

## Highway Policy Questions

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The hearings before the two Houses of the Congress on the extension of the Federal highway legislation have just come to a close. A number of measures are under consideration of the sub-Committees on Roads of both the House and the Senate, and many witnesses have been heard by the Committees upon the merits of these bills. Without exception the measures support a continuance of the 1944 act and only one proposes to decrease the amount or to alter the terms materially. The President addressed a message to the Congress indorsing the extension of the Federal highway legislation for two years, and called attention to the enlarged needs of the future in these words:

"The program I am recommending now is a conservative one, necessary to maintain prudently our investment in highways. When conditions permit in the future, we should plan to accelerate our progress toward a highway system adequate to carry our expanding agricultural and business traffic, to accommodate with safety and speed the personal travel of our people, and to meet the needs of our national security."

It has been an inspirational experience to listen to the testimony of the Chief Executives of a number of the State highway departments. It is now evident that no mistake was made when the legislation of 1921 was rewritten in 1944, after a quarter of a century's operations, to continue the State highway department in each State as the important pivot upon which would turn the much broadened highway development.

The 1944 act has been in effect since October of 1945. The period since then has been the most difficult that the new legislation could possibly face. There have been no soundly informed criticisms of major character in the testimony, a tribute primarily to the accomplishments of the State highway departments in establishing working relations with the county and local rural, and the urban highway administrations. This is by no means intended to be a complacent expression that all the highway problems are solved and that the future holds nothing but a rosy glow. Rather, it is a recognition that the start has been good, but that the State and Federal highway administrative officials must go forward together patiently to develop sound policies in the Federal-aid secondary and urban highway development programs such as now characterize the Federal-aid primary highway program. Perhaps the most encouraging pronouncements that appear in the hundreds of pages of testimony are those made in unequivocal terms by members of the Congress, and in the President's message, accepting the Federal-aid highway program as a fixed and continuing policy of the Federal Government.

These expressions of confidence impose the responsibility upon the highway officials, - State and Federal in particular, - of keeping our highway policies in step with the requirements of the day and geared to the potential demands of the future. In carrying such policies into effect there can be no comfortable feeling of security, of letting well enough alone, or that what we are doing is sufficient. From these reflections spring certain major questions as to future administrative policies. Many years were required to bring the Federal and State highway legislation into accord so that the operations could work smoothly. It cannot be said that as yet the States have given their highway departments all

of the legal authority necessary to meet the changing techniques of the design and the construction of the major highway system. An example is the lack of authority in many States to establish controlled access arterial highways. In the field of secondary rural, and urban arterial, highway planning and construction there are many adjustments of State laws needed to empower the State highway departments effectively to administer the cooperative funds.

Out of the experiences of the late war matured the certainty of the essential qualities of highway transport. There can now be no closing of our eyes to the international relationships which have been established for the United States whether we think in terms of maximum productivity, of the development of our national resources, or of the national security. Ability to use highway transport to its full capacity imposes an ever increasing obligation upon the highway officials. Currently the maximum that can be accomplished in highway improvement is less than sufficient. These are the questions then that seem most important for immediate consideration:

1. How can complete coordination and cooperation be best established between the State and Federal highway officials on the one hand, and the county and other local rural, and the urban highway officials on the other hand?

What changes are needed in State and Federal legislation to accomplish this result?

2. What administrative plan must be established to accomplish construction on secondary rural roads most efficiently?

3. How can equipment be most economically owned and most efficiently used for maintenance, particularly of secondary roads?

4. What new concept should be introduced to guide the planning of our highway system to meet new conditions?

There are, of course, many other major questions, but these seem to have particular significance in view of some of the suggestions and criticisms that have appeared during the hearings on the new Federal legislation.

1. How can complete coordination and cooperation be best established between the State and Federal highway officials on the one hand, and the county and other local rural, and the urban highway officials on the other hand?

What changes are needed in State and Federal legislation to accomplish this result?

The Federal highway legislation, in establishing the secondary and the urban road systems, reposed the initiative in the State highway department of each State. This carries forward the same principle that has worked successfully in developing the Federal-aid primary system, since sufficient flexibility is thus provided to meet the widely varying conditions existing among the States.

The responsibility of the Public Roads Administration in the prudent investment of the Federal highway funds without imposing undue delay in the operations of the program, indicated first the necessity for a further decentralization of the Federal organization, and second, the establishment in the headquarters staff of a division of secondary road projects and a division of urban projects.

These two administrative steps have been taken and are now in operation. In addition, two boards have been appointed of engineers now engaged in these two fields. The Board of County Consultants is composed of county engineers and the Board of Urban Consultants is composed of city engineers, all of whom have generously contributed of their time and engineering experience to assist in the development of policies and methods that we believe will prove effective. Before final action is taken on important matters, the proposals are reviewed by the Committee on Legislation and Administrative Policy of the American Association of State Highway Officials.

These procedures indicate the effort that we believe necessary to insure the cooperation of the official groups affected. It would appear reasonable that within each State highway department a secondary road division and an urban road division be established to administer these widely divergent but major activities. Such an organization is already an established fact in many of the States. Where the counties or other local subdivisions maintain a technical organization to work with the State highway departments, the problem becomes one of agreeing upon objectives and upon methods. The acute problem arises in the very large percentage of the counties and local subdivisions which have not established a technical organization and in which perhaps the road funds available annually do not permit the maintenance of a competent engineering staff. That trained knowledge and experience are essential to a successful road improvement program will doubtless be accepted, but this acknowledgment does not in itself meet the situation. There are a number of practical ways in which the need can be met, and each one will involve the extension on the part of the State highway department to counties and

other local subdivisions not otherwise provided, of the engineering skill and experience that are essential concomitants in the production of economical and dependable improved highways.

While provision for technical knowledge and experience is essential, there is another element of administration that may be accorded equal importance. Particularly is this true of the secondary road program. It is the element of public understanding and concurrence in the program. In December, Mr. A. S. Goss, Master of the National Grange, wrote all of the Chapters an urgent message that the local Granges set up a road committee to advise with, and recommend to the local road officials the road program that would prove of greatest benefit to the agricultural communities. This, if carried into effect, will be a wise collaboration. Inevitably the time required to develop an adequate mileage of secondary roads will extend over many years. It will be necessary to rely upon the inherent fairness of the farm groups to accept the principle that improvements should be undertaken in the order that will extend the greatest service to the greatest number. The establishment of confidence in the road program on the part of the agricultural communities is an objective worth continuing effort.

What is true in the agricultural communities is equally true in the urban areas. In the case of the latter, however, there are, in addition to the official organizations, many civic groups who are broadly interested in the trends of urban development. In the area covered by the North Atlantic States the arterial urban improvements necessary are so extensive they can only be carried out over a period of years. It is important to use every means possible to insure a thorough public understanding of the proposals. We should not lose

sight of the fact that, generally speaking, we are still in the pioneer stages of arterial urban highway development, particularly of the controlled access type. Once a sufficient number of such facilities are in operation to provide real demonstrations of the traffic service to be thus obtained, many of the difficulties now obstructing the way will disappear.

2. What administrative plan must be established to accomplish construction on secondary rural roads most efficiently?

As of January 1, 1948, the approved Federal-aid secondary road system consisted of 366,244 miles consisting of highway types in all stages from unimproved earth roads to a small percentage of paved surfaces. To bring this mileage to a status of improvement consistent with the traffic service required and reasonable maintenance costs is a mass production undertaking. With the scarcity of common labor available for this class of work and the prevailing labor scales, the conclusion is inescapable that the only possibility of improving this vast mileage within a cost range that is possible to provide lies in the efficient use of equipment.

It would require a lengthy discussion to pay the deserved tribute to our modern highway equipment or to evaluate the influence it has exerted upon modern highway construction and maintenance. An example of what constantly improved road building equipment has accomplished is in the item of common excavation. From 1925 to 1940 the average price per cubic yard was on a constantly downward trend until in 1940 the average was 59.8 percent of the average of the 5-year base period, 1925 to 1929. Other elements of construction also showed a downward trend, but not in the same degree since these were affected by the prices of materials. In

the secondary road program as of January 1, 1948, there are 22,737 miles approved for improvement. About one half of this mileage is for surface-treated or higher type construction. While this current total is certainly a substantial mileage, it reflects a rate of production substantially less than must be attained if we are to improve the system within a reasonable period. There is considerable divergence of opinion as to whether the secondary program lends itself to contract procedures, and the insistence upon force account methods grows as the type of improvement is reduced. With a background of constantly decreasing unit costs, prior to the war, for work handled under the contract method, and the present knowledge that a balanced equipment plant, experienced management and expert operators are the essentials of minimum cost production, the conclusion is inescapable that it will be advisable in carrying out the secondary road program, to resort to contract procedures. There are, of course, conditions which justify the use of the force account method. Most certainly the choice between force account and the contract methods must rest upon the cost to the public. That is, there is no intention to lay down the dictum of either method. In general, secondary road construction will require a less number of units per mile of all of the construction elements, and in order to obtain minimum costs, the mileage per contract must be increased. A suggested possibility is that in place of the relatively short mileage of the primary road system projects, that contracts for secondary road projects be let in units of 25 miles, 50 miles or even a greater length. Certainly, a new technique of contract administration will be necessary.

3. How can equipment be most economically owned and most efficiently used for maintenance, particularly of secondary roads?

The maintenance of our highways is not spectacular. What is remarkable to those who know, is the amount of service that we are continuing to obtain from our highway systems of which so large a percentage are obsolete in design and depreciated through the constantly increasing daily use. The contribution made by our maintenance organizations in keeping our highway plant in operation, particularly during the war period, has not been justly recognized. Certainly any rewards in the way of public acclaim for their accomplishment have been chiefly conspicuous by their absence. The maintenance forces meet the worst that weather can do and the destructive effects of heavy traffic in a never ending struggle. In the snow areas in the bitter storms they are battling the elements through the night when most people are snug by their firesides. Their reward is largely exaggerated complaints for the minor matters left undone rather than an acknowledgment of the major accomplishments. The highway plant is kept in operation through two methods only - replacement and maintenance. During the war period we were largely reduced to reliance upon one method only. That of maintenance. The maintenance organizations can well feel a high degree of inward satisfaction in the knowledge of a job well done. The techniques and methods that have been developed over a long period of years are, as in the case of construction, geared to the use of efficient equipment.

A study of the investment in equipment necessary for the maintenance of 1,000 miles of State highway, which necessarily includes a considerable amount of snow removal units in northern areas, indicates an average cost new of \$668,450. A more limited study covering 28 representative counties in which the maintenance results are considered good, indicates that the investment in equipment (new) averages for 1,000 miles \$253,450. These figures are not directly comparable because of the difference in the type of road surfaces to be maintained. These figures are quoted principally to point to the necessity for revamping our ideas of maintenance organization now predicated upon the governmental jurisdiction of the roads to be maintained in favor of a plan to maintain roads, regardless of jurisdiction, radiating from equipment depots located with studied reference to each other on the basis of proven equipment capacity. This is undoubtedly an over simplified statement of the principle involved, and any such plan raises at once a hundred objections. Notwithstanding all these, the fact that the sufficiency of maintenance of so large a mileage of highways of real traffic importance rests upon adequate equipment and a full-time organization of trained operators, makes necessary an operational plan that does not depart too far from the concept of the continuous use of the most efficient maintenance equipment plant that can be assembled.

In the State-wide studies that have been concluded in California and in Michigan and in others that are under way, the most optimistic estimates indicate at least a 15-year period of replacement and rehabilitation of our existing road systems that have a high degree of traffic importance. In many States the reconstruction period must

necessarily extend much longer. From the standpoint of meeting the constantly increasing traffic demands, the importance of an extended and efficient maintenance system cannot be over-emphasized. But this is only part of the story. Nation-wide pressures for secondary road improvement are increasing daily. This apparently reflects two conditions. First, the widening breach between the excellence of State-built and State-maintained highways, and the average secondary road, and second, the recession of the financial support for the secondary and local roads. In the latter case the figures are as follows:

County and Local Rural Road Expenditures  
for Construction and Maintenance

	Construction		Maintenance	
	Total	Average Annual	Total	Average Annual
1921-1930	2,821	282.1	2,333	233.3
1931-1940	1,502	150.2	2,203	220.3
1941-1946	627	104.5	1,667	277.8

  

	Average Annual Total Cost Construction and Maintenance *
1921-1930	515.4
1931-1940	370.5
1941-1946	382.3

\* These are dollar values. If expressed in purchasing equivalent, the recession in secondary road funds becomes apparent.

The important conclusions to be drawn from these figures are two. First, that the increasing maintenance costs are rapidly absorbing the income for secondary roads, and second, that in the face of constantly increasing road user taxes for secondary roads, there is a recession of support funds for secondary roads which formerly came from property taxes and other sources. From these figures it must be abundantly evident that the trends shown call for major departures from our established lines of highway administration.

4. What new concept should be introduced to guide the planning of our highway system to meet new conditions?

In August of 1947 the selection of the routes to constitute the rural section of the inter-State highway system was announced. The selection of the individual routes was based upon years of study by the State highway departments of the major flow lines of traffic. The system of arterial routes within urban areas, which will provide the extremely important terminal facilities of the inter-State system within these areas, is now under careful study. Before the final selection of the routes of the inter-State system, they were reviewed by the War Department in the light of the experience gained during the war period. Now we must revise our thinking to meet changed conditions. In the face of the major developments of potentials that perhaps now are only partially known, we cannot do otherwise than carefully reconsider and re-plan highway facilities for the national security in the light of the best knowledge we can obtain. The following is quoted from an address by Brig. Gen. Edw. H. Lastayo, Chief of the Highway Division, Office of the Chief of Transportation of the United States Army, before the International Association of Chiefs of Police, December 12, 1945. General Lastayo has now been assigned to other duties, but his address was delivered shortly after his return from a three-year experience in two theaters of war overseas. This is a remarkably important analysis of the importance of highways in war.

He says:

"Transportationwise, this means that we must be prepared for immediate movement, not only overseas, but within the continental United States, of tremendous numbers of troops and many thousands of tons of supplies quickly and efficiently. This movement would be over long distances throughout a wide area, for because of the effectiveness of these new weapons, both in range and accuracy, our Army would be more widely deployed than ever before. In the field of land transportation, highway transportation would be of increasing importance since the fixed installations of other types of carriers would become the immediate and almost certain targets for these new and highly accurate long range weapons.

"To be reasonably prepared \*\*\*\*\* our highway system must be adequate; we must be able to begin immediately large production of suitable types of motor transport. We must be prepared to do all of these things at any time. Our very ability to arise to such an emergency quickly and effectively will, in large part, insure us against its development."

In the face of such an informed statement, responsible highway officials must pattern future highway development to serve the foreseen requirements of the national security. This is a matter of prime importance in the thickly populated, highly industrialized area covered by the North Atlantic States. Exploratory studies, particularly of parallel routes for the major highway system, and of circumferential routes in urban areas, are now under way by the highway departments, the Transportation Corps of the Army, and Public Roads on the West Coast. From these studies we are hoping that the principles and the patterns to serve the national security will emerge, and it is expected that at a reasonably early date the studies will be pursued with the highway departments of the North Atlantic States. Should a national emergency arise, the highways must be ready.