



## DEPARTMENT OF TRANSPORTATION

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**TO:** OakDOT/OPW Staff  
**FROM:** Wladimir Wlassowsky, Interim City Engineer  
**SUBJECT:** Supplemental Guidance – Application of Raised Pavement Markers  
**DATE:** March 28, 2024

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This memorandum provides guidance on the application of raised pavement markers (retroreflective and non-retroreflective) to supplement pavement markings in Oakland. It supplements the standards and guidance included in the California MUTCD (Section 3B.13, “Raised Pavement Markers Supplementing Other Markings”), which are excerpted below for reference. The intent of this memorandum is to highlight applicable guidance in the CA MUTCD, document Oakland application of this guidance, and promote consistency in the application of raised pavement markers supplementing pavement markings on Oakland roadways.

**CA MUTCD Standard:** The widths and patterns of raised pavement markers shall conform to the details shown in Figures 3A-101(CA) through 3A-114(CA). See Section 3A.06.

**CA MUTCD Guidance:** The use of retroreflective or internally illuminated raised pavement markers for supplementing longitudinal line markings should comply with the following:

A. Lateral Positioning

1. When supplementing double line markings, pairs of raised pavement markers placed laterally in line with or immediately outside of the two lines should be used.
2. When supplementing wide line markings, pairs of raised pavement markers placed laterally adjacent to each other should be used.

B. Longitudinal Spacing

3. When supplementing dotted lane line markings, a spacing appropriate for the application should be used.
4. When supplementing longitudinal line extension markings through at-grade intersections, one raised pavement marker for each short line segment should be used.

Raised pavement markers should not supplement right-hand edge lines unless an engineering study or engineering judgment indicates the benefits of enhanced delineation of a curve or other

location would outweigh possible impacts on bicycles using the shoulder, and the spacing of raised pavement markers on the right-hand edge is close enough to avoid misinterpretation as a broken line during wet night conditions.

***Oakland Guidance:***

Striping details with supplemental raised pavement markers (RPMs) may be used on roadways with one or more of the following conditions:

- Unimproved edges (without curbs);
- Significant horizontal curvature (common in hill areas above Highway 13/Mountain Blvd);
- Portland cement concrete pavement surface.

Note that the striping details listed below are those most commonly used on Oakland streets, with detail numbers as listed in Figures 3A-101 through 3A-114 of the CA MUTCD.

<b>Type of longitudinal pavement marking</b>	<b>Typical roadways (without conditions noted above)</b>	<b>Roadways with a condition noted above</b>
Centerlines	Detail 1	Detail 2
Centerlines (Two-Way No Passing)	Detail 21	Detail 22
Lane Lines	Detail 8	Detail 9
Left Edge Lines	Detail 24	Detail 25
Median Islands (Striped/All-Paved)	Detail 28	Detail 29
Two-Way Left Turn Lanes	Detail 31	Detail 32
Lane Drop Markings	Detail 37B (w/o optional RPMs)	Detail 37B (with optional RPMs)
Channelizing Lines	Detail 38A	Detail 38

**CA MUTCD Options:** Raised pavement markers also may be used to supplement other markings such as channelizing islands, gore areas, approaches to obstructions, or wrong-way arrows.

To improve the visibility of horizontal curves, center lines may be supplemented with retroreflective or internally illuminated raised pavement markers for the entire curved section as well as for a distance in advance of the curve that approximates 5 seconds of travel time.