

Harrisburg, Pa.
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Address before Road School.

FEDERAL AID FOR HIGHWAY IMPROVEMENT

(Address before Road School, Pennsylvania State Highway Department)

In front of my desk hangs a map of the United States. That oblong of printed paper about four by five feet in size represents 3,026,789 square miles of territory in which dwell more than 110 millions of people. Within the boundaries are many extremes of topography, of population density, of accumulated wealth, of natural resources, of historical interest, of individual temperaments and ideals, of climatic conditions, of employment, of educational advancement, and of governmental and community organization. Notwithstanding the extreme variations in all these characteristics and their multitude of gradations, the people of the United States can and do act with wonderful singleness of purpose to accomplish a great national undertaking.

During the months following April 5, 1917, until November 11, 1918, the whole world came to a full realization of the great truth signified by the simple term "united". Possessions, endeavor, lives were devoted by a united free people to a great and single cause. Here was a great crisis, one in which old established and strongly entrenched governmental and human institutions, were overturned and destroyed, and every human emotion stirred to the depths. During all those long drawn out months, when a whole nation was intent upon a single purpose, and while every major activity was centered upon war and war work, it is astonishing that a constructive program more extended than has ever been undertaken by any nation has been formulated.

The war period definitely marked the end of one period in highway improvement, a period of very gradual development of highway organizations, of inadequate support funds, of tremendous opposition from the taxpayers, and of road improvements on any adequate scale confined to a few of the eastern and extreme western states. The end of the war marked the opening of a new and far different period of highway development, a nation-wide movement for highway improvement, of such tremendous proportions that its significance is not yet comprehended. The people of the United States from coast to coast have with singleness of purpose turned from a great destructive effort to a great constructive activity. The demand of a whole nation must in the next decade be met with improved transportation facilities. It is a popular movement. The public is liberal in its financial support, is ignorant of the immense physical task it has imposed upon road building organizations, and will, unless fully informed, be impatient of results evidenced by the number of miles of highway that can be completed each year under present conditions.

Under the Federal Aid plan the road building organizations officially responsible for the conduct of this great national movement for improved highways are the 48 state highway departments and the U.S. Department of Agriculture operating through the Bureau of Public Roads. Some of these departments are old established, while others have only recently been set up, but the fact remains that in every state there is now a state highway department which is rapidly being expanded, and in which real experience and ability are being made the prerequisites for employment. The combined state and federal organizations have an

immense sum for expenditure placed at their disposal. The latest estimates show that since the first of January, 1919, bonds for road improvement have been authorized by the taxpayers of the States in the sum of approximately 635 millions of dollars. In addition there is available approximately 250 millions of dollars from the Federal Aid appropriations, a total of 885 millions. Such expenditures as have been made from the bonds voted during 1919 are far more than offset by the annual revenues from taxes and motor vehicle license fees. In addition to these amounts bond issues are so definitely proposed that in most cases the election dates have been set, involving nearly 400 millions of dollars. In considering these estimates, account must be taken of the fact that these sums are additional to current revenues derived from property taxes, motor vehicles license fees and other annual or specific taxes which are devoted to road building purposes. No estimates, however, are included for these expenditures as it is not definitely known at this time what proportion of these funds will be used to pay the interest and retire the principal of bond issues. The sums available are so large that we fail to comprehend them. These amounts have been voted over the whole of the United States, and the enthusiasm of the individual states and communities is evidenced by the great preponderance of favorable votes is indicative of the eagerness of the public for tangible results in the way of improved highways.

To say that a billion dollars has been authorized for highway improvements is a conservative statement, and it must be remembered that this amount has been authorized for the improvement of the highways outside of incorporated cities and towns. The eagerness for the improvement of town and city streets has been manifested by the undertaking on the part of even very small towns, improvements totaling many miles of paved streets. This movement is so widespread that no estimate is at present available of the amounts involved, and in addition to the street improvements there are large proposed programs of other public improvements such as the construction of water supply and sanitary sewerage systems.

Up to the 31st of January agreements had been entered into by the Secretary of Agriculture with the several states to construct the following mileages of the several types of roads:

<u>Type</u>	<u>Mileage Approved</u>	<u>Est. Costs.</u>	<u>% of Total</u>
Earth	2,554,816)		26.8
Sand Clay	927,889)		9.7
Gravel	2,764,961)	34,165,498.11	29.0
Macadam	344,604)		3.6
Macadam) 190,698)		
Mat Top			2.0
Bituminous) 277,116)	12,242,639.15	2.9
Macadam			
Bituminous	378,519)		4.0
Concrete	1,776,955)		18.6
Concrete	193,613)	77,925,037.20	2.0
Brick	81,405)	734,707.94	0.9
Miscellaneous	47,270)	785,060.63	0.5
Undertermined			
Total	9,537,846		100.0

We are now face to face with a critical condition. Such a pro-

gram of public improvements as is now proposed would be impossible under the most favorable conditions that have ever existed. Under the conditions which are now existing, to attempt to put through at once any considerable part of this program is to invite disaster. When community spirit in any locality has been aroused to the point of enthusiastically providing funds for public improvements long desired, that community becomes essentially selfish in its desires to secure the improvements at once. We have come now to the point where there must be a postponement of a very considerable part of the proposed programs. The present situation calls for unselfishness in the individual and in the community. It calls for the exercise of the best brand of American patriotism and clear head thinking, not only on the part of the public officials charged with the duty of steering a straight course in the matter of highway improvement, but on the part of the public. Very many communities and even whole states will be compelled to forego for some time the improvements which they so eagerly desire. The public must face the fact that in the past the construction of highways on any broad scale has been limited to a few states, and it will take some time to develop the essential requirements for the production of a large mileage annually of high class highways.

So serious are the present aspects of the possible production of roads under the shortage of transportation, materials, labor and contractors' organizations, that the Bureau of Public Roads is now forced to point out that there are certain principles which should govern the awarding of future contracts.

First, contracts should not be awarded for road work at prices which will result in pulling labor from the farms or from essential industries.

Second, contracts should not be awarded at prices greatly exceeding the figures for last year, particularly if such high prices are to any extent the result of combination between material men or contractors.

Third, contracts should not be awarded for road work beyond the amount which may reasonably be completed during the present construction season.

Fourth, contracts should not be awarded at prices considerably in excess of those carried by uncompleted contracts.

It is not my purpose here to go fully into the details of the critical aspects of the months that are immediately to follow. We have come through a long period of very slowly developing sentiment for highway improvement, when the public support was limited and where there was no great inducement for engineers to take up highway engineering, for the railroads to accumulate large facilities for transporting road building materials, for contractors to develop large organizations and get together up to date equipment, or for material companies to develop a large capacity for supplying road materials. These conditions do not prevail with the same intensity in every state, and so it will be possible to accomplish much more in those states where considerable programs have been carried on in the past and where the facilities for road production have been developed. But under present conditions, that the confidence of the public may be held, and that support may be forthcoming for a continuing program of highway improvement, highway organizations must not attempt to do the impossible. The letting of an excessive number of contracts beyond any possible production will result only in high prices and poor work, without any increase in the actual mileage of roads produced.

The State of Pennsylvania is in a position to undertake a far greater program of improvement than most of the other States. Since

1903, for a period of sixteen years, the State Highway Department has been developing and perfecting an organization to handle a large program of public highway improvements. For this reason remarkable progress has been made in the cooperative program between the Federal Government and this State. The State Highway Department can well be proud of the showing that has been made. Seventy-five project agreements have been executed for which the estimated cost is \$17,732,256.00, of which \$7,615,393 is Federal aid. These projects call for 388 miles of completed highway, divided as follows: Bituminous macadam, 18 miles, or 4.8% of the total mileage; bituminous concrete, 58 miles, or 15.1% of the total; concrete, 286 miles, or 73%; brick, 25 miles, or 6.5%. The successful completion of this program will reflect unforeseen credit upon the State Highway Department, and I cannot over emphasize that each one in the organization is essential to the successful completion of this program. The prices will be high in comparison to the prices which the public has been accustomed to pay for its highways heretofore. We know that the plans and specifications for these roads have been carefully and thoroughly prepared. We believe that the best available engineering experience and knowledge has been utilized in so designing these highways that they will adequately carry the traffic which has developed with such remarkable and unforeseen rapidity. But all of this painstaking preparation of plans and preliminary engineering will be of no avail if the inspectors and field engineers charged with the responsibility of watching the materials which go into the roads, the workmanship and all the details of construction, are lax in the performance of their duties or unfaithful to the trust which has been placed upon them.

It has required constructive imagination and foresight to provide the necessary plans and estimates, but it will require an even greater effort to obtain the actual construction under existing conditions in accordance with the program which has been provided, and a faithful conformance to the plans for this immense mileage of high class highways. It will require a great effort on the part of the contractors who undertake to perform this work under present conditions. These men need and justly should have the cooperation and assistance of every official, engineer or assistant connected with the work as a representative of the State in the accomplishment of the task. To build such a large mileage as has been undertaken for this State will require the greatest effort on the part of every individual connected with the organization. Every one who belongs to the organization becomes its representative. Any ill advised action or duty left undone immediately reflects upon the whole organization. A quarter mile of poor construction will produce more criticism, unjust though it may be, than a very considerable mileage of work well done can overcome. I cannot over emphasize the fact that the responsibility for the continuance of popular approval of the work of the Pennsylvania Highway Department has been largely transferred to the engineering organizations in the field who are responsible for the conduct of the work on each section of highway.

I commend most highly the plan of holding an annual road school. It is through such means that a competent organization is built and a loyalty to the work engendered that will insure the kind of results from the organization as a whole that the people of the State have a right to expect, and although the responsibilities of the ensuing months will be heavy there is a certain compensation in the justifiable pride that comes from belonging to an efficient organization, and compensation in public service well performed that is well worth the effort required.