DRISI

CALTRANS DIVISION OF RESEARCH, INNOVATION AND SYSTEM INFORMATION

TRANSFORMING IDEAS INTO SOLUTIONS

Research Notes

Maintenance

NOVEMBER 2023

Project Title:
Autonomous Maintenance Technologies in Work Zones

Task Number: 3258

Start Date: March 16, 2018

Completion Date: March 31, 2025

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Autonomous Maintenance Technology Pooled Fund TPF-5(380)

The mission of this study is to support and promote collaborative research efforts in the field of autonomous technologies in work zone applications.

WHAT IS THE NEED?

California Department of Transportation (Caltrans) has a need to reduce hazards and create a safer environment for both employees and the traveling public. New technologies in the form of autonomous and connected vehicles presents a path for using technical advances to potentially reduce or eliminate threats to employees while maintaining public safety.

This effort addresses the challenges of using these new technologies by forming a coalition of transportation related groups with interest in autonomous maintenance technology research and creates a pooled fund to provide a single source of funding for unified research efforts that benefit all contributing parties. This allows for larger and more significant research projects to be undertaken and leads to an overall cost savings by consolidating many different transportation agencies research efforts in the same field. Colorado Department of Transportation leads this national pool funded project and sixteen states are participants.

WHAT ARE WE DOING?

The mission of this study is to support and promote collaborative research efforts in the field of autonomous technologies in work zone applications, with the goal of improving the safety, efficiency and quality of work efforts, along with providing better solutions and valuable lessons learned for the integration

of new technologies to further these goals. The participation of many transportation related agencies in this study furthers the cooperation in this industry, leading to improved future development of beneficial technologies and improved sharing of information and lessons learned. This is intended to further safety, efficiency, and quality of work done in this field for all relevant agencies.

Scope of Work:

The group will fund research and development efforts to achieve the program goals, with initial proposed research focusing on:

- Improvements on existing Autonomous Truck Mounted Attenuator/ Impact Protection Vehicle (ATMA/AIPV) platforms
- Expansion of use of ATMA/AIPV platforms beyond striping
- Refining policy and operational procedures for autonomous work vehicles
- Investigate additional applications for autonomous vehicles in maintenance operations
- Other new technology

WHAT IS OUR GOAL?

The goal of this study is to support Caltrans' research efforts in the field of autonomous technologies in work zone applications, with the goal of improving the safety and efficiency and quality of work efforts.

WHAT IS THE BENEFIT?

Caltrans will benefit from this research by being a national leader in the use of autonomous and connected vehicle technology that can potentially reduce or eliminate threats to employees while maintaining public safety.

WHAT IS THE PROGRESS TO DATE?

As of February 2023, two research projects have been approved and are being worked on:
1.Work Zone Data Framework and Data Exchange
2. Use of Autonomous Maintenance Technology in General Operational Datasets.

Three new research projects were approved and are currently being processed:
1.ATMA Tabletop Facilitation Lead
2.ATMA Tabletop Cybersecurity
3.ATMA Documentation

The Task force has continued monthly meetings to monitor progress on the research projects in this pooled fund.

For more information, please contact the task manager.