



U.S. Department  
Of Transportation  
**Federal Highway  
Administration**

400 Seventh St., S.W.  
Washington, D.C. 20590

April 24, 1995

Refer to: HNG-14/SS-55

Mr. Garry Kiljan  
Colorado Department of Transportation  
Region 6 Construction  
2000 South Holly Street  
Denver, Colorado 80222

Dear Mr. Kiljan:

Thank you for your April 7 facsimile message to Mr. Nicholas Artimovich of my staff requesting Federal Highway Administration's view on the acceptability of 4 X 6 (89 mm X 140 mm) wood sign supports as breakaway when placed with the 140 mm side perpendicular to traffic. We understand that posts oriented this way would only be used in work zones.

As you noted, 4 X 6 wood posts have been found crashworthy in both strong and weak soils when the 89 mm sides are oriented perpendicular to traffic and 38 mm holes are drilled at 100 mm and 460 mm above the ground. Comparing the section properties of a drilled, conventionally installed post with an un-drilled post installed with its wide face perpendicular to traffic, we find that the section modulus ( $bd^2/6$ ) of the un-drilled 4 X 6 post oriented with the 140 mm side perpendicular to traffic is only 68 percent of the drilled 4 X 6 post in the typical orientation. This indicates that the support is significantly weaker when struck on the wide side. Therefore, signs mounted on 4 X 6 posts so oriented will be acceptable for use in work zones on the National Highway System. Up to two such posts would be acceptable within a 2.1-meter span, in either "strong" or "weak" soil.

Sincerely yours,

Jerry L. Poston, Chief  
Federal-Aid and Design Division

Federal Highway Administration  
HNG-14:Nartimovich:gm:4-19-95:61331:KILJAN  
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Geometric and Roadside Design Acceptance Letter SS-55