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REMARKS BY ALAN S. BOYD, UNDER SECRETARY OF COMMERCE FOR TRANSPORTATION, PREPARED FOR DELIVERY BEFORE THE ANNUAL MEETING OF THE HIGHWAY RESEARCH BOARD OF THE NATIONAL ACADEMY OF SCIENCES AT THE SHERATON-PARK HOTEL, WASHINGTON, D.C., AT NOON, TUESDAY, JANUARY 18, 1966

I am pleased and honored to have this opportunity to meet with the leaders in the effort to find new knowledge and new solutions to serve this nation's great highway transportation system.

The United States today has the greatest collection of mobility the world has ever know. In motor vehicles, particularly, we surpass all nations. We own and operate 57 percent of all the passenger cars on earth. When it comes to automobiles, Red China and even Russia are underdeveloped nations.

Yet, we often hear the situation in this country described as a transportation crisis. I am inclined to regard that coupling of words -- transportation crisis -- as a redundancy. What we call a crisis is really the normal way of life in transportation.

Imagine, for instance, a situation in which the prognosticators tell us that the number of motor vehicles will triple and highway travel will increase 350 percent

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within a 20-year period. On hearing this most people would agree that, "We are face to face with a crisis." There would be some head shaking, and some would say, "It can't happen."

But, in fact, it just has happened. Since 1945 the number of vehicles in use in the United States has gone up from 30 million to 90 million, and travel -- as measured in vehicle miles -- has increased from 250 billion vehicle miles to 870 billion vehicle miles.

The outlook is for more growth in the future, although vehicle ownership now is reaching the point where it is beginning to "bump" the population curve. So, the capacity and efficiency of our highway system presents a problem today and will continue to do so. And similar challenges face all forms of transportation. If our national economy continues to grow at its present rate, transportation requirements will double in the next 20 years, at least with respect to freight traffic.

This will mean an expansion in the overall intercity ton miles from the present level of about 1.5 trillion tons to 3 trillion tons. That's three thousand billion tons, a figure beyond ordinary comprehension. When we talk of doubling transportation facilities of such magnitude the implications for technology and for investment are staggering.

If transportation seems to be in a perennial state of crisis it is simply because transportation is, after all, the improvisation of an answer to a need--the need of men to communicate with one another and to engage in commerce. From this need sprang our social institutions, and from it grew towns and cities, which are themsevles instruments of communication. Within the cities and towns and between them men have sought to communicate and to move their goods by whatever means is available, whether that be their own feet, a ricksha, a chariot, a subway, or a pickup truck. Obviously, the social and economic patters of a community are strongly influenced by the transportation available to it, and at the same time social and economic forces are creating demands for more improvisation, for improvements and innovations in transportation.

The fact that the transportation industry today represents one-fifth of our Gross National Product indicates the importance of mobility of people and goods in our way of life. It underscores the great benefits to be realized through improved efficiency and economy in transportation.

It is apparent that the problems we face today require increasing reliance on research for their solution. Our present transportation system has evolved through the normal pace of technological progress without any clearcut direction or long-range planning. But we can no longer depend on evolution to shape tomorrow's transportation system. Our national growth, our social and economic health, and our national security demand that we force the pace.

We need planning in all segments of the industry and the Government which play a role in transportation. We need new ideas, new techniques, new policies, and a framework which will allow us to take full advantage of the wonders of the age of space and nuclear energy and computerization. To achieve this -- to get revolutionary, not evolutionary progress -- will require a research and development effort on an unprecedented scale.

In this effort the Federal government has a natural and vital role. It needs the fruits of research in order to meet its responsiblity to develop an overall transportation policy which will assist private industry in long-range planning, to provide the knowledge and data required for such decision making, and to promote the development of the new technologies that will be needed to keep our Nation mobile and free.

Recognition of the growing Federal interest in transportation improvements was apparent last week in President Johnson's proposal to bring together the Government's transportation activities in a new Cabinet-level department.

The Federal Government already is involved in a stepped-up research and development program, and much of this research is centered in the Office of the Under Secretary for Transportation.

A major effort now underway is the High Speed Ground Transportation project which is looking into all forms of transport with an eye to how it will measure up to the demands of 1980.

This will include a national statistical gathering effort which will make available to planners and decision makers at all levels the kind of data required for prudent management and investment. Besides exploring ways of updating current technology, it will be looking into the fields of possible new systems that may be required before this century runs out. You probably have seen some of these

described in the Sunday supplements -- vehicles which travel on guided pathways, tunnels or troughs, on bearings of air at speeds competitive with today's airliners.

The report on possible future developments in highway transportation, prepared by Cornell Aeronautical Laboratories and published last year, is part of this project.

We also are working with leading universities and private authorities in all corners of the nation on such problems as:

-- Trying to establish the feasiblity of putting all freight rates -- which now number in the trillions -- onto computers.

-- To develop the kind of administrative systems required for cost accounting for control and decision making for the varous modes. This will include procedures and techniques for the collection, classification and analysis of expenses and revenues.

-- Development of a general-purpose transportation simulator that will permit application of a systems analysis approach to a wide variety of transportation problems. This may concern different modes, different traffic and environment situations in any combination.

-- To investigate the possiblities for transportation companies to expand the offering of coordinated or multi-modal services and thus improve the system through reduced cost or improved service.

While these research efforts reflect the Government's board interest in all froms of transportation, and in promoting the optimum in service, it is obvious that highway transportation itself is a major concern of the Federal government.

Highways have the dominant role in passenger transportation, accounting for 92 percent of intercity travel, and have grown increasingly important in the movement of goods, now accounting for over 300 billion ton miles a year. Americans will spend about $100 billion this year to own and operate more than 90 million vehicles -- of between one-sixth and one-seventh of the Gross National Product.

It is quite natural, then, that the greatest part of the Federal government's transportation dollar is spent on highways -- $4 billion through the Highway Trust Fund alone in aid to the States. Of this total, Congress wisely has earmarked 1 and ½ percent for planning and research. And as you know, the States in turn have designated 5 percent of these so-called HPR funds for research and planning under Highway Research Board supervision.

As I noted earlier, highway transportation has been going through a period of tremendous expansion and can anticipate further problems of growth in the future. But highway transportation also faces immediate problems whose gravity has come into clearer focus in the past year or so.

These problems go to the heart of the highway program because they are concerned with the standard objectives of any kind of transportation, namely safety, efficiency and economy. In each of these areas the problems are urgent and do indeed deserve to be described as crises.

Certainly, that is how we can describe the safety problem, with fatalities reaching 50,000 a year and headed apparently toward 75,000; with the fatality rate edging up; with perhaps 2 million injured, in over 20 million accidents, and with costs probably exceeding $10 billion a year.

Certainly, that is how we can describe the urban transportation problem, with the present congestion and the anticipated doubling of the urban population by the year 2000; with the virtual rebuilding of our cities; with the shifting patterns of urban and suburban development; with the economic and social cost of urban construction, which competes for urban space and dislocates people and businesses.

Certainly, that is how we can describe the cost problem, with many States already devoting half their budgets to highways; with maintenance costs rising; with the economies that came from a large-scale construction program now being exhausted, and with unit costs, which had enjoyed several years of stability, rising in the first nine months of 1965 by 3.5 percent over the previous year.

Now, presumably, we would find solutions to these problems through normal evolutionary progress. But the nature of these problems does not permit us to wait. The cost -- in economic, social, and human terms -- of not finding answers soon would be intolerable. So, we must attack them now in the most intelligent way we have -- through research and development.

This the Federal Government is doing, through the Bureau of Public Roads. During the past year the Bureau has formulated a priority program concentrating on these three urgent problems of safety, urban congestion, and cost reduction. It has taken action to assure the cooperative coordination of its own program, financed with Federal funds, and the Federal-aid research programs of the various States. By focusing presently available resources on these urgent research needs, greater effectiveness should be achieved.

In the safety area, it is appalling how little we know about the causes of accidents. We do realize, however, that many aspects of the highway transportation system can be improved, with resultant benefits in safety. There is, of course, no single or simple solutions to this problem, and any attack that will get positive results deserves the support of the Government.

Probably the most promising approach to significant, tangible improvements in highway safety in the immediate future lies in the application of modern technology. This is the approach taken by the Bureau of Public Roads, both in its operational and in its research and development programs.

Its application, in essence, means that we must understand the capabilities and limitations of the driver and then design improvements in the vehicle-highway system make his driving more reliable and more effective. It means we can prevent accidents or mitigate their consequences by additions or modifications to the vehicle and the roadway.

This approach is directed toward the development of hardware in the form of electronic or mechanical aids to help drivers. It is too early to predict what these aids will be, but the principal criteria in evaluting them for use in the highway system will be reliability, practicality, and cost effectiveness.

In the matter of congestion, let me say first, it is important to get the best use of the knowledge we already have -- as indeed it is in safey or cost reduction. Many benefits could be realized by more general application of what already has been learned in traffic engineering, and I might mention the Bureau's Wisconsin Avenue Study -- a guide for improving street capacity -- as one example that deserves broader use.

In the Bureau's priority program, research is being directed toward development of new tools to aid the traffic engineer. Computers are being used to develop a better understanding of how traffic flows on street networks, so that new control systems and techniques can be developed.

Research to aid decision-making is needed in solving urban congestion problems -- in finding techniques to increase the efficiency of various modes of mass transit and of combinations of mass transit with automotive transportation, and in coordinating vehicle storage facilities with street systems to increase street capacity and efficiency.

In the drive for cost reduction, many of the benefits in the recent past have been development benefits, resulting in particular from development of improved machinery and construction techniques. Hopefully, an intensified research effort will point the way to new breakthroughs in technology -- in materials, equipment, and management -- that will produce needed economies in highway construction and maintenance.

I have tried to summarize the problems that need answers if America is to continue to enjoy the finest transportation in the world. I have given you, in a way, your Government's shopping list, confident that American technology is equal to the demands of today's and tomorrow's world. In transportation, today's crises, after all, are the result of yesterday's successes. And being first, we, too, must try a little harder.

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