

## ORGANIZING TRAFFIC FOR DEFENSE

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A national emergency sharply brings us to the undertaking of many important activities that have been too long neglected. We have long known that many highways are overcrowded with traffic, that there are countless points of hazard, and that too many drivers are improperly trained and poorly disciplined. But we have viewed these matters with what might be called a "democratic" complacency until they are suddenly revealed in sharp focus by the spotlight of the national emergency. Traffic congestion, which has long caused delay and exasperation, becomes intolerable when it delays national defense transport. Hazardous highway conditions and inadequate structures were tolerated when they affected only civilian pursuits, but they cannot be allowed to retard military convoys. Irresponsible and unskilled drivers, too long tolerated in civilian traffic, are a distinct menace in military transportation. It is only recently, however, that the true extent of our deficiencies could be tabulated for a calculating appraisal. When the original Federal-aid system was in process of selection, the War Department was requested to make recommendation of the highway routes of importance to meet the potential demands of military usage. This request was promptly and intelligently met by the War Department in findings which were incorporated in a route map now known as the "Pershing Map of 1922." All of these recommended routes were provided for when the Federal-aid system was established. There have been periodic revisions, and during the past two years the Army General Staff, the State Highway Departments and the Public Roads Administration have cooperatively made a most careful review, followed by detailed revisions.

In its present form, this system of important military routes is known as the strategic network, and incorporates approximately 75,000 miles of the major roads of the nation.

It represents the agreement of the military and civil highway officials, both State and Federal, as to the long distance routes that will best serve the defense requirements of the nation. The completion of the initial highway planning surveys reveals in what degree the "strategic network" exists as adequate arteries of transportation. Records from the road inventory show the mileage of highway and the number of structures that are satisfactory for defense transportation, as well as those which are inadequate in one respect or another. The traffic surveys have measured accurately the normal civilian traffic over these highways. To this is now being added traffic movement generated by the new defense activities, which fortunately can be forecast with a reasonable degree of accuracy.

The Public Roads Administration, with the help of the various State highway departments, has been carefully analyzing this problem over the past two years. This analysis shows that the problem may be resolved into two rather sharply defined phases. The first is the intensive problem of providing facilities that will give access to military and naval establishments, to the new industrial plants, and to existing industrial plants whose production is being greatly expanded to meet defense needs. The military camps present perhaps the most serious problem because they are frequently located in undeveloped areas, where highway facilities are grossly inadequate to meet the needs of the new-found activity. Industrial expansion has also outdistanced highway facilities in many areas. A striking example is in Detroit, where there are grouped along a proposed new cross-town artery plants holding over 80 percent of the defense contracts in that city. At the present time existing streets are hopelessly inadequate for the movement of some 300,000 workmen and the large volume of material, parts and completed products.

#### Highway Problems Serious.

There had been certified by the War Department, the Navy Department and the Council of National Defense, up to April 26th, 288 defense areas at which access road problems exist. It is anticipated that there will be at least 50 more areas certified by the War Department in the near future.

and that the addition of naval and industrial areas will be in this same proportion. The estimated cost of construction necessary to the solution of the problems that have been presented or will be presented in the future, will approach \$350,000,000.

Obviously this amount of construction work cannot be accomplished overnight, even if funds were immediately available. Until funds are made available, and the work has been completed, a heavy responsibility will fall upon the Highway Traffic Advisory Committees in each State to insure that the present facilities are used to their utmost efficiency, and that traffic may move with the maximum degree of safety under existing adverse conditions. Much has been done already, but our efforts must be continued and extended to the limits of our capacity.

The other phase of this problem may be defined as extensive, and relates to the provision of highways of reasonable standards on the so-called strategic network. This network of routes of principal military importance includes approximately 75,000 miles. In this mileage there are presently over 5,000 miles of surface less than 18 feet in width; there are nearly 2,500 bridges of capacity of less than 30,000 pounds; and there are approximately 14,000 miles of road whose surface is incapable of supporting wheel loads of 9,000 pounds. To eliminate these deficiencies alone will require an expenditure of over \$458,000,000. Furthermore, there is a substantial mileage which is over 18 feet in width, but is still narrower than necessary for the proper accommodation of present and expected civilian and military traffic, and there is a common condition of narrow shoulders, a very general condition of excessive curvature, too steep grades, and inadequate sight distances.

Question is frequently raised regarding the relative importance of military and civilian traffic on the strategic network. It is often erroneously assumed that the principal use of this strategic network is for the movement of military convoys and that the standards are selected with that in view. It cannot be too strongly emphasized that the standards required for the movement of military vehicles are, with certain limited exceptions, no more severe than are required for the proper movement of our civilian traffic.

As to the relative use by civilian and military traffic on the strategic network, no answer is generally applicable. In a relatively few areas on roads serving our larger cantonments, military traffic will predominate. Along the North Atlantic Seaboard and in the region of the Great Lakes, the movement of civilian commercial traffic will undoubtedly be predominant.

From England's book of experience we find that "essential" traffic has been grouped into four classes:

- (a) Navy, Army and air force traffic
- (b) Police, civil defense, inter-hospital and Post Office traffic
- (c) Food, petrol and fuel supplies
- (d) Traffic required for or in connection with munitions supply and public utility services.

Here it is seen that, while strictly military traffic is placed first on the list, it is but one of four types that are considered essential. In the face of an emergency, such as an attempted invasion, it is proposed to prohibit other traffic from the defense routes.

#### Highway Traffic Must be Effectively Organized

Regardless of the relative importance of civilian and military traffic, however, it should be self-evident that highways inadequate for military usage are even more inadequate for civilian needs. The evaluation of the adequacy of our highway plant for military or defense transportation reveals in no uncertain light how closely we have approached on many important arteries a virtual stagnation of traffic flow. Such stagnation already exists on some highways crowded with week-end traffic. This condition has, however, been viewed with certain equanimity; and its seriousness has even been discounted on the grounds that the greatest proportion of the movement was for "pleasure." With the increasing subcontracting of many items of manufacture, and with many larger plants becoming principally assembly centers, the highway becomes an integral feature of the assembly line. Stagnation of traffic under these conditions might well result in calamity. These conditions in varying degree existed before the emergency. They will still be with us, should the emergency pass tomorrow. So even as the emergency serves to spotlight our deficiencies, it reveals with equal brilliance the necessity for

the greatest possible organization of traffic flow, the responsibility for which must rest squarely upon the Highway Traffic Advisory Committee of each State.

We already have examples of the results of traffic organization, the most striking of which comes to us from France. Military observers returning to this country after the occupation of the Low Countries brought vivid descriptions of the complete stagnation of traffic, particularly on the roads in France. Here the roads became so completely clogged with refugee traffic that the movement of military vehicles was impossible. Almost within a matter of hours after the invading Army appeared, the roads had been cleared and the Panzer divisions were moving through unhindered. It is understood that the German High Command made no effort to restore rail communications demolished by the retreating armies, but relied entirely upon motor transport to move and to supply the armies. The failure of the French and the efficiency of the Germans in planning and organizing highway traffic may not have spelled the difference between defeat and victory, but that traffic organization was of extreme significance cannot be denied.

In England we are able to draw from a different experience, which perhaps more nearly corresponds to our present problem. There, enemy action has been confined to air attacks, and the problem of highway transportation has thus far not been complicated by an actual invasion. Prior to the war it had been the policy to discourage by taxation the use of heavy motor lorries, and no strategic network was laid out, the possibility of invasion having been heavily discounted. Consequently highway transportation failed drastically to measure up to war-time needs. Now, however, there has been established a red and a blue network of defense highways and plans have been developed by the highway police and military authorities under which the use of the roads is specifically limited to "essential" traffic in certain emergencies.

Furthermore, in the early stages of the war, it became apparent that the Government did not have means of utilizing even the existing motor transport facilities to their maximum advantage. No central records were available to show the locations of vehicles of various types and sizes, which vehicles were engaged in indispensable services, and which could be commandeered for military use without too greatly

disrupting essential pursuits. The lack of knowledge of the availability and location of such vehicles has largely been overcome by a detailed motor vehicle inventory, and the Government is apparently able to make reasonably effective use of the facilities available. Although there is still an unfortunate lack of motor vehicle transportation, it is believed that the detailed inventory has greatly increased the effectiveness with which the available vehicles are used.

### Efforts to Profit From Experience of Others

It is not a pleasant task to diagnose the experiences in the life-or-death struggle of nations whose interests and ideals are so closely allied with our own. We must do just that, however, for the lessons we learn will be of invaluable aid in our present mobilization programs, and they will be indispensable in the event of our active participation in the war. To fail to take advantage of them may well be to invite disaster. The inescapable conclusion is that traffic can be effectively organized. It is our problem to lay plans for whatever degree of organization will be required in the event of any emergency, and to provide for the execution of these plans within the scope of our democratic processes.

The War Department well recognizes the magnitude of this problem and, through the creation of the Highway Traffic Advisory Committee, has enlisted the assistance of motor vehicle, highway, and police officials of the nation in planning for the organization of our defense traffic. From the earliest meetings of the committee two major points have been considered of paramount importance. These were:

- (1) That the effectuating of any plans must be decentralized, and
- (2) That the administration of work should be through the heads of existing State Departments.

These officials in general have experience and judgment developed over years of service in the States, factors which are of importance to an orderly solution of the problem. They have the necessary authority to carry out whatever plans are developed, and generally have the resources with which the programs may be financed.

It is extremely gratifying to the national committee that the members appointed to the State committees have responded so eagerly, and have pledged their whole-hearted cooperation in this important endeavor. The regional meetings arranged by the National Highway Traffic Advisory Committee were held over the period from March 7 to March 28, and the immediate problems were discussed with the State committees. From these meetings came many valuable suggestions which the national committee has transmitted to the Public Roads Administration and the War Department for their guidance. Many, if not all of the State committees, have been called upon to act in one way or another. A great many requests for civilian driver records have been received, one State reporting the receipt of such requests at the rate of over 100 per day. Although this work places some additional burden on the motor vehicle administrators, it is understood that it is being gladly accepted. Many requests are also being made of the committees for assistance in the routing of the convoys. Where the committees have effectively organized the local authorities in the States, it is understood that convoy movements have been handled without difficulty.

The National Committee wishes to emphasize particularly the importance of the organization of these local authorities, and of the careful planning for the movement of convoys during the training maneuvers now in progress. Without doubt military and civilian traffic will increase steadily, and, unless the State committees can organize traffic on roads in their States so as to provide for the expeditious movements of military vehicles, it may become necessary in the event of larger and more important moves in the future for the Army to take over temporarily certain highways or sections of highways. Military and defense traffic must be moved promptly. It is the duty of each of the State committees to its own citizens to arrange for these movements with the least possible interference with civilian traffic. Should it ever become necessary for the Army to commandeer highways, this step cannot help but reflect on the ability of the State Traffic Advisory Committee. Our road system cannot now reasonably provide for both military and civilian needs without careful organization and control of the traffic flow.

Truck and Bus Inventory Must be Completed and Kept Current.

The experience of England emphasizes the importance of the major feature of the program now being conducted by the committee - the truck and bus inventory. In order that this information can be obtained on a uniform basis throughout the country, through the offices of the 49 motor vehicle administrators, in no two of which are the office techniques the same, careful advance planning is required. The Public Roads Administration is cooperating closely with the Division of Statistical Standards of the Bureau of the Budget, the War Department, and the Work Projects Administration in Washington to insure a satisfactory program. These agencies recognize that this inventory is of outstanding importance, not only in connection with national defense, but for the valuable information it will yield regarding our normal commercial highway transportation industry. We are fortunate indeed that this opportunity is available to obtain the information so sorely needed by the motor vehicle administrators and the highway officials in an evaluation of one of our everyday problems.

It is anticipated that the contribution of the Work Projects Administration, in the form of personnel, will exceed one million dollars, an amount which would have been, under conditions of world peace, difficult if not impossible to obtain. This personnel can only be supplied under sub-projects of the national defense tabulating project, and it is inevitable that the administrative and legislative regulations that must be followed in setting up these projects may appear complicated and burdensome. It is incumbent upon the motor vehicle administrators to comply with all of these requirements carefully if the maximum of assistance is to be provided. In addition, it will undoubtedly be necessary for the administrators to provide some personnel who are familiar with the records in order to expedite the work and insure that it is properly controlled.

Questionnaire cards will soon be ready for distribution. Certain control processes are being developed in order to permit necessary follow-ups in the case of owners who do not reply promptly. This procedure will be worked out in detail, and it is important that it be followed completely. Necessary material for use in this follow-up work will be provided by the Public Roads Administration.



Obviously a survey of this sort will rapidly lose its value if it is not kept current. Once the initial job is finished, no great difficulty will be experienced in this respect. Means to do so can probably best be worked out by each administrator in accordance with the procedure in his own office. It is important that this be done and, insofar as possible, that the method used follow a standard pattern.

#### Program Can Have Far-reaching Results.

In concentrating on problems immediately before us, we may be inclined to overlook the far-reaching potentials of these State Highway Traffic Advisory Committees. Certainly, these committees represent the most effective group ever organized to facilitate and to control highway transport. Their effectiveness need be in no way diminished after the emergency passes; in fact it is only then that their true value will become apparent. For the first time we have, on a Nation-wide basis, responsible officials of the three agencies most concerned in highway transportation working together toward the common goal of effective organization, regulation and control of traffic. The fact that this work toward effective control of traffic can and must be continued unrelentingly is perhaps the most important reason for suggesting that the committees be constituted with legal authority in all States.

Some State legislatures have already passed bills giving the committees official status. Others have felt that ample legal authority is already available. The National Committee believes that effective work, after the emergency passes, can be assured only with a legal status that will permit the functioning of the State Committees throughout the field of highway transport, and will provide, wherever necessary, for the expenditure of funds to accomplish their objectives. A bill recently signed by Governor Lehman of New York, is perhaps an ideal example. Under this bill there is established a State Traffic Commission, consisting of "The Commissioner of Motor Vehicles, Superintendent of State Police, the Commissioner of Highways, and the Associate Commissioner of Education who has supervision of safety education in the public schools." This Commission is specifically empowered to:

"5. Cooperate with the agencies of this and other States and of the Federal Government which are connected with national defense, in the formulation and execution of plans for the rapid and safe movement over the highways of troops, vehicles of a military nature, and materials affecting the national defense.

"6. Coordinate the activities of the departments or agencies of the State government from which commission members are named in a manner which will best serve to effectuate any such plan for the rapid and safe movement of troops, vehicles and materials as referred to in subdivision five of this section.

"7. Solicit the cooperation of officials of the various political subdivisions of the State in the proper execution of plans.

"8. Take an inventory by counties, of the trucks and buses in the State, publicly and privately owned, which would be available in case of emergency affecting the national defense.

"9. The commission may, in conjunction with any interested public or private agencies, conduct a highway safety and driver training program as an aid to the national defense."

It is perhaps of interest that in quite another connection the legislature in Oregon has created a State Speed Control Board "consisting of the Chairman of the State Highway Commission, the Superintendent of State Police, and the Secretary of State or their duly designated representatives." Although the authority of this Board is limited, it is of interest that the legislature, prior to the organization of the Highway Traffic Advisory Committee, recognized that in these three agencies lay the responsibility for the effective direction of highway traffic, and thereby encourages the hope that the authority of the Board will be broadened in the future to include the control of other features of highway transport than merely traffic speed.

#### Driver Test Program Being Pushed.

Although the existence of the emergency unquestionably is responsible for the creation of these State committees, the field for action is not limited by the emergency. It includes, particularly for the motor vehicle administrators, an unparalleled opportunity for research, especially along the lines developed by the driver research committee of the American Association of Motor Vehicle Administrators, under the chairmanship of Mr. Michael A. Connor. The Army expects that, for the 250,000 vehicles now

definitely on order, at least 500,000 drivers will be required. These potential drivers will be drawn from all walks of life and, regardless of their previous experience, will undergo strenuous training before becoming acceptable drivers of military vehicles. In an effort to assist in the selection of these drivers, some 2,800 have been tested at Fort Dix, New Jersey, using apparatus developed and owned by the Association. Motor vehicle administrators of New Jersey and Pennsylvania cooperated actively in this work, which was under the direction of Dr. Harry R. DeSilva of the Institute of Human Relations at Yale University. Since its completion at Fort Dix, further studies have been undertaken at Fort Bragg, North Carolina, where it is anticipated that some 6,000 potential drivers will be tested. The fact that a very large proportion of these drivers were found to be unqualified is an indication of the value of the program. The Army cannot afford the time required to train men who can be shown, by preliminary tests, to be unqualified.

The Committee understands that the War Department is very favorably impressed by this work, and the motor vehicle administrators may feel that their Association has made a substantial contribution toward expediting our training efforts. It is hoped that with the completion of these tests a manual on the selection and training of drivers can be prepared and submitted by the Highway Traffic Advisory Committee to the War Department for general adoption.

The motor vehicle administrators will recognize they are themselves deriving direct benefits from this cooperative program. It is obvious that careful training of a half million drivers, most of whom are in the age groups known to be most accident-prone, should result in improved driving on the highways when these men return to civilian life. An indirect and more far-reaching benefit may accrue, however, in that these systematic examinations should supply data with respect to the qualifications of individuals and classes of individuals, which will be as basically significant in the field of general driver fitness as the intelligence tests applied to military personnel during the first World War have proved in the field of general intelligence testing.

After the emergency passes, and even during the emergency, work must be continued on the driver behavior studies along the lines developed in the cooperative work between the Institute of Human Relations and the Public Roads Administration. In these studies records of the behavior of drivers in the presence of chosen conditions of highway alignment, sight distance, etc., are correlated with personal characteristics, such as age, driving experience, length of trip, etc. The results afford a means of direct comparison between the personal characteristics of the drivers and their driving behavior that is not obtainable with similar reliability in any other way. Consideration has been given to extending these studies to New Jersey, Pennsylvania and New York, and it is hoped that conditions will permit undertaking the work there in the near future. Undoubtedly the lack of a thorough understanding of what circumstances impel drivers to perform as they do is one reason for the difficulties we have encountered in devising examination and training programs that are more productive in the reduction of accidents. In sponsoring such studies, the Association has taken steps that are definitely constructive, and it is hoped that more States will participate in this work.

Unquestionably, regardless of the merits or defects of highway design and construction, the greater the discipline we can instill in drivers, the safer will be our highways. The experience that the administrators can gain in the organization and discipline of traffic under the conditions of the present emergency must be employed in more concentrated efforts to the discipline of our civilian drivers in the future. Regular re-examination of drivers considered or actually in effect in a number of States, should prove beneficial in this respect. Similarly a thorough pre-training course for all potential drivers should have a far-reaching effect in accident reduction among new drivers who generally are in the younger age groups. Such programs are expensive, but their cost can only be considered as a sound investment yielding large dividends in terms of increased highway safety.

The national emergency has definitely changed our too-complacent viewpoint of our highway facilities. It should also inspire us to review more critically many other matters, particularly the traffic accident situation. An opportunity is presented that we cannot afford to let pass. A program of coordinated effort must be developed that will be continued and perfected upon our return to more normal conditions.

Only a national effort will prevent an appalling increase in traffic accidents and traffic deaths.