

to picking up various elements of these programs, finding out for themselves how to incorporate these features into their own design requirements.

Mr. McCARTHY. Why would you say they were slow in recognizing the value of what you are doing?

Mr. LUNDSTROM. I am not able to answer your question in any amount of detail. I would simply throw out one comment, that has come to me repeatedly. The State designer and men in charge must decide how to spend the dollars that are available to them. And in many cases, they have chosen to build more miles of roads to a mere minimum standard rather than building a lesser mileage of roads at some higher standard that is going to be somewhat more expensive.

Now, I am not here to criticize them in their judgment, but this is one of the items that has come to my attention and it is debatable but a real issue. I am sorry that I can't go beyond that point.

Mr. CONSTANDY. Would you agree many of the features about which one could be critical in design and construction of our new highways, wouldn't cost any more money? You showed a picture of the transition of the guardrail to the bridge rail section, and I have to say that it is the only time I have seen one which would appear to be appropriate. We had pictures of the installations in nine States last week and in all of them there were guardrails which were installed up to the bridge parapet, and then ended with no overlap at all.

There were attempts in two places, Utah and Oklahoma, to carry the guardrail on to the bridge parapet and I take it from what was said, that the conclusion was reached by the panel that it was inadequate. However, none of them were doing what would be suggested by your testimony and your film.

There are other features similar to that where the cost would be no more, or at times be only slightly more. I make reference to the washer. The price that has been quoted to us for washers installed on a section of guardrail is 12 to 25 cents, varying in different locations, and I think that in a mile of guardrail the cost would be minimal when we consider the cost of guardrail itself.

I mention the washer, not because it is the most significant element in the design of the guardrail, but simply because it is one of the cheapest elements, and it is one that can be corrected and installed very late during the construction had it been omitted earlier in the design.

Mr. LUNDSTROM. Correct.

Mr. McCARTHY. Too, Mr. Lundstrom, the States have an incentive to adopt the results of your research and those of other institutions, since they get 90 percent of the cost of the construction of these facilities, but they have to pay 100 percent of the cost of the maintenance. And your research certainly shows that by building it with the guardrail properly installed, setting the signs back, and so forth, the maintenance costs are sharply reduced.

So that from their point of view, I think it is clear that they are better off to build the better facility from the beginning, and they are going to cut their maintenance costs, of which they pay 100 percent.

Mr. LUNDSTROM. I believe their own studies and experience with these suggestions will bring out the point that you speak of. I believe it is a real good suggestion that they will come to that conclusion correctly.