

large concern with a railroad siding right into its plant. Its products take a very low freight rate and its deliveries are mostly to points located within 60 miles of the plant. Yet, this survey showed that the motor truck could be used to better advantage than the railroad, that it could transport material cheaper and exactly as it was wanted.

This survey developed, for example, that the average cost per box used to contain the material was \$1.25 and that the average weight of these boxes was 42 lbs., something that the traffic manager of this concern had never considered before in his transport problem. Motor trucks are now being used by this company, thus releasing several freight cars for use where the railroad is the more economical means of transport.

The proper sized truck, the most adaptable kind of body, and the use of loading and unloading devices will many times serve to handle the hauling problem more economically and more efficiently.

Such a survey should take us behind the lines, so to speak—back of the loading platform into the shipping-room where we could consider such items as boxing, crating, sorting, assembling, routing, internal delivery, etc. It is here that, oftentimes, a study will show how the use of highway transport can cut down the cost of the work leading up to placing the material on the truck or on the car.

Items to be Considered

In making surveys relative to the establishment of highway freight transport lines, the following items should be carefully considered:—

All year around road conditions, including bridges; rail freight and express rates; frequency of existing service; time of delivery of existing service; amount of, and kind of, freight moving in both directions between the points in question; running time possible; sentiment of the district under consideration toward existing and proposed service; sufficient financial support; traffic laws, ordinances and regulations.

Road conditions will determine the kind of equipment that can be operated. The amount and kind of freight will determine the size of the unit and number necessary, from which can be determined the expense, to which should be added (this is most often omitted) overhead charges, by which I mean the cost of soliciting business, storing and handling of same, superintendents, etc., which for such lines runs very high. The cost of operation will determine the rate; this, compared with existing rates and services, will determine whether or not business can be secured under such costs. The possibility of promoting return loads should not be forgotten. This, it will be noted, is quite different from the usual method of arbitrarily determining a rate which is probably that charged in some other locality and without knowledge of actual conditions.

Reliability of Great Importance

In a recent survey of the possibility of establishing inter-city motor truck routes out of a certain city, we concluded that the lowest capacity truck that could be operated, considering the rate that could be obtained, would be a three-ton size. Yet the operators disregarded our advice and started in with two-ton trucks. If loaded to 80% of their capacity on every trip, in both directions, they couldn't pay—and didn't—the result being the failure of another line and the loss of much confidence.

All this information is very easy to get if gone after in the proper way. Most communities now have commercial organizations which will be very glad to assist in the accumulation of such data.

Reliability in such service is absolutely necessary. In the case of highway passenger transport, the number of passengers will determine the seating capacity desired and the frequency of operation, which, together with the length of haul, will determine operating expenses and, therefore, the fare that must be charged. Here again reliable service must be inaugurated. Reliability is important in all transport matters.

CANADIAN GOOD ROADS CONVENTION

At least two sections of roadway will be built by experts during the forthcoming convention of the Canadian Good Roads Association at Winnipeg, which opens June 1st and will last until June 3rd, so the delegates attending will be able to have a practical demonstration of the manner in which highways are built. Offers have been received from Grain Growers, Ltd., of Winnipeg, and from the Canadian Ingot Iron Co., of Guelph, to construct sections of gravel or earth roads during the convention, supplying all the necessary men and machinery. It is also probable that other roads, of concrete, tar and asphalt, will be built during the convention, under the supervision of highway officials.

Apart from the practical demonstration, the delegates will also be shown cinematograph films of the processes of constructing waterbound macadam, earth, cement concrete, asphaltic concrete, tar macadam, gravel and other roads. The films are being loaned by the Ontario government, through W. A. McLean, the deputy minister of highways.

The tentative official program of the convention, which will be presided over by S. L. Squire, the president of the association, shows that a wide variety of subjects will be brought before the delegates. The morning of the opening day will be devoted to registration, followed by the formal opening by the lieutenant-governor of Manitoba, Sir James A. M. Aikens, and addresses by the government representatives from the different provinces.

The demonstrations of actual road building will commence at noon on the opening day, and at the afternoon session there will be an address on federal aid. The U.S. Bureau of Public Roads are sending a delegate from Washington to speak on state aid for highways.

Papers and Discussion

The important part played by gravel roads in the development of the country will be reviewed later by a provincial engineer from the east, while a minister from the same province will speak on surface and subsoil drainage, and a well-known Manitoba engineer will speak on highway bridges and culverts. The annual dinner and entertainment of the association will be held in the evening of the opening day of the convention.

On the second day, the value of roads as an aid to agriculture will be discussed, followed by a paper emphasizing the importance of foundations in road building. A prominent state highway engineer from across the border will inform the delegates on the best method of improving and maintaining earth, clay and sand roads, while broken stone roads will be the subject of another paper. At noon the annual meeting of the Canadian Automobile Association will be held, at which delegates from all the important automobile clubs of the Dominion will be present.

Some valuable suggestions on the financing of a provincial highway system will be put forward at the afternoon session by a representative of the Dominion government, followed by an address on the bituminous treatment of sand roads, and papers on road dragging and various methods of road maintenance. The annual meeting of the association will be held in the evening.

Schools for Highway Engineering

On the third day of the convention an eminent soldier-scholar from Ontario will speak on schools for highway engineering, while a well-known professor of highway engineering will give an address on road machinery, followed by a paper on asphaltic concrete pavements and one on cement concrete roads.

At the afternoon session the opening address will emphasize the importance of a central association in assisting the local good roads association, which must look after district improvements, and this will be followed by a paper on traffic matters. The remainder of the program will be devoted to papers on road oils, economical methods of transporting road materials, and the use of refined tar in construction and maintenance.