Factors Bearing on Future Highway Development

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It is an educational experience to see at first hand the conduct and extent of your famous Road School and I consider it a privilege to participate in this, your 40th annual meeting. The thoroughness with which you are examining contemporary highway problems is gratifying. Furthermore, your Road Show is an excellent service which brings many technical developments directly before our eyes.

The founders of the Purdue Road School were obviously men of great vision. We faced a serious traffic situation back in 1914, with over 1,500,000 automobiles and nearly 100,000 trucks on roads which were quite inadequate to handle that kind of traffic. There were 2,445,000 miles of rural roads in 1914 of which 257,000 miles or slightly over 10% were surfaced. Most of the mileage consisted of primitive byways totally unsuited for automotive traffic.

Today, we have nearly 3,000,000 miles of rural roads including, of course, a great deal of little used mileage that can scarcely be classified as highways. But of this total, over 1,782,000 miles or about 60% are surfaced. There are 268,000 miles of the Nation's rural roads that now bear a high type surface which is a tremendous achievement when we compare it with conditions at the inception of the Purdue Road School. Consider that we now have a total of approximately 2,000,000 miles of surfaced streets and roads in the United States and you have a fair measure of the tremendous road building program that has been accomplished. But still today our highway deficiencies are with us and we are concerned at the slow progress being made to develop our highways to standards that will provide for the safe and efficient movement of 45,000,000 automobiles and over 10,000,000 trucks. The efforts of federal, state and local governments to provide better streets and roads do not keep pace
with the enormous production of motor vehicles. As a result we have progressive problems that continue to baffle all levels of government.

Forty years ago state and local governments were confounded by the high cost presented in adapting our highway system to the speed and punishment of automotive traffic. It was along about this period, actually in 1910, that the American Road Builders' Association was organized in its present form to carry on its services which have since been constantly expanded. Actually, the genesis of ARBA was in the League of American Wheelmen which became the American Road Makers in 1902. But it was in the period roughly between 1910 and World War I that motorized highway transportation began to grow by leaps and bounds with proportionate demands for improved road facilities. The strain on state and local governments was heavy as the need for interstate and transcontinental highway routes developed. It was then an open question whether the federal government had a responsibility in financing the construction of highways.

**FEDERAL AID**

In 1912, Congress determined to take a careful look at federal interests and responsibility. It created a Joint Congressional Committee to survey the situation and to report back to Congress. That early congressional committee conducted an amazingly thorough and deliberate investigation and eventually recommended that a program of federal-aid to the states be adopted. The Joint Committee pointed out that such a program would in no way interfere with nor usurp the rights and prerogatives of the state, but would lend assistance for highway improvements considered vital from a national viewpoint. In its report the Joint Committee declared:

"Federal aid to good roads will accomplish several of the objects indicated by the framers of the Constitution—establish post roads, regulate commerce, provide for the common defense, and promote the general welfare."

"Above all," the committee emphasized, "it will promote the general welfare."

Congress accepted the recommendations of the Joint Committee and it was in 1916 that the first Federal Aid Highway Act was adopted. It has been continued and expanded ever since that time.

Today, the cooperative program of federal assistance to state and local governments for highway construction is a significant and integral part of the nation's public works activities. While it does not represent a dominant financial contribution, it establishes leadership and co-
ordination in a program of highway development that is of national importance. By maintaining a policy of matching funds with the states, it affords a continuing stimulus for an expanding highway program.

The situation that we are in—where highway deficiencies keep mounting despite expanding building programs—affects the nerve center of our economy and the national defense. How to overcome highway deficiencies that are urban, interstate, intersectional and transcontinental in scope and, at the same time, satisfy the urgent needs for feeder, access and farm-to-market roads constitutes a very complex problem. And, on top of these more or less conventional demands, we are beginning to feel a new pressure for urban arteries to expedite mass evacuations of our great cities in the event of military attack from the skies.

FINANCING HIGHWAYS

The question of what to do is knotty indeed, but nowhere near as perplexing as finding the means with which to carry it out. Financing is the Number One problem.

Last year expenditures for new highway construction at all levels of government amounted to approximately $3,250,000,000, with an additional $2,250,000,000 invested in maintenance, administration, debt service, highway police and other items. These substantial expenditures gave us a great number of improvements but, in terms of relieving congestion and providing safety, the results continue to be discouraging. There were 9,500,000 highway accidents in 1953. They took a toll of 38,300 lives, injured 1,350,000 persons and resulted in an economic loss of about $4,000,000,000. In other words, we lost more in dollars through accidents than we spent on highway construction. We cannot afford to let this trend go on unchecked.

There are certain basic developments that we may anticipate if world and economic conditions do not interfere. One is that we may count on a steady increase in motor vehicles that may, in 20 years, give us over 80,000,000 vehicles on our highways. Our 10,000,000 trucks are now carrying 77% of the nation’s total freight tonnage with resultant constant wear on our highway plant. That is not said in criticism. It is simply a statement of fact. What demands motor transport will be making of our highway facilities by 1975 is unpredictable but it is clear that we must build wisely for an increasing usage by heavy carriers and for the expected increase in density of highway travel.

Federal aid highway funds, to be applied on a matching basis with the states, are in the process of being hiked about 50% for the fiscal
years 1956 and 1957. We are currently investing $575,000,000 annually in federal-aid which generates over a billion-dollar program; under the new legislation $875,000,000 of federal funds will go into the federal-aid systems and generate an annual program in excess of $1,500,000,000.

We cannot escape the fact that modern multi-lane, limited access, divided highways are increasingly expensive to build and, thus, the problem of financing is constantly greater. In the meantime, deficiencies in the highways of most states keep rising, and maintenance costs on older roads are enormous. Deficiencies on the 673,000-mile federal-aid system alone would require an estimated expenditure of $35,000,000,000 to correct.

The nation's distressed demand for safe, speedy highways is giving rise to the construction of a number of toll facilities, which, of course, are self-liquidating in nature and impose no financial strain on government. In round figures, there are now in operation in 10 states some 850 miles of modern toll roads, constructed at a cost of $700 million. Over 1,000 additional miles of toll roads to cost over $1,500,000,000 are under construction. With projects now being planned, there is in sight the provision of 10,000 miles of toll roads at an estimated eventual cost of over $11,000,000,000.

Last year, state highway agencies awarded contracts for new construction totalling $2,320,518,000. Thirty-four percent of this amount, or $794,221,000, was for toll facilities, including roads, bridges and tunnels. This was the biggest piece of the pie. Twenty-four percent was federal-aid money, 21 percent was state money to match federal-aid, and the remaining 21 percent was in state funds for work exclusive of toll facilities or construction on federal-aid roads.

**TRENDS**

The highway user's acceptance of tolls is exceeding engineers' estimates. The public is paying toll charges of 1 to 1 1/2 cents per mile, or the equivalent of a gasoline tax of 15 to 20 cents per gallon, because it appreciates these relatively safer and much more efficient expressways.

Where will this trend lead? It seems likely that the pendulum of public opinion will swing back, when an adequate system of roads is provided, and there will be a demand to make them free highways as was done when such roads were constructed 50 years ago.

We should see that provisions to this end are embodied in legislation for their financing, so that they must become free of tolls as the bonds for their construction are retired.
We can see many of the highway problems of the future with some clarity; but, unfortunately, we cannot say that, as a nation, we have come to grips with reality on anything like a long-range, carefully-planned improvement program. We are still trying to catch up with accumulated deficiencies that are steadily getting worse, and most of our plans are single-shot, piecemeal stabs based largely on expediency.

However, it is fair to say that the efforts that have been made since World War II by ARBA, other national organizations, and the press, to stimulate greater realization of our highway transportation challenge are beginning to bear fruit. Some states have mapped out long-term highway construction programs of real magnitude, including provision for both free roads and toll facilities. Nationally, Congress, in the Act recently passed, demonstrated that the federal government is definitely assuming a more practical attitude in terms of federal responsibility. An important feature of the new Federal Aid Highway Act is provision for a comprehensive study of highway financing. This study and other authorized activities give us hope that eventually a long-range national program for highway construction will develop. In the meantime, we should resolve to continue our best efforts in that direction.