

**SERVICE AUTHORITY FOR FREEWAY EMERGENCIES (SAFE)  
ACTION REQUEST FOR CALL BOXES**

TR-0167 (REV 06/2005)

Before any work affecting call boxes, please complete this form and fax or mail it at least two weeks in advance to the appropriate county **SAFE!**

DATE

For Riverside County call boxes:

Phone Number: (951) 787-7141

Fax Number: (951) 787-7920

**Mr. Jerry Rivera, RCTC SAFE Manager  
4080 Lemon Street, 3rd Floor  
Riverside, CA 92502**

For San Bernardino Call Boxes:

Phone Number: (909) 884-8276, ext. 140

Fax Number: (909) 388-2002

**Kelly Lynn, San Bernardino SAFE Manager  
1170 W. 3rd Street, 2nd Floor  
San Bernardino, CA 92410-1715**

FROM (Contact Name and Organization)

Permittee\*     Construction     Maintenance     Right of Way Utilities     Caltrans

\*SAFE may charge Permittee for cost of

ADDRESS

CITY

STATE

ZIP

BUSINESS PHONE (Include Area Code)

FAX PHONE (Include Area Code)

NUMBER OF PAGES INCLUDING THIS COVER PAGE

**ACTION NEEDED: IF THERE IS A CALL BOX PAIR, BOTH BOXES MAY BE AFFECTED! CALL BOX NUMBERS MUST BE INCLUDED** (The number is shown on the call box sign, for example SBd-010-93 for a box on WB (because last number is odd), Route 10 at Post Mile 9, first Quarter Mile.)

Call Box Number(s):

Temporary removal from service: **Bagging ONLY** - needed by  
(if K-Rail will block access or the shoulder will be too narrow during construction only)

Temporary removal of box and pole **ONLY** - needed by  
(if K-Rail will block access or the shoulder will be too narrow during construction only)

Removal of box, pole, pad, auger, and any retaining walls needed by

Relocation - **needed by**  
(if MBGR, etc., will permanently affect/block access)

Place call boxes back in service.

1/2018

STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION  
ENCROACHMENT PERMIT GENERAL PROVISIONS  
TR-0045 **REV 07/2017**

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1. **AUTHORITY:** The California Department of Transportation ("Department") has authority to issue encroachment permits under Division 1, Chapter 3, Article 1, Sections 660 through 734 of the Streets and Highways Code.
2. **REVOCATION:** Encroachment permits are revocable on five (5) business days' notice unless otherwise stated on the permit and except as provided by law for public corporations, franchise holders, and utilities. Notwithstanding the foregoing, in an emergency situation as determined by the Department, an encroachment permit may be revoked immediately. These General Provisions and any applicable Special Provisions are subject to modification or abrogation at any time. Permittees' joint use agreements, franchise rights, reserved rights or any other agreements for operating purposes in State of California ("State") highway right-of-way are exceptions to this revocation.
3. **DENIAL FOR NONPAYMENT OF FEES:** Failure to pay encroachment permit fees when due may result in rejection of future applications and denial of encroachment permits.
4. **ASSIGNMENT:** No party other than the permittee or permittee's authorized agent is allowed to work under this encroachment permit.
5. **ACCEPTANCE OF PROVISIONS:** Permittee understands and agrees to accept and comply with these General Provisions, the Special Provisions, any and all terms contained in this encroachment permit, and all attachments to this encroachment permit, for any work to be performed under this encroachment permit.
6. **BEGINNING OF WORK:** When traffic is not impacted (see General Provision # 35), the permittee must notify the Department's representative two (2) business days before starting permitted work. Permittee must notify the Department's representative if the work is to be interrupted for a period of five (5) business days or more, unless otherwise agreed upon. All work must be performed on weekdays during regular work hours, excluding holidays, unless otherwise specified in this encroachment permit.
7. **STANDARDS OF CONSTRUCTION:** All work performed within State highway right-of-way must conform to all applicable Departmental construction standards including but not limited to: Standard Specifications, Standard Plans, Project Development Procedures Manual, Highway Design Manual and Special Provisions.  
  
Other than as expressly provided by these General Provisions, the Special Provisions, the Standard Specifications, Standard Plans, and other applicable Departmental standards, nothing in these General Provisions is intended to give any third party any legal or equitable right, remedy, or claim with respect to these General Provisions or any provision herein. These General Provisions are for the sole and exclusive benefit of the permittee and the Department.
8. **PLAN CHANGES:** Deviations from plans, specifications, and/or encroachment permit provisions are not allowed without prior approval from the Department's representative.  
  
Where reference is made in such standards to "Contractor" and "Engineer," these are amended to be read as "Permittee" and "Department's representative," respectively, for purposes of this encroachment permit.
9. **INSPECTION AND APPROVAL:** All work is subject to monitoring and inspection. Upon completion of work, permittee must request a final inspection for acceptance and approval by the Department. The local public agency permittee must not give final construction approval to its contractor until final acceptance and approval by the Department is obtained.
10. **PERMIT AT WORKSITE:** Permittee must keep the permit package or a copy thereof at the work site at all times, and must show it upon request to any Department representative or law enforcement officer. If the permit package, or a copy thereof, is not kept and made available at the work site at all times, the work must be suspended.
11. **CONFLICTING ENCROACHMENTS:** Permittee must yield start of work to ongoing, prior authorized work adjacent to or within the limits of the permittee's project site. When existing encroachments conflict with permittee's work, the permittee must bear all cost for rearrangements (e.g., relocation, alteration, removal, etc.).
12. **PERMITS FROM OTHER AGENCIES:** This encroachment permit is invalidated if the permittee has not obtained all permits necessary and required by law, including but not limited to permits from the California Public Utilities Commission (CPUC), California Occupational Safety and Health Administration (Cal-OSHA), or any other public agency having jurisdiction. Permittee warrants all such permits have been obtained before beginning work under this encroachment permit.
13. **PEDESTRIAN AND BICYCLIST SAFETY:** A safe minimum continuous passageway of four (4) feet must be maintained through the work area at existing pedestrian or bicycle facilities. At no time must pedestrians be diverted onto a portion of the street used for vehicular traffic. At locations where safe alternate passageways cannot be provided, appropriate signs and barricades must be installed

at the limits of construction and in advance of the limits of construction at the nearest crosswalk or intersection to detour pedestrians to facilities across the street. Attention is directed to Section 7-1.04, *Public Safety*, of the Department's Standard Specifications.

14. **PUBLIC TRAFFIC CONTROL:** As required by law, the permittee must provide traffic control protection, warning signs, lights, safety devices, etc., and take all other measures necessary for the traveling public's safety. While providing traffic control, the needs of all road users, including but not limited to motorists, bicyclists and pedestrians, including persons with disabilities in accordance with the Americans with Disabilities Act, must be an essential part of the work activity.

Lane and/or shoulder closures must comply with the Department's Standard Specifications and Standard Plans for traffic control systems, and with the applicable Special Provisions. Where issues are not addressed in the Standard Specifications, Standard Plans, and/or Special Provisions, the California Manual on Uniform Traffic Control Devices (Part 6, *Temporary Traffic Control*) must be followed.

15. **MINIMUM INTERFERENCE WITH TRAFFIC:** Permittee must plan and conduct work so as to create the least possible inconvenience to the traveling public, such that traffic is not unreasonably delayed. On conventional highways, permittee must place properly attired flagger(s) to stop or warn the traveling public in compliance with the California Manual on Uniform Traffic Control Devices (Chapter 6E, *Flagger Control*).

16. **STORAGE OF EQUIPMENT AND MATERIALS:** The storage of equipment or materials is not allowed within State highway right-of-way, unless specified within the Special Provisions of this encroachment permit. If encroachment permit Special Provisions allow for the storage of equipment or materials within the State highway right-of-way, the equipment and material storage must also comply with Section 7-1.04, *Public Safety*, of the Department's Standard Specifications.

17. **CARE OF DRAINAGE:** Permittee must provide alternate drainage for any work interfering with an existing drainage facility in compliance with the Department's Standard Specifications, Standard Plans, and/or as directed by the Department's representative.

18. **RESTORATION AND REPAIRS IN STATE HIGHWAY RIGHT-OF-WAY:** Permittee is responsible for restoration and repair of State highway right-of-way resulting from permitted work (Streets and Highways Code, section 670 et seq.).

19. **STATE HIGHWAY RIGHT-OF-WAY CLEAN UP:** Upon completion of work, permittee must remove and dispose of all scraps, refuse, brush, timber, materials, etc.

off the State highway right-of-way. The aesthetics of the highway must be as it was before work started or better.

20. **COST OF WORK:** Unless stated otherwise in the encroachment permit or a separate written agreement with the Department, the permittee must bear all costs incurred for work within the State highway right-of-way and waives all claims for indemnification or contribution from the State, the Department, and from the Directors, officers, and employees of the State and/or the Department.

21. **ACTUAL COST BILLING:** When specified in the permit, the Department will bill the permittee actual costs at the currently set Standard Hourly Rate for encroachment permits.

22. **AS-BUILT PLANS:** When required, permittee must submit one (1) set of folded as-built plans within thirty (30) calendar days after completion and acceptance of work in compliance with requirements listed as follows:

- a) Upon completion of the work provided herein, the permittee must submit a paper set of As-Built plans to the Department's representative.
- b) All changes in the work will be shown on the plans, as issued with the permit, including changes approved by Encroachment Permit Rider.
- c) The plans are to be prominently stamped or otherwise noted "AS-BUILT" by the permittee's representative who was responsible for overseeing the work. Any original plan that was approved with a Department stamp, or by signature of the Department's representative, must be used for producing the As-Built plans.
- d) If construction plans include signing or striping, the dates of signing or striping removal, relocation, or installation must be shown on the As-Built plans when required as a condition of the encroachment permit. When the construction plans show signing and striping for staged construction on separate sheets, the sheet for each stage must show the removal, relocation, and installation dates of the appropriate staged striping and signing.
- e) As-Built plans must contain the Encroachment Permit Number, County, Route, and Post Mile on each sheet.
- f) The As-Built Plans must not include a disclaimer statement of any kind that differs from the obligations and protections provided by sections 6735 through 6735.6 of the California Business and Professions Code. Such statements constitute non-compliance with Encroachment Permit requirements, and may result in the Department retaining Performance Bonds or deposits until proper plans are submitted. Failure to comply may also result in denial of future encroachment permits or a provision requiring a public agency to supply additional bonding.

23. **PERMITS FOR RECORD PURPOSES ONLY:** When work in the State highway right-of-way is within an area under a Joint Use Agreement (JUA) or a Consent to Common Use Agreement (CCUA), a fee exempt encroachment permit is issued to the permittee for the purpose of providing a notice and record of work. The permittee's prior rights must be preserved without the intention of creating new or different rights or obligations. "Notice and Record Purposes Only" must be stamped across the face of the encroachment permit.

24. **BONDING:** The permittee must file bond(s), in advance, in the amount(s) set by the Department and using forms acceptable to the Department. The bonds must name the Department as obligee. Failure to maintain bond(s) in full force and effect will result in the Department stopping all work under this encroachment permit and possibly revoking other encroachment permit(s). Bonds are not required of public corporations or privately owned utilities unless permittee failed to comply with the provisions and/or conditions of a prior encroachment permit. The surety company is responsible for any latent defects as provided in California Code of Civil Procedure section 337.15. A local public agency permittee also must comply with the following requirements:

- a) In recognition that project construction work done on State property will not be directly funded and paid by State, for the purpose of protecting stop notice claimants and the interests of State relative to successful project completion, the local public agency permittee agrees to require the construction contractor to furnish both a payment and performance bond in the local public agency's name with both bonds complying with the requirements set forth in Section 3-1.05 *Contract Bonds* of the Department's Standard Specifications before performing any project construction work.
- b) The local public agency permittee must defend, indemnify, and hold harmless the State and the Department, and the Directors, officers, and employees of the State and/or Department, from all project construction related claims by contractors, subcontractors, and suppliers, and from all stop notice and/or mechanic's lien claimants. The local public agency also agrees to remedy, in a timely manner and to the Department's satisfaction, any latent defects occurring as a result of the project construction work.

25. **FUTURE MOVING OF INSTALLATIONS:** Permittee understands and agrees to relocate a permitted installation upon notice by the Department. Unless under prior property right or agreement, the permittee must comply with said notice at the permittee's sole expense.

26. **ENVIRONMENTAL:**

a) **ARCHAEOLOGICAL/HISTORICAL:** If any archaeological or historical resources are identified or encountered in the work vicinity, the permittee must immediately stop work, notify the Department's representative, retain a qualified archaeologist who must evaluate the site at permittee's expense, and make recommendations to the Department's representative regarding the continuance of work.

b) **HAZARDOUS MATERIALS:** If any hazardous waste or materials (such as underground storage tanks, asbestos pipes, contaminated soil, etc.) are identified or encountered in the work vicinity, the permittee must immediately stop work, notify the Department's representative, retain a qualified hazardous waste/material specialist who must evaluate the site at permittee's expense, and make recommendations to the Department's representative regarding the continuance of work.

Attention is directed to potential aerially deposited lead (ADL) presence in unpaved areas along highways. It is the permittee's responsibility to take all appropriate measures to protect workers in conformance with California Code of Regulations Title 8, Section 1532.1, "Lead," and with Cal-OSHA Construction Safety Orders, and to ensure roadway soil management is in compliance with Department of Toxic Substances Control (DTSC) requirements.

27. **PREVAILING WAGES:** Work performed by or under an encroachment permit may require permittee's contractors and subcontractors to pay appropriate prevailing wages as set by the California Department of Industrial Relations. Inquiries or requests for interpretations relative to enforcement of prevailing wage requirements must be directed to the California Department of Industrial Relations.

28. **LIABILITY, DEFENSE, AND INDEMNITY:** The permittee agrees to indemnify and save harmless the State, the Department, and all Directors, officers, employees, agents and/or contractors of the State and/or of the Department, including but not limited to the Director of Transportation and the Deputy Directors, from any and all claims, demands, damages, costs, liability, suits, or actions of every name, kind and description brought for or on account of property damage or injury to or death of any person, including but not limited to members of the public, the permittee, persons employed by the permittee, and persons acting on behalf of the permittee, arising out of or in connection with: (a) the issuance and/or use of this encroachment permit, and/or (b) the work or other activity conducted pursuant to this encroachment permit, and/or (c) the installation, placement, subsequent operation, and/or maintenance of said encroachment, and/or (d) the failure by the permittee or anyone acting on behalf of the permittee to perform permittee's obligations under this encroachment

permit in respect to maintenance or any other obligation, and/or (e) a defect or defects in the work, or obstructions related to the work, or from any cause whatsoever. The duty of the permittee to indemnify and save harmless includes the duties to defend as set forth in Section 2778 of the Civil Code.

It is the intent of the parties that except as prohibited by law, the permittee will defend, indemnify, and hold harmless as set forth above regardless of the existence or degree of fault or negligence, whether active or passive, primary or secondary, on the part of the State, the Department, the Directors, officers, employees, agents and/or contractors of the State and/or Department, including but not limited to the Director of Transportation and the Deputy Directors, the permittee, persons employed by the permittee, and/or persons acting on behalf of the permittee.

The permittee waives any and all rights to any type of expressed or implied indemnity against the State, the Department, the Directors, officers, employees, agents, and/or contractors of the State and/or of the Department, including but not limited to the Director of Transportation and the Deputy Directors.

The permittee understands and agrees to comply with the obligations of Titles II and III of the Americans with Disabilities Act in the conduct of the permitted activity, and further agrees to defend, indemnify, and save harmless the State, the Department, the Directors, officers, employees, and/or agents of the State and/or of the Department, including but not limited to the Director of Transportation and the Deputy Directors, from any and all claims, demands, damages, costs, liability, suits, or actions of every name, kind and description arising out of or by virtue of the Americans with Disabilities Act.

Permittee understands and agrees the Directors, officers, employees, and/or agents of the State and/or of the Department, including but not limited to the Director of Transportation and the Deputy Directors, are not personally responsible for any liability arising from or by virtue of this encroachment permit.

For the purpose of this section and all paragraphs herein, "State's contractors" includes contractors and their subcontractors under contract to the State and/or the Department performing work within the same postmile limits as the work under this encroachment permit.

This section and all paragraphs herein take effect upon issuance of this encroachment permit, and apply both during and after the work or other activity contemplated under this encroachment permit, except as otherwise provided by California law.

29. **NO PRECEDENT ESTABLISHED:** This encroachment permit is issued with the understanding that it does not establish a precedent.

30. **FEDERAL CIVIL RIGHTS REQUIREMENTS FOR PUBLIC ACCOMMODATION:**

- a) As part of the consideration for being issued this encroachment permit, the permittee, on behalf of permittee and on behalf of permittee's personal representatives, successors in interest, and assigns, does hereby covenant and agree that:
  - i. No person on the grounds of race, color, or national origin may be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.
  - ii. That in connection with the construction of any improvements on said lands and the furnishings of services thereon, no discrimination must be practiced in the selection and retention of first-tier subcontractors in the selection of second-tier subcontractors.
  - iii. That such discrimination must not be practiced against the public in their access to and use of the facilities and services provided for public accommodations (such as eating, sleeping, rest, recreation), and operation on, over, or under the space of the State highway right-of-way.
  - iv. That the permittee must use the premises in compliance with all other requirements imposed pursuant to Title 15, Code of Federal Regulations, Commerce and Foreign Trade, Subtitle A, Office of the Secretary of Commerce, Part 8 (15 C.F.R. Part 8) and as said Regulations may be amended.
- b) That in the event of breach of any of the above nondiscrimination covenants, the State and the Department have the right to terminate this encroachment permit and to re-enter and repossess said land and the facilities thereon, and hold the same as if said permit had never been made or issued.

31. **MAINTENANCE OF HIGHWAYS:** By accepting this encroachment permit, the permittee agrees to properly maintain any encroachment. This assurance requires the permittee to provide inspection and repair any damage, at permittee's expense, to State facilities resulting from the encroachment.

32. **SPECIAL EVENTS:** In accordance with subdivision (a) of Streets and Highways Code section 682.5, the Department is not responsible for the conduct or operation of the permitted activity, and the applicant agrees to defend, indemnify, and hold harmless the State, the Department, and the Directors, officers, employees, agents, and

contractors of the State and/or of the Department, including but not limited to the Director of Transportation and the Deputy Directors, from any and all claims, demands, damages, costs, liability, suits, or actions of every name, kind and description arising out of any activity for which this encroachment permit is issued.

The permittee understands and agrees to comply with the obligations of Titles II and III of the Americans with Disabilities Act in the conduct of the event, and further agrees to defend, indemnify, and save harmless the State and the Department, and the Directors, officers, and employees of the State and/or Department, including but not limited to the Director of the Department and the Deputy Directors, from any and all claims, demands, damages, costs, liability, suits, or actions of every name, kind and description arising out of or by virtue of the Americans with Disabilities Act.

33. **PRIVATE USE OF STATE HIGHWAY RIGHT-OF-WAY:** State highway right-of-way must not be used for private purposes without compensation to the State. The gifting of public property use and therefore public funds is prohibited under the California Constitution, Article 16.
34. **FIELD WORK REIMBURSEMENT:** Permittee must reimburse the Department for field work performed on permittee's behalf to correct or remedy hazards or damaged facilities, or to clear refuse, debris, etc. not attended to by the permittee.
35. **NOTIFICATION OF CLOSURES TO DEPARTMENT AND TRAFFIC MANAGEMENT CENTER (TMC):** The permittee must notify the Department's representative and the Transportation Management Center (TMC) at least seven (7) days before initiating a lane closure or conducting an activity that may cause a traffic impact. A confirmation notification should occur three (3) days before closure or other potential traffic impact. In emergency situations when the corrective work or the emergency itself may affect traffic, TMC and the Department's representative must be notified as soon as possible.
36. **SUSPENSION OF TRAFFIC CONTROL OPERATION:** The permittee, upon notification by the Department's representative, must immediately suspend all lane closure operations and any operation that impedes the flow of traffic. All costs associated with this suspension must be borne by the permittee.
37. **UNDERGROUND SERVICE ALERT (USA) NOTIFICATION:** Any excavation requires compliance with the provisions of Government Code section 4216 et. seq., including but not limited to notice to a regional notification center, such as Underground Service Alert (USA). The permittee must provide notification to the regional notification center at least forty-eight (48) hours

before performing any excavation work within the State highway right-of-way.

38. **COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA):** All work within the State highway right-of-way to construct and/or maintain any public facility must be designed, maintained, and constructed strictly in accordance with all applicable Federal Access laws and regulations (including but not limited to Section 504 of the Rehabilitation Act of 1973, codified at 29 U.S.C. § 794), California Access laws and regulations relating to ADA, along with its implementing regulations, Title 28 of the Code of Federal Regulations Parts 35 and 36 (28 C.F.R., Ch. I, Part 35, § 35.101 et seq., and Part 36, § 36.101 et seq.), Title 36 of the Code of Federal Regulations Part 1191 (36 C.F.R., Ch. XI, Part 1191, § 1119.1 et seq.), Title 49 of the Code of Federal Regulations Part 37 (49 C.F.R., Ch. A, Part 37, § 37.1 et seq.), the United States Department of Justice Title II and Title III for the ADA, and California Government Code section 4450 et seq., which require public facilities be made accessible to persons with disabilities.

Notwithstanding the requirements of the previous paragraph, all construction, design, and maintenance of public facilities must also comply with the Department's Design Information Bulletin 82, "Pedestrian Accessibility Guidelines for Highway Projects."

## ROLLING TRAFFIC BREAKS SPECIAL PROVISIONS

TR-0407 (Rev 10/2017)

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1. Permittee must arrange a meeting with the California Highway Patrol (CHP) and the Caltrans permit inspector, at least two (2) weeks prior to the start of work in order to determine the appropriate number of CHP vehicles required for planned traffic breaks. A minimum of two (2) CHP vehicles in each direction are required. One CHP vehicle will be conducting the planned traffic break and the second CHP vehicle will be stationed on the shoulder with its rear emergency lights on to caution motorists at the end of the queue. Additional CHP vehicles may be required if determined to be necessary by the CHP. It is the responsibility of the permittee to make arrangements with CHP for providing planned traffic breaks to facilitate the approved work.
2. The duration of a planned traffic break **MUST NOT** exceed five (5) minutes. If additional traffic breaks are required, traffic backup must be cleared before performing another break.
3. ~~The permittee must provide a minimum of one (1) Portable Changeable Message Sign (PCMS). Additional PCMSs must be provided~~ if required by Caltrans permit inspector or CHP. PCMS(s) must be placed at the locations directed by the CHP and be moved or relocated as needed. Each PCMS must comply with section 12-3.32 of the Caltrans Standard Specifications. PCMS(s) must be removed promptly after the planned traffic break is completed.
4. Message to be displayed on the PCMSs must be coordinated with Caltrans permit inspector/representative and CHP.
5. All aerial crossings should be scheduled on Sunday mornings (excluding holidays), from daylight to 10:00 AM, unless otherwise authorized by the District Permit Engineer or authorized Caltrans' representative.
6. No aerial crossings must be performed in rainy, foggy or other inclement weather.

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DATE	COUNTY	ROUTE	POST MILES	POST MILES	POST MILES
			TOTAL	POST MILES	POST MILES
TO ACCOMPANY PLANS DATED _____					

TABLE 3

ROAD TYPE	DISTANCE BETWEEN SIGNS <sup>W</sup>		
	A	B	C
URBAN - 25 mph OR LESS	100	100	100
URBAN - MORE THAN 25 MPH TO 40 mph	250	250	250
URBAN - MORE THAN 40 mph	350	350	350
RURAL	500	500	500
EXPRESSWAY / FREEWAY	1000	1500	2640

<sup>W</sup> - The distances are approximate, are intended for guidance purposes only, and should be applied with engineering judgment. These distances should be adjusted by the Engineer for field conditions, if necessary, by increasing or decreasing the recommended distances.

TABLE 2

SPEED <sup>W</sup> mph	MIN D <sup>WW</sup>	DOWNGRADE MIN D <sup>WWW</sup>		
		-3%	-6%	-9%
20	115	116	120	126
25	155	158	165	173
30	200	215	227	237
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

<sup>W</sup> - Speed is posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph.  
<sup>WW</sup> - Longitudinal buffer space or flagger station spacing and longer than 1 mile.  
<sup>WWW</sup> - Use on sustained downgrade steeper than -3 percent and longer than 1 mile.

TABLE 1

SPEED (S)	MINIMUM TAPER LENGTH <sup>*</sup> FOR WIDTH OF OFFSET 12 FEET (W)				MAXIMUM CHANNELIZING DEVICE SPACING			
	TANGENT 2L	MERGING L	SHIFTING SHOULDER L/2	TAPER TANGENT COMFLICT X	Y	Z	W	W
20	160	60	40	20	40	10	10	10
25	230	125	65	42	25	50	12	12
30	360	180	90	60	30	60	15	15
35	490	245	123	82	35	70	17	17
40	640	320	160	107	40	80	20	20
45	1080	540	270	180	45	90	22	22
50	1200	600	300	200	50	100	25	25
55	1320	660	330	220	50	100	25	25
60	1440	720	360	240	50	100	25	25
65	1560	780	390	260	50	100	25	25
70	1680	840	420	280	50	100	25	25
75	1800	900	450	300	50	100	25	25

<sup>\*</sup> - For other offsets, use the following merging taper length formula for L:  
For speed of 40 mph or less,  $L = WS^2/60$   
For speed of 45 mph or more,  $L = WS$

Where: L = Taper length in feet  
W = Width of offset in feet  
S = Posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

<sup>WW</sup> - Use for taper and tangent sections where there are no pavement markings or where there is a conflict between existing pavement markings and channelizers (CA).

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**TRAFFIC CONTROL SYSTEM TABLES  
FOR LANE AND RAMP CLOSURES**  
NO SCALE



COUNTY	ROUTE	POST MILES TO 1012, 1013, 1014, 1015	SHEET NO. (OF SHEETS)
PLANS APPROVAL DATE: JANUARY 20, 2017			
THE STATE OF CALIFORNIA OFFICE OF REGISTERED PROFESSIONALS DIVISION OF PROFESSIONAL REGULATION I HEREBY CERTIFY THAT THIS PLAN IS COMPLETELY CORRECT AND THAT I AM A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF CALIFORNIA.			

**NOTES:**

TO ACCOMPANY PLANS DATED \_\_\_\_\_

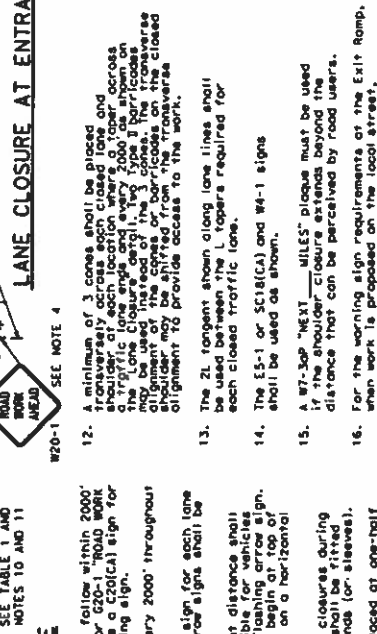
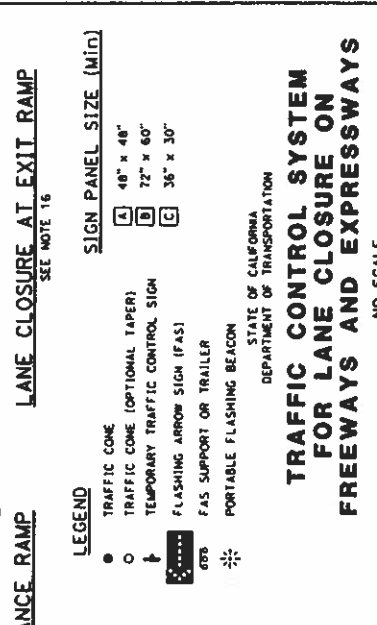
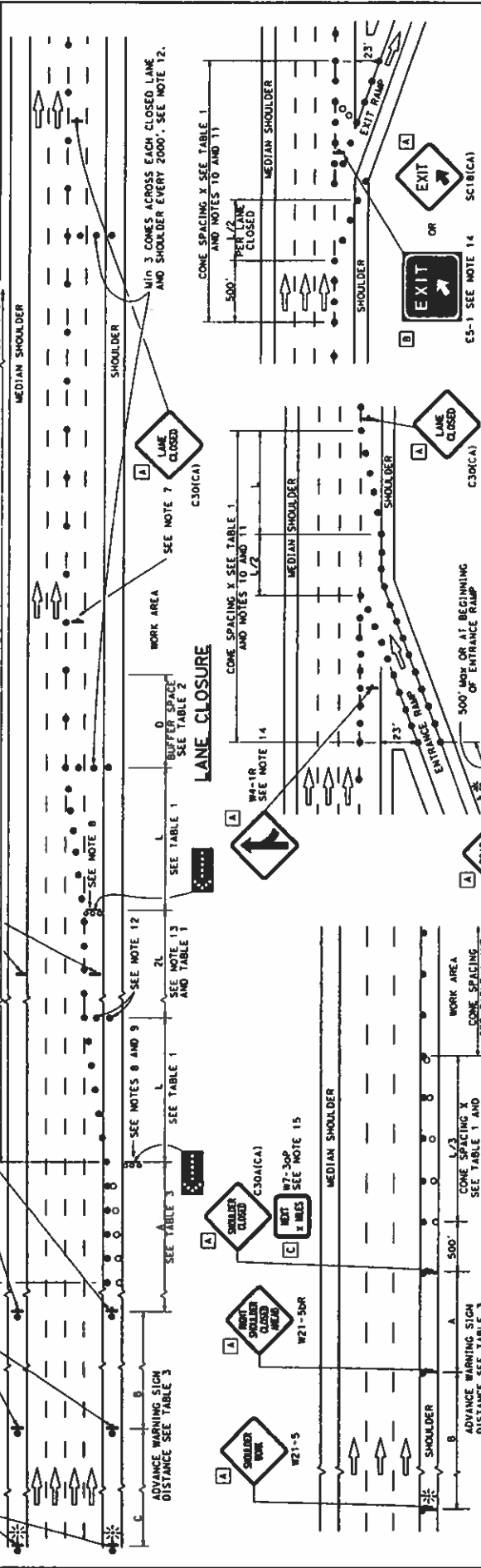
See Revised Standard Plan RSP T9 for tables.

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.

All temporary warning signs shall have black legend on fluorescent orange background.

California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

SEE NOTE 5



- NOTES:**
- Median lane closures shall conform to the details of Standard Plan RSP T10 and W20-1 and W21-5 signs shall be used.
  - At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closures.
    - a) On opposite installations are not required:
      - 1) one-half of the available lanes remain open to traffic.
      - 2) In the median if the width of the median shoulder is less than B and the outside lanes are to be closed.
    - b) Each advance warning sign on each side of the roadway shall be equipped with a flashing arrow sign. Each sign 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.
  - A W20-2 "No Road Work Ahead" sign with minimum 1500' sight distance shall be placed at the end of the lane closure unless a larger project's limits.
  - Each advance warning sign on each side of the roadway shall be equipped with a flashing arrow sign. Each sign 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.
  - Portable delineators, placed at one-half the spacing indicated for traffic cones, shall be used instead of cones for daytime closures only.
  - If the W20-1 sign would follow within 2000' of a stationary W20-1 or W21-5 sign for the first advance warning sign.
  - Place a C30A(CA) sign every 2000' throughout length of lane closure.
  - Use one flashing arrow sign for each lane closed. The flashing arrow sign shall be Type I.
  - A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign, including curve or on a horizontal curve.
  - All cones used for lane closures during hours of darkness shall be equipped with retroreflective bands (or sleeves).
  - Portable delineators, placed at one-half the spacing indicated for traffic cones, shall be used instead of cones for daytime closures only.
  - Minimum of 3 cones shall be placed transversely across each closed lane and increase in number in 2000' increments on either end of a traffic lane and every 2000' thereafter on the tapered end of a traffic lane.
  - Minimum of 3 cones shall be placed transversely across each closed lane and increase in number in 2000' increments on either end of a traffic lane and every 2000' thereafter on the tapered end of a traffic lane. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
  - The ZL tangent shown along lane lines shall be used between the L topers required for each closed traffic lane.
  - The E5-1 or SC18(CA) and W4-1 signs shall be used as shown.
  - A 87-30P "NEXT MILES" plaque must be used if the shoulder closure is longer than the distance that can be perceived by road users.
  - For the warning sign requirements at the Exit Ramp, when work is proposed on the local street, see CA MUTCD Figure 6H-22 to 6H-27.

**LEGEND**

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- ⬆️ TEMPORARY TRAFFIC CONTROL SIGN
- ⬆️ FLASHING ARROW SIGN (FAS)
- ⚡ FAS SUPPORT OR TRAILER
- ⚡ PORTABLE FLASHING BEACON

**SIGN PANEL SIZE (Min)**

A	40" x 48"
B	72" x 60"
C	36" x 30"

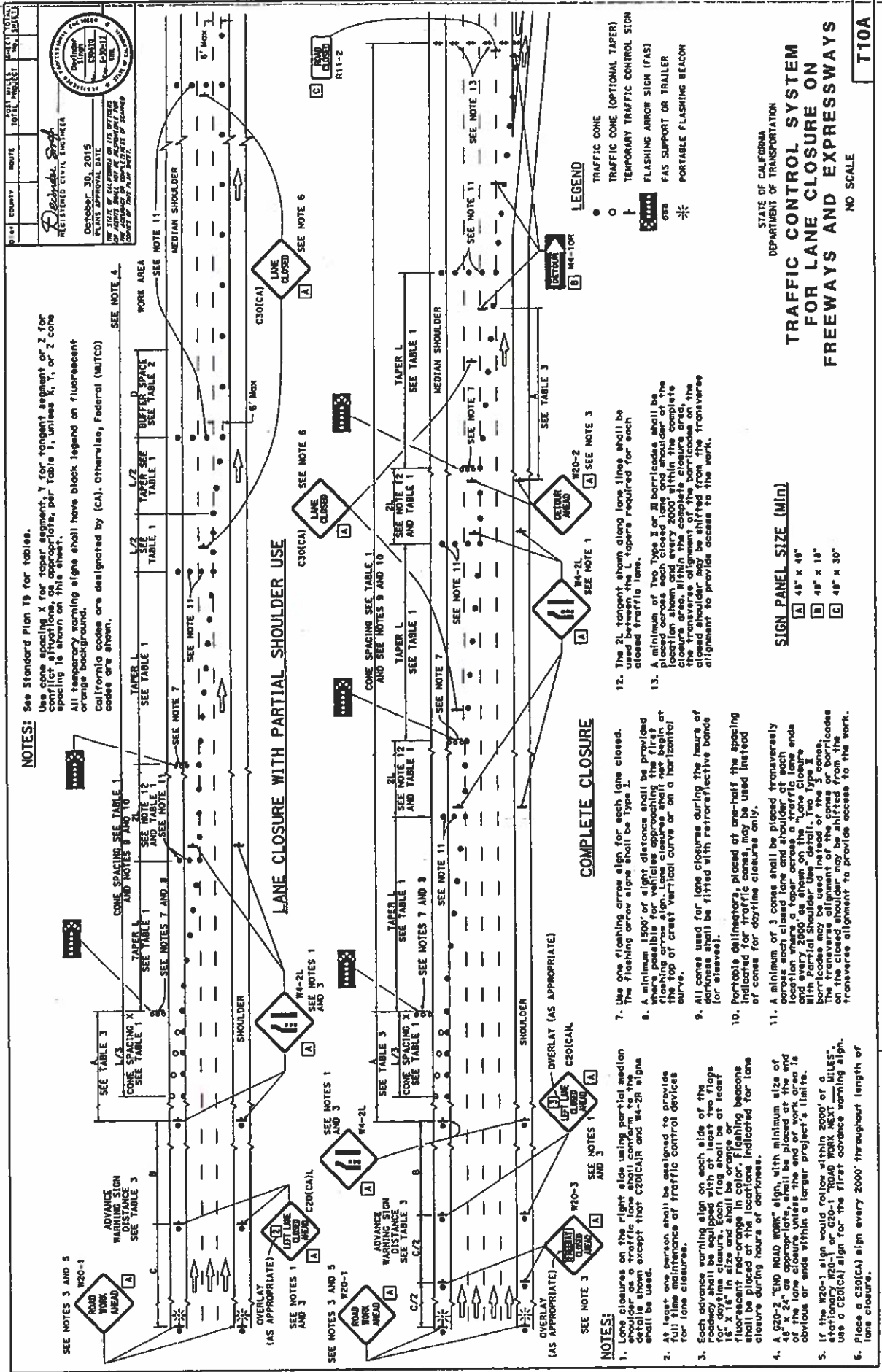
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON FREEWAYS AND EXPRESSWAYS**

NO SCALE

RSP T10 DATED JANUARY 20, 2017 SUPERSEDES STANDARD PLAN T10 DATED OCTOBER 30, 2015 - PAGE 236 OF THE STANDARD PLANS BOOK DATED 2015.

**REVISED STANDARD PLAN RSP T10**



**NOTES:** See Standard Plan T9 for tables.  
 Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, per table 1, unless X, Y, or Z cone spacing is shown on this plan. All temporary signs shall have black legend on fluorescent orange background.  
 All temporary signs shall have black legend on fluorescent orange background.  
 California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

**LANE CLOSURE WITH PARTIAL SHOULDER USE**

**COMPLETE CLOSURE**

1. Lane closures on the right side using partial median shoulder as a traffic lane shall conform to the details shown except that C20(CA)R and W4-2R signs shall be used.
2. At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closures.
3. Each advance warning sign on each side of the roadway 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 during closure during hours of darkness.
4. A G20-2 "END ROAD WORK" sign, with minimum size of 48" x 48" as appropriate, shall be placed at the end of work areas if obvious or ends within a larger project's limits.
5. If the W20-1 sign would follow within 2000' of a C20(CA) sign for the first advance warning sign.
6. Place a C30(CA) sign every 2000' throughout length of lane closure.
7. Use one flashing arrow sign for each lane closed. The flashing arrow signs shall be Type I.
8. A minimum 1500' of sight distance shall be provided for flashing arrow sign. Lane closures shall not begin at the top of crest vertical curve or on a horizontal curve.
9. All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves).
10. Portable delineators, placed at one-half the spacing of cones for daytime closures only.
11. A minimum of 3 cones shall be placed transversely across each closed lane and shoulder at each location where a taper across a traffic lane ends and every 2000' as shown on the "Lane Closure with Partial Shoulder Use" detail of the Type 2 sign. The transverse alignment of the cones or barricades on the closed shoulder may be shifted from the transverse alignment to provide access to the work.
12. The 2L tangent shown along lane lines shall be used between the L tapers required for each closed traffic lane.
13. A minimum of two Type I or II barricades shall be placed across each closed lane and shoulder at the location shown and every 2000' within the complete taper. If the transverse alignment of the barricades on the closed shoulder may be shifted from the transverse alignment to provide access to the work.

- LEGEND**
- TRAFFIC CONE
  - TEMPORARY TRAFFIC CONTROL SIGN
  - FLASHING ARROW SIGN (FAS)
  - FAS SUPPORT OR TRAILER
  - ✱ PORTABLE FLASHING BEACON

**SIGN PANEL SIZE (Min)**

- A 48" x 48"
- B 48" x 18"
- C 48" x 30"

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**TRAFFIC CONTROL SYSTEM  
 FOR LANE CLOSURE ON  
 FREEWAYS AND EXPRESSWAYS**  
 NO SCALE

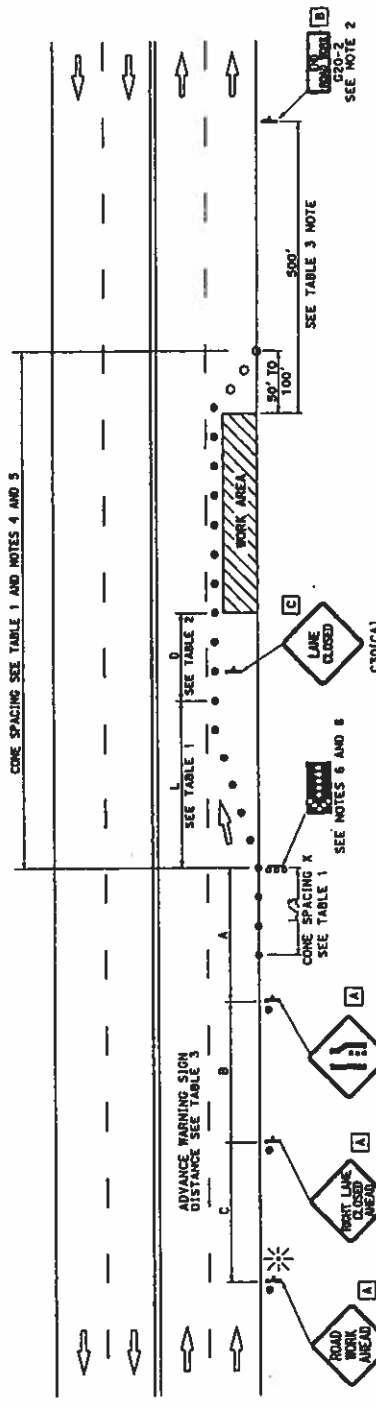
T10A

DIST	COUNTY	ROUTE	POST MILE	MARKET TOTAL

*Richard S. Smith*  
REGISTERED CIVIL ENGINEER

OCTOBER 30, 2015  
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA  
DIVISION OF HIGHWAYS  
FOR ACTIVITY IN CONNECTION WITH THE  
CONSTRUCTION OF THIS PLAN SHEET.



**NOTES:**  
See Standard Plan T9 for tables.  
Use cone spacing X for taper segment, Y for tangent segment or Z for  
curved segment. Refer to table 1, unless X, Y, or Z cone  
spacing is shown on this sheet.  
All temporary warning signs shall have block legend on fluorescent  
orange background.  
California codes are designated by (CA). Otherwise, Federal (MUTCD) codes  
are shown.

**TYPICAL LANE CLOSURE**

**NOTES:**

- Each advance warning sign shall be equipped with at least two flags for daytime closure. Each flag shall be at least 12 inches wide and 18 inches high. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
- A R20-2 "ROAD WORK AHEAD" sign, as appropriate, shall be placed at the end of the lane closure within a larger project's limits.
- If the R20-1 sign would follow within 2000' of a stationing marker, the sign shall be replaced with a R20-1 sign. The sign shall be fitted with retroreflective bands (or sleeves).
- All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves).
- Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.

**LEGEND**

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- † TEMPORARY TRAFFIC CONTROL SIGN
- ▲ FLASHING ARROW SIGN (FAS)
- ▲ FAS SUPPORT OR TRAILER
- ★ PORTABLE FLASHING BEACON

**SIGN PANEL SIZE (Min)**

- A 48" x 48"
- B 36" x 18"
- C 30" x 30"

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**TRAFFIC CONTROL SYSTEM  
FOR LANE CLOSURE ON  
MULTILANE CONVENTIONAL  
HIGHWAYS**  
NO SCALE  
**T 11**

Return to Table of Contents

DATE	COMPT	ROUTE	POST MILE	FILE NO.	SCALE

**REGISTERED CIVIL ENGINEER**  
*Richard J. Smith*  
 OCTOBER 30, 2015  
 STATE OF CALIFORNIA  
 THE ABOVE SIGN SHALL BE APPROVED FOR THE PROJECT OF THIS PLAN SHEET.

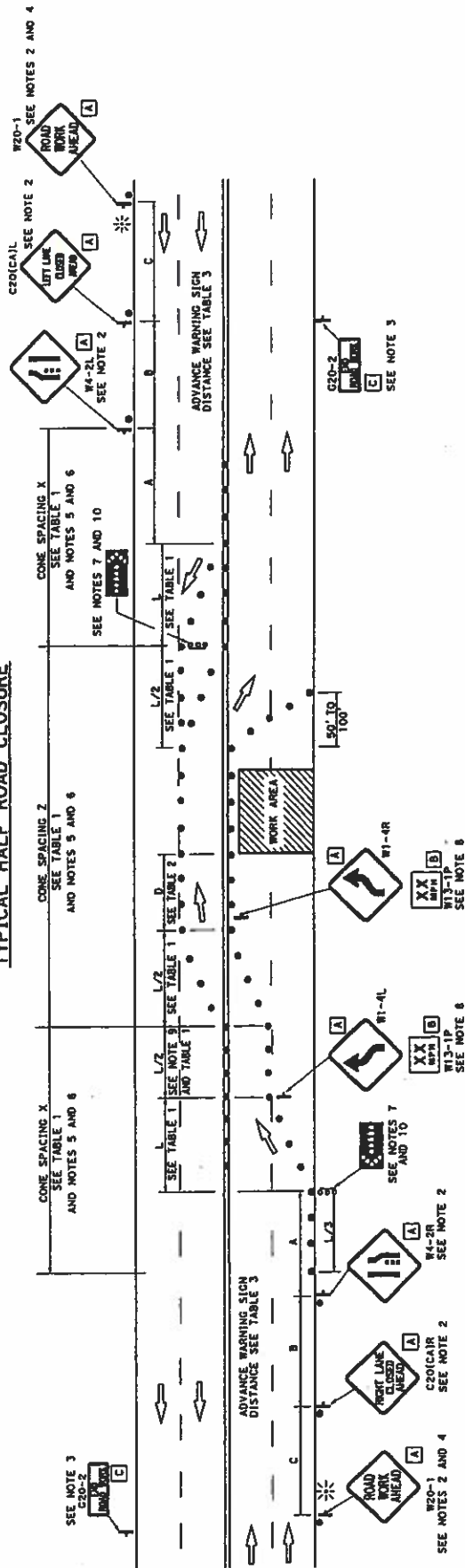
**NOTES:**  
 see Standard Plan T9 for tables.  
 Use cone spacing X for taper segment, Y for tangent segment, or Z for cone configurations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.  
 All temporary warning signs shall have black legend on fluorescent orange background.  
 California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

**SIGN PANEL SIZE (MID)**

A	48" x 48"
B	24" x 24"
C	36" x 18"

- LEGEND**
- TRAFFIC CONE
  - ⌋ TEMPORARY TRAFFIC CONTROL SIGN
  - ⊠ FLASHING ARROW SIGN (FAS)
  - ⊞ FAS SUPPORT OR TRAILER
  - ⊛ PORTABLE FLASHING BEACON

**TYPICAL HALF ROAD CLOSURE**



- NOTES:**
- At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closure unless, otherwise directed by the Engineer.
  - Each advance warning sign in each direction of travel shall be equipped with at least two 180° x 180° or 18" x 18" retroreflective lenses. The lenses shall be of fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
  - A G20-2 "END ROAD WORK" sign, as appropriate, shall be placed at the end of the lane closure unless the end of work area is obvious, or ends within a longer project's limits.
  - If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT MILES" sign, use a C20(CA)R sign for the first advance warning sign.
  - All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves).

- Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
- Flashing arrow signs shall be either Type I or Type II.
- Advisory speed will be determined by the Engineer. The W1-AR Plaque will not be required when advisory speed is more than the posted or maximum speed limit.
- The tangent (L/2) shall be used.
- A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at the top of crest vertical curve or on a horizontal curve.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL SYSTEM  
 FOR HALF ROAD CLOSURE ON  
 MULTILANE CONVENTIONAL  
 HIGHWAYS AND EXPRESSWAYS**

NO SCALE

T12

CITY COUNTY ROUTE PROJECT NO. SHEET NO. TOTAL SHEETS

**REGISTERED CIVIL ENGINEER**

October 30, 2015

PLANS APPROVAL DATE

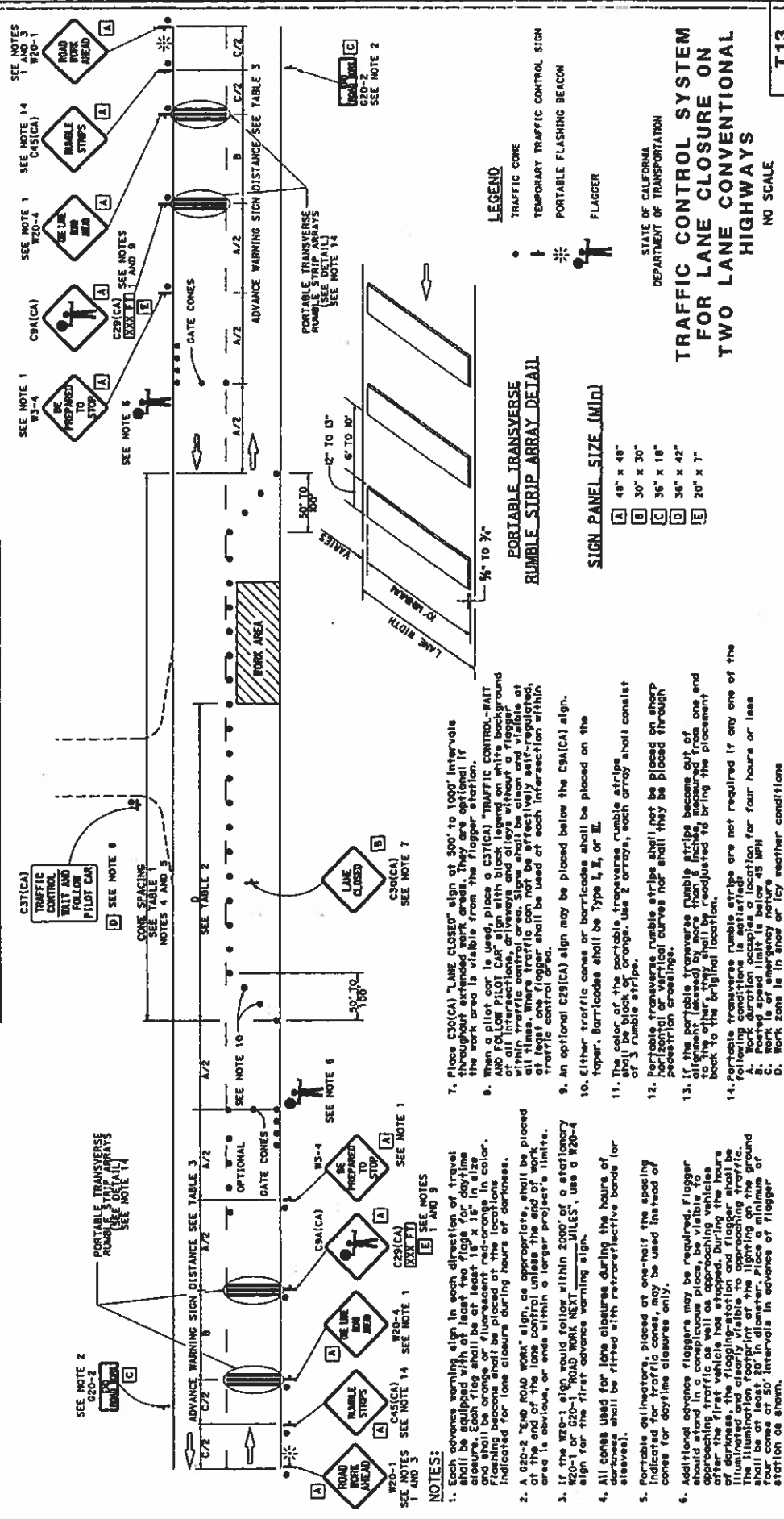
STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

FOR THE COUNTY OF SAN DIEGO

PROJECT NO. 06-03-011

DATE OF THIS PLAN SET

TYPICAL LANE CLOSURE WITH REVERSIBLE CONTROL



**NOTES:**

See Standard Plan 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.

All temporary warning signs shall have black legend on fluorescent orange background.

California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

- 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 closures during hours of darkness.
- A W20-2 "NO 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.
- If the W20-1 sign would follow within 2000' of a stationary sign for the first advance warning sign, use a W20-4 device.
- All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves).
- Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
- Additional advance flaggers may be required. Flaggers should be equipped with reflective vests, and should 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 by flashing lights. The illumination of the flagger shall be at least 20' in diameter. Place a minimum of four cones at 50' intervals in advance of flagger station as shown.

- Place C39(CA) "LANE CLOSED" sign at 500' to 1000' intervals throughout extended work area. They are optional if the work area is visible from the flagger station.
- 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. At all times, the traffic can not be effectively self-regulated, at least one flagger shall be used at each intersection within traffic control area.
- An optional C28(CA) sign may be placed below the C39(CA) sign.
- Either traffic cones or barricades shall be placed on the taper. Barricades shall be type 1, 2, or 3L.
- The color of the portable transverse rumble strips shall be black or orange. Use 2 arrays, each array shall consist of 3 rumble stripes.
- Portable transverse rumble strips shall not be placed on sharp horizontal or vertical curves nor shall they be placed through locations of crossings.
- The portable transverse rumble stripes become set of 48" (taper) and 30" (control) from the taper. Measure from one end to the other, they shall be readjusted to bring the placement back to the original location.
- Portable transverse rumble stripes are not required if any one of the following conditions is satisfied:
  - Posted speed limit is below 45 MPH
  - Work is of emergency nature
  - Work zone is in snow or icy weather conditions

**LEGEND**

- TRAFFIC CONE
- TEMPORARY TRAFFIC CONTROL SIGN
- PORTABLE FLASHING BEACON
- FLAGGER

**PORTABLE TRANSVERSE RUMBLE STRIP ARRAY DETAIL**

SIGN PANEL SIZE (WxD)

A	48" x 48"
B	30" x 30"
C	36" x 18"
D	36" x 42"
E	20" x 7"

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL SYSTEM  
FOR LANE CLOSURE ON  
TWO LANE CONVENTIONAL  
HIGHWAYS**

NO SCALE

**T13**

Return to Table of Contents

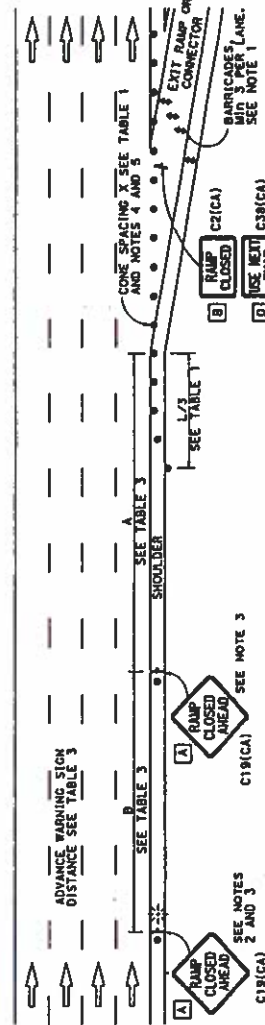
COUNTY: MOBILE ROUTE: 40111 PROJECT: I-65 NB RAMP 14

*Richard Spahr*  
REGISTERED CIVIL ENGINEER  
STATE OF CALIFORNIA  
EXPIRES 12-31-17  
NO. 51789

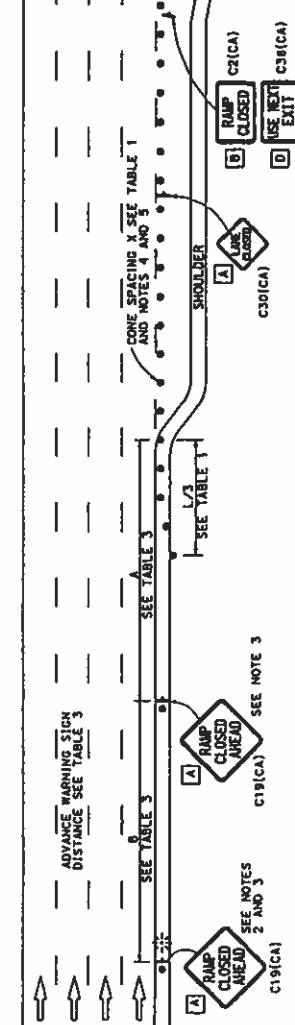
October 30, 2015  
PLANS EXPIRATION DATE

FOR ADRS 321, AND 321.5, AND 322.5, AND 323.5, AND 324.5, AND 325.5, AND 326.5, AND 327.5, AND 328.5, AND 329.5, AND 330.5, AND 331.5, AND 332.5, AND 333.5, AND 334.5, AND 335.5, AND 336.5, AND 337.5, AND 338.5, AND 339.5, AND 340.5, AND 341.5, AND 342.5, AND 343.5, AND 344.5, AND 345.5, AND 346.5, AND 347.5, AND 348.5, AND 349.5, AND 350.5, AND 351.5, AND 352.5, AND 353.5, AND 354.5, AND 355.5, AND 356.5, AND 357.5, AND 358.5, AND 359.5, AND 360.5, AND 361.5, AND 362.5, AND 363.5, AND 364.5, AND 365.5, AND 366.5, AND 367.5, AND 368.5, AND 369.5, AND 370.5, AND 371.5, AND 372.5, AND 373.5, AND 374.5, AND 375.5, AND 376.5, AND 377.5, AND 378.5, AND 379.5, AND 380.5, AND 381.5, AND 382.5, AND 383.5, AND 384.5, AND 385.5, AND 386.5, AND 387.5, AND 388.5, AND 389.5, AND 390.5, AND 391.5, AND 392.5, AND 393.5, AND 394.5, AND 395.5, AND 396.5, AND 397.5, AND 398.5, AND 399.5, AND 400.5, AND 401.5, AND 402.5, AND 403.5, AND 404.5, AND 405.5, AND 406.5, AND 407.5, AND 408.5, AND 409.5, AND 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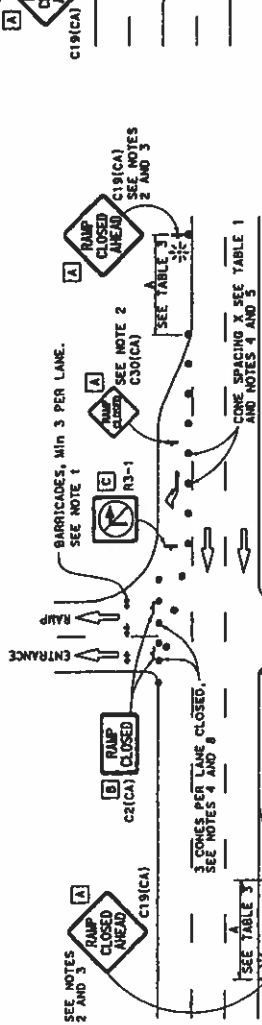
**TYPICAL RAMP CLOSURES**



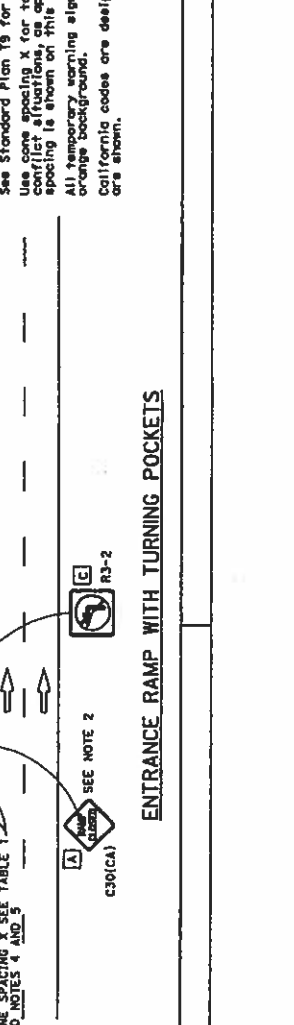
**EXIT RAMP OR CONNECTOR**



**EXIT RAMP OR CONNECTOR WITH ADDITIONAL LANE**



**ENTRANCE RAMP WITH TURNING POCKETS**



**SIGN PANEL SIZE (MIN)**

- A 48" x 48"
- B 48" x 30"
- C 36" x 36"
- D 48" x 36"

**LEGEND**

- TRAFFIC CONE
- ↑ TEMPORARY TRAFFIC CONTROL SIGN
- ⊥ BARRICADES
- ✱ PORTABLE FLASHING BEACON

**NOTES**

- Barricades shall be Type I, II, or III for closures lasting more than one week or less and Type IV for closures lasting longer than one week.
- In addition to placing the C19(CA) "RAMP CLOSED AHEAD" and C30(CA) "RAMP CLOSED" signs, black on orange overlay plates with the word "ROADWORK" shall be placed on the sign. The overlay shall be placed on all guide signs that refer to the ramp. The overlay size on the overlay shall be the same as the guide sign.
- Each advance C19(CA) "RAMP CLOSED AHEAD" sign shall be equipped with a flashing beacon. The flashing beacon shall be orange or fluorescent red-orange in color. A flashing beacon shall be placed on top of the first C19(CA) sign during hours of darkness.
- All cones used for ramp closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
- Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime ramp closures only.
- At least one person shall be assigned to provide full-time maintenance of traffic control devices, unless otherwise directed by the Engineer.
- The existing "EXIT" signs shall be covered during ramp closures.
- A minimum of 3 cones shall be placed transversely across each closed lane and shoulder.

**NOTES**

- See Standard Plan T9 for tables.
- Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 3, unless X, Y, or Z cone spacing is shown on this sheet.
- All temporary warning signs shall have black legend on fluorescent orange background.
- California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

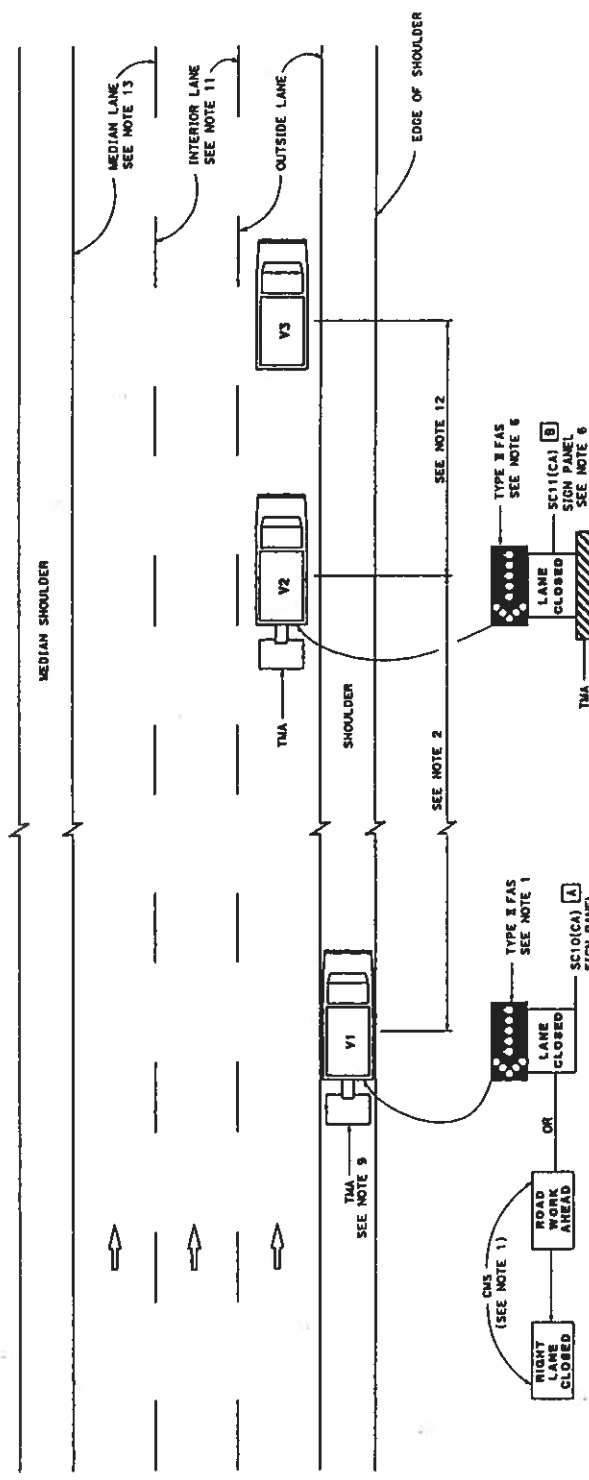
**TRAFFIC CONTROL SYSTEM  
FOR RAMP CLOSURE**

NO SCALE

T14

DATE	COUNTY	ROUTE	POST MILE	POST MILE	POST MILE

*Revised*  
 REGISTERED CIVIL ENGINEER  
 October 30, 2015  
 THE STATE OF CALIFORNIA HAS REVIEWED THIS SET OF PLANS AND APPROVES THEM FOR THE PURPOSES OF THE PUBLIC WORKS ACT AND THE PUBLIC WORKS ACT REGULATIONS. THE ENGINEER SHALL BE RESPONSIBLE FOR THE ACCURACY OF THIS PLAN SHEET.



**MOVING LANE CLOSURE ON MEDIAN LANE OR OUTSIDE LANE OF MULTILANE HIGHWAYS**

**NOTES:**

1. Either a changeable message sign or a SC10(CA) sign should be used to indicate the location of the moving lane closure. The sign should be positioned upstream from the end of the queue. Sign vehicle V1 should be positioned where highly visible when shoulders are not available.
2. If traffic queues develop, sign vehicle V1 should be positioned upstream from the end of the queue. Sign vehicle V1 should be positioned where highly visible when shoulders are not available.
3. A minimum sight distance of 1500' should be provided in advance of sign vehicle V1.
4. Sign vehicle V1 should remain at the beginning of horizontal or vertical curves until the other vehicles (V2 and V3) are far enough beyond the sign vehicle to resume the minimum sight distance of 1500'.
5. Vehicle-mounted sign panels shall have Type III or above retroreflective sheeting, black on white, or black on fluorescent orange, with a minimum of 100 letters per California sign specifications.
6. Shadow vehicles V2 shall be equipped with a truck-mounted attenuator. The sign panel shown and Type II flashing arrow sign shall be mounted on the rear of shadow vehicle V2. Sign vehicle V1 shall be equipped with the flashing arrow sign symbol shall be displayed with the arrowhead on the right.
7. All vehicles used for lane closures shall be equipped with amber lights, and the vehicle operators shall maintain communication during the work or application operation.
8. All vehicles shall be equipped with flashing or rotating amber lights.
9. If sign vehicle V1 approaches into the traffic lane due to insufficient shoulder width, sign vehicle V1 shall be equipped with a truck-mounted attenuator. Sign vehicle V1 shall stop as close to the edge of shoulder as practicable.
10. Where workers would be on foot in the work area, a stationary type lane closure (Standard Plan T10, T11, etc., as applicable) shall be used instead of this plan.
11. For moving lane closure on interior lane of multilane highways, use Standard Plan T16.
12. The spacing between work vehicle(s) and the shadow vehicles, and the spacing between work vehicle(s) and the shadow vehicles, shall be minimized to deter road users from driving in between.
13. When the work/application vehicle V3 occupies the median lane, sign vehicle V1 should drive in the median shoulder and indicate left lane closed ahead.

**SIGN PANEL SIZE (Min)**

- A 66" x 36"
- B 54" x 42"

**LEGEND**

- V1 SIGN VEHICLE
- V2 SHADOW VEHICLE
- V3 WORK/APPLICATION VEHICLE
- CHS FLASHING ARROW SIGN (FAS)
- CHS CHANGEABLE MESSAGE SIGN
- TMA TRUCK-MOUNTED ATTENUATOR

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL SYSTEM FOR MOVING LANE CLOSURE ON MULTILANE HIGHWAYS**

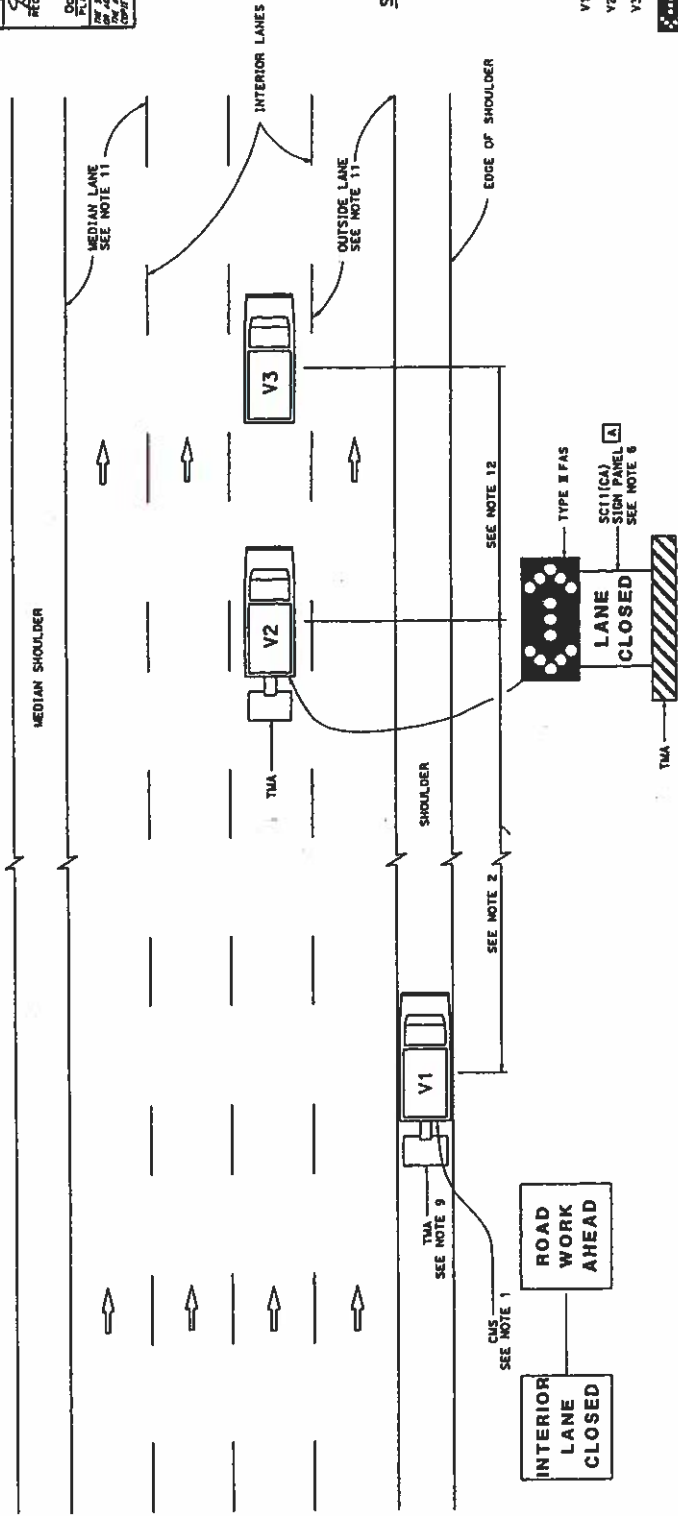
NO SCALE

T15

Return to Table of Contents

DIST	COUNTY	ROUTE	TOTAL MILES	SHEET NO.	TOTAL SHEETS

**REGISTERED CIVIL ENGINEER**  
*Devin...*  
 O.C. 30, 2015  
 STATE OF CALIFORNIA  
 THE STATE OF CALIFORNIA IS THE OFFICE  
 OF THE REGISTERED CIVIL ENGINEERS  
 AND ARCHITECTS  
 THE BOARD OF ARCHITECTURE AND ENGINEERING  
 EXAMINERS HAS REVIEWED THIS PLAN SHEET  
 AND HAS FOUND IT TO BE IN ACCORDANCE  
 WITH THE REQUIREMENTS OF THE  
 PROFESSIONAL ENGINEERING ACT



**MOVING LANE CLOSURE ON INTERIOR LANE OF MULTILANE HIGHWAYS**

- LEGEND**
- V1 SIGN VEHICLE
  - V2 SHADOW VEHICLE
  - V3 WORK/APPLICATION VEHICLE
  - FLASHING ARROW SIGN (FAS) IN FLASHING DOUBLE ARROW HOUSING
  - CHANGEABLE MESSAGE SIGN
  - TRUCK-MOUNTED ATTENUATOR

**TRAFFIC CONTROL SYSTEM FOR MOVING LANE CLOSURE ON MULTILANE HIGHWAYS**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

NO SCALE

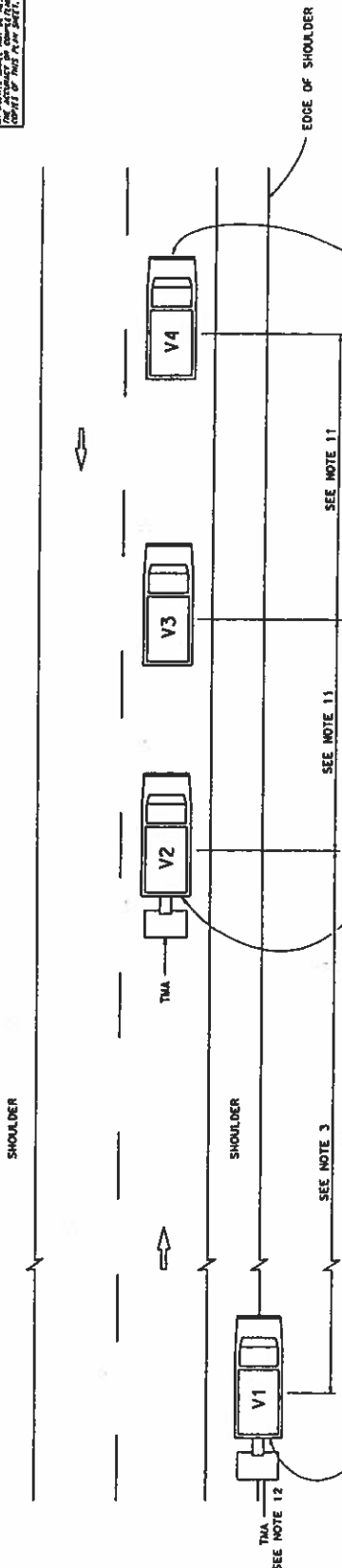
**T16**

- NOTES:**
- A changeable message sign shall be mounted on the rear of sign vehicle V1. The changeable message sign shall be sequenced to show the "INTERIOR LANE CLOSED" message first, the "CENTER LANE CLOSED" message, and the "LANE CLOSED" message.
  - If traffic queues develop, sign vehicle V1 should be positioned upstream from the end of queue. Sign vehicle V1 shall be positioned where highly visible when shoulders are not available.
  - A minimum sight distance of 1500' should be provided in advance of sign vehicle V1.
  - Sign vehicle V1 should remain at the beginning of horizontal or vertical curves until the other vehicles (V2 and V3) are far enough beyond the curve to resume the minimum sight distance of 1500'.
  - Vehicle-mounted sign panels shall have Type III or above retroreflective sheeting, black on white, or black on fluorescent orange, with a minimum series D letters per California sign specifications.
  - Shadow vehicle V2 shall be equipped with a truck-mounted attenuator. The sign panel area and a Type II flashing arrow sign (FAS) shall be mounted on the rear of shadow vehicle V2.
  - All vehicles used for lane closures shall be equipped with a truck-mounted attenuator. Sign vehicle V1 shall stay in communication during the work or application operation.
  - All vehicles shall be equipped with flashing or rotating amber lights.
  - If sign vehicle V1 encroaches into the traffic lane due to a changeable message sign, it shall be equipped with a truck-mounted attenuator. Sign vehicle V1 shall stay as close to the edge of shoulder as practicable.
  - Shadow vehicle V2 shall be equipped with a truck-mounted attenuator. The sign panel area and a Type II flashing arrow sign (FAS) shall be mounted on the rear of shadow vehicle V2.
  - For moving lane closure on median lane or outside lane of multilane highways, use Standard Plan T15.
  - The spacing between work vehicle(s) and the shadow vehicles, and between each shadow vehicle should be minimized to deter road users from driving in between.
  - Where workers would be on foot in the work area, a stationary Type lane closure (Standard Plan T10, T11, etc.), as applicable shall be used instead of this plan.



DATE	COUNTY	ROUTE	POST MILE	PROJECT	SHEET TOTAL

October 30, 2015  
 PLUS APPROVAL DATE  
 IN ACCORDANCE WITH THE CALIFORNIA PROFESSIONAL ENGINEERING ACT  
 AND THE REGULATIONS OF THE BOARD OF PROFESSIONAL ENGINEERS AND SURVEYORS



**SIGN PANEL SIZE (Min.)**

A	72" x 42"
B	54" x 42"
C	54" x 24"

**LEGEND**

V1	SIGN VEHICLE
V2	SHADOW VEHICLE
V3	WORK/APPLICATION VEHICLE
V4	SIGN VEHICLE
TMA	TRUCK-MOUNTED ATTENUATOR
	FLASHING ARROW SIGN (FAS)
	FLASHING ARROW SIGN (FAS) IN FLASHING CAUTION MODE
	FLASHING ARROW SIGN (FAS) IN ALTERNATING DIAMOND CAUTION

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

## TRAFFIC CONTROL SYSTEM FOR MOVING LANE CLOSURE ON TWO LANE HIGHWAYS

NO SCALE

T17

**NOTES:**

- Either a changeable message sign or a SC12(CA) "SLOW TRAFFIC AHEAD" sign shall be mounted on the rear of sign vehicle V1. The changeable message sign shall be sequenced to show the "CAUTION" message first, followed by the "SLOW TRAFFIC AHEAD" message. A Type II flashing arrow sign may be used with the SC12(CA) sign panel.
- Sign vehicle V1 should be positioned where highly visible when shoulders are not available.
- If traffic queues develop, sign vehicle V1 should be positioned upstream from the end of queue.
- Vehicle-mounted sign panels shall have Type III or above retroreflective sheeting, black on white, or black on fluorescent orange, with a minimum series D letters per California sign specifications.
- Shadow vehicle shall be equipped with a truck-mounted attenuator. The sign panel shall be mounted on the rear of shadow vehicle V2. The message "LANE CLOSED" may be used in place of the "DO NOT PASS" message.
- The sign panel shown shall be mounted on the front of sign vehicle V4, facing opposing traffic.
- All vehicles shall be equipped with flashing or rotating amber lights.
- Sign vehicle V4 will not be required when the work and vehicles V2 and V3 are 2' or more from the center-line of the highway during the work or application operations.
- All vehicles used for lane closures shall be equipped with two-way radios and the vehicle operators shall maintain communication during the work or application operation.
- This plan shall not be used where workers would be on foot in the work area. Use a stationary type lane closure (Standard Plan T13) for this condition.
- Minimize spacing between vehicles V2 and V3 and vehicles V3 and V4 to deter road users from driving in between them.
- If sign vehicle V1 encroaches into the traffic lane due to insufficient shoulder width, sign vehicle V1 shall be equipped with a truck-mounted attenuator. Sign vehicle V1 shall stop as close to the edge of shoulder as practicable.

Return to Table of Contents

