UTC Project Information

Project Title	MPC-577 – Uses and Challenges of Collecting LiDAR Data from a Growing Autonomous Vehicle Fleet: Implications for Infrastructure Planning and Inspection Practices
University	Utah State University
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Funding Source(s) and Amounts Provided (by each agency or organization)	USDOT, Research and Innovative Technology Administration $49,992.71 LTAP $49,992.71
Total Project Cost	$99,985.42
Agency ID or Contract Number	69A3551747108
Start and End Dates	October 18, 2018 to July 31, 2022
Brief Description of Research Project	The use of Light Detection and Ranging (LiDAR) technology has been growing in the transportation industry in recent years. The technology has been proven to provide precise, accurate, and high-density point clouds that can be related to a global reference frame (El-Sheimy et al., 2005; Shan and Toth, 2009). Extensive research in the area has shown how this technology can be used for anything from construction quality control to safety assessments to infrastructure management (e.g. Yu et al., 2015; Riviero et al., 2016; Pu et al., 2011; Geiger et al., 2012; Lato et al., 2012; He et al., 2017, Neupane et al., 2018; Rister et al., 2018). Of particular interest for this project proposal is how transportation agencies can utilize the Big Data that will result from a growing fleet of autonomous vehicles. Agencies have had experience with Big Data in the past (Zhao et al., 2018). However, the Big Data of autonomous vehicles is likely to be of unprecedented magnitude (e.g. Matthews, 2018; Marr, 2017; Clerkin, 2017). How will agencies handle such a data set, should they choose to collect it? How much data can agencies expect from a variety of different scenarios? Will they need to filter the data they receive? How many uses can they get out of these data? This proposed project will help agencies answer some of those questions.

Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	Intermediate research findings were presented at the 2019 ITE Annual Meeting in Austin, TX. Currently, the research findings are being developed into 2-3 potential journal papers.
Impacts/Benefits of Implementation (actual, not anticipated)	This research will primarily be used as a reference for transportation agencies preparing to make budgetary or policy decisions regarding autonomous vehicles and big data management. Ideally, agencies will gain a better understanding and expectation of the potential data and can negotiate better, or more targeted, deals with data providers based on their needs. Additionally, this research could act as a starting point for agencies looking to initiate the use of LiDAR in their operations.
Web Links • Reports • Project Website	• [MPC Research Report](#) • [Project Data](#) – data generated during the course of the project