A key outcome of this project is a set of guidelines and best practices for operational use of UAS for traffic network monitoring. A subset of the best practices were included in the *UAS in Transportation Expo* final report, which is available online at the PacTrans website: http://depts.washington.edu/pactrans/wp-content/uploads/2018/11/UAS-in-Transportation-Report.pdf . Additionally, operational recommendations specific to traffic network monitoring are described in detail in the final report from this project. This project and related work by our project team also supported ODOT in developing an Unmanned Aircraft Systems (UAS) Operations Manual, which establishes policy standards for use of UAS.

Impacts/Benefits of Implementation (actual, or anticipated)	Implementation of the UAS operations recommendations from this research are anticipated to support safe, efficient use of unmanned aircraft systems (UAS) for traffic network monitoring and other transportation applications.
Web Links • Reports • Project Website	http://depts.washington.edu/pactrans/wp-content/uploads/2018/11/UAS-in-Transportation-Report.pdf http://research.engr.oregonstate.edu/parrish/lidar-and-uas-traffic-network-monitoring#overlay-context=user