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# Research Notes

# Evaluation of Alternative Flares for Traffic Management During Moving Lane Closures

Evaluating and recommending safer alternatives to incendiary and hazardous flares for use in the California Department of Transportation (Caltrans) moving lane closures operations.

**Maintenance**

**May 2026**

**Project Title:** Evaluation of Alternative Flares for Traffic Management During Moving Lane Closures

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## WHAT IS THE NEED?

In maintenance operations such as striping and sweeping freeways and multilane highways, flares are used in advance of moving lane closures to alert drivers of lane closures ahead. The use of flares has been shown to improve safety for the Caltrans workers involved in such operations as well as traveling public. Flares, however, have a potential fire risk when they are hit by a vehicle and roll to the roadside brush. In addition, the smoke from the flares can have environmental impacts. There is a need to evaluate the use of alternative traffic control strategies in moving lane closure operations.

## WHAT ARE WE DOING?

A comprehensive literature review will be conducted to evaluate Caltrans' and other Department of Transportations' (DOT) current practices, applicable standards, and international best practices for managing moving lane closures without incendiary flares.

The research will document product specifications, availability, costs, and vendor support, narrowing the list to a set of candidate alternatives for testing. Controlled experiments will be carried out to assess visibility, driver recognition distance, ease of deployment, and environmental performance.

Based on the results of the literature review and testing, prepare practical recommendations and develop a training program for Caltrans maintenance staff that includes deployment, retrieval, storage, and environmental considerations for flare alternatives. The research will conclude with a final report that consolidates all findings and provides Caltrans with an implementation guide for integrating these technologies into maintenance operations.

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## WHAT IS OUR GOAL?

This research will evaluate methodologies used by other state DOTs and other traffic control organizations for traffic management in moving lane closures as well as identifying alternative products or flare types.

## WHAT IS THE BENEFIT?

The benefits of this research are clear in terms of avoiding the risk of fire from incendiary flares as well as eliminating health risks to workers and any environmental impact resulting from the smoke.

## WHAT IS THE PROGRESS TO DATE?

The project panel held the kickoff meeting on May 6, 2026. The research team started working on a literature review report that identifies the state of the art, documents best practices, and highlights the most promising flare alternatives, including products and methods suitable for evaluation in Caltrans moving lane closure operations.

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