

Mr. STONEX. May I offer a comment. The problems between the connection of the guardrail and the bridge structure sometimes occur because the responsibility for design lies in two different groups. The bridge engineer is responsible for the bridge and the bridge rail and some other design group is responsible for the guardrail and they don't communicate as well as they might.

Mr. CONSTANDY. I think it is very true. We had a picture last week of a bridge under construction. The guardrail was already installed up to the point where the parapet would exist after it is built, but the bridge has not yet been finished. The design of the bridge seems to be an area in which no one else but a bridge engineer can offer constructive criticism about the operation of the vehicle upon it, or approaching it.

These things are changing. I think that we would be quick to agree to that. It is a question of time and how long we can tolerate the death toll in this country at the rate it is. It reminds me of the Aunt Jemima commercial—"What took you so long?" These things have been known for some years and many major improvements could be brought about at either no cost or slight additional cost, sometimes even at a substantial saving. As example, the installation of sign bridges when the sign can frequently be placed on a structure for little money. It isn't always a matter of cost. That is one of the first things people bring up when you talk in terms of improved safety design.

You have another film, do you not?

Mr. LUNDSTROM. I think I would like to just add this conclusion to your remarks, sir, if I could. It is cost benefit that we are looking at actually, and there are times when the designer must take into account the expected performance to be obtained from some change of design.

For example, it is possible to eliminate piers on overpasses, at some additional cost. And statistics do show you how often these piers are likely to be contacted on any particular roadway. So you should be able to figure out in advance whether or not it is feasible to remove or to change the design to eliminate the piers.

In the bridges that we talked about in this film, we did have to make a decision like this. For \$20,000 we could put more money into the bridge span and eliminate a center pier. We decided that this cost was nominal and would be less than one accident in the next hundred years, perhaps, from striking that bridge pier. So we elected then to put the additional money into the span and eliminate the pier and possibility of accidents for all times.

So it is a decision of cost benefits which must be made.

We have one final film. Mr. Stonex will comment on this and it does give a little more up-to-date information on lamp posts. Are you ready?

Mr. STONEX. I am ready.

Mr. CONSTANDY. We had testimony last week to the effect that in some instances in the construction of a bridge, eliminating the shoulder piers, if begun early enough in design, added nothing to the cost.

Mr. LUNDSTROM. That is possible also; yes, sir.

Mr. CONSTANDY. We also had the problem portrayed last week involving twin structures with the narrow median. We saw examples of twin bridges, where the space between them was about 6 to 10 feet and there again, at no additional cost, perhaps a saving, hazards