But the purpose of this was so that you would not, through the press of time, be confronted with attempting to do this for type-rating purposes in the most adverse possible condition, because if the pilot encounters this kind of situation he is going to select the airport in which he is going to attempt to land, which is going to be something better than the poorest possible conditions, such as low ceilings, slick runway surfaces, crosswinds, et cetera.

Mr. FRIEDEL. Wasn't one recommendation a proposed requirement that training flights be kept away from heavily populated areas?

Mr. RUBY. Yes. However, again one of the purposes in going to simulators is because you can do this in heavy populated centers close to the ground and in fact on the ground, and it creates no risk to anybody. Those who are equipped to do this with simulators can, in my judgment at least, do a better job; they expose nobody in the air, and in a total concept of this thing they have removed a lot of traffic from any airport area in terms of training.

Now those who don't have simulation capability obviously are going to have to do this in the actual airplane and at airports that can more or less accommodate training operations.

Mr. FRIEDEL. I have one other question. As you mentioned, the collision avoidance systems are under active discussion. Can any substantial improvement be made in this area at this time?

Mr. RUBY. Not on an instantaneous basis, no; because the research and development work has been done to a point. Now the actual breadboard hardware is going to have to be built and put on a few airplanes to determine if this thing can actually work under high-density conditions, after which then you can start building the hardware, that is as an available product. And the best guess estimate is 3 to 4 or 5 years before you have any appreciable segment of the equipment installed in airline aircraft and military aircraft.

Mr. FRIEDEL. I know for a fact we have been studying this for over 7 years. They were experimenting on it 7 years ago in Atlantic City. I think they have been slow and lax on this.

Mr. RUBY. To be honest with you, some of the best brains in the electronic field started researching the so-called proximity warning system, and their conclusion was that you could not build such a device and have it work. Then we got into the space business and we can get to the moon, but we still can't land under zero-zero conditions.

So, there are a lot of things that don't really make sense as far as research and development is concerned. On the other hand, with enough perseverence we can finally accomplish it, I believe. As I said, the best brains in the electronic industry stated no less than 10 years ago that you couldn't build a proximity warning system that would be successful. Now, there is a device that at least looks like it has the capability of handling collision avoidance. I think at least the airline pilots are much more interested in a collision avoidance system than they are in a proximity warning indicator. The difference is that the proximity warning indicator can light a light or start a klacker going, or buzzer, and tell you that you have a risk of an accident or a conflict with another airplane. The collision avoidance system is designed for the purpose of being able to have an arrow show you turn right, turn left, climb or descend. This calculation is then supposed to eliminate your conflict with the other traffic, whereas the proximity warn-