

**Modal****MAY 2026**

**Project Title:** Locomotive Driver, Train Conductor, and Supporting Railroad Workforce Fatigue and Drowsiness Study to Improve Passenger Rail Safety

**Task Number:** 4453

**Start Date:** April 1, 2024

**Completion Date:** March 31, 2027

**Task Manager:**

Bradley Mizuno  
Senior Transportation Electrical  
Engineer (Specialist)  
[Bradley.Y.Mizuno@dot.ca.gov](mailto:Bradley.Y.Mizuno@dot.ca.gov)

**DRISI Division Chief:**

Prakash Sah, PE  
[Prakash.Sah@dot.ca.gov](mailto:Prakash.Sah@dot.ca.gov)



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## Locomotive Driver, Train Conductor, and Supporting Railroad Workforce Fatigue and Drowsiness Study to Improve Passenger Rail Safety

This research is to investigate and propose mitigation measures to eventually eliminate railroad workforce fatigue.

### WHAT IS THE NEED?

Fatigue of the railroad workforce continues to be a significant safety concern for California passenger railroad agencies. There is a need to investigate, synthesize, and propose mitigation measures since much of the California railroad workforce comprises many safety-critical jobs. Unaddressed fatigue can increase the chances of near misses, strikes, and compromising passenger safety. This issue is particularly acute along the San Joaquin intercity passenger rail corridor, which spans from Oakland and Sacramento to Bakersfield. To provide safety for rail users and fulfill the Federal Railroad Administration's requirement to have a fatigue plan in place, research is needed on how to assess locomotive driver fatigue. This research should also support railroad agencies in their efforts to provide a meaningful way to quantify the problem and offer mitigation recommendations, including prevention measures. This project has been reviewed and supported by San Joaquin Regional Rail Commission leadership.

### WHAT ARE WE DOING?

The University of California, San Diego research team shall conduct a comprehensive study to identify and address the causes of workforce fatigue within California's passenger railroad operations, with a specific focus on the San Joaquin intercity passenger rail corridor. This effort includes collecting and analyzing data on factors contributing to fatigue through a focus group and a one-time survey of employees. The aim is to use the collected data to develop at least three actionable mitigation strategies targeted at the unique factors affecting

fatigue in the San Joaquin passenger rail corridor. By reducing incidents related to fatigue, meeting Federal Railroad Administration (FRA) requirements, and improving workforce well-being, the study aims to enhance the safety and efficiency of railroad operations. The study shall conclude with a comprehensive report containing findings and recommendations, to be delivered within 24 months by March 31, 2027.

## WHAT IS OUR GOAL?

The long-term objectives for achieving the stated goals of the project are structured around the following key areas:

1. **Collaboration and Stakeholder Engagement:** Collaborate closely with Caltrans, the San Joaquin Regional Rail Commission, and other relevant stakeholders throughout the study. Engage stakeholders through meetings, focus groups, and surveys to ensure comprehensive data collection, feedback incorporation, and strategy alignment with industry needs.
2. **Research and Analysis:** Conduct a thorough investigation into the causes of workforce fatigue within California's passenger railroad operations, focusing specifically on the San Joaquin intercity passenger rail corridor. This includes collecting and analyzing data on various contributing factors such as working hours, scheduling practices, commute times, breaks, sleep patterns, medical issues, and stress.
3. **Mitigation Strategy Development:** Develop at least three actionable mitigation strategies based on the findings from the research and review of existing programs at San Joaquin passenger rail. These strategies should address identified causes of fatigue and effectively aim to reduce incidents related to fatigue, improve workforce well-being, and meet regulatory requirements set by the Federal Railroad Administration.

4. **Reporting and Recommendations:** Deliver a comprehensive final report by March 31, 2027, containing detailed findings, data analysis, interpretations, and actionable recommendations for mitigating workforce fatigue. Present these findings and recommendations to railroad agencies and stakeholders through a structured presentation to facilitate informed decision-making and strategy adoption.

## WHAT IS THE BENEFIT?

The expected outcomes of the project on addressing workforce fatigue in California's passenger railroad operations are as follows:

- **Improved Safety and Quality of Life:** Increased awareness of fatigue among railroad workers aims to significantly enhance safety and quality of life for both workers and passengers. This proactive approach aims to prevent injuries and improve overall well-being, yielding a substantial return on the research investment.
- **Scalable Mitigation Strategies:** The development of effective mitigation strategies shall enable their implementation across the entire railroad network, including subcontractors responsible for maintenance. This standardized approach ensures consistent safety standards and operational efficiency system wide.
- **Support for Agencies and Contractors:** By providing comprehensive research findings and mitigation strategies, the project supports individual agencies and contractors who may lack resources to conduct such studies independently. This collaborative effort is expected to yield positive benefits throughout the broader railroad community.

Addressing workforce fatigue in California's passenger railroad operations can significantly advance safety, operational efficiency, and employee well-being. Through increased awareness and scalable mitigation strategies, the project

aims to foster a sustainable and safe environment for railroad workers and passengers alike, thereby delivering substantial returns on research investment while benefiting the entire railroad community.

## WHAT IS THE PROGRESS TO DATE?

The research team completed the following tasks.

- Task 6 – Summary Report of modification of fatigue survey and final question count was originally due on January 3, 2026, but Caltrans approved the delay to February 9, 2026.
- Task 7 – Report of the results from the testing of the survey submitted to Caltrans on February 28, 2026.
- Task 8 – Summary Report containing copies of emails or photos proving that the flyers were distributed on March 31, 2026.
- Task 9 – Copy of the e-mail stating the launch of the survey submitted to Caltrans on March 31, 2026.