Editorial Comment

Is 20 Seconds Enough?

TWENTY seconds is just as much time as it was years ago when the Signal Section, A.A.R., prepared requisites requiring that automatic highway crossing signals be controlled to start operation at least 20 seconds before the arrival of the fastest trains at a crossing. New factors, however, are the increased length of some of the coupled highway vehicles, and the speed at which they proceed over a railroad after starting from a stop.

The laws of different states vary as to the maximum overall length of coupled highway vehicles, but such vehicles measuring up to 40 ft. are not uncommon. Highway vehicles hauling certain lading, such as oil or gasoline, are required, by laws in some states, to stop before proceeding over any railroad crossing. A further fact is that any highway vehicle may stop before proceeding over any crossing, and, therefore, the maximum timing should be figured from a standing start. Many highway trucks and tractors designed for hauling heavy tonnage are equipped with extra low gears to be used when starting. Whether the driver uses the lowest gears, and how fast he shifts to higher gears are all variable factors depending on local grade conditions at particular crossings.

A summary is that some of the coupled type vehicles now being operated on highways are so long, and at some locations are being operated at such slow speeds when being started, that more than 20 seconds is required to pass over a railroad crossing. A conclusion, therefore, is that the railroads might well make a check of conditions at important crossings to determine whether the standard 20 seconds warning time is sufficient.

C.T.C. Over Automatic Block

WITH rare exceptions, railroad operating and executive officers accept the premise that dispatcher-controlled C.T.C. systems, including signals for authorizing train movements by signal indication, are preferred to straight automatic block signaling, which provides protection, but requires the use of the outmoded practice of authorizing train movements by timetable and train orders. On the other hand, in several instances during recent years these men lacked the strength of their convictions when authorizing expenditures for signaling. Perhaps these men needed information which the signal engineers could best furnish concerning the different system of signaling and the benefits to train operation effected by each system.

A fundamental basic fact for such considerations is that straight automatic block signaling requires track circuits, certain signals at sidings, line control circuits and batteries, which would be installed practically the same if the project were to include also centralized traffic control so that the dispatcher could control signals for authorizing train movements by signal indication. Thus when analyzing the proposals, the savings in train time and in other operating expenses such as the cost of maintaining open offices can be credited not to the proposed expenditure as a whole, but rather to that portion which represents the cost of the centralized traffic control over and above the costs for automatic signaling only.

Considered from another angle, straight automatic block requires more intermediate signals because this system must include an arrangement of intermediate automatic blocks to provide head-on protection between two opposing trains which might possibly disregard train orders and pass opposing normally-clear station-leaving signals simultaneously. In centralized traffic control, the station-leaving signals normally display the Stop aspect, and no two such opposing signals can be clear at the same time. Therefore, the intermediate signals are not required to provide head-on protection, but rather just enough intermediate signals need be installed to serve as distant signals and to permit following train movements in a station-to-station block if the volume of traffic warrants such operation.

Another important consideration is that, as a general rule, the installation of straight automatic block will not effect changes in train operation that will permit the removal of any sidings, or the closing of very many telegraph offices. On the other hand, an installation of centralized traffic control will increase track capacity and get trains over the road in less time, so that it has been practicable to remove several sidings on each of numerous projects. These matters can be determined accurately in advance by making time-distance charts of train movements under existing and under proposed methods of authorizing train movements. Thus the elimination of several unnecessary sidings is an effective means for reducing the costs of a proposed centralized traffic control installation.

A conclusion, therefore, is that when analyzing proposed installations, consideration should be given to fact that the savings in train time and operating expense that will be effected by centralized traffic control will easily justify the cost of C.T.C. over and above the cost of straight automatic block only.