You Cannot Do Effective Road Work Without Equipment

S. R. LAUGHLIN
Kosciusko County Road Supervisor
Warsaw, Indiana

In order to maintain our present county highway system and construct new highways, it is necessary to use equipment. It cannot be done with pick, shovel, and scoops as it was 30 years ago. The question before us is, then, shall we do it through private contract or shall we purchase equipment and do it through our own highway organization? The principal factors influencing this decision are the number of miles of road to be maintained, the character of the roads, the availability of materials and efficient labor, and the prospect of proper supervision and administration. Some counties in the state are handicapped by lack of good material and must purchase commercial and processed material and costly shipments.

Good truck drivers, mechanics, and equipment operators are not always easy to get. Developing good workers, however, is largely a question of supervision and ability to build up, direct and hold an organization together. Permanency of employment is one of the big elements in perfecting an organization. We employ 30 to 35 men, and none of them are employed as temporary help. More than half these men have been with me from 9 to 12 years. Trained engineers are good and have their place but are not necessary on county highways, as practical experience can do the job. We are duty bound to accomplish the most for the taxpayers' dollar. This can be done only through a businesslike administration. Purely political set-ups are usually a failure.

As County Highway Supervisor of Kosciusko County, I made my decision a few years ago, supported by the whole-hearted endorsement of our County Board, that we would own our equipment, build our roads, and maintain them. That has been our policy for some time and is in effect today.

At present we own more than 60 pieces of maintenance and construction equipment. Much of this equipment is new, nearly all of it

is good. Our equipment consists of trucks, tractors, graders, maintainers, drags, mowers, loading cranes, a distributer, a travelling mixing plant, and a processing plant with a stone-crusher. During the war years, no new equipment could be obtained. Our old equipment was kept in repair until such time as new equipment could be purchased. Repair of equipment is all done in our own shop. During the winter and slack season, all equipment is reconditioned and painted if necessary. During 1946 and 1947 we purchased several pieces of new equipment consisting of trucks, tractors, and mowers.

Prior to 1946 we made our bituminous mixtures "in-place" by the use of our distributer and power grader. This method, we found, was rather crude and used an excessive amount of bitumen to provide the mixture which we wanted. So, early in the year 1946, we bought a travelling mixing plant. This plant is operated at the point of construction. The aggregate is trucked and dumped on the road, and by the use of the power grader is formed in a windrow in front of the machine. It is then picked up by the travelling plant; the mixture is made in the machine to our specifications and is dropped in the center of the road, spread by the motor grader, and then rolled for an even surface. This gives a uniform mixture by feeding the aggregate and bitumen directly into the machine. There is no waste of material, and the mixture can be made with a much higher percentage of moisture than is provided by the grader method. We also use this mixture for patching and have found it very good. This plant will turn out about 400 cubic yards in 10 hours, giving us a construction rate of about 8/10 of a mile of new road a day.

We are also adding a new bituminous paver to our equipment for the coming season. This machine will be of great help and a valuable addition to our construction equipment as it will distribute the mixture at the point of construction and give a mat of uniform width and thickness. It will also dispense with the use of the motor grader. The method of operation with this new machine will be to operate the mixing plant at the pit (or material base) and truck the mixture to the point of construction, where the paver will make the distribution.

We found that the pit-run gravel in our county contained large aggregate which had to be removed in order to provide usable material. In order to overcome this difficulty, we purchased a processing plant with a stone crusher, through which all pit-run gravel is processed. This gives a uniform aggregate and provides the best possible material that can be obtained. It is fed by a crane operating alongside it in the pit. This machine turns out from 40 to 50 cubic yards an hour

or 400 to 500 cubic yards daily. This also saves the work of two men in removing the stone when the mixture is made without the processing operation. We use this material in general repair and especially on our gravel roads, and we find it most excellent. This machine has proved its value to us by saving both labor and material. We feel that it is an excellent investment.

I want to review briefly our accomplishments for the year 1947. Our county mileage at our last report was 1285.5 miles; our next report will add 10 miles to this figure. The revenue which we received is as follows:

Regular distributions	$178,138.25
Additional under 1947 law	20,159.09
Total	$198,297.34

This gives us $154.25 a mile for the year of 1947.

In addition to maintaining the above mileage, we applied over 600,000 gallons of bitumen. Of this amount 130,000 gallons was asphalt which was used in applying seal coat and patching. Of this amount 470,000 gallons was road oil which was used in building new black top. Thirty-eight miles of new black top were built during the 1947 season. These roads were 18 feet wide and 3 inches in depth after rolling.

Our costs on these jobs run reasonably uniform, varying somewhat with the cost of material transportation. The average for the 38 miles was slightly under $1,400 a mile. The following figures are taken from the costs compiled on one mile of road built during the past season.

12,350 gallons of road oil @ 6.53c per gallon	$ 806.46
600 cubic yards of processed gravel @ .60 yd...	360.00
Labor, including use of equipment	228.00
Total	$1,394.46

This figure exceeds our 1946 cost by approximately $220 a mile. A similar increase will probably be noted for the current year.

In addition to the foregoing, we built 7.3 miles of new road, which was cleared, graded, drained, and graveled ready for traffic. This item, together with the mileage which was turned back to us by the State Highway Commission, will increase our mileage in the amount of 10 miles. For work of this character we have two RD-7 caterpillar tractors, a bulldozer, and two seven-yard hauling scrapers. Without

this equipment we would be unable to do this work to any degree of satisfaction.

From our experience in maintaining our system and building new roads, we are thoroughly convinced that we could not have accomplished the foregoing results without having a sufficient amount of first-class equipment to carry on all the various operations involved in this work.