

A REVIEW OF OUR HIGHWAY POLICIES

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A characteristic of our times is that the individual or group that shows capacity to carry heavy responsibilities is called upon to bear a constantly increasing load. So it is that now in the later months of a year in which the operations of the highway departments, State and Federal, are at a peak, these departments must accept the added responsibility of determining a course, constructively and realistically designed, to meet the difficult problems of the future. Of these there is one problem more significant than any other - uncertainty. Perhaps some will urge this is a quality inherent in all problems - the factor which is the most potent creator of problems. Even so, the precise cataloguing is unimportant. What is important is the degree by which uncertainty can be reduced by the intelligent analysis of acquired facts. Without facts uncertainty remains.

In the protracted hearings before the Highways Committees of Congress, the factual evidence presented by those representing all major phases of highway transport was impressive in scope and substance. On this evidence, new legislation and authorized funds to continue the Federal-aid highway program received the support of the Congress. The attention of the Congress was given this legislation and action was taken upon it at a time when momentous matters of national and international significance were pressing for time and resolution. Two conclusions are inescapable; first, the highway improvement program

has been properly placed with the other national "musts", and second, recognition of this rank of essential has been won by the presentation of factual evidence of the relation of highway transport to the whole gamut of our social and economic activities under every condition - peace or war. Historically, nothing has so contributed to the stability of the road improvement program and assured the authorizing State and Federal legislation as have the facts gathered, analyzed and interpreted by State and Federal highway units assigned to this work.

It may be accepted as a basic premise that in every legislative body, State or Federal, the balance of power tends to action in the public interest. The sine qua non, when positive action is required, is the clear presentation of convincing factual evidence of the public interest. Negative action by a Legislative body - the General Assembly of a State or the Congress of the United States - does not imply a disregard of the public interest; it does prove usually there has been an inadequate exposition or downright mis-presentation of just what constitutes the public interest.

The failure of the State Legislatures or of the United States Congress to provide legislation when needed to serve the public is generally an indictment of those whose duty it is to place recommendations before the Legislatures or the Congress, properly supported by facts. In highway matters this means us - the Bureau of Public Roads, the State highway departments, the local highway officials of county and city.

It is inherent in our legislative process that positive action is based upon understanding and confidence that the recommended laws

and requested support funds are the logical approach to sound objectives. The only sure road to understanding and confidence is a painstaking gathering of facts and their presentation with complete integrity. Many times the facts may call for modifications in pre-conceived recommendations. If so, well and good. The one thing that matters is that the facts be as complete as possible and that they be presented with high integrity. The same principles hold true if or when conditions impose a choice of alternates.

An acceptance of responsibility for the highway program requires us to look deeply into this problem of uncertainty as it affects our present operations and plans for the future.

New Conditions Require a New Approach

We cannot expect our course of highway administration to be spelled out in one, two, three order, thus removing responsibility from our own shoulders. Neither can we evade obligation by hiding our heads in the sand. Those in the highest positions of government have voiced principles which we must translate into action, each in his own field of influence and authority. The President, under date of July 21, 1950, requested all Government Departments to reexamine their programs, giving particular attention to the following:

"All civil public works, both direct Federal programs and grant-in-aid programs, should be screened with the objective, as far as practical, of deferring, curtailing, or slowing down those projects which do not directly contribute to defense or to civilian requirements essential in the changed international situation set forth in my message."

When this request was transmitted to the State highway departments, their response, with some few exceptions, reflected the fine

quality of leadership of these departments. This is so true that the few, mostly outside the highway organizations themselves, who continue to demand sizable projects of little merit, stand out like the proverbial sore thumb. The review of proposed programs not yet under way indicated that a substantial percent of the dollar volume of projects should be given a second scrutiny.

Speaking before the Association of Mail Advertisers in Chicago on September 27, Secretary Sawyer of our Department of Commerce, said:

"Regardless of the outcome of the battle in Korea, we have embarked upon a program which will put critical strains upon our domestic economy. Serious shortages, heavy taxes, and problems of inflation will tax our ingenuity and self-control and strength to the utmost; and this will go on for years."

"Those who think that the end of this present emergency will relieve us of concern for the future are victims of self-delusion; those who fear that the imposition of controls will rob us of our liberties are poor appraisers of the quality of liberty, or lack of it, which will be forced upon us if we fail in this undertaking of self-discipline."

What are the implications to us who are engaged in the building and maintenance of our highways?

The uncertainties inherent in forming a highway program that will best serve the interests of the nation now can be reduced to controllable dimensions through the proper analysis of the certainties, that is, the wealth of evidence we have and the facts we must currently secure.

The Fallacy Inherent in the Term "New Roads"

What is the nature of our operations? Since the postwar Federal-aid highway program, beginning slowly late in 1945 to the end of 1949, 62,000 miles of all types had been built and put under service.

This year, 1950, will add around 20,700 miles, a total during the postwar period of about 82,700 miles. In addition, the State and State-supervised improvements built with their own funds, will total about 97,000 miles by the end of the year. Standing alone, that is, without comparison with the far greater needs, it is a large total. We have made a serious mistake in the almost universal reference to this mileage as "new roads." It is little wonder that with this confusion the idea can arise that perhaps the rate of building roads might be tempered somewhat now.

What are the facts?

These large mileages are not "new roads." They are replacements of small fractions of our highway plant that have worn out to the extent they are not usable by the fantastically increased number and weights of the traffic. These rehabilitated sections had become economic liabilities. Most of them actually could not be maintained in safe condition even at costs leading direct to bankruptcy of road funds. Some sections have been replaced on new rights of way to obtain sufficient room for the improvement, but these are not "new roads" since they serve an existing and increasing traffic.

Our job is not the building of "new roads" but the keeping of a vast highway plant in operation. Traffic this year generated by a probable year-end total of 48.5 million vehicles, will be about 450 billion vehicle-miles, or 50 per cent above 1940, the last prewar year.

It is generally accepted that to reach the high goals of national strength and international aid, we must raise production and keep our economy expanding.

The following is quoted from a recent paper by E. H. Holmes, Chief of the Highway Transport Research Branch of the Bureau:

"Traffic is a part of our economy and grows with it. The recent rapid increase in national income is reflected in a corresponding growth of traffic, and the current optimistic forecasts of our future economy presage a continued rapid increase in traffic volumes, barring only artificial restrictions of wartime necessity."

The experience of the past twenty years, broken only by wartime restrictions, supports the validity of the conclusion that we can expect a growth of total traffic in parallel with an increasing economy, - until and unless wartime restrictions intervene.

Suppose then these restrictions come. Based on our prior experience, passenger car traffic will be somewhat reduced - not truck traffic. Truck traffic is certain to increase.

Increase in Trucking - 1940-49

The year 1940 was the last year of so-called "normal" economic activity prior to World War II. By 1941 the accelerated production of arms for other countries and our own expanding defense activity had added abnormally to our steadily increasing traffic volumes. Thus a comparison between 1940 and 1949 traffic reasonably reflects the effect on our highways of our expanding economy and changing transportation practices.

Between 1940 and 1949 the mileage volume of all traffic on rural roads increased 42 per cent. Although this is a striking increase, especially in view of the wartime restrictions on automobile production, the increase in truck-mileage has been still greater. Vehicle-mileage of all trucks and combinations on rural roads rose from 21.1 billion in 1940 to 33.8 billion in 1949, an increase of 60 per cent.

A considerable part of this increase reflects the growth in over-the-road transportation in tractor semitrailer and other combinations. Vehicle-mileage of these vehicles rose from 4.4 billion to 9.5 billion, an increase of 116 per cent.

With the increase in vehicle-mileage came heavier loading, with the result that ton-mileage on rural highways rose from 46.2 billion ton-miles to 89.1 billion from 1940 to 1949, an increase of 93 per cent. Here the effect of the combinations is still more significant than in their vehicle-mileage, for the load carried in combinations increased from 23.3 to 63.5 billion ton-miles, nearly tripling the 1940 figure.

This great increase in vehicle-mileage, especially in the combination vehicles, has had marked effect on the geometric design of many miles of State highways. Its effect is no less severe on the structural requirements, however, for the increase in ton-mileage has come to large extent through greater carried loads. The average load of the single-unit truck has remained nearly static, increasing only from 2.13 to 2.29 tons from 1940 to 1949. Meanwhile the average carried load on combinations has increased from 7.41 to 10.19 tons. Of course within these averages are concealed a great range of loads, as shown by the many evidences of severe overloads in both classes of vehicles, loads definitely detrimental to the highway structure.

It is evident we can expect an increasing use of our highways by the types of traffic which are measured in ton-miles, resulting from our increased overall production activities. To carry this traffic we have inadequate highways. We need look only upon the authenticated deficiencies of our major highway system - the interstate system.

Deficiencies on the Interstate System

The report on Highway Needs for the National Defense, dated June 1949, prepared at the direction of Congress and with the cooperation of all State highway departments, revealed the extent of the deficiencies in the National System of Interstate Highways with respect to normal civilian needs as well as requirements of the national defense. On the basis of 1948 prices it was estimated that \$11,266,000,000 would be required to bring the entire 37,800-mile system up to standards desirable for 1948 traffic.

One of the most serious deficiencies both with respect to current civilian loads and possible military requirements is the condition of the bridges. Of the 12,048 bridges carrying the routes of the system, only 1,607 were of the H20-316 design or rating. While 2,207 other bridges were only slightly deficient, being of H20 design, 8,234 bridges were definitely deficient in carrying capacity. Some of those adequate in structural strength were deficient in vertical or horizontal clearance.

The type and width of surface, gradient, curvature and sight distance, all are important in traffic capacity. In this report of 1949 the average age of all surfaces on rural sections of the system is 12 years, and many, of course, are much older. The roadways on which they are laid average 17 years in service. Thus the average mile has a surface designed in 1937 on alignment and gradient last improved in 1932, a most significant fact in view of the growth of traffic since these dates. It is estimated that by 1959, 18,220 miles in service in 1948 will wear out.

In rural areas, 9,520 miles of two-lane road existing in 1948

required widening to 24 feet to meet the accepted standard. Another 875 miles of two-lane road need conversion to four lanes, and 1,350 miles then surfaced with three or more lanes undivided, should be rebuilt as divided highways. Similar deficiencies existed in shoulder width, an element most important both in safety and capacity of the highway.

Curvature and gradient were in many cases in excess of desired standards. These features, important in themselves, have more significance in the utility of the highway when singly or combined they reduce sight distance. Inadequate sight distance prevents satisfactory passing on 7,324 miles, reducing both safety and convenience of travel on nearly one-quarter of the rural mileage.

Many miles of the system rebuilt in recent years to equal or to approximate closely the desired standards serve as examples of the benefits we could receive were the entire system rebuilt now to these standards. In addition to the added comfort and convenience of travel and reduction in loss in traffic delays and wear and tear on vehicles, it is estimated that were the inadequate sections improved to adequate standards, more than 1,400 lives would be saved in one year through reduction in accidents.

Our Highways Are An Operating Plant

It is surely unnecessary to labor this point. The evidence clearly establishes two governing conditions; first, the highway plant must be kept in efficient operation to serve our production economy, and second, the correction of known deficiencies in our top-flight highways is beyond our capacity of physical or financial resources to

remedy quickly; i.e., we are forced to keep in operation an extensive plant subject to growing traffic, and only a continuous and consistent program of maintenance and replacements is possible. This means a balanced program of these two operations which should be based on a 10-year period. One year results in little improvement of an extensive road system. Every route or section of route, particularly of major highways, should be looked at from the angle of its potential performance over a 10-year period. Can it be maintained for 10 years within reasonable cost or not? If not, it becomes a candidate for reconstruction. Once it is a candidate for reconstruction, it must take its place in competition with all other projects in the same category, but further, it must compete for allocations of critical materials, if any, with all other demands.

It is too early to know what controls may be placed upon materials needed for highway construction. Under date of September 28 there was established in the Department of Commerce by order of Secretary Sawyer a National Production Authority. Among the functions delegated to this Authority are:

"(1) Determination of the requirements for materials and commodities needed for defense, civilian, foreign, and all other purposes; and (2) Formulation and execution of the policies and programs necessary for the fulfillment of such requirements."

The next action by the Secretary will be to designate claimant agencies to present requests to the Authority for allocation of materials if and when controls or priorities are established. It is expected the Bureau of Public Roads will be designated as a claimant to represent official highway requests before this Authority. As of the

present we do not know the extent to which there must be controls, but it is certain that if it becomes necessary to present claims for allocation of materials, the claim must be supported by factual evidence. The same character of factual evidence is equally needed to support the inclusion of construction projects in each proposed Federal-aid program under current conditions. The action which the State highway departments should take now to serve best the public interest, is to make certain that the planning survey units have sufficient personnel of the most competent caliber in the department to develop and keep current a continuing inventory of the condition and requirements of the highway system, since it is through this method that we can best replace uncertainty with certainty in successfully carrying out administrative responsibilities. It is only through this method we can hope to keep our highway system an efficient operating plant.