

KXHS-15, while those for the line circuits for signals and switches are Type KXHS-9. Type BTM batteries are used for the centralized traffic control line circuit.

On that part of the installation where trenchlay cable was used for the track connections, Raco bootlet outlets were used at the rail. The wires extending to the switch machine, dwarf signals, etc., are run in trunking placed 18 in. underground and filled with pitch. Metal conduit, located on the decks of the signal bridge, is used to distribute the wires to the signals.

All of the equipment required for the new system, including the signals, dual-control switch machines, coded centralized control machine and related apparatus was furnished by the Union Switch & Signal Company. The construction was handled by the Santa Fe signal department forces, an interesting feature of the program being that the old signaling was kept in service until the new system was complete, the change-over being effected without a single train delay.

Uniform Laws and Standards for Crossing Signals

THE adoption of standard signs and signals, and the enactment of uniform laws on crossing protection in all states, is advocated in a report recently issued by the American Railway Association, Joint Committee on Highway Grade Crossing Protection. In the view of this committee, action along the following lines is desirable:

1. That state legislatures which have prescribed different standards for railroad highway grade crossing protection than those embodied in the bulletin, revise such laws.

2. That the state regulatory bodies having control of the railroads (Railroad Commission) should have jurisdiction over grade crossing protection on all public streets and highways.

3. That the apportionment of expense for crossing protection should be:

(a) For highways forming part of the federal aid system, between federal aid, the state, and the railroad.

(b) For state and county highways, between the state, the county and the railroad.

(c) For other streets and roads, between the state, the county, the city or other political subdivision, and the railroad.

4. That the Railroad Commission should be authorized and required to prescribe uniform warning signs for use at grade crossings.

5. That no new grade crossings should be constructed except on order of the Railroad Commission following a hearing.

6. That the Railroad Commission should be empowered to designate "Stop" crossings, and the statutes should provide for the creation of same and penalties for failure to stop at such designated crossings.

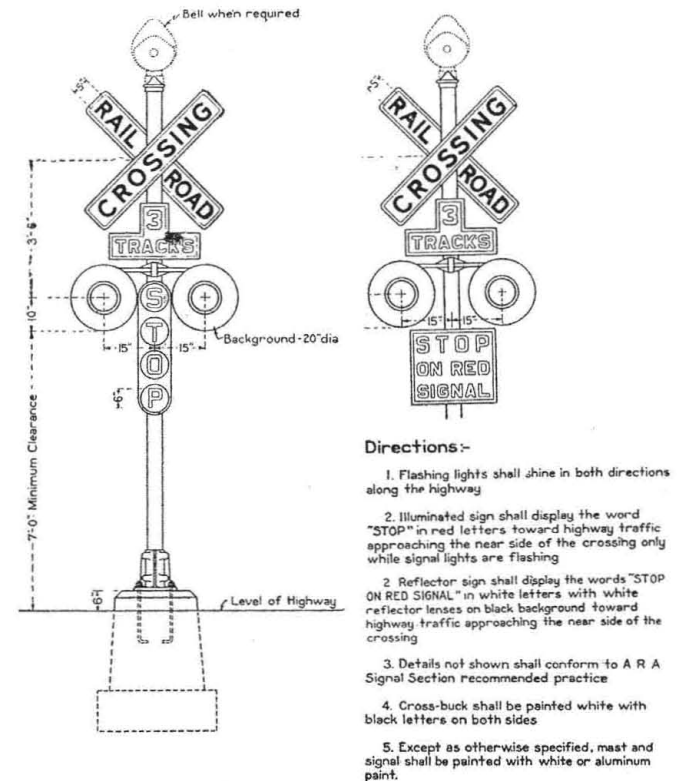
7. That the Railroad Commission should prescribe the physical characteristics for new crossings with respect to approach grades, width of approaches, planking, etc.

8. That the recommendations of the National Conference on Street and Highway Safety be adopted by the several states.

This report, which is issued as Bulletin No. 1, represents the results of extensive study of the Joint Committee, which was appointed in April, 1930, by the American Railway Association with instructions to prepare

standards, co-ordinate the activities of the railroads in conforming to the principles adopted and provide a medium by which public authorities can be acquainted with the most modern thought of the railroads in these matters.

The standard designs, as presented in the report, were adopted by the American Railway Engineering Association as shown on page 528-D40 of the *Railway Age* for March 11, 1931, and in the April, 1931, issue of *Railway Signaling*, a report including these standards being adopt-



Flashing light signals for location at side of highway

ed by the Signal Section, A. R. A., at its convention in May. Furthermore, the new standards are in accordance with the recommendations of the National Conference on Street and Highway Safety. In brief, the new standards include the automatically controlled STOP sign and the reflector button sign reading "Stop on Red Signal" which are to be used as in conjunction with the regular wig-wag or flashing-light signals. An additional sign indicates the number of tracks, (i.e.) 3-Tracks. The issuance of the bulletin places the final stamp of approval of the American Railway Association on these new standards.

A supplement to the bulletin includes a general explanation of the highway grade crossing problem as viewed by the Joint Committee. About eight per cent of automobile accident fatalities occur at railroad grade crossings, tables compiled for I. C. C. statistics being given to show that the casualties per 10,000 registered automobiles decreased from 3.18 in 1929 to 2.60 in 1930 in spite of the fact that gasoline consumption increased 6 per cent, which is proof that the signals in service, the safety educational programs, etc., are producing results.

The booklet will be a valuable addition to the library of all operating engineering and signaling officers and is being placed in the hands of state highway commissions, automobile associations, etc., with the idea of securing unified co-operation on the adoption of the standards.