DEPARTMENT OF TRANSPORTATION | NEWS

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EXCERPTS OF REMARKS PREPARED FOR DELIVERY BY SECRETARY OF TRANSPORTATION JOHN A. VOLPE TO THE ELECTRONIC INDUSTRIES ASSOCIATION AT THE STATLER-HILTON HOTEL, WASHINGTON, D. C., WEDNESDAY, MARCH 10, 1971, 9:30 P.M.

Your industry has transformed the character and the face of the world. Advances in electronic technology have multiplied, in quantum jumps, opportunities for improving the quality of life.

And that transportation, that change, that upgrading in quality, can mean so much to an improved mobility in a rapidly-shrinking world.

In my own Department of Transportation we have laid the foundations for a new mobility which will utterly transform this Nation.

It goes without saying that "new mobility" means new technology, and that electronics will play a major role.

So let's take a quick look at how you, and your companies, might well fit in with what we in Government have in mind.

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As successes in a very difficult and competitive industry, I suspect you agree with me that planning, both near-in and long-range, is absolutely vital to success. But the American transportation network -- the product of a free enterprise society, and built directly in response to demand -- has never had the benefit of total, intermodal, long-range nationwide planning. We feel the time has come. We are working out, at President Nixon's specific request, a national policy to achieve balance and rational growth in all modes of transportation. To implement this policy will take a strong determination to override narrow interests. It will take considerable money, and an intermodal systems approach to the problem of how to move people and goods in our complex urban society. It will also require a massive input of new electronics technology. We will just not be able to double our overall transportation capacity in 18½ years, as we know we must, if we are forced to rely on the technology of the 60's.

Take the airways. Despite the present slowdown in the growth of air travel, our projections clearly show a tripling of air passenger miles by 1980. At our recommendation, President Nixon submitted to the Congress an Airports-Airways Bill last year to provide the money for a 10-billion dollar expansion of the entire air navigation and traffic control system. That bill went through with solid, healthy margins in both branches. That means an enormous investment in third-generation alpha-numberics and other advanced electronic equipment to guide planes safely through crowded skies, starting now and going on through the 1980's.

Our Department's Transportation Systems Center (TSC),which was established last July 1st at Cambridge, Massachusetts, is working already on a fourth generation air traffic control system -- to be ready for the 1990's.

As you know, the basic cadre of the new Center at Cambridge came from the former Electronics Research Center of the National Aeronautics and Space Administration (NASA).

Prior to establishment of the Transportation Systems Center, our Department had no in-house research capability. To have developed such a facility from scratch would have been exceedingly costly.

Therefore, we were fortunate to benefit from the President's decision to provide our Department with this group of electronics scientists and technicians.

As I told our people in Cambridge last July, electronics is at the heart of many transportation problems, particularly and most immediately in the area of aviation and aircraft navigation.

The people there are developing approaches to some of the design problems of complex hardware and software requirements for a fourth generation system.

In their plans, they are considering an expected growth in the so-called STOL aircraft which needs only short stretches of runway for take-off and landing. The characteristics of this type of travel, the requirements for en route and terminal navigation, must be provided for in the fourth generation system. Our people in Cambridge will use actual flight test data in their planning.

The demands for air traffic control services, according to current estimates, will triple by 1980 and triple again by 1995. We are determined to be ready for such growth.

This increase in air traffic control activity will not be without its associated problems. Such as airport access problems; the types and needs of surface transportation to get passengers and cargo to and from airports. Our people at TSC are using computer simulation for a close examination of the intermodal aspects of the future.

In parallel with these studies, TSC will test ideas for using satellites for communication, surveillance, and navigation of aircraft. And not beyond the realm of possibility, and something they are looking into, is the use of satellites for world-wide air traffic control.

There are a dozen other tasks under way at TSC, all bearing on the air traffic control systems of the future. They range from improvements in the all-weather instrument landing systems to more reliable separation patterns for aircraft in flight.

In our technically-growing but physically-shrinking world, such development is mandatory. We must come up with the improvements, the refinements, the developments that the electronic industry can provide.

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Now let's come down out of the skies and take a look at surface transportation. The popular magazines take great delight in writing about such things as tracked air cushion vehicles (which are definitely coming -- we have projects scheduled in both Los Angeles and here in Washington). But you know and I know that the distance from drawing board to test track is a long one, and that even in our commercially-accepted metroliners we still have minor "bugs" crop up. But my philosophy is that you'll never get rid of all the "bugs" until you get something out there on the track operating, and that is why we are getting so deeply involved in exactly such things as tracked air cushion vehicles.

That's the long-range goal. But we are working, too, on electronic refinements to such mundane things as the family automobile. Here one of our greatest goals is improved highway safety -- working in three disciplines -- the road, the vehicle, and the driver.

I'm sure you have seen newspaper stories about our proposed passive restraint systems such as air bags that inflate in microseconds to protect vehicle occupants at the instant of a collision.

At TSC we are looking into a simple microwave system, less complicated than a transistor radio and planned to sell for about 50 dollars, which will inflate air bags even before impact occurs.

The instrument, running off a battery, produces a fan-shaped area of microwaves from mountings over the headlights. It senses the car or object ahead, and triggers the bags which protect the passengers in the crash.

Another area of grave concern, one that the President has recommended be given the highest priority, is the control of drunk drivers on the Nation's highways.

This type of driver accounts for half of the country's highway fatalities.

Our people at TSC are looking for a device that will provide the police with a means of detecting a drunken driver. This device must be deadly accurate and must be small enough to be used on the highways, at the point of detention. It will provide an instant determination even on a non-cooperative motorist.

An off-shoot of that problem which we have asked the Cambridge group to examine, is development of an interlock device that will render the ignition system ineffective if the driver is drunk.

In the laboratories there, we have instruments, initially developed for NASA, which can reach these problems.

There is a occulometer, a device which remotely records the movement of the eyeball. It was once seen as a means of steering a spacecraft. That is, the ship would go in the direction the astronaut was looking. Now, we hope this instrument can be used to detect drugs or alcohol or tranquilizers alone or in combination, by recording the slowed blinking of the eye.

Another space-age unit was developed to measure carbon dioxide in a spacecraft but now can be a tool in measuring alcohol molecules in a car or near a driver.

Another high-fatality area -- the two-lane rural road -- takes more than 30-thousand lives a year. We are doing something to reduce this toll.

Next year in Maine, a 15-mile section of Route 2 will be instrumented so that we can detect the presence of all cars on the strip, determine their direction and speed and give the driver instructions through automated roadside signs.

Our people at TSC are contributing with work on the communications links, displays, and sensor units.

There are more than 60 programs under way at TSC and they cut across the entire spectrum of transportation -- land, sea, and air.

One is a system of using laser beams to detect fog banks and sound a warning. Likewise, a laser beam has been found an effective tool in detecting oil spills and actually determining the type of oil.

We are working on a method of quickly and automatically extracting data from aerial photographs of highway conditions in the interest of predicting traffic behavior.

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We have developed an efficient and economical railroad grade crossing protective system using a microwave arrangement. This could mean installation of warning lights and gates at many of the 180,000 unprotected crossings in the United States.

At TSC, we are studying instrumentation for detecting weapons and explosives carried by potential aircraft hijackers or saboteurs.

Beyond the project-by-project activity, is a group dealing with systems concepts, the bigger picture of balanced transportation, as they will apply to the future.

Out of this type of planning, comes a set of candidate things worth doing both in the short range and in the long range and including not only the technical aspects of the program problem, but the sociological and economic as well.

So you see, the challenges are manifold. The opportunities are great.

If we are to answer in any way the demands of a Nation that was indeed built on the principle of personal mobility, we must have the involvement and concern of our best technical people.

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