

Maintenance

JULY 2026

Project Title: Autonomous Maintenance Technologies in Work Zones

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Autonomous Maintenance Technology Pooled Fund TPF-5(380)

This study supported and promoted collaborative research efforts in the field of autonomous technologies in work zone applications.

WHAT WAS THE NEED?

California Department of Transportation (Caltrans) had 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 presented a path for using technical advances to potentially reduce or eliminate threats to employees while maintaining public safety.

This effort addressed 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 allowed for larger and more significant research projects to be undertaken and lead to an overall cost savings by consolidating many different transportation agencies' research efforts in the same field.

WHAT WAS OUR GOAL?

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

WHAT DID WE DO?

This research study investigated the following aspects of autonomous maintenance technologies:

- Improvements on existing Autonomous Truck Mounted Attenuator/ Impact Protection Vehicle (ATMA/AIPV) platforms
- Expansion of use of ATMA/AIPV platforms beyond striping



DRISI provides solutions and knowledge that improves California's transportation system.

- Refining policy and operational procedures for autonomous work vehicles
- Investigate additional applications for autonomous vehicles in maintenance operations

WHAT WAS THE OUTCOME?

Caltrans along with the participating states Departments of Transportation from 16 different states gained valuable knowledge on maintenance activities that could benefit from using autonomous maintenance technologies as a way to improve efficiency and provide improved worker safety. The research to study the benefits of these technologies has been continued under a new pooled fund study titled Autonomous Maintenance Technologies Phase 2 TPF-5(559).

WHAT IS THE BENEFIT?

Caltrans benefitted 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.

IMAGES

All reports related to this research can be found at:
<https://pooledfund.org/Details/Study/632>