UTC Project Information	
Project Title	Fusion of Airborne and Terrestrial Sensed Data for Real Time Monitoring of Traffic Networks
University	University of Idaho
Principal Investigator	Someh Sorour
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Funding Source(s) and Amounts Provided (by each agency or organization)	University of Washington PacTrans $40,000 University of Idaho $40,000
Total Project Cost	$80,000
Agency ID or Contract Number	69A3551747110
Start and End Dates	September 1, 2018-August 31, 2020
Brief Description of Research Project	The project addresses several emerging technologies that offer the promise of transforming the way in which transportation agencies plan, design, construct, operate, and maintain their highway networks: advanced imagery, LiDAR scanning, unmanned aerial systems (UAS), and data fusion. The proposed data fusion, using both airborne and terrestrial sensors, can be used to obtain low-cost, highly accurate, and spatially dense 3D real-time information about traffic networks. The extended transportation networks in the Pacific Northwest makes these technologies of a greater value for the states of Alaska, Idaho, Oregon, and Washington. In Idaho, the University of Idaho, two Idaho industry partners and Idaho National Laboratory (INL) are joining forces to advance the state's UAS and data fusion capabilities. The UI PIs are currently conducting research on data fusion of recognized objects from multiple terrestrial sensors to improve the recognition/positioning accuracy and enrich the perception of autonomous vehicles.

Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	The project presented a real-time data analysis system for vehicle detection using LIDAR data collected through unmanned aircraft as an option for the expansion of traffic monitoring. The presented solution is able to perform typical post-flight processing in real-time, with minimal computational and power requirements, which allows its implementation on light-weight Unmanned Aircraft Systems (UAS). 
Impacts/Benefits of Implementation (actual, or anticipated)	The developed algorithm will help transportation obtain reliable real-time information about traffic conditions and parking availability using low-cost drone alternative. It allows agencies to develop a program for situational awareness concerning special events and incidents and to monitor traffic conditions and provide mobility information to first responders and to the public.
Web Links • Reports • Project Website	