REPORT OF THE DEPARTMENT OF FINANCE

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THE FUTURE DEVELOPMENT OF HIGHWAY TRANSPORTATION

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SYNOPSIS

During the war, the virtual ban on large-scale main road construction and automobile production offers a singular opportunity to review the accomplishments of highway development in the past, and to anticipate the direction of highway policy in the future It is certain that there will be tremendous changes in transportation after the war and the necessity for forward-looking plans for highway development is apparent

It is to be expected that there will be a vast development of air transport and that recognition of the particular place of highway transportation as primarily a short haul agency will define the major highway task as provision of facilities to accommodate new and improved vehicles in a principally local function.

Obviously, therefore, the most important highway problem will be then as it is now to provide adequate service within and in the vicinity of the cities In order to cope successfully with this situation revisions in present highway policy will be particularly necessary in respect to Federal and State cooperation in the city problem, and in the acquisition of right-of-way Present costs and laws governing right-of-way matters are especially hampering in planning adequate improvements

The huge task of modernizing highway transportation after the war will, if properly planned, provide a great reservoir of public work which will utilize a vast amount of labor without need for work-relief projects

Despite the rather broad implications of the subject selected by the Department of Finance, it is nevertheless believed that without a clear indication of the type of highway facilities which will be required in the future, there can be no intelligent discussion of the financial problems which future developments will involve. In addition, a review of highway requirements cannot fail to demonstrate that a preponderant share of the difficulties encountered in the attempt to achieve modernization are difficulties arising from financial policies rather than from the shortcomings of automotive or highway engineering. For these reasons an attempt has been made to examine the physical tasks of the highway builder in the future, in order that his objectives may be properly implemented in the field of highway finance.

However precarious an attempt may be to visualize the future development of highway transportation in the United States, it seems less dangerous to speculate on this subject now than to avoid speculation. For the present world conflict, by accelerating the rate of technological progress and at the same time restricting the construction of new roads and new vehicles, has provided an opportune setting in which thoughts and plans may be directed to the future role of highway transportation What this role will be depends to large extent upon the highway industry itself; upon the type of motor vehicle and the type of road that the industry is prepared to furnish. On the other hand, many developments beyond the control of the highway industry will participate in shaping its future des-

tiny. innovations in air transport, urban planning and reconstruction, housing developments, and general economic conditions. All of the various factors potential in the current world situation must enter into the calculations of those who are responsible for the formulation of highway transportation policy.

The necessity of preparing forward-looking plans for highway development derives not merely from the certainty of tremendous changes in transportation after the war, but also from a realization that highway transportation service today is far from achieving the standards of which it is capable. Furthermore, emphasis upon the need for advance planning derives from the responsibility which every industry must assume in joint preparations for maintaining a high level of industrial activity after the war For when the world conflict is over, the transfer of millions of men from war-time production to production for better living will require a cooperative program of forward thinking and organizing to minimize the economic repercussions of this tremendous changeover.

The part of the highway planner in this responsibility is one of particular magnitude. For not only does the modernization of the highway system offer singular opportunities for employment on worthwhile public investments, but at the same time the success of many other post-war plans will be dependent upon it. For transportation is a facilitating function by means of which other objectives are made possible; and the attainment of a high level of economic activity presupposes the availability of adequate transport service Moreover, transportation facilities constitute an excellent tool for desirable community and regional development. It is the future coincidence of this need for highway improvement and the necessity for providing useful employment toward which the highway industry must direct its plans.

THE FUTURE OF THE MOTOR VEHICLE

In spite of the tremendous progress in automotive production and design which has made possible the operation of thirty-two million motor vehicles in this country today, the automobile has never fully repudiated the horse and buggy from which it has evolved. Recently, however, automotive engineers have been thinking in terms of many radical changes in the present conventional vehicle; changes not only in design, but in price. After the war, a vast capacity for airplane production, the development of new flying techniques, and the demands of a large pilot population will mean inevitable expansion of private plane transportation, in competition with the motor vehicle At the same time, the necessity for retooling to resume unrestricted automobile production will provide the opportunity for new motor vehicle designs reflecting the benefits derived from a period of experimentation.

These factors encouraging new developments in highway transport may be strengthened by still another consideration, the necessity of attracting consumers who may have become accustomed during the war to getting along without the automobile. For if the war is to be a long one, the possibility of a shortage of vehicles or parts, and of standard octane gasoline, may mean a further development of mass transportation facilities, and diminishing use of the private auto. In addition, new developments in low-cost housing and other products will be important factors in reducing the amount allotted to transportation in the post-war family budget. This indicates that a lower cost of transportation per vehicle mile will be sought either through lowered first cost, savings in maintenance, or extended life of the vehicle.

Competition between air and highway transport will not be confined to passenger transportation. The intercity truck will be especially vulnerable to plane service, since it carries much of the type of traffic

which the airlines will be eager to handle. Already the cost of air express could be reduced considerably below railway express if it were possible to obtain equipment.

Evidence of the future importance of air transport to guide the highway planner is contained in a recent address of the Assistant Secretary of Commerce for Air, in which he has reviewed the growth of aviation during the past three years. In 1938, aircraft production was valued at $125,000,000. Next year it is expected to exceed $3,000,000,000. In 1938 there were 40,000 workers in aircraft manufacture, and 20,000 civil pilots. Today there are 400,000 aircraft workers and civil pilots number 100,000. Just as the last war stimulated commercial trucking, and motor transport generally, the present conflict promises to establish air express and freight service, and a tremendous expansion of passenger travel by plane.

These trends in air transport suggest by contrast the fundamentally local service for which the highway vehicle is inherently adapted. Regardless of the shift of long-distance traffic from highway to the air, the use of streets and highways for local movements will undoubtedly continue to expand. In addition, it is evident that highway transportation must supplement air transport by providing adequate connections at landing fields, and perhaps by furnishing local highway facilities for the movement of skycars which will operate on the road as well as in the air. A more rapid rate of technological development in the motor vehicle will also be stimulated by improvements in the plane. The major task in highway transport, then, will be that of providing facilities adequate to accommodate a modern vehicle and a predominantly local transport function. This means that in the future there must be closer collaboration between the designer of the vehicle and the designer of the road, in order that highways may be developed to permit the fullest realization of advances in automotive technology.

HIGHWAYS OF THE FUTURE

Whatever the type of highway vehicle in the future, the nature of its use suggests that the city problem will be the most important highway problem tomorrow, as it is today. This fact emphasizes the necessity for removing the legal and financial obstacles hindering acquisition of necessary rights of way to permit modern highway design; and it calls attention to the need for adequate highway terminal accommodations, and to the close relationship which must be established between highway facilities and the whole city plan. Highways, too, must be developed in keeping with the plans of other transport facilities in order that there may eventually be achieved a coordinated transportation system. And in rural areas, as well as urban, our concept of the highway must be modernized to segregate, for special design treatment, the highway serving general use from that provided primarily for access to land.

Right-of-Way Problem

A basic obstacle to the provision of modern highways is the combination of prohibitive costs and legal restrictions which prevent the acquisition of necessary rights of way. Today many streets and highways which require modernization through widening or realinement remain unimproved because of exorbitant land costs; and the construction of new facilities is often held up indefinitely because of legal difficulties in acquiring land. Yet even where rights of way have been obtained to permit new construction, failure to acquire sufficient widths, either because of high costs or lack of legal authority to condemn for "excess" acquisitions, has resulted in eventual difficulties resulting from encroachments of abutting land users and the high property and damage

cost incident to widening operations. For the presence of business establishments and residences close to the pavement constitutes a menace to safe transportation and a primary cause of inadequate highway capacity.

Many States today can acquire land only through local road units, and many of these units are still required by law to finance right-of-way costs themselves, despite financial incapacity. In the majority of States property owners adjacent to proposed highway improvements have the power to delay road development almost indefinitely; and the practice of appropriating funds for land purchase in the same bill calling for construction of the highway means that the States have never had sufficient funds to meet the cost of a desirably prompt construction program and a simultaneous heavy expense for land acquisition. Moreover, Federal aid was restricted to construction until passage of the recent National Defense Highway Act, leaving the land problem to be solved by the States; and the fact that Federal aid must be spent within a limited period means that States must purchase land quickly, and therefore on terms offered by the seller.

The fact that highway development has generally been governed by the limited methods of land acquisition has created an impossible situation which demands immediate revision of policy. There must be some method by which necessary rights of way can be obtained sufficiently in advance of actual construction; and measures must be taken to assure that neither legal restrictions nor the restraints imposed by current financial conditions shall permit land requirements to dictate the success or failure of the highway program. A pressing need, therefore, is the establishment of a land agency in the Federal Government with sufficient funds and legal authority to assist State and local units now in acquiring on a time-payment basis the rights of way necessary for post-war highway improvements. This type of voluntary Federal assistance would avoid many of the restrictions placed upon the States, and would meet the problem of overcoming the archaic and time-consuming acquisition processes now in operation. The logic of such a measure seems clear, for Federal-aid policy cannot continue successfully without it.

The City Problem

Just as a period of reduced activity in the automobile industry may be expected to provide the setting for more imaginative planning for the future, so a period of restricted road construction will provide an opportunity for analyzing past developments in highway construction, and future highway needs. The most striking observation from such a review of highway policy would be the fact that in spite of the gigantic requirements of highway modernization in and around congested metropolitan areas, force of habit continues to direct our major efforts toward the provision of rural highways.

It has been pointed out in previous reports of the Department of Finance that a solution of the transportation problem in and around urban concentrations of population constitutes the most urgent and the most important task of the highway builder. The necessity for this repetition continues to be apparent in the almost hopeless traffic situation which confronts nearly every American city. Yet only $51,000,000 out of $1,321,000,000 of motor vehicle user taxes was spent on local city streets in 1940; and State highway department expenditures for construction and maintenance on urban extensions of the State systems amounted to only $32,000,000 out of a total State highway disbursement of over one billion. In view of the inadequacy of urban highway service and the tremendous proportion of urban traffic to the total, it would be difficult to maintain that the existing expenditure pattern makes sense. The conception

appears to be the erroneous one that there is a separate rural and city problem of providing adequate highways. On the contrary, the State must recognize that a single problem exists; that the boundary line of an urban area is artificial and not a true traffic division. There must therefore be a State master plan in which all general use roads will be developed on a "use" basis under the general supervision of the State, with Federal cooperation. This need create no friction between the State and the urban governments if the objective is clearly defined.

Inadequate highway transportation is not the only urban difficulty, of course, nor the principal one. The whole physical condition of our cities has become progressively worse, until today congestion and blight have become practically intolerable. Transportation is only a means of carrying out the city plan; and the highway program must follow from that plan, not determine it. A preliminary step to improved urban transport, therefore, involves the establishment of a plan for the whole city, and numerous lines of attack, including highway construction, by which the goal can be reached.

The question which highway planners must answer, therefore, is how the pattern of highway development can make possible the type of future urban development which the city planners visualize. This relationship, as it applies to land-access streets, is illustrated in the planning of residential districts by the Federal Housing Authority, which involves the establishment of a street plan designed to serve every prospective home conveniently, but at the same time to shut off through traffic. This plan is based upon the fundamental land planning principle that streets should conform to the topography in order to enhance the natural advantages of the area and avoid the wasteful grid pattern. Streets are designed with varying alinement to create interesting and changing settings for new houses; long blocks are favored, with a minimum of four-cornered intersections; and convenient connections are provided to main highways located outside the subdivision itself.

Just as the residential street pattern must be planned in conjunction with the land-use pattern, so too the main travel arteries of the city must be designed to serve but not to interfere with these developments. These main arteries must provide fast through motor service by means of limited access design. In the downtown district sufficient off-street parking space must be provided in conjunction with the express highway system, and adequate mass transportation by bus and other facilities must be available in the central area. There is also the necessity of furnishing adequate freight terminals in connection with other transport media, and these coordinated terminals would be located outside the central district.

In view of the obvious fact that the principal task of the highway builder lies in the city, the need for revising Federal policy to establish greater Federal cooperation in the city problem can hardly be denied. At the present time, Federal assistance in urban highway development is of an extremely limited nature. Since 1936, it has been permissible to spend regular Federal-aid funds on extensions of the Federal-aid system in cities; and local street work, mostly of a maintenance character, has been carried out during the past several years as a relief function through the Work Projects Administration. The city problem, however, is too gigantic to be treated casually, or to be handled as a relief job The cooperative relations now existing between the Federal Government and the States should be augmented by a positive program of city-state cooperation. Furthermore, steps must be taken to guarantee that all urban highway construction conform with plans for overall city development. Finally, it will be necessary to recognize that in the

large cities to which this new Federal and State-aid program would apply, the arteries eligible for improvement should include not only the urban extensions of the Federal-aid and State systems, but certain parallel and feeder routes as well. A system of primary and secondary city streets must therefore be designated similar in nature and purpose to classifications of rural roads.

Highways and Employment

The subject of work-relief activities in connection with the problem of urban highway construction raises broad questions affecting the whole highway program, and, in fact, the entire post-war program of public works. The problem in the highway field, as in others, is whether relief projects as such can be avoided after the war. The answer must be that they can if the proper preparations are made now. To meet the necessity for full employment, "make-work" projects are not the answer when there is so much work to be done.

In the past several decades, the use of modern roadbuilding equipment has made possible tremendous increases in the productivity of labor, and consequently in the amount of roadbuilding and the standard of transportation service. With the volume of unemployment reaching such tremendous proportions during the recent depression, however, it became necessary to provide jobs quickly and on a large scale; and the lack of plans in readiness for such an emergency made necessary a resort to work-relief programs comprising projects having immediate employment rather than ultimate usefulness as their primary objective. As a result, technological possibilities had to be abandoned for hand-labor methods, and the desire to provide more jobs overcame the desirability of building better roads.

At the end of the present war, the extent to which there will be a repetition of the experience of the 30's will depend largely upon what we do now to plan projects in advance, and to provide for their immediate undertaking by overcoming as soon as possible the various obstacles which stand in the way. To the extent that public works projects are to be relied upon to provide employment, those projects must be conceived wisely to assure that efforts will be directed toward necessary and desirable accomplishments. Otherwise, public works may provide employment but fail to provide the foundation for a lasting high-income level. On the other hand, plans might be provided for useful work, but an insufficient number of such plans or a failure to have them fully prepared might result in the adoption of make-work methods to provide more work per project. As a result, by attaching the stigma of relief to needed public works, we would again be guilty of wasting and jeopardizing human resources.

In the post-war period there must be jobs for all. And it is difficult to believe that with proper organization and determination, public works planners in the United States could lack the ability to provide these jobs, and to provide them on worthwhile public improvements. By establishing reserve projects of sufficient magnitude, and by making detailed preparations for their immediate initiation, the goal can be achieved.

CURRENT POST-WAR PLANNING

There are several current developments in post-war planning which involve the participation of the highway industry. One of these is the appointment by the President of a National Interregional Highway Committee to consider recommending a limited system of national highways designed to provide a basis for improved interregional transportation. In creating this seven-man committee, the President stated it to be his hope that as a result of their recommendations detailed plans and specifications could be prepared

to "permit us, upon the conclusion of our defense program, to utilize productively some of the man power and industrial capacity then available to construct a national system of interregional highways." This committee is now engaged in the task of selecting such a system and of determining its design standards and cost. It is expected that a report will be made to the President soon after the first of the year, and that the interregional highway system will provide a basis for other highway and street plans.

A second development in post-war highway planning is the so-called Public Work Reserve intended to accumulate an immediate listing of needed highway projects, among other public works, and to hold such projects in readiness when needed These construction projects will be developed by State and local governments, which will be encouraged to make preliminary studies and surveys for selected important projects. Efforts are now being directed toward the coordination of these various individual projects in order that an interrelated highway system may in the end be achieved. In each State, representatives of the State highway department, the Public Roads Administration, and the Public Work Reserve will assist the various units of government in selecting projects having overall highway requirements in view. In this manner State and local projects will be added to Federal and Federal-aid projects to create a balanced program of highway development for the future.

In addition to these and other approaches to long-range planning of highway facilities, there is need for additional machinery to assure an overall approach to the transportation problem. The objective of achieving coordination of transportation projects has been sought in the recent establishment of a transportation committee composed of the heads of the various Federal transportation agencies. This committee, under the Chairmanship of Mr. Owen D. Young, was appointed by the National Resources Planning Board last year at the request of the President; and under its auspices there was undertaken a study of American transportation policy with a view to recommending such revisions in that policy as would permit the realization of the best possible transportation system. The report of the Transportation Committee will be issued early in 1942, and at that time it is hoped that the success of these efforts to study transportation needs from an overall viewpoint will have been sufficient to warrant the continued functioning of such a committee in the future.

SUMMARY AND CONCLUSIONS

Emphasis upon the future responsibilities of the highway industry should by no means be allowed to interfere with or take precedent over the immediate tasks which confront us. The necessity of maintaining and replacing the highway system which we have, and of making possible its utilization to the highest possible degree, will call for the redoubled efforts of the highway departments and the highway transport industry. At the same time, however, the virtual ban on large-scale main road construction and the possibilities of a sharp reduction of automobile use offer singular opportunity to review the accomplishments of highway development in the past, and to anticipate the nature of highway development in the future. Such a review leads to these observations:

1. The highway system today is deficient in numerous places and in numerous respects. These inadequacies are reflected in a generally poorer quality of highway service than our highway and automotive engineers are capable of providing

2. The basic obstacle to a truly modern highway system is the failure to alter public policy to cope with present day requirements.

3. Hopelessly inadequate methods of acquiring and financing rights of way con-

stitute the most serious limitation upon highway modernization.

4. State and Federal highway policy provide inadequately for correction of the greatest highway problem—that in the city.

In view of these fundamental defects in the highway program, the task of the highway industry in providing a reserve of post-war projects raises two difficult questions: What should the highway system of tomorrow look like? And how can such a system be achieved? The first question must be answered with consideration for the type of motor vehicle to be produced in the future; the future competitive effects of air transport and of other products and services created by the war; the inadequacies of existing facilities; the inherently short-run nature of highway traffic; and the various plans for community and regional development. In the light of these and other factors, an overall plan can be visualized to guide the highway program. With such a plan in mind, the question of how to achieve it must be answered by revisions in policy:

1. A Federal agency must be established to assist State and local governments in overcoming legal and financial obstacles now preventing the acquisition of needed rights of way, including additional lands for the protection of the highway from roadside encroachments.

2 State provisions for the use of motor vehicle revenues must be revised to include urban areas in a degree commensurate with the magnitude of the general use highway problems within these areas.

3. The Federal-aid Act must be expanded to provide a positive program to unify highway development in rural and urban areas as a single problem.

4. Highways, like other transport facilities, are a means to an end, not an end in themselves. In the future there must be greater cooperation between highway policy and other public action in order that the highway program may further general objectives rather than limit them.

5. There should be no need in the future to resort to work-relief projects in the highway field. The tremendous awaiting task of highway modernization attests this fact. It is necessary, therefore, that immediate preparations and detailed plans be made for worthwhile highway projects, and that obstacles be removed which might otherwise hinder such a program.

These are some of the policy changes which the highway industry must consider. Unless they are adopted now, there can be little optimism for a post-war development of highway transportation on a truly modern basis.