



Caltrans Division of Research,
Innovation and System Information

Research



Notes



Maintenance

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Project Title:
Evaluation of Heavy Equipment
Simulator Systems

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Evaluation of Heavy Equipment Simulator Systems

Provide the best available training to heavy equipment operators using simulators.

WHAT IS THE NEED?

California Department of Transportation (Caltrans) needs to provide the best available training to its Maintenance personnel, particularly those operating heavy equipment. Equipment availability for training is often limited, especially in remote areas of the Districts. In addition, in the early stages of training, it may be inappropriate for trainees to operate actual heavy equipment. Caltrans would benefit from state-of-the-art heavy equipment simulators to support training efforts at the Maintenance Equipment Training Academy (META) and in the Districts.

WHAT ARE WE DOING?

This research would procure up to two heavy equipment simulators and evaluate the applicability and benefits of these simulators for Caltrans' training use. This will be accomplished by partnering Caltrans trainers at the META to develop a prototype training plan for the equipment operators. The challenges and successes of the effort will be documented by monitoring the training progress and obtaining feedback from trainer and operator surveys. The results will be compiled in a report to help Caltrans' business operations regarding how best to implement simulators for training purposes.

WHAT IS OUR GOAL?

The goal is to revamp Caltrans' training efforts and thereby improve staff skills at operating heavy equipment by obtaining one or two heavy equipment simulators. This equipment will be evaluated to determine the value and efficiency they bring to Caltrans' training efforts. The end products are a final report



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summarizing the effort that will be used in decision making and one or two equipment simulators that Caltrans can keep if desired.

WHAT IS THE BENEFIT?

It's anticipated that this research will lead to safer and more effective training, leading to safer maintenance operations. This research will also confirm whether heavy equipment simulators bring value and efficiency to the operator training programs. This will lead to reduced training costs and better/faster/safer outcomes in Maintenance operations as more staff are better trained to do their jobs correctly.

WHAT IS THE PROGRESS TO DATE?

In order to update the simulator equipment for better efficiency, AHMCT has reached out to local John Deere vendor Pape Machinery to ensure that the simulator computer hardware will allow the latest software updates until the end of the warranty period of 9/23/24.

A training simulator integration plan has been developed for new Caltrans operators. The first operator training class for new Caltrans operators was successfully conducted with 23 students at the META facility. The training sessions included exercises on excavator and motor grader simulators.

The research team has developed the transit and space requirement for installing 2 simulators in an existing 48-foot trailer truck in a traveling scenario.

Next Steps:

The research team will continue to update the training plan with trainer and trainee feedback. A training plan for advanced excavator and grader training is under development. The simulator layout in the trailer truck for transport will be finalized. The decision tool for traveling training scenarios and cost-benefit will be improved for Caltrans use.

IMAGES



JohnDeereSimulators.com

Image 1: JohnDeereSimulators.com



Image 2: Catsimulators.com

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