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Bracketed section numbers refer to the 2006 *Standard Specifications*.

Section 12 Temporary Traffic Control

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4-1201 General

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This section provides guidelines for inspecting temporary traffic-handling equipment and devices in construction areas. Section 2-2, “Traffic,” of this manual provides guidelines and a general overview of providing a safe and convenient passage of public traffic through the construction area and is complementary to this section. Engineers who administer the provisions in Section 12, “Temporary Traffic Control,” of the *Standard Specifications* must be familiar with both Section 2-2 and this section of the manual.

Engineers administering traffic control must also be familiar with the current *California Manual on Uniform Traffic Control Devices (California MUTCD)*. If a discrepancy occurs between the contract plans and specifications and the *California MUTCD*, the plans and specifications govern.

Temporary traffic control devices are divided into categories:

- Category 1 devices include traffic cones, plastic traffic drums, portable delineators, and channelizers.
- Category 2 devices include barricades and portable sign supports.
- Category 3 devices include crash cushions, impact attenuator vehicles, temporary railing, temporary barrier, and end treatments for temporary railings and barriers.

4-1202 Before Work Begins

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Take the following general steps before work begins:

- To obtain a thorough understanding of the project’s traffic control needs and requirements, review the plans; special provisions; *Standard Specifications*; *Standard Plans*; and Part 6, “Temporary Traffic Control,” of the *California MUTCD*.
- Determine what signs must be placed before work begins for the entire project and before work begins for each stage of the project.
- Determine the methods and equipment the contractor will use for closing lanes, ramps, and roadways, and for flagging and controlling one-way traffic.
- Note the various traffic control devices specified to be used. Some of these devices will require certificates of compliance. Signage and delineation materials listed in the special provisions must be listed on the Caltrans authorized materials list for signing and delineation materials and must be covered by certificates of compliance. The resident engineer may accept another product as long as the district traffic engineer has approved it through written confirmation.
- Obtain self-certification for crashworthiness of Category 1 temporary traffic control devices.

- Request a list of Category 2 temporary traffic control devices to be used on the project.
- Visually inspect all traffic control devices to ensure conformity with the specifications. If you approve the devices for use, record the approval in the daily reports.

4-1202A Flaggers

Discuss any flagging operation with the contractor before the operation begins. Ensure flaggers will wear the appropriate flagging apparel and are trained in accordance with the *California MUTCD* and the *Construction Safety Orders*. Review with the contractor how flaggers will communicate with each other, with pilot cars, and with workers inside the controlled area. The contractor should develop a plan for handling emergencies and emergency vehicles in the control zone.

4-1202B Barricades

Verify barricade construction complies with Section 12-3.02, “Barricades,” of the *Standard Specifications* and with Sheet A-73C of the *Standard Plans*. Reflective sheeting requires a certificate of compliance and must be listed on the Caltrans authorized materials list for signing and delineation materials. The resident engineer may accept another product as long as the district traffic engineer has approved it through written confirmation.

Request proof that any Type III barricade used as sign support has been crash tested to *NCHRP Report 350* criteria as a single unit with a sign panel of the size and type used on the project.

4-1202C Flashing Arrow Signs

Verify Type I and Type II flashing arrow signs comply with Section 12-3.03, “Flashing Arrow Signs,” of the *Standard Specifications*.

4-1202D Portable Delineators

Before initial placement, verify that the type the contractor proposes conforms to requirements in Section 12-3.04, “Portable Delineators,” of the *Standard Specifications*. Obtain a sample of the type of delineator to be used on the project. Verify the base is shaped to prevent rolling after impact. Portable delineators require a certificate of compliance and must be listed on the Caltrans authorized materials list for signing and delineation materials. The resident engineer may accept another product as long as the district traffic engineer has approved it through written confirmation.

4-1202E Portable Flashing Beacons

Verify portable flashing beacons conform to requirements in the special provisions.

4-1202F Construction Area Signs

At the preconstruction conference, remind the contractor of the following:

- The contractor must maintain an inventory of commonly required items at the job site and arrange for sign panels, posts, and mounting hardware or portable sign mounts to be furnished on short notice.
- The special provisions list requirements for signage materials. Substrate and reflective sheeting for construction area signs require a certificate of compliance and must be listed on the Caltrans authorized materials list for signing and

delineation materials. The engineer may accept another product as long as the district traffic engineer has approved it through written confirmation.

- Before digging to install signposts, regional notification centers must be notified. Hand digging is required unless the location is free of underground utilities.

4-1202G Channelizers

For requirements for channelizers, review the plans, special provisions, and Section 12-3.07, “Channelizers,” of the *Standard Specifications*. Channelizers require a certificate of compliance and must be listed on the Caltrans authorized materials list for signing and delineation materials. The engineer may accept another product as long as the district traffic engineer has approved it through written confirmation.

4-1202H Type K Temporary Railing

Determine if Type K temporary railing is to be cast on the project. For Type K temporary railing cast off the project, a certificate of compliance is required.

Determine if Type K temporary railing is to be placed within 10 feet of a traffic lane. The contractor must provide reflectors and adhesive, as noted in Section 12-3.08, “Type K Temporary Railing,” of the *Standard Specifications*.

Review Standard Plan T3B for new staking requirements.

Freshly painted Type K temporary railing is required only before its first use on the project unless the special provisions require otherwise.

Reflectors for Type K temporary railing require a certificate of compliance and must be listed on the Caltrans authorized materials list for signing and delineation materials. The resident engineer may accept another product as long as the district traffic engineer has approved it through written confirmation.

4-1202I Traffic Cones

Verify traffic cones comply with Section 12-3.10, “Traffic Cones,” of the *Standard Specifications*. If the contractor plans to use cones for night work, determine the type of cone proposed. Removable reflective sleeves must be removed during daylight. Allow use of only one type of retroreflective cone. All cones must use the same type and brand of retroreflective sheeting. Reflective sleeves require a certificate of compliance and must be listed on the Caltrans authorized materials list for signing and delineation materials. The resident engineer may accept another product as long as the district traffic engineer has approved it through written confirmation.

4-1202J Traffic Plastic Drums

Before initial placement, verify the type that the contractor proposes complies with Section 12-3.11, “Plastic Traffic Drums,” of the *Standard Specifications*. Allow use of only one type of drum. All drums must use the same type and brand of retroreflective sheeting. Reflective sheeting used on traffic plastic drums requires a certificate of compliance and must be listed on the Caltrans authorized materials list for signing and delineation materials. The resident engineer may accept another product as long as the district traffic engineer has approved it through written confirmation.

4-1202K Portable Changeable Message Signs

Before the first deployment of portable changeable message signs (PCMS), arrange with the contractor to have them inspected. Perform field tests to verify compliance

with Section 12-3.12, “Portable Changeable Message Signs,” of the *Standard Specifications*. Conduct these inspections and tests in conditions similar to those in which they will be used on the project, specifically during the night or during the day.

Verify that the sign is visible and legible according to the requirements.

Verify that the trailer can be leveled and that the sign operates within the required minimum and maximum heights.

4-1202L Impact Attenuator Vehicle

Review the special provisions for the impact attenuator vehicle (IAV) requirements. Verify that the weight of the attenuator and the weight of the support truck are within the specified limits. Refer to the Caltrans authorized material list for highway safety features.

4-1202M Temporary Traffic Screen

For requirements for temporary traffic screen, review the special provisions and Sheet T4 of the *Standard Plans*.

4-1202N Temporary Crash Cushion Module

Review the project plans and *Standard Plans* sheets T1A, T1B, and T2. Frequently the plans for stage construction, detour, or traffic handling will require arrays of temporary crash cushion modules. Changes to any of these plans may alter the need for temporary crash cushion modules.

If installing Type K temporary railing creates a blunt-end exposure within 15 feet of the edge of the traveled way, temporary crash cushions are required at that location. If the blunt end is within 8 feet, appropriate approved crash cushion protection, other than sand filled modules, must be provided.

The *Standard Plans* show temporary crash cushions installed on wooden pallets, but the use of pallets is optional. The maximum acceptable pallet height is 4-1/2 inches. Pallets that exceed this height raise the sand in the crash cushions above an acceptable level. Do not use typical commercial pallets that exceed the allowed height.

Visually inspect crash cushion modules to ensure they conform to the requirements in Section 12-3.15, “Temporary Crash Cushion Module,” of the *Standard Specifications*.

4-1202O Temporary Signal System

As early as possible, verify that all Department-furnished equipment is available at the location specified in the special provisions. If the equipment is not available, make other arrangements as soon as possible.

Verify that the actual visibility in the field meets the expected visibility. If sight distance is not adequate, contact the district traffic engineer for suggestions or recommendations.

Remote area signal installations are often located in forests or grasslands. Ensure all fire safety requirements are in place and operative before using the system. Checking fire safety requirements will often involve working with personnel from the local U.S. Forest Service, Bureau of Land Management, or California Department of Forestry.

4-1202P Maintaining Traffic

- Before work begins, carefully review the plans, specifications, closure charts, and sheets T10 through T17 of the *Standard Plans*. It is important to know in advance what personnel, signage, and equipment will be required to implement the traffic control system. Ensure that the contractor has all components on hand and that all components meet specifications requirements before they set up any traffic control system.

Ensure the contractor notifies and cooperates with local authorities wherever the local authorities regulate traffic.

Frequently a project is one of many in the same vicinity or in the same transportation corridor. In such instances, require that the various contractors coordinate their efforts by submitting their schedules for lane closures in advance and resolving schedule conflicts before any closures are implemented. Review these requirements with the contractors before work starts. Remove or cover any construction area signs that duplicate or contradict the signs for a project within 250 feet of another project. Refer to Section 5-1.20 “Coordination with Other Entities,” of the *Standard Specifications*, if applicable, and the special provisions.

- In the contractor’s or subcontractor’s yard, if possible before the first use, inspect the signs and equipment the contractor proposes to use. Verify that all the necessary signs, cones, drums, and other equipment are on hand before setting up the system for the first time. If the proposed materials have already been used, check them for acceptability. Replace any unacceptable equipment. It is much easier to correct deficiencies before the system is installed.
- If the contractor is to place the traffic control system repeatedly in the same place, mark on the shoulder or pavement the locations of advance signs, cones, and drums. This will speed the placing of lane closures and ensure better taper alignment.

4-1203 During the Course of Work

Inspect Category 2 temporary traffic control devices to ensure they are labeled with the FHWA acceptance letter number and the name of the manufacturer.

Ensure Category 3 temporary traffic control devices are the type shown on the authorized material list for highway safety features.

Verify that traffic handling devices meet the visibility and legibility requirements.

Contractors should maintain all traffic control devices in good working order throughout the project’s life. During operations requiring traffic control systems, engineers should ensure that all traffic control devices are correctly located and functioning properly.

The condition of temporary traffic control devices must conform to the current American Traffic Safety Services Association (ATSSA) publication, *Quality Guidelines for Temporary Traffic Control Devices and Features*, which is available at:

<http://www.atssa.com/OnlineStore.aspx>,

Click on the “search for products” button and type “quality guidelines” in the “product name” input box.

4-1203 During the Course of Work

Do not allow the contractor to intermix different types of temporary traffic control devices on the same alignment. Types include plastic drums, portable delineators, channelizers, tubular markers, traffic cones, and Type I and Type II barricades.

Ensure the contractor removes traffic-handling equipment and devices from the job site when they are no longer needed for controlling traffic.

4-1203A Flagging

Observe the flagging operation to ensure that the flaggers are using correct procedures for directing motorists. Also, ensure that flagging stations are laid out correctly, are visible to approaching traffic, are illuminated during night time, and have correct advance warning signs. The contractor's flaggers must be properly trained and equipped and must perform their duties in accordance with Title 8, California Code of Regulations, Section 1599, and the *California MUTCD*. When pilot vehicles are used, radios are required.

4-1203B Barricades

Ensure the contractor maintains barricades in a good state of repair and keeps the reflective surfaces clean. If weighting is necessary, allow the contractor to use only bags of dry sand. Weights must be placed on the feet or lower parts of the frame or stays. Do not allow the contractor to place objects any higher, or use hard objects such as concrete or rocks for weights; this may lead to injury or property damage should a vehicle hit the barricades.

Ensure the contractor places barricades so that the stripes slope downward in the direction road users are to pass.

4-1203C Flashing Arrow Signs

See that the proper types of flashing arrow signs are used as shown in the plans or as described in the special provisions.

Observe the equipment in operation and do the following:

- Verify the flashing arrow sign trailer can be leveled and plumbed.
- Ensure the lights are dimmed at night and set on bright during daylight hours.
- Verify the lights are not glaring into approaching traffic, especially truck traffic.
- Ensure compliance with the minimum legibility distances.
- Ensure the signs are properly aimed at approaching traffic. Pay special attention to the aiming of the sign whenever solar-powered signs are used. The special bulbs used with solar signs have much narrower beams than conventional bulbs and, therefore, require greater care while being aimed.

4-1203D Portable Delineators

Require the contractor to immediately replace or restore portable delineators to their original location in an upright position when displaced or knocked down. Ensure the use of only one type of portable delineator on the project.

4-1203E Portable Flashing Beacons

Verify the proper operation and location of these beacons.

4-1203F Construction Area Signs

Ensure that the contractor promptly installs, relocates, covers, and removes signs as the contract requires. Construction signs should be covered or removed whenever they no longer serve a purpose. Verify that covers placed on sign panels completely block out any messages so that the messages cannot be seen day or night. The covers should also present a workmanlike appearance.

Allow only the use of sandbags when it is necessary to weight sign standards to prevent the wind from overturning them. Do not permit rocks, broken concrete, or other hard objects to be used for this purpose.

Review construction area signs often during the course of the work. Require that signs be maintained as provided for in the contract. Signs should be clean, clearly visible, and repaired immediately if damaged.

Ensure construction area signs do not block bicycle and pedestrian pathways.

Do not allow the use of nonretroreflective portable signs during hours of darkness.

Check sign posts to ensure compliance with breakaway features.

4-1203G Channelizers

Check the contractor's layout work. Determine that the pavement is clean and dry and that the contractor places the channelizers in conditions that meet the required temperatures. If channelizers are displaced or fail to remain in an upright position, they are to be replaced at the contractor's expense.

Do not allow the contractor to use the double-stick butyl pads provided by the channelizer manufacturer; these pads do not meet Caltrans requirements.

4-1203H Type K Temporary Railing

Verify all new and used rail elements comply with requirements for end connection and surface finish. Order repainting when needed. Refer to ATSSA publication, *Quality Guidelines for Temporary Traffic Control Devices and Features*.

Ensure railing is placed on a firm, stable foundation uniformly graded throughout the entire length of the railing.

Check railing alignment for any substantial offset to each other.

Verify staking of railing according to the *Standard Plans*.

Ensure the contractor offsets the approach end of Type K temporary railing a minimum of 15 feet from the edge of an open traffic lane, according to Section 7-1.04 "Public Safety," of the *Standard Specifications*.

Verify installation and maintenance of Type P marker panel at each end of railing, according to the *Standard Specification* requirements.

Ensure the contractor installs a reflector on each rail unit placed within 10 feet of a traffic lane.

4-1203I Traffic Cones

Prohibit the use of traffic cones that have been damaged or coated with asphalt or other substances to the extent the cones have lost their ability to function as intended. Refer to ATSSA publication, *Quality Guidelines for Temporary Traffic Control Devices and Features*.

4-1203J Traffic Plastic Drums

Check the contractor's layout work. Require the proper maintenance of traffic plastic drums. Require that water or sand ballast for the drums is placed in the base only. Sandbags are not allowed for ballast.

4-1203K Portable Changeable Message Signs

Make a drive-through inspection while the signs are in operation. A portable changeable message sign needs to be located where it provides the approaching motorist with at least the minimum visibility and legibility distances required by specification. Pay special attention to locations where vertical or horizontal curvature restricts the sight distance. Drivers must be able to read the entire message at least two times before passing the sign.

PCMSs are to display only pre-approved messages. The resident engineer must ensure that the messages conform to the changeable message sign guidelines, and district and Caltrans policy. Prohibit messages that do not convey real-time information to the motorist. Examples of unacceptable messages include "Drive carefully," "Have a Nice Day," and "Thank you."

PCMSs, like any other pieces of equipment, are subject to the "Public Safety" clauses of the contract. When they actively display a message, PCMSs are working equipment. At all other times, they are parked or nonworking. Ensure the contractor delineates PCMSs with a taper consisting of nine traffic cones. Protect or remove non-operating signs within 15 feet of traffic to comply with the requirements of Section 7-1.04 "Public Safety" of the *Standard Specifications*. In many cases, placing a PCMS behind existing guard railing will protect it. In cases when it is not practicable to remove non-operating PCMSs, consult the district traffic engineer. The district traffic engineer may permit the PCMSs to be protected with an array of crash cushions in lieu of the Type K temporary railing required by the "Public Safety" specification.

Unless the contract states otherwise, contractors are not required to have PCMSs available at all times for the discretionary use of the resident engineer.

The contractor is also not obliged to have a PCMS available during periods when the traffic control system is nonoperational.

A PCMS for information and guidance to motorists is required only during times, places, or activities stated in the plans and specifications.

4-1203L Impact Attenuator Vehicle

Verify there is enough shoulder width before allowing the use of an IAV for placement and removal of components on two-lane, two-way highways.

Ensure the contractor uses an IAV as a shadow vehicle in moving closures and during placement and removal of components in stationary closures. After placing components of stationary closures, the contractor may place the IAV in advance of the work area to protect workers and traffic.

Do not allow the use of a damaged IAV.

4-1203M Temporary Traffic Screen

Immediately after installation, review the screen placement, especially near entrance and exit ramps. If the screen blocks motorist visibility, order its removal and consult with the district traffic engineer concerning possible alternatives.

Ensure supporting steel pipes are placed on the traffic side of the screen. Then, if a panel becomes dislodged, the plywood will fall away from traffic.

4-1203N Temporary Crash Cushion Module

Check that crash cushion module arrays are installed according to the manufacturer's instructions. Verify that all crash cushion modules are filled with the proper weight of sand. Check pallet heights when used. Also, ensure that when arrays are placed, a minimum clearance of 8 feet exists between the array and the nearest traffic lane. Contact the district traffic engineer for recommendations if you cannot obtain proper clearance to the traffic lane.

Be sure that the contractor installs "P" or "R" markers when required.

4-1203O Temporary Signal System

Periodically review the temporary signal system to document its maintenance. Record inspection dates and conditions observed in the project records.

If a system shutdown occurs, planned or unplanned, the contractor must immediately provide flaggers to control traffic until the traffic signals are functioning correctly.

4-1203P Maintaining Traffic

Ensure the contractor submits a schedule of planned closures in advance as required by Section 12-4.03, "Closure Schedule and Conditions," of the *Standard Specifications*. Closures that will reduce horizontal or vertical clearances require even more advanced notification. Inform the transportation permits unit 15 days in advance of the closure. This advance notification affords Caltrans the opportunity to coordinate work within the highway corridor. Review the contractor's requests both to avoid oversights and also to identify and reduce the number of unnecessary requests (overbooking).

Review the closure requests to ensure the contractor complies with the closure charts requirements.

The contractor should not close two adjacent ramps in the same direction of travel unless you give the approval. Ensure the contractor sets up an off-the-highway detour before closing all ramps in both directions of travel at the same interchange.

Ensure the contractor cancels scheduled closures not needed at least 2 days in advance.

Verify the contractor follows the advance notification and signing requirements before setting up any closures.

Inform the contractor of ADA requirements if the closure will affect pedestrian traffic and a temporary pedestrian facility is needed.

On the day of the closure, notify the district traffic management center (TMC) of any cancellations (10-22).

Before the contractor places the first cone, notify the district TMC of the closure setup (10-97).

After the contractor removes the last cone, notify the district TMC of the closure pickup (10-98).

If the contractor fails to comply with Section 12-4.03 "Closure Schedule and Conditions," of the *Standard Specifications* by not opening the highway according to the closure charts, the contractor must submit a written detailed construction contingency plan demonstrating that the highway will be opened in a timely manner in

the future (refer to Section 2-2 of this manual). The contractor's contingency plan must include two elements:

1. A critical path analysis of the operation. This analysis must include a detailed review of each segment of the operation, including placing and removing traffic control.
2. Actions to be taken if the operation is not proceeding as planned and needs to be terminated early. Early termination can consist of either stopping the contractor's operation so that lanes can be reopened within the specified time limits or stopping the contractor's operation to reopen the lanes before the time specified for reopening.

When an operation is terminated before the time the specifications allow because of circumstances beyond the contractor's control, consider granting time, compensation, or both, within the terms of the contract. If the operation is terminated before completion of the planned work because of circumstances within the contractor's control or because of equipment breakdown, do not allow compensation and charge a working day as appropriate.

Do not permit any lane closures until the contractor submits this plan and it is approved in accordance with the specifications.

4-1203P (1) Field Adjustments

Field adjustments to the traffic handling plans are frequent occurrences. Adjustments must be made to ensure adequate sight distance, to avoid locations with multiple decisions, to accommodate expected queues, and to coordinate activities at multiple locations. The following are typical situations where field adjustments are necessary:

- Vertical and horizontal curves—Ensure tapers are visible for their entire length to approaching traffic. Do not hide the taper of a traffic control system behind a vertical or horizontal curve. Extend the tangent portion of the closure to better position the taper. (Under ideal conditions, all advance warning signs and the taper would be located in a tangent with the taper placed on a slight upgrade for improved visibility.)
- Ramps and connectors—Managing ramps and connectors within a lane closure presents several problems. Extend exit ramp tapers back through the lane closure as an extension of the ramp's shoulder line. Avoid sharply angled tapers. Extend entrance ramps through the closed lane by projecting the left shoulder line.
- Traffic queues—Contain traffic queues completely within the advanced warning signs of any closure. Containment may require modestly increasing the spacing between signs or require the placing of additional signs. Some districts have adopted a practice of providing motorists additional advanced warning by displaying information a mile or more in advance of the closure using portable or fixed changeable message signs. In metropolitan areas, this type of advance warning may be feasible through the cooperation of the TMC.
- Multiple closures and inter-project coordination—Avoid multiple closures with overlapping sign patterns. Connect closures by extending the tangents.
- Length of closure—Avoid long closures with no evidence of activity. Consider placing supplemental tapers within an existing closure. When the work has safely

progressed beyond the supplemental taper, remove the upstream taper and tangent. Ensure advanced warning signs for the new taper are located correctly.

If long closures are unavoidable, protect the active work area by placing barricades or drums across the closed lanes, upstream of the work area. Also, when possible, use barrier vehicles or an IAV between the approaching motorist and workers on foot.

4-1203P (2) Placement Sequence and the Start of Work

Ensure the contractor completely installs the traffic control system before commencing work. The following are some installation instructions for the contractor depending on the situation in which the system will be used:

- Systems affecting traffic only in one direction—Start with the first device that the drivers will see as they enter the work zone (usually a C23 “Road Work Ahead” sign). Additional devices are placed in sequence, moving in the direction of the traffic flow. Move the workers and equipment onto the closed lanes only after all system components are in place.
- Systems affecting traffic in both directions—Install the first sign drivers will see traveling in the opposing direction. Then install in sequence all remaining signs and devices in the opposing direction of travel. Next install the first sign drivers will see in approaching the work area from the affected direction. Place all remaining signs and devices in sequence through the work area. If flaggers are to be used, have flaggers take their stations; then move workers and equipment onto the road.
- Removal of the traffic control system—Remove all workers and equipment from the roadway. Then remove the devices and signs in the reverse order of placement. Restore all signs and signals to normal operation.

4-1203P (3) Drive-Through Inspection

Immediately after installation, make a drive-through inspection of the system. During the inspection, drive the system as though you had no knowledge of the work zone. Ensure the intended vehicle path is clearly visible. Remember that the motorist has no knowledge of the traffic control plan and is entirely dependent on the system for warning and guidance. Document this inspection in the daily report; indicate weather and traffic conditions and time of inspection.

4-1203P (4) Maintenance

Ensure a contractor’s employee is assigned to maintain all night closures and any daytime closures over 1 mile in length. Maintaining such closures is a full-time assignment, and the assigned worker should have no other duty. Ideally, the assistant resident engineer should be able to communicate directly with the contractor’s maintenance person by radio or cellular phone. The maintenance person should have spare cones, signs, and barricades available to replace or restore, system elements displaced or destroyed by traffic.

4-1203P (5) Reverse Operations Inside Closures

Workers may operate vehicles opposite the flow of traffic inside a closed lane. However, the workers should do so in a way that does not confuse approaching drivers or upset approaching traffic. The following practices are recommended if opposing operations are undertaken:

- During daylight operations, the vehicles facing oncoming traffic should have their headlights and their flashing amber lights turned on at all times.
- During night operations, the vehicles should have their headlights turned off and their hazard lights and flashing amber lights turned on.
- At no time should a U-turn be permitted in traffic, and no vehicle should face towards traffic except when completely within a closed lane.

4-1204 Measurement and Payment

The following are directions for measuring and paying for various traffic control devices for construction areas:

4-1204A Flagging

Section 12-1.03 [12-2.02], “Flagging Costs,” of the *Standard Specifications* requires that the cost of providing flaggers be divided equally between Caltrans and the contractor. Determine the total cost using the force account method. The contractor is to be paid one-half of the computed total amount.

The division of costs applies to all flagging required to perform the planned work except in special situations cited in the special provisions. Caltrans’ share of flagging costs is to be paid only when public traffic is involved.

The cost of providing flaggers includes the cost of transporting personnel between a central point and the location of the work, or from one location to another as necessary. The cost for flaggers also includes the costs of any stands or towers required for the flaggers to do their jobs properly. The cost does not include the costs of placing, maintaining, and removing construction area signs during flagging operations.

The flagging costs incurred in connection with increased or decreased work paid for at contract prices will be subject to the 50-50 split. It is assumed that the contractor’s share of such costs is included in the contract item price.

When work is added and paid for as extra work, the contractor should be compensated 100 percent for flagging costs associated with the extra work.

If changes are made at the request of, and for the benefit of the contractor, the contractor must pay for the additional flagging costs unless there are also particular benefits to the state that would warrant a sharing of the costs.

Include 50 percent of flagging costs in costs calculated according to Section 4-1.05 [4-1.03C] “Changes and Extra Work,” of the *Standard Specifications*. Also, include the contractor’s 50 percent share of flagging costs in cost calculations for computing adjustments for increased or decreased item quantities.

4-1204B Barricades

Initial placement of each barricade (as shown on the plans or as directed by the resident engineer) is paid for as a contract item at the time of placement. Subsequent relocations of each barricade are paid for as extra work using the force account method. Damaged barricades must be repaired at the contractor’s expense, regardless of the cause, including damage by public traffic.

4-1204C Flashing Arrow Signs

Flashing arrow signs are paid for as part of the contract item for the traffic control system.

4-1204D Portable Delineators

Portable delineators are paid for as part of the contract item for the traffic control system.

4-1204E Portable Flashing Beacons

Portable flashing beacons are measured and paid for at contract item price by the unit except when they are part of a traffic control system. In that case, portable flashing beacons are paid for as part of the contract item for the traffic control system.

4-1204F Construction Area Signs

Construction area signs, except those used in traffic control systems for lane closures, are paid for as a lump sum item. The cost of the contractor's inventory of replacement sign materials is included in the contract price for construction area signs. Additional signs ordered by the resident engineer are paid for as extra work.

The cost of covering, uncovering, and removing signs (when they are no longer needed) is included in the contract price for construction area signs.

When determining how much to include on a progress pay estimate, withhold some payment sufficient to cover the cost of maintaining and removing the signs.

4-1204G Channelizers

Channelizers are paid for by the unit. The contract item price includes the costs of maintaining, replacing, and repairing channelizers. The contract item price also includes the costs of work necessary to restore channelizers damaged by public traffic.

4-1204H Type K Temporary Railing

Review the "Public Safety" section in the contract. Do not use the contract item for Type K temporary railing to pay for temporary railing that is placed to fulfill the requirements of the "Public Safety" section.

Withhold some payment from progress pay estimates to cover the cost of removing Type K temporary railing

4-1204I Traffic Cones

Traffic cones are paid for as part of the contract item for the traffic control system.

4-1204J Portable Changeable Message Signs

A PCMS, commonly bid as "Furnish-Each" or "Furnish-Lump Sum," requires the contractor to place, operate, maintain, and remove the sign as directed by the resident engineer.

The resident engineer, with a minimum notice of 1 full working day, may direct the contractor to provide PCMSs for use not otherwise provided for in the contract. Payment due the contractor is to be computed as extra work.

4-1204K Temporary Crash Cushion Modules

Review the "Public Safety" section in the contract. Do not use the contract item for temporary crash cushion modules to pay for temporary crash cushion modules that are placed to fulfill the requirements of the "Public Safety" section.

Withhold some payment from progress pay estimates to cover the cost of removing temporary crash cushion modules.

4-1204L Temporary Traffic Screen

Temporary traffic screen is measured and paid for according to the special provisions.

4-1204M Temporary Signal System

The lump sum payment for this item includes all the costs of hauling Department-furnished materials between the designated pickup locations, the project, and the designated salvage location. If the pickup or salvage location is changed, then any additional costs or savings to Caltrans should be recognized.

Flaggers are not a shared cost if the contractor provides them as a result of a shutdown of the signals for any reason. This provision is an exception to the general practice of sharing the cost of flaggers.

4-1204N Traffic Plastic Drums

Count the traffic plastic drums for payment as they are placed in the locations shown on the plans. Drums used instead of cones, barricades, or delineators as part of a traffic control system or used as specified under "Public Safety" section in the contract are not to be paid for at contract item price.

4-1204O Traffic Control System

For all project work, the lump sum payment for the traffic control system includes payment for all labor, equipment, and materials to install, maintain, and remove the traffic control system as shown on the plans or *Standard Plans*. The contract item for the traffic control system includes payment for portable signs, cones, delineators, and flashing arrow signs as shown on the plans for the traffic control system.

Include compensation or credit in the change order when an ordered change in the work affects the contract item for the traffic control system.

Traffic control costs in support of extra work are to be paid as part of the extra work. Compute the payment as a force account or as an adjustment of compensation based on a force account analysis. The change order that authorizes the extra work must reflect these costs.

In addition to adjustments for ordered changes, the resident engineer may consider adjustments to the contract item for the traffic control system when the following circumstances exist and result in additional lane closures:

- A material change exists over or under the engineer's estimated quantity that is not caused by an ordered change for a contract item or items.
- Insufficient information exists in the contract for the contractor to verify the engineer's estimated quantity for the contract item or items. The contractor relied on the engineer's estimated quantity or quantities to determine the number of lane closures required.
- The additional lane closures are solely for work on the contract item or items meeting the criteria for the above.

Calculate adjustments for the circumstances listed above on a force account basis.