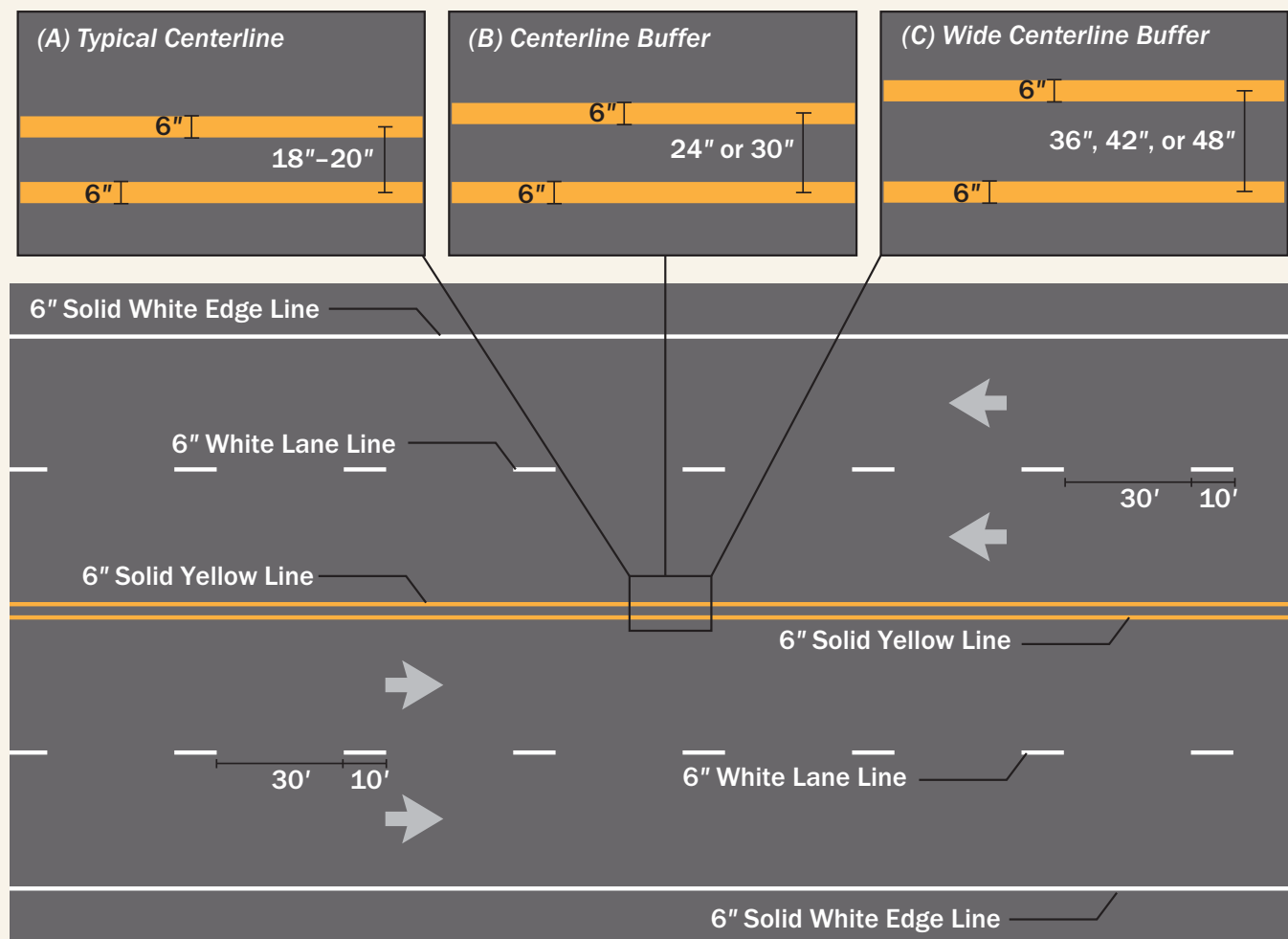


TECHNICAL BRIEF | Centerline Buffers on Four-Lane Undivided Roadways

Figure 1 shows examples of a typical centerline (18 to 20 inches between the middle of the solid yellow lines), a centerline buffer (24 or 30 inches between the middle of the solid yellow lines), and a wide centerline buffer (36, 42, or 48 inches between the middle of the solid yellow lines) on four-lane undivided roadways in Texas based on Texas Department of Transportation (TxDOT) Traffic Standards (1). Widespread application of any type of centerline buffer in Texas has been limited, so this technical brief shares the expected safety effects associated with this countermeasure.



Note: For (A) Typical Centerline, 16" minimum for restripe projects when approved by the engineer.

Figure 1. Examples of Typical Centerline and Centerline Buffers on Four-Lane Undivided Roadways (Developed Based on Criteria in the TxDOT Traffic Standards [1]).

TxDOT Research Project 0-7035 (2) investigated the effects of centerline buffers on four-lane undivided highways as part of a broader study on the trade-offs between center separation and shoulder width. The study concluded that 4-ft centerline buffers on four-lane highways are highly effective in reducing lane departure crashes, producing excellent safety performance at volumes above 15,000 vehicles per day where shoulder width is at least 6 ft and driveway density is low (no more than 10 driveways per mile).

Research results indicate that 4-ft centerline buffers on four-lane highways are highly effective in reducing lane departure crashes.

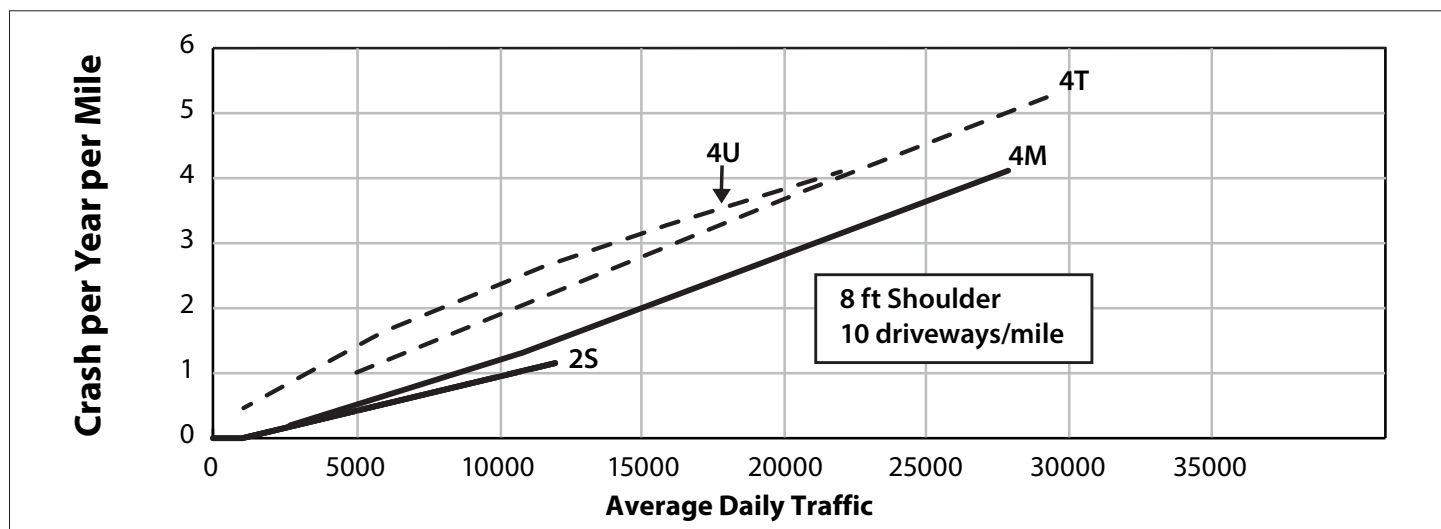


Figure 2. Predicted Number of Total Crashes for Four-Lane or Super 2 Cross-Section Options with Wide Shoulders and Low Driveway Density (2).

For example, Figure 2 shows the performance of the centerline buffers (called median buffers [4M] in 0-7035) compared to Super 2 (2S), four-lane undivided (4U), and four-lane with two-way left-turn lane (4T) for highways with 8-ft shoulders and low driveway density. The 4M generally had fewer crashes than the other four-lane cross-section alternatives. Study sites in 0-7035 represented in Figure 2 included centerline buffers of 4-ft width for the 4M cross-section, compared to a typical width of 12–16 ft for the two-way left-turn lane for 4T and compared to the then-current centerline marking width of 12 inches for 4U and 2S.

In a comparison of cross-section alternatives, the four-lane with median buffer generally had fewer crashes than other four-lane cross-sections.

REFERENCES

1. Traffic Standards (English). PM(1)-22 and CLB(1)-23. Texas Department of Transportation. <http://www.dot.state.tx.us/insdot/orgchart/cmd/cserve/standard/toc.htm>.
2. Geedipally, S.R., M. Brewer, R. Wunderlich, M.P. Pratt, L. Wu, S. Das, and D. Florence. *Examine Trade-Offs between Center Separation and Shoulder Width Allotment for a Given Roadway Width*. Report No. FHWA/TX-21/0-7035-R1. Texas A&M Transportation Institute. College Station, TX. 2021.

FOR MORE INFORMATION

Texas A&M Transportation Institute

Research Supervisor:

Melisa Finley, m-finley@tti.tamu.edu

Team Members:

Marcus Brewer, Kay Fitzpatrick

Texas Department of Transportation Research and Technology Implementation

Project Manager:

Tom Schwerdt, tom.schwerdt@txdot.gov

Published reports are available at library.ctr.utexas.edu.

Disclaimer: This research was sponsored by the Texas Department of Transportation and the Federal Highway Administration, as part of RTI Research Project 0-7198. The contents of this report reflect the views of the authors, who are responsible for the facts and accuracy of the data presented here. The contents do not necessarily reflect the official view or policies of FHWA or TxDOT. This report does not constitute a standard, specification, or regulation, nor is it intended for construction, bidding, or permit purposes. Trade names were used solely for information and not for product endorsement.