

# DRISI

CALTRANS DIVISION OF RESEARCH,  
INNOVATION AND SYSTEM INFORMATION

# Research

# Notes

Maintenance

MAY 2024

Project Title:  
Improved Maintenance Methods  
For Bridge Drains And Expansion  
Joints

Task Number: 3704

Start Date: June 2020

Completion Date: March 31, 2023

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## Improved Maintenance Methods for Bridge Drains and Expansion Joints

This research will study select maintenance methods for bridge joints and deck drains to determine their suitability to Caltrans' maintenance operations.

### WHAT IS THE NEED?

Bridge deck joints and drains have specialized maintenance needs. They are subject to higher debris loads due to bridge barriers containing debris on the structure instead of the debris being able to move naturally off the road.

Maintenance efforts are more constrained because shoulders are frequently narrower than the adjacent roadway, and there is no access to the area outside the shoulder to work from or retreat to in an emergency event. Clogged drains and packed joints can lead to bridge damage and costly repairs. These problems and challenges have led California Department of Transportation (Caltrans) to seek improved maintenance methods for bridge joints and deck drains.

### WHAT ARE WE DOING?

Caltrans intends to review existing research and practices of other states, and consider existing commercial equipment and new concepts to identify better practices and equipment for adoption into Caltrans' operations.

### WHAT IS OUR GOAL?

The goal of this research is to identify and implement improved maintenance methods on the State's bridges to reduce damage from debris and increase the efficiency of maintenance operations.



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

## WHAT IS THE BENEFIT?

Benefits include less damage to bridge structures, a reduction in associated repair costs, and lower maintenance costs through less maintenance efforts. An additional benefit will be increased safety for maintenance workers due to less exposure to highway traffic.

## WHAT IS THE PROGRESS TO DATE?

Research has progressed well and District 11 staff and researchers have worked together to identify the challenges faced. In addition to regular communications, researchers met District 11 staff in the field to observe current maintenance methods and problems. District 11 staff also field tested a rented Ditch Witch vacuum trailer to determine its functionality. Lessons learned from the rental allowed researchers to identify a more appropriate Vermeer vacuum trailer, which was purchased through the research task and delivered to the district in February 2023.

The trailer unit is utilized in field operations. Regular communications from District 11 staff have provided valuable feedback, which is documented in the final report produced in April 2023.

This task has been completed and no further updates to the research notes are pending. For more information, please contact the task manager.

## IMAGE



Image 1: A bridge joint packed with incompressible debris.