FACT SHEET

Evaluation of HeadLight: An E-Construction Inspection Technology

PROJECT TITLE

Evaluation of HeadLight: An E-Construction Inspection Technology

STUDY TIMELINE

April 2017 – May 2019

INVESTIGATORS

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FURTHER RESOURCES

https://www.ltrc.lsu.edu/pdf/2020/FR_618.pdf

https://www.ltrc.lsu.edu/pdf/2020/ts_618.pdf

Online Feature

Introduction or Problem Statement

This research project explored the feasibility of replacing the traditional, paper-based inspection process with a cloud-based, mobile project inspection technology named HeadLight. Based on previous research conducted by three DOTs outside of Louisiana, HeadLight has been reported to increase inspector productivity and improve the quality of the inspection data collected in the field. This research assessed the productivity and inspection data quality impacts of using HeadLight on DOTD project inspection in the field.

Methodology or Action Taken

This research evaluated the impacts to DOTD business processes, field data collection, and information dissemination resulting from the use of the HeadLight mobile inspection system through empirical field-testing and observation. Field inspectors and their project teams initially piloted HeadLight over 12-18 projects across the state. The final pilot project count is 182 users of HeadLight on over 50 projects in four districts during the 18-month program. The impacts were determined by comparing the process and methods of the traditional inspection process with the HeadLight process using several evaluation metrics such as timeliness of Daily Work Report (DWR) submittals, number of observations, observation type, and productivity.

Conclusions or Next Steps

Project inspectors using HeadLight increased their productivity without increasing their work hours. In addition, inspectors collected and shared 1.9 times more observations while increasing the number of photo and other media observations. The use of HeadLight improved the timeliness of DWR submissions as well as provided data centrality, security, and searchability. Data stored in HeadLight provides a wealth of material for future training of new employees, and the material can be used to train existing employees for particularly unique construction scenarios. HeadLight also improved communication amongst project teams and contractors, potentially reducing project claims and change orders. The Materials Module addition, which was developed and piloted during the course of the project, is fully functional and further streamlines the e-construction inspection process.

Potential Impacts and Benefits

Overall, this research project showed substantial, quantifiable gains when HeadLight was used in place of traditional inspection processes. And researchers anticipate these gains will be more considerable when the technology is further leveraged using big data analytics. Researchers estimate that the increase in productivity for a Department-wide adoption will exceed 117,000 hours per year.