appropriate signing, which is a requirement for complex highwa layouts to be functional, are things that dropped the fatality rate o these freeways to 2.5 per 100 million vehicle miles.

As we have admitted previously, the effects of roadside features hav possibly been overlooked or at least underestimated, and this wa becoming apparent to us some 3 years ago. We refer to the matter o vehicles leaving the Interstate System and other highways and runnin out of control.

This was one of the major reasons for the AASHO "Yellow Book.'

A freeway is the only type of highway where the necessary signin and the sign locations can be predetermined and not subject to constan change. As a result, sign supports, in many instances, were constructe to be more or less permanent in nature. These have turned out to l hazards in some instances.

The same is true of guardrail ends. No one at this time knows the bes way to start a guardrail installation, and we doubt if one can be abso lutely hazard free. Both the flareout and grounding treatments hav objections.

Before the Interstate program, major rural highway constructio was limited to about $100,000 a mile. We are speaking of a primar two-lane facility with high type pavement. Guardrail was not use extensively because of its cost. It was used to delineate certain condi tions or to serve as a warning that an embankment or a culvert or some thing similar existed. In some States delineator posts were used instea of railing.

In many instances, where the rustic design concept was embraced o park or forest roads, large boulders were placed on the shoulders of th road for this purpose.

Now, as we build the Interstate System and the budget is not quit so restricted and a more liberal use of guardrail is indicated, it ha raised some entirely new situations and design problems.

The cost of guardrail versus flatter slopes, of course, is an economi question that must be determined by the highway designer. Not onl must the first cost be considered, but the continuing maintenance cost of guardrail and the problems of mowing around it is a controllin factor.

Of course, there are many places where the topography prevents slopes flat enough to eliminate the need for guardrail.

The assignment given the AASHO Design Committee this yea included a complete look at guardrail practice and design, as well as a critical review of all highway components to make certain that they perform their primary function, yet are attractive and, above all, enhance traffic safety. This will involve a review of all minor drainage structure configurations.

The bridge committee has been asked to study the matter of bridge railing. With extremely wide roadways, more vehicles are colliding with the bridge curbs and rails at relatively high speeds and at angles closer to 90 degrees. That creates a very difficult design and safety problem.

It is entirely different than designing bridge rails for light angle impact that has been past practice when the solution is to deflect the vehicle instead of stopping it without serious injury to the occupants