LONGITUDINAL RUMBLE STRIPS AND STRIPES ON TWO-LANE ROADS

WHAT IS THE COUNTERMEASURE?

Over 50 percent of California's fatal crashes are a result of roadway departure. This application provides an audible warning and physical vibration to alert drivers they are leaving the roadway. The application of rumble strips or stripes has shown good results in reducing run off the road (ROR) crashes. Most rumble strips and rumble stripes are milled into the pavement and are mainly installed along the centerline or shoulder. Rumble stripes are painted over with retroreflective striping to increase visibility.

Rumble strips and rumble stripes are mentioned in the California Manual on Uniform Traffic Control Devices (CA MUTCD). Pavement markings for the rumble stripes are regulated by CA MUTCD. Section 3J.01 allows the option for *"An edge line or center line may be located over a longitudinal rumble strip to create a rumble stripe."* The color must meet the colors in Section 3A.05.

Expected crash reduction for rumble strips vary greatly depending on the design that is used and the roadway environment in which rumble strips are placed. Consider reviewing NCHRP 641: *Guidance for Design and Application of Shoulder and Centerline Rumble Strips* (online at: http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_641.pdf) to gain an understanding of the various applications and the benefits to be expected from the rumble strips.

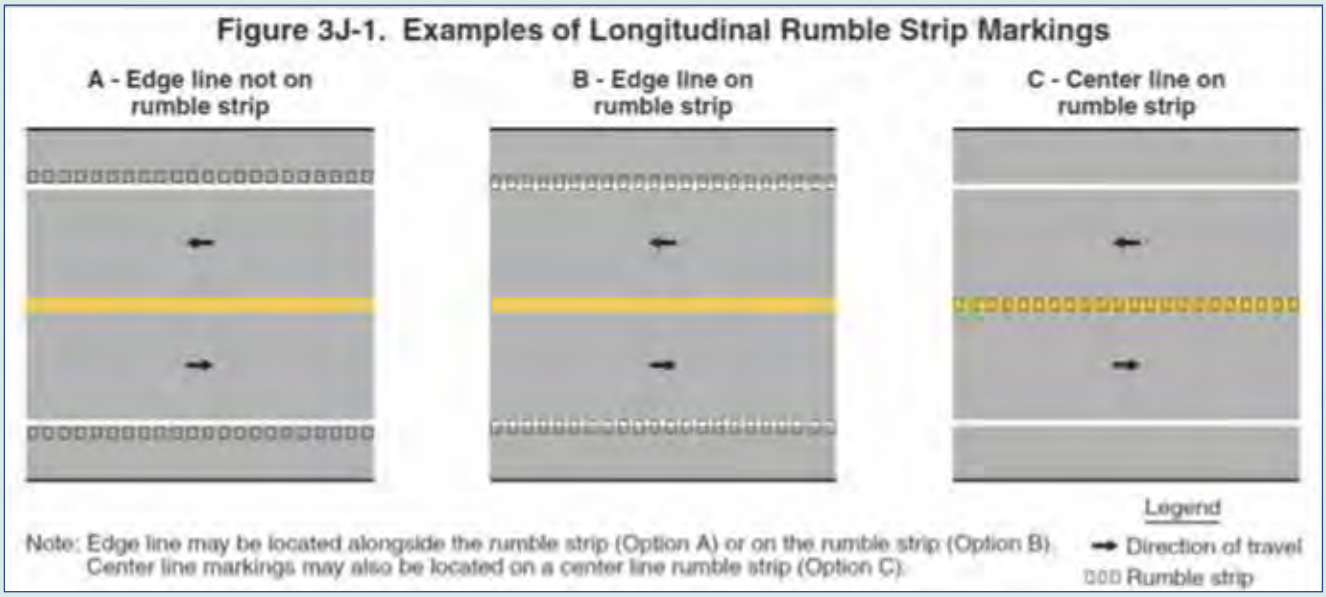

Figure 1. California MUTCD Figure 3J-1

WHAT HAVE WE DONE SO FAR?

In 2012, the FHWA Office of Safety developed a Roadway Departure Safety Implementation Plan that assessed the entire California state highway system and suggested locations for longitudinal rumble strips and other safety measures.

WHERE DO WE WANT TO GO? – SUCCESSFUL PRACTICES, LESSONS LEARNED, POINTERS FOR IMPLEMENTATION

While FHWA also recommends the use of rumble strips on multi-lane facilities, the focus is on two-lane facilities where their use has been somewhat limited in practice and studies show even higher crash reductions than on other roadways.

Caltrans issued Traffic Operations Policy Directive (TOPD) in October 2011. TOPD 11-04 *Guidelines for Installation of Rumble Strips* (online at: http://www.dot.ca.gov/hq/traffops/engineering/control-devices/policy/11-04.pdf) highlights design guidelines and new standard plans.

Caltrans has a pending patent on a rumble strip design that could be used when considering environmentally sensitive areas. Caltrans has received national attention for this unique design.

Figure 2. Shoulder rumble stripe

Figure 3. SR 84, courtesy of Google street view