

Maintenance

May 2026

Project Title: Heavy Equipment Remote Emergency Shutdown During Training Exercises

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Heavy Equipment Remote Emergency Shutdown During Training Exercises

To investigate safe shutdown options for use in Caltrans Division of Maintenance heavy equipment training.

WHAT IS THE NEED?

The California Department of Transportation (Caltrans) trains many operators, often with limited or no prior experience, on heavy equipment. During initial training, trainers commonly ride with trainees to familiarize them with the controls and operation of the equipment. As training progresses, trainers will step away from the equipment and continue training through wireless headsets. Even with remote communication, damage to the training equipment still occurs. Integrating remote shutdown capabilities into training equipment can help reduce the risks to operators and provide a safer training environment.

WHAT ARE WE DOING?

In this project, the researchers at the University of California, Davis (UC Davis) Advanced Highway Maintenance and Construction Technology (AHMCT) Research Center will conduct a review of current safety practices in literature and at Caltrans and other Department of Transportations (DOTs). AHMCT will also conduct research on remote shutdown systems and the feasibility of the systems for Caltrans operations. The contractor, in collaboration with the Division of Equipment, will integrate the shutdown system prototypes into the heavy equipment and support field testing with the Division of Maintenance.

WHAT IS OUR GOAL?

The goal of this research project is to evaluate remote shutdown systems and their feasibility for Caltrans heavy equipment training exercises. This research project will provide Caltrans options based on operator feedback and analysis of project data.



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WHAT IS THE BENEFIT?

The results of this research project will provide trainers with the ability to safely intervene and takeover controls from the trainee when the situation requires it. This would help reduce risks to Caltrans heavy equipment operators and provide a safer training environment.

WHAT IS THE PROGRESS TO DATE?

The contract was executed on April 1, 2026, and the project kick-off meeting took place on April 22. The team has selected the equipment to be used for the project and is coordinating with the Maintenance Equipment Training Academy to support upcoming field activities.