

HOW NATIONAL PLANNING CAN HELP IN THE DEVELOPMENT OF THE MAJOR HIGHWAY SYSTEM

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If no thought were being given to the subject of administrative and economic planning, a discussion of the subject before us would be academic and more or less futile. But it seems that the time has come when the increasing complexities of human relations do not admit of such opportunist treatment as they have received customarily for not only generations but centuries. This fact we are not here to discuss; we accept it as a present condition, not as a theory. In any scheme of national planning broad enough to include the major two items of public expenditure, highway construction will certainly be included. Just how it is likely to be affected depends upon many things, and a free exploration of the possibilities would go far beyond the scope of this paper. It will be interesting, however, to consider one phase of the matter—that involving the general plan of a highway system.

We must first determine the scope of our national planning. What have we in mind at this particular time? How far do we expect to inject deliberate, preliminary planning into our scheme of government administration? Then, we might go further and consider how far national planning might be carried and still have beneficial results on our road system and its administration.

To answer our first query is exceedingly difficult. Undoubtedly, we are today experimenting, and testing certain lines of direction for our future governmental operations. It is quite impossible to fix any definite limit, for such limit will depend upon the effects and the success of our trials in various directions. But we may discuss the several ventures now in hand and consider their effects on the national highway system.

At the present time, there are more or less closely identified with the concept of national planning the following enterprises and undertakings:

1. Balancing budgets—national, state and local. This undertaking needs no illustration.
2. Limiting the use of land. This is the idea back of the Agricultural Adjustment Administration and may, as we shall see, have considerable effect on the highway system.

3. Intensive regional development such as that contemplated under the Tennessee Valley Authority, and possibly other enterprises of a similar type.
4. Agricultural-industrial combination centers which are exemplified by the Subsistence Homestead plans.

We might select from present national operations other concepts of interest and relative importance, but aside from merely intensified measures to enliven industry and create consumers' demand, these four seem to be outstanding items in our present efforts toward definite planning.

BALANCING BUDGETS

The balancing of budgets presents the possibility of conditions intimately affecting our major road planning. There are two general methods of balancing budgets. One consists in estimating all items of income, pooling the proceeds, and appropriating definite sums for specific purposes. Errors in the estimates for the several items are likely to offset each other at least in part and the probable error in the total is thereby reduced, thus assuring within the limits of the balanced errors that there will be sufficient funds to carry out the appropriation program. The other method is to assign to certain general projects, such as education, public works, government, and public services and benefits, the proceeds of certain definite taxes. Each tax item is estimated, and errors do not offset each other. There might conceivably be a deficit in the funds for the educational program, and a surplus in those for public works. We need not discuss the relative merits of the two budgetary systems. Today our administrative governmental units are using both methods usually in combination. We are interested in the fact common to both, that funds for road construction, betterment, and maintenance will be definitely known in advance and that highway operations must proceed at a pace strictly in accord with the available funds.

Heretofore, we have established a national system of highways with a view to supplying demands which had already accumulated. We had a legacy from the past to meet as rapidly as funds permitted. There was slight chance of making serious mistakes.

The Federal-Aid Highway Act of 1921 made provision for laying out a correlated system of highways within and throughout the United States, which should comprise not to exceed 7 per cent of the total mileage of public roads in each state. Seven per cent seems to have been hit upon by those interested in drafting the legislation because it served to provide in those states having the least total mileage of public roads (such as Nevada and Arizona) a sufficient mileage in the system to permit laying out a road across the state in two general directions, north and south, and east and west.

Mileages approved for construction with Federal-Aid funds under this law from 1922 to 1933, inclusive, are shown in the following table:

Year	Miles
1922.....	33,359
1923.....	168,618
1924.....	174,689
1925.....	179,680
1926.....	184,161
1927.....	187,034
1928.....	188,016
1929.....	189,851
1930.....	193,652
1931.....	198,968
1932.....	205,025
1933.....	207,194

During the first years of this federal-aid improvement program, it was relatively simple to select in most states practically all of this limited mileage by studying the distribution of population in urban centers and the total tonnage of agricultural produce by counties. These data indicated the points which should preferably be joined and the importance of the territory intervening.

No thought was given, or needed to be given under the circumstances, to the rapidity of construction. Except on the state systems in a few states there was a relatively small mileage of connected highway in the United States. The growing demands of the motoring public and the need for the improved roads which generally existed made it unlikely in the early years of construction that any serious error would be made in selecting road projects. The funds to be provided each year were never known in advance, and the program proceeded entirely on the basis of funds made available in the several states.

From the start an effort was made so to correlate construction that the most economically advanced areas should be first recognized, and, so far as possible, continuous and connected routes should be improved.

Now, under a definite budgetary policy with funds fixed each year and the amount available known in advance, we shall have to plan construction programs more carefully with due regard to the requirements of the whole national plan.

LIMITING THE USE OF LAND

That plan is going to include a limitation in the use of land in certain less desirable areas, and, in contrast, the intensive development by either regional or more localized planning in other areas.

Obviously, the limitation on the use of land will lessen the necessity for highway extension wherever such limitation is

effective, and there will arise an increased necessity for highway extension and improvement in regions placed under intensive use.

The watershed of the Tennessee River comprises parts of the states of Kentucky, Virginia, Tennessee, North Carolina, Mississippi, Alabama, and Georgia. The Federal-Aid System in these states amounts to 0.089 mile per square mile. The area of the watershed according to the Tennessee Valley Authority is 40,740 square miles, and the Federal-Aid System in the area provides 0.094 mile per square mile. The road development now projected, as exemplified in the Federal-Aid System, is, therefore, practically the same over the whole area and over the Tennessee watershed. It is patent that an intensified development in the Tennessee Valley and a possible abandonment of lands elsewhere in the states involved will require a change in this relationship. This is a case where planning is probably going to compel a change in our previous scheme. New economic demands may be expected where they were previously absent, and these demands will constitute a first call on whatever work the highway budget permits.

EFFECTS OF INTENSIVE REGIONAL DEVELOPMENT

Exactly the same reasoning leads to the conclusion that in smaller areas placed under intensive planning, as in the case of subsistence homesteads, there will be an increased urge toward the higher improvement of local roads. These smaller areas will constitute communities of importance when compared with the general countryside, and it will probably be necessary to bring main roads to a suitable contact with these communities. This condition indicates certain definitely required road work growing out of an element in the national planning scheme that the highway engineer will not control. Some other agency will be handling the development of the large valley region, and still another agency will be in control of the local community developments. The highway engineer is going to find himself obligated to conform his program, within the limits of his budget, to the fixed and known requirements of other features of the national planning scheme.

The conclusion of this seems clear. If intensification of use in one area creates new demands there, and less use elsewhere diminishes the need for road work; if the creation of new communities sets up new demands, the highway administration will have to become more centralized and its relations with the rest of government administrative agencies more closely correlated than heretofore.

Such developments as those referred to above will unquestionably necessitate additions to the primary road system, and probably will make very substantial changes in the importance of feeder roads in certain areas. The definite selection and the development of hydroelectric power sites and the location

of industrial centers with their tributary subsistence homestead areas may alter the entire highway pattern of a large community. These alterations will have to be recognized immediately by the highway engineer in his annual roadbuilding program, and with definitely limited funds will undoubtedly result in quite a different concentration of expenditure than that which has been followed during a period of widespread highway extension.

Both the quantity of construction possible annually and its location will be much more definitely determined by elements beyond the control of the highway engineer than have existed heretofore.

Under such conditions, the location and the need of certain new roads will be rather obvious; but, on the other hand, the funds available elsewhere throughout the states will be reduced and the selection of projects on which to place these funds will become correspondingly difficult and will require more careful studies of the economics involved in each project.

Areas which are taken out of cultivation will undoubtedly lose population, and there will be a corresponding decrease in the need for local road improvement. It is conceivable that large areas may be reforested, in which for many years there will then be a minimum demand for local roads; but, on the other hand, there will be correspondingly intensive need for local secondary or feeder roads in the deliberately developed areas.

Some idea of the extent of the present marginal land areas may be obtained from the fact that the first surveys contemplated of such areas comprise several belts aggregating over one quarter of a million square miles. Although it is highly improbable that all of the areas so surveyed will be rejected for purposes of cultivation, undoubtedly a very large part will be so rejected; and, in some states in the semi-arid regions, the effect on the road system will be substantial.

In any general scheme for national planning, it is probable that serious adjustments will have to be made in the levying of taxes. How far this may go cannot be foreseen. The committee on a model tax law of the National Tax Association has been working for years on its project, and so far, little impression has been made on the chaotic system of taxation prevailing throughout the United States. In many of our states there are hundreds of separate taxing authorities levying a score or more of different kinds of taxes. It is to be hoped that when national planning tackles this serious and fundamental problem, it will develop some orderly arrangement and follow some definite set of principles which will produce adequate revenue and through state and local budgets distribute that revenue as nearly in accordance with benefits received as possible. When national planning has accomplished its proper

ends with respect to our tax system, there will be no longer any diversion of motor-vehicle-user revenues for miscellaneous purposes, and the proper share of land taxes for local road requirements will be established on a rational basis.

CORRELATION OF ALL TRANSPORT SYSTEMS

National planning will conceivably have to consider the correlation of our entire transport system, including essentially the railroads, the highways, and our inland waterways. This problem today is one of the most intricate and perplexing of any confronting us, and the financial interests involved are enormous.

It is practically impossible to determine accurately unit costs by any of these three major transportation mediums; but, certainly, a solution will not be reached until sufficiently accurate data are obtainable for determining under what set of conditions it is most economical to haul by highway, railroad, or water.

This problem opens a vast field for investigation, and in any adequate national planning it must be thoroughly explored if we are to develop a combination which meets the requirements of modern business on a basis which will be the most economical possible.

Again, as a result of the tax phase and the transportation phase of national planning, I can see only a greater centralization of authority, for it is obviously impossible to handle these matters locally and have them fit snugly into any national plan.

Finally, it may become possible if our first steps in a career of planning are successful to approach the highly controversial subject of local government. A large part of our country is organized administratively on the basis of a seriously impeded transportation. Our counties were largely laid out to meet the conveniences of a period of horse-drawn traffic, and now motor roads and the old county organization affect our road administration everywhere. So far as highways are concerned, this detail has already received due attention and has been the subject of positive action in some states. The success of centralized state road administration is watched with deep interest in states like North Carolina, Virginia, Pennsylvania, and Michigan, where adjustments have been made or are in progress.

This fact again must be recognized as probably emphasizing the drift toward centralization in the road administration of the states throughout the nation.

To summarize, we may expect, I think, with a reasonable assurance, that a sound national planning should stabilize our road funds and probably eliminate unusual construction peaks. It will make necessary some readjustments and additions in our primary routes and probably a very considerable change in the distribution and demand for local roads. It should,

once for all, simplify and rationalize our whole system of taxation and favorably affect both local road and state road resources. And it should allay whatever controversy exists among the proponents of the principal forms of transportation, and establish all of them on a sound, economic basis. Eventually it will lead, without doubt, to a greater degree of centralization of highway administration.

ELIMINATING DANGER HAZARDS ON OUR HIGHWAYS

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Slightly more than a year ago, I spent my first afternoon at the Purdue Road School. On that occasion, I learned many things about highways, and, during the twelve months which have just passed, I have gathered some additional information.

Having spent most of the years of my adult life in the newspaper business in Columbia City on State Road No. 30, which is the second most heavily traveled east and west road across Indiana, I have had opportunity to see and take a small part in the development of highways in that section of the state. Ten years ago, the motor traffic was not nearly so hazardous and was not such a source of news stories as it has proved in later years. With the increasing speed of motor cars, the construction of faster traveling surfaces, and the abolishment of restrictions as to speed on our highways, traffic tragedies commenced to increase; and it has been my duty in an editorial capacity to recount many frightful tragedies which have occurred on our state roads.

Experience in that work and my contact with the highway department has brought me a vivid realization of the increase in our motor traffic accidents, until today we recognize motor tragedies as the greatest horror of modern times. When I was in school, I was taught that there are four great agencies to keep down increasing population—war, famine, pestilence, and flood—but today we must add to the head of this list the motor vehicle as an instrument of destruction.

A few days ago I noticed advertisements in the papers to the effect that some new motor cars have a cruising speed of 80 miles per hour, while others can develop 120 miles per hour. It might be interesting to know that when a car is going 60 miles per hour it covers 88 feet per second; at 100 miles per hour it covers practically 148 feet per second, while at 120 miles per hour it covers 176 feet per second. This is greater speed than that at which our forefathers could shoot a cannon ball during the Civil War.