B.&O.-N.K.P.-Erie project eliminates train stops at railroad crossings; reduces delays for street traffic; provides increased safety.

IN LIMA, Ohio, the Baltimore & Ohio, individually and jointly with the New York, Chicago & St. Louis (N.K.P.), has installed flashing-light signals at 15 street crossings, of which three are also protected by gates. An all-relay interlocking constructed at about the same time protects crossings of the Erie with the Baltimore & Ohio and Nickel Plate, and a junction of the Nickel Plate and Baltimore & Ohio.

Lima is 129 miles north of Cincinnati on the Baltimore & Ohio north-and-south line between Cincinnati and Toledo. At Erie Junction, in South Lima, the east-and-west main line of the Erie crosses the Baltimore & Ohio. Also a single-track line of the Nickel Plate crosses the Erie and makes a junction with the Baltimore & Ohio, 943 ft. north of the Erie.

Previously, a mechanical interlocking included the N.K.P. junction switch and two crossovers at Erie.

Train Time Saved By

New Interlocking and Automatic

Track and signal plan of Erie Junction in Lima, Ohio

RAILWAY SIGNALING and COMMUNICATIONS
Junction. However, no interlocking was in service at the railroad crossings with the Erie.

This route of the Baltimore & Ohio handles heavy freight traffic, much of which is coal being hauled north to docks at Toledo on Lake Erie. In addition to 8 passenger trains, the traffic on the Baltimore & Ohio includes from 20 to 22 freight trains daily. The Erie operates 6 passenger and about 18 freight trains daily, and the Nickel Plate 2 passenger and about 20 freight trains daily. Counting through trains and switching operations, more than 100 movements are made through this interlocking every 24 hours. All trains were previously required to take statutory stops before moving over the crossings with the other railroad. These stops not only caused considerable delay to trains, but the public was inconvenienced due to consequent blocking of street crossings.

The Baltimore & Ohio and the N.K.P. jointly operate two main tracks from Erie Junction north for about 1½ miles through Lima. The B. & O. has 2 main tracks from this point to the north end of their North Lima Yard, a distance of approximately 24 miles, single track C.T.C. is in service on the B. & O. north of North Lima and single track A.P.B. signaling south of Erie Junction. The pipe-connected to the hand-throw electrically-locked switch. Signal 19 governs train movements from this spur to the main track.

The new interlocking control panel is 42 in. wide and 30 in. high. The panel is black, with the tracks represented by white lines. On this diagram, each home signal is controlled by a push-pull-turn knob. Each switch or crossover, and the electric lock on each hand-throw switch, is controlled by a small lever. Switch levers are located in a horizontal row near the bottom edge of the panel. In the normal position, each lever is 45 deg. to the left of center, being turned 45 deg. to the right of center, to reverse a switch or release a lock. Operation of a switch lever causes an

Protection at 15 Street Crossings

In Lima, Ohio

N.K.P. has single track C.T.C. in service west of Erie Junction, South Lima and east of Pennsylvania Crossing, North Lima.

New Electric Interlocking

The new all-relay control interlocking includes electric switch machines at two crossovers and one single switch; electric locks on four hand-throw switches; six high home signals, and eight dwarf signals.

Derail No. 14 on the commercial track between the Erie and Locomotive Works is operated by a separate hand-throw stand electrically locked. The derail at the turnout on the spur track on the Nickel Plate is
Parked cars do not obstruct view of flashing-light signals

"No Right Turn" sign illuminated when flashers operate

...
This gate has manual as well as automatic control

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Crossing Protection at 15 Street Crossings

As a part of the 1951 project at Lima, the Baltimore & Ohio and N.K.P. installed flashing-light signals at 12 street crossings, and automatic short-arm gates with flashing-light signals at 3 crossings (North, High and Market streets), which are the more heavily traveled thoroughfares. Previously, some of these crossings were protected by full-time or part-time crossing watchmen. Now the 15 crossings through the city, over joint Baltimore & Ohio and N.K.P. tracks and sole B. & O. tracks, are protected by automatically-controlled protection 24 hours every day.

At some of the crossings, such as at Main street, the flashing-light signals are mounted on cantilever brackets of sufficient length to put the lights out over the street so that the view to such signals is not obstructed by automobiles and trucks parked along the curb.

At some of the crossings, side streets, running parallel to the tracks, intersect the protected street near the crossing. In these instances, "No-Right-Turn" or "No-Left-Turn" signs were installed to indicate to drivers that they are not to turn onto tracks when trains are approaching.

The flashing-light signals, and also the gates, which are used, are controlled automatically by track circuits in the conventional manner. Pushbuttons to provide manual control were installed at Market, High and North streets where automatic short-arm gates are in service. If a train or cars are to be left standing on the tracks within control limits but outside of street limits for some time, a member of the train crew operates pushbuttons located on a post at the crossing. To raise the gates with track occupied, a crew member pushes the "Raise" button for the track the train occupies. When the train is ready to move over the crossing, the "Lower" button is pushed to set the signals in operation and lower the gates. In the meantime, if a train approaches on another track, the signals will operate automatically and gates lower, because the pushbutton control is only effective for the track and direction designated. Each pushbutton is clearly identified.

The distance between the interlocking at Erie Junction and the interlocking at the crossing with the Pennsylvania is 7,728 ft. If a long freight train is stopped in this section, it will block nearly all of the eight street crossings in this area. The towermen at these interlockings work very closely together to keep trains moving through both interlockings to avoid delays to street traffic. Train occupancy of a track circuit in approach to a home signal is not effective in starting the operation of street crossing protection beyond the signal until it has been cleared. Thus, if a train is stopped and waiting at a home signal, the crossing protection beyond will not interfere with the movement of street traffic.

The interlocking at Erie Junction was planned jointly by the three railroads. Street crossing protection was planned jointly by the B. & O. and the N.K.P., in cooperation with the City Council. Construction was carried out by signal forces of the Baltimore & Ohio under the jurisdiction of W. W. Welsh, signal engineer, of the Baltimore & Ohio, and H. A. Maynard, assistant engineer-signals, Western Region. The interlocking equipment and relays for the entire project were furnished by the General Railway Signal Company, and the crossing gates and flashing-light signals by the Western Railroad Supply Company.