

### **Section 82 Signs and Markers**

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### **Section 82 Signs and Markers**

#### **4-8201 General**

This section describes the work for providing and installing sign panels, roadside signs, sign overlays and markers; and work on existing roadside signs and markers at the locations shown on the plans or as directed by the resident engineer. Markers, except highway post markers, are used to mark obstructions within or adjacent to the roadbed, including paved shoulders.

#### **4-8202 Before Work Begins**

Before work begins, take the following steps:

- Verify that Form CEM-3101, "Notice of Materials to Be Used," includes markers, sign panels, roadside sign posts, and sign overlays. Retroreflective sheeting (including reflectors for markers), and fiberglass-reinforced plastic panel and markers listed on Form CEM-3101 must be on the Authorized Material List for signing and delineation materials. Refer to Section 6-202, "Responsibilities for Acceptance of Manufactured or Fabricated Materials and Products," of this manual for additional information.
- Review the contract for any requirements for materials furnished by Caltrans. Ensure furnished markers and sign materials have been ordered and will be ready for timely delivery. Inspect and inventory all Department-furnished materials to confirm they are delivered in good condition. After delivery, the contractor is responsible for any damage to Department-furnished materials.

#### **4-8202A Sign Panels**

Request a certificate of compliance for:

1. Aluminum sheeting.
2. Retroreflective sheeting.
3. Screened-process colors.
4. Nonreflective, opaque, black film.
5. Protective-overlay film.

Obtain and review as-built drawings for the structures requiring modified sign panels.

Inspect signs as they are delivered to the job site. Reject formed panel signs with holes that are slanted or incorrectly spaced. Reject damaged signs, defective signs, and signs with spelling errors.

#### **4-8202B Roadside Signs**

Review the plans and specifications to determine the types of signs to be installed and any special requirements included in the contract.

#### 4-8202C Markers

Review the marker list shown on the plans, and inform the contractor of any changes, preferably before material is ordered or information is stenciled on the markers. The *California Manual on Uniform Traffic Control Devices*, Chapter 3, provides design details for markers.

Request a certificate of compliance for:

1. Metal target plates.
2. Enamel coating.
3. Retroreflective sheeting.

Examine markers and retroreflective sheeting to ensure they meet specification. Verify that they match the materials shown on Form CEM-3101.

If post mile values are not shown on the plans, provide the contractor with a list of post mile values to be stenciled on highway post markers.

#### 4-8202D Existing Roadside Signs and Markers

Review Section 15 of the *Standard Specifications*.

Inspect existing roadside signs that are to be reset or relocated. If their condition has deteriorated sufficiently to prevent planned use, write a change order to provide for new materials. Inspect existing frames where new sign panels are to be installed.

Document existing conditions with photographs or video.

### **4-8203 During the Course of Work**

#### 4-8203A Sign Panels

Ensure through observation that sign panels and fastening hardware comply with specifications. Ensure that exposed portions of fastening hardware on the panel faces have been finished as specified.

Inspect sign panels for compliance with specified workmanship. Ensure sign panels are not chipped or bent.

Inspect signs after placement and notify the contractor to immediately replace sign panels exhibiting damage or flaws, including sheeting splices or a significant color difference between daytime and nighttime.

Ensure sign panels over lanes and lane arrows are correctly centered over the appropriate lanes.

#### 4-8203B Roadside Signs

Review the location of postholes to ensure that the signs have the correct horizontal clearance and will not be obstructed by other objects or protrude into pedestrian facilities. Verify holes are excavated to the full depth and backfilled as specified.

Ensure the minimum vertical clearances to the bottom of the sign panels are as required by the *Standard Plans*.

Verify that wood posts have breakaway saw cuts and holes.

If posts are cut or drilled in the field, ensure the contractor treats the exposed areas with a preservative.

Verify the contractor treats wood block spacers with a preservative.

Ensure signs are attached to the posts according to the specifications.

Contact the district Traffic Unit for assistance with field review of sign staking and day and night observation of completed signage. Document any assistance received and changes made in the daily report.

#### 4-8203C Markers

Inspect posts for damage during placement.

Ensure target plates and markers are installed after posts are set in place.

Verify letters and numerals on highway post markers are according to the specifications.

Inspect finished metal target plates for dents or defects. The maximum edge-to-edge surface deviation from a horizontal plane must not exceed 1/8 inch. Ensure all exposed areas are clean, and areas where the paint is damaged are spot painted.

#### 4-8203D Existing Roadside Signs and Markers

Ensure the contractor protects all existing facilities that are to remain in place, temporarily or permanently, whether described in the contract or not. When existing facilities are damaged as a result of the contractor's operations, the contractor is responsible for repair or replacement. Caltrans is responsible for repair or replacement of existing facilities that are damaged by public traffic.

Ensure existing signs are not removed until the replacement signs are installed or when the existing signs are no longer needed.

### **4-8204 Level of Inspection**

Suggested levels of inspection for signs and markers are:

- Benchmark inspection of damaged or defective sign panels and markers when delivered to the job site and after installation.
- Intermittent inspection of installation of sign panels, roadside signs, and markers.
- Intermittent inspection of sign and marker posts.

### **4-8205 Quality Control**

- Obtain the contractor's quality control plan for fabricating signs that details the materials and methods that the sign manufacturer will use to ensure the quality of

the work. Coordinate with METS for review of the quality control plan and the requirement for test samples.

**4-8206      Payment**

For details of measurement and payment, review contract specifications. Make any necessary measurements and counts.

Refer to Section 6-2.01E, "Material Source Inspection and Testing," of the *Standard Specifications*, for information about standard deductions taken for Caltrans doing inspection or testing at material sources.