



## DIVISION OF RESEARCH, INNOVATION & SYSTEM INFORMATION

### Research Initial Scope of Work

**I. Task Title:**

Evaluation of Orange Pavement Markings for Work Zones

**II. Task ID:**

5019

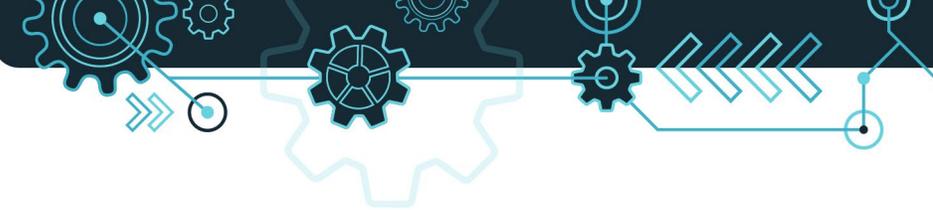
**III. Project Problem Statement:**

Fatal work zone crashes on Interstates and other major freeways continue to make up the largest work zone problem in California and Nationally. An application to provide better delineation through complex work zones is using orange pavement markings to help drivers stay in the intended lanes, especially when lane shifts are needed and the pavement surface is scarred from the removal of previous markings. With approval from FHWA, CalTrans started to evaluate orange pavement markings in D11. Other state DOTs have also been evaluating orange pavement markings in work zones. All research has indicated that drivers prefer the delineation from orange pavement markings, but FHWA still has some remaining questions before they are ready to provide an interim approval so that agencies such as CalTrans can implement this safety measure statewide. FHWA has approved the request for CalTrans to continue to experiment with orange markings. Caltrans will identify up to 6 sites where orange markings will be used on CalTrans facilities in 2027. These will be dependent on construction cycles during this period and availability within projects to utilize Orange Contrast Striping.

**IV. Objective:**

The research will be conducted in concert with the FHWA MUTCD team as well as CalTrans and the research team. The research will assess the retroreflectivity retention and color retention on the orange markings as well as the final pattern of orange markings so that they supplement (no substitute) the white and yellow markings.

February 2026



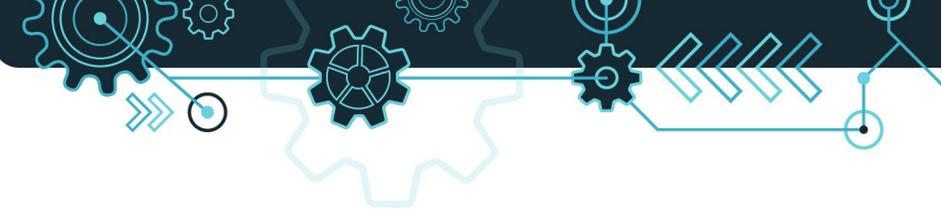
## V. Task Description of Work:

The product of this research is a report that describes how effective orange markings help driver maintain their lane positions and how the durable the orange markings from a retroreflectivity and color perspective. A successful research report will help FHWA provide interim approval so that CalTrans, and other agencies within the US, can use orange markings to improve work zone safety.

## VI. Expected Deliverables:

Research will proceed with the following steps: Task 1: Project management & in-person kick-off mtg. Task 2: Planning of field activities (Teams calls with local engineers and site visits). Task 3: Determine striping patterns for each site in coordination with FHWA. Task 4: Collect Initial Samples. Task 5: Assess Orange Color Stability over time. Task 6: Assess Retroreflectivity over time. Task 7: Provide a refreshed literature review of all previous orange applications in the US. Task 8: Review and Analyze data. Task 9: Develop final report and slide deck to present to CalTrans . Task 10: Draft a request for Interim Approval of Orange markings. Task 11: Champion the IA through the NCUCTD and FHWA .

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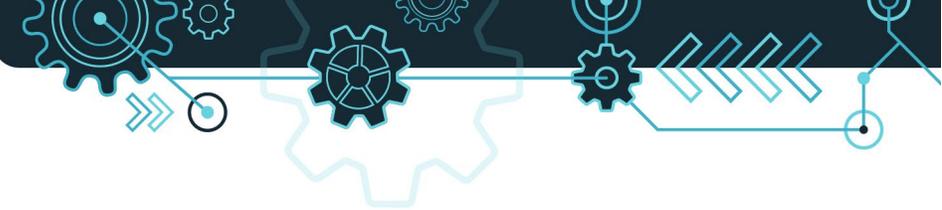


## VII. Background:

Highway workers working in construction zones are injured and killed every year by errant drivers. To improve construction work zone safety, Orange temporary pavement delineation has been used around the world as a method of increasing driver awareness in construction zones. European countries, Canada, and New Zealand have implemented this striping with positive results. Caltrans sees this research as an opportunity to improve safety along the state highway system for both drivers and workers.

## VIII. Related Research:

Task ID 3836: Orange Contrasted Temporary Pavement Delineation in Construction Zones



### IX. Deployment Potential:

CalTrans has been collaborating with the FHWA MUTCD Team to determine what will be needed from the research to help them develop an interim approval that will allow statewide implementation. FHWA can provide interim approvals without having to go through their rule-making process which will help speed up implementation. CalTrans is working with the NCUTCD Pavement Marking committee to help facilitate interim approvals.

### X. Estimate of Duration:

2 years

### XI. Estimated Cost:

\$600,000.00