


Memorandum

*Making Conservation
a California Way of Life.*

To: DISTRICT DIRECTORS
DIVISION CHIEFS
Engineering Services, Construction, Design, and Maintenance
DEPUTY DISTRICT DIRECTORS
Traffic Operations, Maintenance, Construction, and Design

Date: May 19, 2017

File: Division of Traffic Operations

From: AMARJEET S. BENIPAL 
Acting Chief
Division of Traffic Operations

Subject: **IMPLEMENTATION OF SIX-INCH WIDE TRAFFIC LINES AND DISCONTINUING USE OF NON-REFLECTIVE RAISED PAVEMENT MARKERS**

The California Department of Transportation (Caltrans) is discontinuing the use of Type A and Type AY non-reflective raised pavement markers (RPMs) and increasing the width of all four-inch wide longitudinal traffic lines to six-inch wide lines for permanent pavement delineation on state highways. The revisions to the 2015 Standard Plans and Standard Specifications will be posted in July 2017. This Memorandum provides guidance regarding the implementation of the Revised Standard Plans (RSP) and Revised Standard Specifications (RSS).

The increased width of longitudinal traffic lines will benefit older drivers and increase visibility of laneline delineation for all road users by providing improved roadway guidance, especially during periods of impaired visibility, such as wet conditions at night (refer to the Federal Highway Administration's (FHWA) "Handbook for Designing Roadways for the Aging Population").

Type A and Type AY RPMs are non-reflective and do not comply with "minimum maintained retroreflectivity of pavement markings" per FHWA's Supplemental Notice of Proposed Amendments (SNPA) to the Manual on Uniform Traffic Control Devices (MUTCD). Discontinuing the use of Type A and Type AY RPMs will allow the use of durable striping material with retroreflectivity and enhanced visibility, reduce highway workers' exposure to traffic, reduce traffic delays during lane closures, and achieve uniformity with other states.

Non-Reflective RPMs:

Discontinue the use of Type A and Type AY RPMs for permanent pavement delineation on state highways on all new construction contracts and maintenance restriping of existing traffic lines.

Six-inch Longitudinal Traffic Lines:

- All longitudinal traffic lines for lanelines, edgelines, and centerlines must be six inches wide.

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- On maintenance refresher activities (Repair/Replace striping), all longitudinal traffic lines for lanelines, edgelines, and centerlines must be six-inch wide lines except existing four-inch wide double lines with retroreflective pavement markers on both sides of the longitudinal line (Details 16, 19, 22, 29, 32, 34, and 35) and recessed striping shall remain four inches wide.
- When a state highway intersects with a local road, only mainline state highway longitudinal traffic lines for lanelines, edgelines, and centerlines must be six-inch wide lines.

This memorandum rescinds Traffic Operations Program Directive (TOPD) 00-02 "Policy for Optional Laneline Delineation." (attached)

If you have any questions regarding this memorandum, please contact Duper Tong, Chief, Office of Traffic Engineering at (916) 654-5176, or by e-mail at duper.tong@dot.ca.gov.

Attachment:

Traffic Operations Program Directive (TOPD) 00-02

c: Steve Takigawa, Deputy Director, Maintenance and Operations
Karla Sutliff, Deputy Director, Project Delivery

PROGRAM DIRECTIVE

TR-0011 (New 10/28/1999)

TRAFFIC OPERATIONS PROGRAM DIRECTIVE	NUMBER 00-02	Page 1 of 2 (plus attachments)
KIM NYSTROM, ACTING PROGRAM MANAGER <i>(Signature)</i>	DATE ISSUED 2/01/2000	EFFECTIVE DATE Immediately upon issue
SUBJECT Policy for Optional Laneline Delineation	DISTRIBUTION <input type="checkbox"/> All District Directors <input checked="" type="checkbox"/> All District Division Chiefs - Traffic Operations <input checked="" type="checkbox"/> All District Division Chiefs - Maintenance <input checked="" type="checkbox"/> All District Division Chiefs - Construction <input checked="" type="checkbox"/> All District Division Chiefs - Project Development <input type="checkbox"/> All District Division Chiefs - Planning <input checked="" type="checkbox"/> Engineering Service Center Director <input checked="" type="checkbox"/> All Headquarters Program Managers (for Maintenance, Construction & Project Development)	
DOES THIS DIRECTIVE SUPERSEDE ANOTHER DOCUMENT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	IF YES, DESCRIBE	
WILL THIS DIRECTIVE BE INCORPORATED IN THE TRAFFIC MANUAL? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	IF YES, DESCRIBE Pages 6-5 & 6-26 will be amended per attachments	

DIRECTIVE

Practice has been to require non-reflective raised pavement markers in conformance with Caltrans' Traffic Manual, Detail 10 for freeway ramps and Detail 13 (Page 6-26), for laneline pattern on freeways, expressways, freeway ramps, freeway to freeway connectors and collector roads. Effective immediately, Districts have the option of using either Detail 9, a 2.14-meter solid white stripe, or Detail 10, three (3) non-reflective white markers for lanelines (between retroreflective markers) for freeway ramps for speed zones 60 km/hr or less. Districts also have the option of using either Detail 12, a 3.66 meter solid white stripe or Detail 13, four (4) non-reflective white markers for lane lines (between retroreflective markers) on freeways and expressways for speed zones 70 km/hr or more. This does not change the pattern for raised retroreflective markers shown in Details 9, 10, 12, 13 and 14. The change in laneline marking guidance is noted in red on the attached pages 6-5 (Section 6-02.2) and 6-26 (Details 9, 12 and 14) of the Caltrans Traffic Manual.

IMPLEMENTATION

When specifying either Detail 9 or 10; or, Detail 12 or 13, Districts should consider: 1) Day and night visibility of lanelines; 2) Exposure of maintenance and contractor personnel to traffic; 3) Traffic delays caused by lane closures; and, 4) Long-term maintenance requirements.

PROGRAM DIRECTIVE

TR-0011 (New 10/28/1999)

Continuation

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IMPLEMENTATION (continued)

If a freeway, expressway, freeway ramp, freeway to freeway connector or collector road has delineation with non-reflective markers as in Details 10 and 13, a District may place a white stripe on the non-reflective markers in accordance with Details 9 and 12 if this is judged to improve visibility of delineation.

For new construction, if a District proposes using a combination of both nonreflective markers and white stripe, District Traffic Operations Liaison should be consulted.

BACKGROUND

District 3 has undertaken three test projects where the non-reflective markers were replaced with thermoplastic lanelines. These were on sections of Interstate Routes 5 and 80 and State Route 51. Before and after accident data were analyzed for periods between 1990 and 1998. The accident data showed no increase in lane change type accidents on any of these routes.

Application of Pavement and Curb Markings 6-02

6-02.1 Centerlines

A yellow centerline separates traffic traveling in opposite directions. It need not be at the geometrical center of the pavement. Centerlines provide important guidance to motorists. On roads where a continuous centerline is not used, short sections may be used to control the position of traffic at specific locations, such as around curves, over hills, and on approaches to intersections, railroad crossings, and bridges.

Centerlines should be used on paved highways or portions thereof under the following conditions:

1. In rural areas on two-lane pavements 4.88 m or greater in width with speed zones of 55 km/h or more.
2. In business or residential districts on through highways, and on other highways where there are significant traffic volumes.
3. On all undivided pavements of four or more lanes.
4. At other locations where an engineering study indicates a need for them.

The centerline on undivided highways where three or more lanes are always available shall be a double solid yellow line.

Centerline patterns shall be selected from those shown in Figure 6-1, CENTERLINES - 2 LANE HIGHWAYS. Raised reflective pavement markers shall be used to supplement the centerline markings on State highways, except in snow areas.

INTERSECTION MARKINGS - CVC 21752 restricts passing (driving on left side of a two-way roadway) when approaching within 30 m (100 feet) of or when traversing any intersection. The patterns and policy are shown in Figure 6-9, INTERSECTION MARKINGS.

6-02.2 Lanelines

White lanelines separate lanes of traffic traveling in the same direction and shall be used on all multilane highways.

A single solid white line may be used as the laneline in critical areas to discourage lane changing. Typical locations for such applications are tunnels or bridges having width restrictions, interchange areas where lane changing disrupts traffic flow and the delineation of separate turn lanes.

It may also be used to separate through traffic lanes from special secondary lanes, such as passing lanes, left or right-turn lanes and transit bus lanes.

Laneline patterns shall be selected from those shown in Figure 6-2, LANELINES - MULTILANE HIGHWAYS. Detail 9 or 10 (60 km/h or less) or Detail 12 or 13 (70 km/h or more) shall be used on State freeways, expressways, freeway ramps, freeway to freeway connectors and collector roads, except in snow areas.

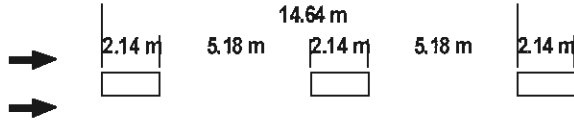
1. LANEDROPS

A. *Freeways* - A 200 mm wide dotted white lane drop line shall be placed in advance of lane drops at exit-ramps. The basic purpose of this line is to provide a "crossable" line to show the edge of the roadway to entering, exiting, and through traffic. If the dropped lane is an auxiliary lane 0.8 km or less in length, the lane drop line should extend throughout the entire length. The lane drop line pattern shall be as shown in Figure 6-11, LANE DROP MARKINGS. Also, see Figure 6-13, LANEDROP SIGNING AND MARKINGS AT EXIT RAMPS, and Figure 6-14, FREEWAY TO FREEWAY CONNECTOR SIGNING AND MARKINGS, for further details of marking and signing on State freeways.

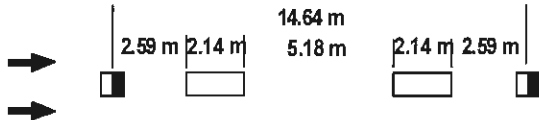
Figure 6-2
LANELINES - MULTILANE HIGHWAYS

FOR SPEED ZONES 60 KM/H OR LESS

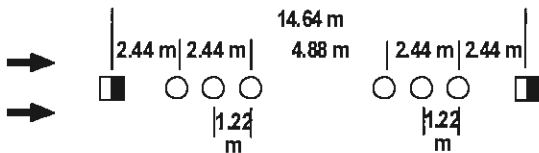
DETAIL 8



DETAIL 9

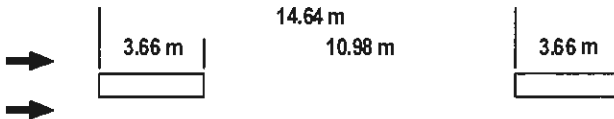


DETAIL 10

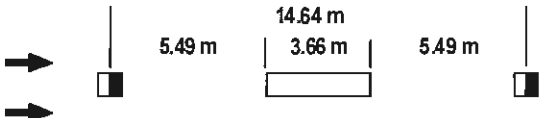


FOR SPEED ZONES 70 KM/H OR MORE

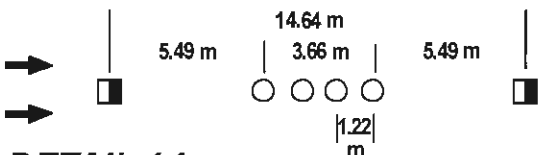
DETAIL 11



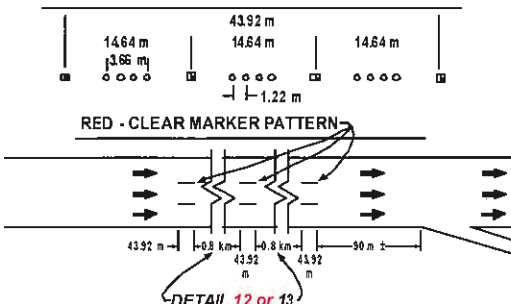
DETAIL 12



DETAIL 13



DETAIL 14



POLICY

Laneline pattern for use on multilane streets and highways (normally used on local streets and highways).

Laneline pattern with pavement markers for use on multilane streets, highways and *freeway ramps*.

Laneline pattern with pavement markers for use on multilane streets, highways and freeway ramps.

Laneline pattern for use on multilane streets and highways (normally used on local streets and highways).

Laneline pattern with pavement markers for use on multilane conventional streets and highways, *State freeways, expressways, freeway ramps, freeway to freeway connectors and collector roads*. See Detail 14.

Laneline pattern with pavement markers for use on State freeways, expressways, freeway ramps, freeway to freeway connectors and collector roads. See Detail 14.

Laneline pattern with red-clear pavement markers shall be use on freeways approaching exit ramps. Used with Detail 12 or 13, in a pattern of four red-clear pavement markers, at intervals as shown.

LEGEND

- 100 mm White
- One-Way Clear Reflective Markers
- Non-Reflective White Markers
- Direction of Travel
- Red-Clear Reflective Markers

NOT TO SCALE