



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

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

September 1, 1988

Mr. Frank M. Mayer
Madison, Wisconsin

Your office received direct a copy of Mr. Betsold's August 2, 1988 submittal, which transmitted results from recent crash testing of two large sign assemblies. Tested as 20 and 60 MPH with an 1800 lb. Vehicle were a 15' x 11' sign supported by a pair of W12 x 16 steel supports (Wis Type B) and a 22' x 14' sign on W12 x 22 steel supports (Wis Type D). Signs and supports were of conventional breakaway design with the significant exception of having no fuse plates.

As Mr. Betsold's memorandum notes, the testing shows these supports to meet all of the requirements of the 1985 specifications. In the absence of the fuse plate, failure at acceptable force levels was achieved through separation of the clip system holding the extruded sign panels to the W beam supports. Given developments in sign design over time, the torsional resistance of an extruded aluminum panel is significantly different than the wood or composite sign panels likely used in the earlier testing that led to the incorporation of a fuse plate. Blow over problems led Wisconsin to eliminate the fuse plate but test results would indicate greater sign damage can then be expected from actual roadside collisions.

These test results have been discussed with Mr. Hatton (HNG-14). Both of our offices see no problems in Wisconsin's use (or that by other States) of sign designs within the size parameters of the tested configurations. Important to the overall design of such sign systems is also replicating the tested clip and extruded panel fixation system.

We see no questions as to the Federal-aid eligibility for such sign support systems. Wisconsin (without Federal-aid) over the past 10 years has acquired some actual field experience with this system. Given that the controlled testing is limited to four tests, some States may wish to initially approach application of this design through experimental projects. Such an approach would seem reasonable but is not mandatory. Further, we see no reason for States experiencing satisfactory performance with fuse plates to alter their designs.

We appreciate the professional approach of WisDOT in proceeding to acquire these test results as well as the close cooperation by your office in assisting them. In the long term we expect researchers will build upon these findings to perfect multi-directional

breakaway assemblies. State contributions from such efforts as the WisDOT funded testing and through pooled-fund studies will speed this process.

Signed,

Lionel H. Wood, Director
Office of Engineering & Operations

Cc:
HNG-14
HSR-20