

FLAGGING INSTRUCTION HANDBOOK



October 2014

This instruction handbook is for informational purposes only.

NOTE:

These guidelines are for flagging operations.

In this manual, the term **“traffic”** means vehicles, pedestrians, bicyclists, and other users of the roads.



**California Department of Transportation
Division of Construction**

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FLAGGER BASICS

Flagger Training Requirements

Section 1599, “Flaggers,” of the Construction Safety Orders (California Code of Regulations [CCR] Title 8, Subchapter 4) requires that flaggers be trained in the fundamentals of flagging moving traffic before being assigned as flaggers. The training requirements for flaggers are included in the *California Manual on Uniform Traffic Control Devices*, Chapter 6.

Training must be provided by a person with the qualifications and the experience necessary to effectively instruct the employee and must be documented as required by Section 3203, “Injury and Illness Prevention Program,” of the General Industry Safety Orders (8 CCR Subchapter 7).

Flagger Abilities

Flaggers are responsible for public safety and for temporary traffic control. Because flaggers have frequent contact with traffic, they should demonstrate the following abilities:

- Receive and communicate specific instructions clearly, firmly, and courteously.
- Move and maneuver quickly to avoid danger from errant vehicles.
- Control signaling devices (such as paddles and flags) to provide clear and positive guidance to drivers approaching a temporary traffic control zone in frequently changing situations.

- Demonstrate proper flagging methodology and operations.
- Demonstrate the proper use of the STOP/SLOW paddle and hand signals before being assigned as a flagger.
- Understand the layout of the work zone and flagging station.
- Understand and apply safe traffic control practices, sometimes in stressful or emergency situations.
- Hear, see, and recognize dangerous traffic situations and warn workers in sufficient time to avoid injury.

FLAGGER STATIONS

Location

Flagger stations must be located such that the traveling public has sufficient distance to stop at an intended stopping point before entering the work space. Flagger stations should be preceded by advance warning signs. Except in emergency situations, flagger stations must be illuminated during hours of darkness with a minimum 20-foot-diameter illumination footprint (at 10-foot candles per CSO 1523) so the flagger is clearly visible to approaching traffic.

Location and visibility are important factors in flagging operations. Observe the following:

- Place flagger stations at points of maximum visibility, preferably at the end of tangent sections.
- Flagger stations should be on the shoulder and opposite to the active work area.
- Ensure that flaggers are easily identified by traffic and not confused with other workers in the area.

- Cover completely, turn or remove C9A (CA) flagger symbol and W3-4 “BE PREPARED TO STOP” signs when flaggers are no longer needed.
- Park all vehicles away from the flagger station.

The chart below shows the distance of flagger stations in advance of work spaces.

**Distance of Flagger Station
in Advance of the Work Space**
(2010 Revised Standard Plan T 9)

TABLE 2

**LONGITUDINAL BUFFER SPACE AND
FLAGGER STATION SPACING**

SPEED*	Min D**	DOWNGRADE Min D ***		
		-3%	-6%	-9%
mph	ft	ft	ft	ft
20	115	116	120	126
25	155	158	165	173
30	200	205	215	227
35	250	257	271	287
40	305	315	333	354
45	360	378	400	427
50	425	446	474	507
55	495	520	553	593
60	570	598	638	686
65	645	682	728	785
70	730	771	825	891
75	820	866	927	1003

* Speed is posted speed limit, off peak 85th percentile speed prior to work starting, or the anticipated operating speed in mph.

** Longitudinal buffer space or flagger station spacing.

*** Use on sustained downgrade steeper than 3 percent and longer than 1 mile.

Rumble Strips

Standard Special Provision 12-3.19 “Portable Transverse Rumble Strips,” requires the use of portable transverse rumble strips in conjunction with flagging operations on two-lane conventional highways.

Portable transverse rumble strips may be used to alert road users of upcoming traffic controls, speed reductions, changes in roadway alignment, or conditions requiring a complete stop.

The contractor must develop a plan on how to place the transverse rumble strips as part of the traffic control operations. Placement must be in accordance with Revised Standard Plan (RSP) T13 and as follows:

- Must be used only on tangent sections of roadway.
- Must not be placed through pedestrian crossings or through bike lanes.
- Must be re-adjusted if they shift or become out of alignment more than 6 inches.

Portable transverse rumble strips are not required if any one of the following conditions is met:

- Work duration is 4 hours or less.
- Posted speed limit is less than 45 mph.
- Work is of emergency nature.
- Work zone is in snow or icy weather conditions.

Flagger Operations

The flagger should stand either on the shoulder adjacent to the traffic being controlled or in the closed lane before stopping vehicle traffic. A flagger should only stand in the lane being used by moving traffic after traffic has stopped. The flagger should be stationed sufficiently in advance of workers to warn them (for example, with audible warning devices such as horns, whistles, etc.) of approaching danger by out-of-control vehicles.

The flagger should be clearly visible to all traffic at all times, and should observe the following:

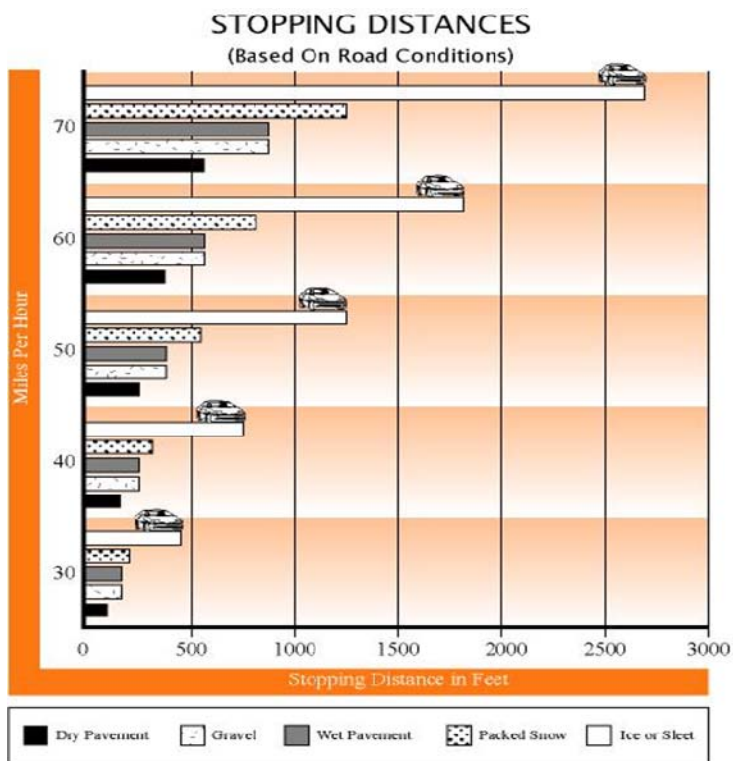
- Stand alone next to the active work area. Do not allow other workers to congregate around the flagger station.
- Stay out of areas that are in shadows; do not blend with the background.
- Place personal items out of the way, so they will not distract approaching traffic or block your escape route.
- Keep the flagger station clean and organized, eliminating distractions like chairs, books, or personal radios.
- Do not lean, sit, or lie on a vehicle.

At a spot construction, the flagger may have to take a position on the shoulder opposite the closed section in order to operate effectively.

Road conditions affect stopping distance.

Stopping distances vary according to road and weather conditions. On an icy road, for example, a vehicle may travel four times the distance it would require to stop on dry pavement.

The following chart compares stopping distances for a variety of road conditions. It may be used to determine the visibility distance for traffic approaching the flagger.



At spot lane closures where adequate sight distance is available for the safe handling of traffic, one flagger may be sufficient.

FLAGGING EQUIPMENT

High-Visibility Safety Apparel

Flaggers must wear ANSI/ISEA 107-2004 or equivalent revision Class 3 apparel with a background (outer) material color that is either fluorescent orange-red or fluorescent yellow-green, as defined in the standard. The retroreflective material must be orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors and must be visible at a minimum distance of 1000 feet.



The retroreflective clothing, or the retroreflective material added to the clothing, must be designed to clearly identify the wearer as a person and must have a minimum of one horizontal stripe around the torso. High-visibility clothing must be kept clean and in good repair or replaced.

Flaggers must wear safety glasses and a white hardhat.

When uniformed law enforcement officers are used, they should wear high-visibility clothing as described above or ANSI/ISEA 207-2006 or equivalent revision.

Hand-Signaling Devices

Hand-signaling devices, such as STOP/SLOW paddles, lights, and red flags, are used to control the vehicles through temporary traffic control zones, and must be visible to the first approaching vehicle at all times.

STOP/SLOW Paddle



The STOP/SLOW paddle is the primary and preferred hand-signaling device. The STOP/SLOW paddle must have an octagonal shape on a rigid handle. STOP/SLOW paddles must be at least 18 inches wide with letters at least 6 inches high and should be fabricated from light, semi-rigid material. The background of the

STOP face must be red or fluorescent red with white letters and border. The background of the SLOW face must be orange or fluorescent orange with black letters and border. When used at night, the STOP/SLOW paddle must be retroreflectorized.

The STOP/SLOW paddle may be modified to improve visibility by incorporating red flashing lights on the STOP face, and yellow flashing lights on the SLOW face. Two lights may be installed and centered

vertically above and below the STOP/SLOW legend, or centered horizontally on each side of the STOP/SLOW legend. Instead of the above two-light arrangements, one light may be centered below the STOP/SLOW legend.



The STOP/SLOW paddle must be used with a rigid staff tall enough that when the end of the staff is resting on the ground, the bottom of the STOP/SLOW paddle is a minimum of 6 feet above the pavement. A 24 x 24-inch STOP/SLOW paddle may be used where greater emphasis is needed and speeds are 30 mph or more.

Flags

Flags must only be used in emergency situations and only until a STOP/SLOW paddle is available.



Flags must be a minimum 24 inches square, made of a good grade red material, and securely fastened to a staff that is approximately 36 inches long. The free edge of a flag should be weighted so the flag will hang vertically, even in heavy heavy winds. Flags must be retroreflectorized when used at nighttime.



Advance Warning Signs

Each advance warning sign in each direction of travel must be equipped with at least two flags for daytime closures. Each flag must be at least 16 inches square and must be orange or fluorescent red-orange. Flashing beacons must be placed at the locations indicated for lane closures during hours of darkness.

Additional Equipment

Additional flagger equipment includes: advance warning signs; channelizing devices, such as cones; a method of communication, such as 2-way radios and other auditory warning devices as needed; drinking water; and protective clothing in case of a change in weather.

FLAGGER PROCEDURES

Using the STOP/SLOW Paddle

The STOP/SLOW paddle is the primary and preferred hand-signaling device because it gives the public more positive guidance than red flags. Use of hand signaling with red flags is limited to emergency situations.

Each signal with the STOP/SLOW paddle is made up of three parts: the message shown on the paddle, the flagger's gesture with the free hand, and the position taken by the flagger.

Objective

- To tell the driver what actions to take.
- To be understood by the driver.
- To take the guesswork out of the communication by using standard hand and paddle signals.

Procedure

- When a flagger is used only to slow traffic, use the SLOW side of the paddle, and the word STOP should be covered.
- The STOP/SLOW paddle must always be held by the flagger, never placed in a traffic cone or on a barricade and never used from inside a vehicle.

The following methods of signaling with STOP/SLOW paddles must be used.

To stop traffic . . .

To stop traffic, face traffic and aim the STOP paddle face toward traffic in a stationary position with the arm extended horizontally away from the body. Hold the free arm with the palm of the hand above shoulder level toward approaching traffic.



To let traffic proceed . . .

To direct traffic to proceed after stopping, face traffic with the SLOW paddle face aimed toward traffic in a stationary position with the arm extended horizontally away from the body. Motion with the free hand for traffic to proceed, moving arm in a sweeping gesture, and ending by pointing to the lane traffic is to use.



To alert and slow traffic . . .

To alert and slow traffic, face traffic with the SLOW paddle face aimed toward traffic in a stationary position with the arm extended horizontally away from the body. To further alert or slow traffic, holding the SLOW paddle face toward traffic, with the free arm outstretched and palm down, move arm up and down in a pumping motion.



Using Flags

Flags Must Be Limited to an Emergency

The following methods of signaling with a flag must be used:

To stop traffic, face traffic and extend the flag staff horizontally across the traffic lane in a stationary position so that the full area of the flag is visibly hanging below the staff. Hold the free arm with the palm of the hand above the shoulder level toward approaching traffic.

To direct stopped traffic to proceed, stand parallel to the traffic movement and with the flag and arm lowered from the view of the traffic, motion with the free hand for traffic to proceed. Flags **must not** be used to signal traffic to proceed.

To alert or slow traffic, face traffic and slowly wave the flag in a sweeping motion of the extended arm from shoulder level to straight down without raising the arm above a horizontal position. Keep the free hand down.

One-Lane, Two-Way Traffic Control

One-way traffic control can be handled by a single flagger at each end of the work zone. A pilot or official car is used with flaggers for lengthy work zones.

Single Flagger

- Stationed on the shoulder opposite the work zone, or in a position where good visibility and traffic control can be maintained at all times.
- When a one-lane, two-way temporary traffic control zone is short enough to allow a flagger to see from one end of the zone to the other.
- When traffic is normally light to avoid the possibility of opposing traffic arriving at the traffic control zone at the same time.

Two Flaggers

- One should be designated as the flagging coordinator.
- Should be able to communicate with each other orally, electronically, or with manual signals that cannot be mistaken for flagging signals.

Pilot Car

- All traffic waits for the pilot car.
- Guides a line of vehicles through the temporary traffic control zone or detour.
- Two or more pilot cars may be used to guide two-way traffic through a particularly complex detour.
- Contractor or contracting authority's name should be prominently displayed.

- The PILOT CAR FOLLOW ME (G20-4) or PILOT CAR DO NOT PASS (SC23 - CA) sign must be prominently mounted on the rear of the vehicle.

Official Car

- Always follows the last public vehicle proceeding through the section.
- May also be used to guide hauling trucks out of the closure and into live traffic.

Urgent Situations

Flaggers must know how to handle emergency flagging operations, traffic control violations, accidents in traffic control zones, and hostile individuals.

Dealing with Emergency Vehicles

- When informed in advance of an approaching emergency vehicle, clear an unimpeded path for the emergency vehicle by stopping traffic from all directions.
- When no advance notice is given, first stop the emergency vehicle and then stop all traffic, including construction equipment, to provide a clear path for the emergency vehicle to pass.
- When the type of work, such as blasting or excavation, makes the roadway impassable, advance arrangements should be made with the local police agency that has jurisdiction over the roadway.

Traffic Control Violations

- Warn construction workers, either visually or with an audible warning device, when a driver has run the flagger station.
- Stop all vehicles entering the work area, but do not put yourself in an unsafe situation.
- Be prepared for these possibilities.
- Plan your escape route in an emergency.

Traffic Accidents

- Notify your supervisor and call for help.
- If accidents happen in the line of waiting traffic, stay at your station and continue to control traffic until you receive instructions from your supervisor or a police officer.
- If an accident happens within the controlled area, hold approaching traffic and follow instructions from your supervisor, the flagging coordinator, or from a police officer.
- Flaggers must communicate with each other before releasing or stopping traffic.

Dealing with Hostile Individuals

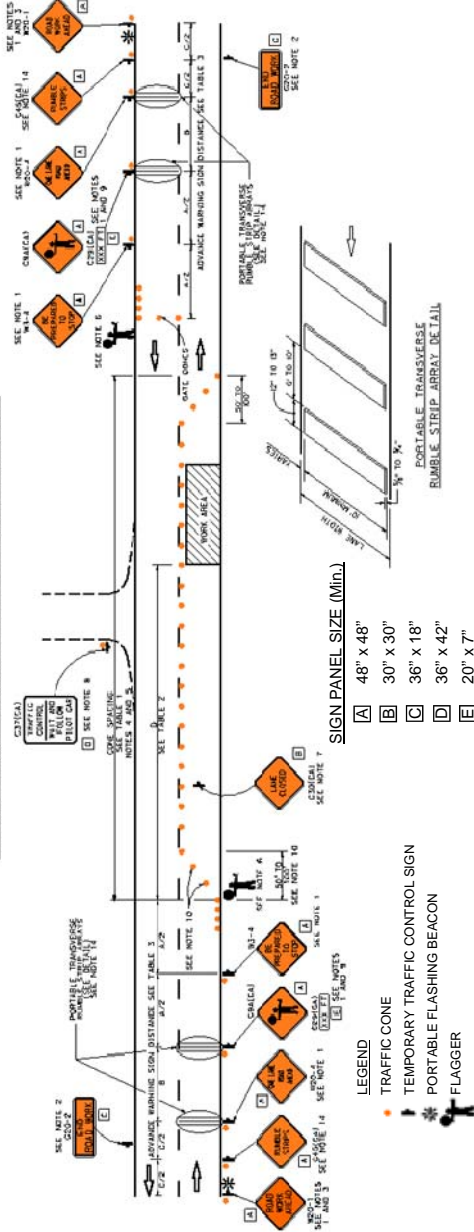
- Be courteous and professional.
- Do not argue with motorists or pedestrians.
- If a motorist fails to follow your instructions and threatens the safety of the work area, note the vehicle license number, description of vehicle, and driver.
- Report the information to your supervisor for the purpose of filing a police report.

2010 REVISED STANDARD PLAN RSP T13

NOTES:

See Revised Standard Plan RSP T9 for tables.
 Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.
 Unless otherwise specified in the special provisions, all temporary warning signs shall have black legend on fluorescent orange background. California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

TYPICAL LANE CLOSURE WITH REVERSIBLE CONTROL



NOTES:

1. Each advance warning sign in each direction of travel shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
2. A G20-2 "END ROAD WORK" sign, as appropriate, shall be placed at the end of the lane control unless the end of work area is obvious, or ends within a larger project's limits.
3. If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT — MILES," use a W20-4 sign for the first advance warning sign.
4. All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
5. Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
6. Additional advance flaggers may be required. Flagger should stand in a conspicuous place, be visible to approaching traffic as well as approaching vehicles after the first vehicle has stopped. During the hours of darkness, the flagging-station and flagger shall be illuminated and clearly visible to approaching traffic. The illumination footprint of the lighting on the ground shall be at least 20' in diameter. Place a minimum of four cones at 50' intervals in advance of flagger station as shown.
7. Place C30(CA) "LANE CLOSED" sign at 500' to 1000' intervals throughout extended work areas. They are optional if the work area is visible from the flagger station.
8. When a pilot car is used, place a C37(CA) "TRAFFIC CONTROL - WAIT AND FOLLOW PILOT CAR" sign with black legend on white background at all intersections, driveways and alleys without a flagger within traffic control area. Signs shall be clean and visible at all times. Where traffic cannot be effectively self-regulated, at least one flagger shall be used at each intersection within traffic control area.

10. Either traffic cones or barricades shall be placed on the taper. Barricades shall be Type I, II, or III. The color of the portable transverse rumble strips shall be black or orange. Use 2 arrays, each array shall consist of 3 rumble strips.
11. Portable transverse rumble strips shall not be placed on sharp horizontal or vertical curves nor shall they be placed through pedestrian crossings. If the portable transverse rumble strips become out of alignment (skewed) by more than 6 inches, measured from one end to the other, they shall be readjusted to bring the placement back to the original location.
12. Portable transverse rumble strips are not required if any of the following conditions is satisfied:
 - A. Work duration occupies a location for four hours or less.
 - B. Posted speed limit is below 45 MPH.
 - C. Work is of emergency nature.
 - D. Work zone is in snow or icy weather conditions.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL SYSTEM
FOR LANE CLOSURE ON
TWO LANE CONVENTIONAL
HIGHWAYS
NO SCALE**

RSP T13 DATED OCTOBER 17, 2014 SUPERSEDES RSP T13
DATED JULY 18, 2014 AND RSP T13 DATED APRIL 19, 2013
AND STANDARD PLAN T13 DATED MAY 20, 2011 – PAGE 241 OF
THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP T13

