

Federal Aid Road Construction as Employment for Labor

By Thos. H. MacDonald, Chief,
U. S. Bureau of Public Roads

For two years public attention has been attracted to the possibilities of public and semi-public works to provide increased employment. Much of this attention has focused upon the building of public roads as one of the major activities. Much fantastic expectation and many extreme remedies have been proposed for relief of unemployment through this medium. A greatly exaggerated program of public works of sound and enduring value can not be turned on and off suddenly like water at a spigot, and any extreme attempts can only end in failure and waste, producing consequences worse than the situation sought to be cured.

The immediate situation of serious unemployment confronting the nation deserves the honest analysis and valuation of road building as a relief measure by the State and Federal highway officials in the light of the experience of the past two years.

In brief review, the first call of President Hoover to public officials and private agencies to undertake construction enterprises to the extent of their ability came in the fall of 1929. The response from the State highway departments generally was immediate. This newly faced responsibility fortunately happened to be timed with the availability of larger than normal funds in a number of States.

The Federal Government in April 1930, increased the funds for road aid by \$60,000,000, and on the first of September the Secretary of Agriculture apportioned to the States \$125,000,000 authorized for the succeeding year. Work proceeded at an accelerated pace. The year 1930 will be remembered as the most favorable construction season within recollection. Day after day peak production was possible because of continuously fair weather.

From the standpoint of employment it is evident now that the rate of completion of projects was too rapid. By the end of the year many of the States had utilized the funds available and faced the new year 1931 with a depleted treasury. Since the State road funds come largely from the motor vehicle license fees and the month to month income from the gas tax, it was evident in the autumn of 1930 that many of the States would be unable to use Federal aid funds available through the winter and early spring months because of lack of State funds to meet the legal requirements. To meet this situation, President Hoover recommended an emergency advance of \$80,000,000 to be used in the place of State funds to meet the regular Federal-aid funds already available. Congress acted promptly, and on December 20, 1930, the emergency legislation was approved. Work started almost immediately in the southern States, and due to the favorable winter and spring conditions, even in the northern States it was possible to carry on construction on a much larger scale than is ordinarily the case.

In five months the \$80,000,000 advance fund, together with \$160,000,000 regular Federal-aid and State funds, totaling \$240,000,000 had been put under way on wholly new work to provide employment in all the States. The States also continued construction and maintenance programs from wholly State funds, and there were numerous uncompleted Federal-aid projects carried over from the preceding year.

On the first of July the total going Federal-aid program, including emergency and State funds, amounted to a total cost of about \$447,500,000, of which the total Federal share was \$275,250,000. Advice from the chief executives of the State highway departments agrees that the emergency fund for 1931 materially advanced the actual placing under way of work in the winter and spring months; provided for increased employment; enabled a number of States which were almost wholly without State funds to use the regular Federal-aid funds available; and made it possible to hold the combined State programs, including Federal Aid, at practically the same total of expenditure as for the preceding year. Had it not been for the \$80,000,000 emergency Federal appropriation for 1931 the total of the year's construction program would have fallen off by very much more than the amount of this fund, for two reasons: first, a number of the States, because of the accelerated program of the preceding year and other causes, were not able to meet the regular Federal aid in full; and second, the proceeds of bond issues in a number of States, which had helped to swell the construction program for 1930, were exhausted.

In 1929 when the highway construction program was not being forced, it required the full 12-month period to obligate \$75,000,000 of Federal-aid funds. In 1930, following the first demand to increase the rate of expenditure, this amount was obligated by July 10, six months earlier, but in 1931, \$75,000,000 of the combined regular Federal-aid and emergency funds were obligated by March 1, and by May 30 approved projects to the amount of \$172,000,000 Federal aid and emergency funds were under way. This is the record only of new work. It does not include Federal-aid projects previously placed under way but uncompleted, and does not include the State construction and maintenance program without Federal funds. Such a record of work placed under way, all on the basis of standard plans and specifications prepared by the State highway departments and approved by the Bureau of Public Roads, was only possible because of prepared and competent organizations already functioning.

Our current reports indicate that work was accomplished on the emergency projects by September 1 to absorb, with an inconsequential balance, the full amount of the emergency road appropriation.

Through the helpful cooperation of the States the number directly employed is definitely known. Starting with a total of 148,600 employed on the State and Federal highway programs in January 1931, there was a rapid increase as weather conditions permitted. In May the total passed 300,000, for July it was 388,459, and the August

figure was 390,110. Of the July total, 164,691 were employed on Federal and Federal-aid projects, 112,681 on State and State-aid construction, and 109,287 on maintenance.*

Certain characteristics of the highway work for the past two years are worthy of note. Increased employment has been provided when most needed. Expansion of road building is sound, since adequate highways have not been over-produced and are needed to a much greater extent. Increased construction has been accomplished without increased, but rather with decreased unit prices. These lower unit prices, however, have not been at the expense of unskilled labor, generally speaking. Some advantage has been taken of the necessity for employment, but the average wages of unskilled labor have held close to the average paid in previous years.

The best available figures for the years 1922 to 1931, inclusive, for the unskilled labor wages on concrete road projects show a maximum variation of 8 cents per hour between the high and the low annual average figures, with the figure for the current year, 37 cents, an exact average of the high and low figures. During the same years there has been a marked decrease in the unit price per square yard of pavement. That is, the cost of the product has been materially lowered without adversely affecting the wage scale for unskilled labor.

* No part of this discussion refers to local road employment or expenditures by counties, townships or municipalities.

There is much misconception of road work as a medium for the direct relief of unemployment. Construction crews and maintenance forces are distributed generally over the State road systems during the normal working season and the popular mental picture seems to be that whole armies of additional men might be armed with pick and shovel and thus take up employment slack directly. Such is far from the case. There is, on the other hand, a lack of appreciation of the large number who indirectly participate in the distribution of road funds. Direct labor costs on the simplest grading work may run above 80 per cent of the total expended, but for the types of road which are being built to meet the actual needs of traffic the average payment to labor directly on the work would be between 20 and 30 per cent. This does not, however, represent the value of the road dollar to labor.

While it is exceedingly difficult to analyze, because of the wide variations in types of work and all other conditions, there is a very general agreement among highway executives that upwards of 25 per cent of the road dollar goes eventually for labor and personnel employment. The road dollar spreads back through stone quarries, sand and gravel plants, cement factories, petroleum fields and refineries, and mines, and engages rail and water transport facilities, and keeps the wheels of equipment and accessory factories turning. Labor and personnel employed in all of these receive a part of the road dollar.

There are no intrinsically valuable raw materials which go into road work. The price of road materials is largely made up of labor costs.

This is particularly true at this time because road materials are selling at extremely low prices. There are highly competitive conditions, surplus supplies, and sacrifice of profits, to keep production going at reduced rates. On the basis of 80 to 85 per cent of the road dollar going eventually to labor, with 20 to 30 per cent expended as a general average for labor directly on the work, we estimate that for each individual directly employed, the total expenditure provides additional indirect employment equivalent to two other persons. This does not mean only two men actually employed indirectly, since production of materials and equipment and transportation may involve part time of many persons, but rather employment equivalent to the full time for two other persons.

The July employment on the State and the Federal-aid road programs, of 386,000 men directly, means a total of employment equivalent to around 1,158,000 people. May, June, July and August held reasonably near this amount of employment. In the subsequent months there has necessarily been some falling off, although in September, the latest month for which the figures are available, the number employed was still above 357,000.

With the funds now in prospect it will not be possible to maintain during the coming year the accelerated rate of the State highway work which has prevailed for the past two years. But with a spirit to meet the situation, there is assurance now of a large, if not a maximum, employment program for the coming year.

With a view to the offering of the greatest possible opportunity for employment, and at the same time protecting labor from exploitation, I recently proposed certain policies, which will guide the Bureau in the immediate future, as follows:

First, the fixing of a fair minimum wage scale for unskilled labor only; but this should be written into the tenders and contracts of the contractors. There must be a recognition on the part of the States of the fair differentials existing between the States and between sections of the same State, and no attempt made to increase a fair rate for this type of labor under normal conditions. The rates of pay during former years have been reported so that we know from existing records actual facts as to wage scales wherever Federal-aid projects have been built.

Second, an acceptable restriction to give preference to local unskilled labor and to residents of the State, availability and other conditions being equal. This does not apply to the skilled mechanics and equipment operators who form the nucleus of the contractor's organization.

Third, if legal in the State, the Bureau will participate with the State on a day-labor or force-account basis, on small projects only, where such projects can be used as the means to provide quick local employment with reasonable economy and which do not require the establishment of camps or too long transportation to the work. This does not mean in any way a breakdown of the contract system or apply to mere

than a very limited percentage of the Federal road funds available. It is to be strictly construed as a possible emergency method of relieving acute local unemployment conditions in the winter and spring months. On such projects Federal-aid allowances will not be made for rentals of machinery or State-owned equipment.

Fourth, a restriction as to hours per day and days per week that unskilled labor may be continuously employed on any project, that is a provision or policy of intermittent employment.

Fifth, the Bureau will approve the reopening of projects completed if Federal-aid balance is available within the maximum mileage allowance to place large-sized drain pipe in roadside ditches which are eroding, the trenches to be back-filled with porous materials and the ditches obliterated to the extent possible, and other betterments which are advisable construction and improve the safety of the road.

Sixth, a restriction which the Bureau will not accept is any disbarment of a contractor from the award of a contract because he is a non-resident of the State, provided he is the lowest responsible bidder. The Federal Government consistently maintains the principle of the award of contracts to the lowest responsible bidder, and this is the only defensible public policy. The Bureau is an exponent of the prequalification of bidders, and attaches major importance to the term "responsible."

Seventh, the Bureau will not accept restriction or limitation to materials, etc. produced only within the State.

As a further move to increase as much as possible, under existing legislative authority, the volume of active Federal-aid road work during the winter and spring months, the Secretary of Agriculture apportioned the appropriation of \$125,000,000 authorized for the fiscal year 1933 on October 15 last. Normally this apportionment would not have been made until December. The advancement of the date will, I believe, have the same stimulating effect this year that the similar action had last year.

As a result of the special effort put forth to provide additional employment for labor, the Federal-aid road work last year established new records of accomplishment. The total mileage upon which improvements were completed reached the high total of 11,033 miles. This was made up of 7,039 miles of initial improvement, 3,082 miles of stage construction and 12 miles of reconstruction.

The result of the Federal and State cooperation from 1916 to the end of the last fiscal year is the improvement of 28,715 miles of the country's most important highways.

At the close of the year construction of initial improvements was in progress on 12,306 miles, and other initial improvements had been approved for 1,946 miles. Stage construction was in progress on 4,139 miles and similar advanced improvements had been approved for 1,033 miles. In addition to this active and scheduled work, 35 miles of roads previously improved were in process of reconstruction.

During the last fiscal year Federal-aid funds to the extent of \$157,952,903 were obligated to new projects and \$133,340,910 were actually paid to the States for work completed. The largest previous totals corresponding to these figures were the \$102,498,084 obligated in 1930 and the \$95,749,998 paid to the States in 1925.

The above refers to the progress in the United States as a whole. In Wisconsin the Federal-aid highway system consists of 5,493 miles, and Federal aid has thus far entered into the improvement of 2,415 miles. Last year alone, over 263 miles improved with Federal aid were completed and on June 30 last, the end of the Federal fiscal year, 303 miles were under construction and 67 miles were approved for construction with Federal participation.

Since the passage of the first Federal-aid road act in 1916 \$31,834,206 of Federal money has been apportioned to Wisconsin. Of this sum \$2,540,713 is the amount apportioned to the State on October 15, and that amount is substantially the sum available to the State for use on the new projects it will propose during the coming year, for on October 1 the State Highway Commission had definitely obligated, with the approval of the Bureau, all but \$52,000 of the amount previously available. The Federal money paid to the State during the last fiscal year amounted to \$3,778,494.