

BIDDLE STREET crossing

BROOKLYN STREET crossing

Crossing Protection In Industrial Area

AT SIX STREET CROSSINGS in an industrial area in St. Louis, the Terminal Railroad Association of St. Louis has installed short-arm gates with flashing-light signals to replace manual gates and watchmen. For a distance of 4.8 miles between Gratiot street and McKinley bridge, a double-track main line extends north and south parallel with the west bank of the Mississippi river, in downtown St. Louis. These tracks are used by passenger trains of the Gulf, Mobile & Ohio, New York Central and the Burlington, which operate in both directions between the St. Louis Union Station and the west end of the McKinley bridge over the Mississippi river. The only other rail traffic in this area consists of switching moves. In addition to the TRRA of StL double track, the Burlington has a single track in the area from just south of Biddle street to a point north of Mullanphy street.

In the area from Biddle street north to North Market street, about 1.25 miles, there are numerous cold-storage plants, warehouses, factories, team tracks and piggy-back truck docks, which are served by spurs from the three main tracks. At some places, driveways extend between the tracks and the building. In this area the traffic on the streets and

driveways consists principally of trucks, moving at slow speeds, when going to and from the warehouses, cold-storage plants and factories, in the immediate vicinity.

Previously, pneumatic gates were in service at the crossings at Biddle, Florida, Ashley, O'Fallon, and Mullanphy streets. The gates at Biddle street were controlled by the leverman in the interlocking tower at this street. The gates at Florida street were controlled by a gateman in a cabin, and the gates at Mullanphy street were controlled by the leverman in an interlocking tower at this street. Gates at Biddle, Florida and Mullanphy streets were in service 24 hours daily. A crossing watchman was on duty 12 hours daily at Ashley street, and another watchman was on duty 12 hours daily at Brooklyn street. At O'Fallon street there was a watchman on duty 24 hours daily.

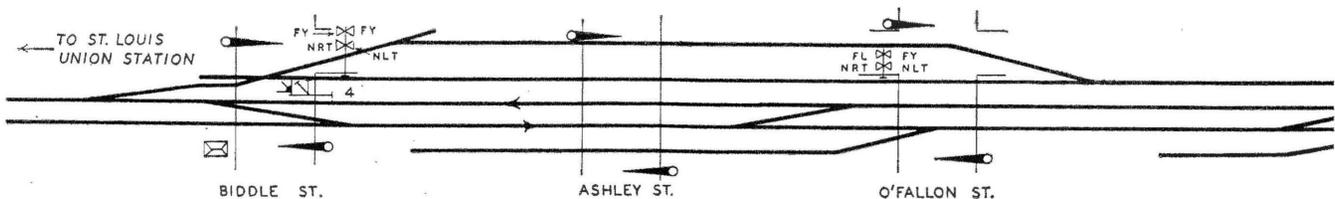
The new protection at these crossings consists of short-arm, electrically operated gates, with a flashing-light signal and a crossing bell on each mast. At Biddle street, the approach to the crossing from the east is on an ascending grade. In

Modern flashing-light signals and gates provide increased safety and reduce operating expenses

order to display an effective flashing-light signal aspect to drivers that are near, as well as farther away, an extra set of flashers is mounted high up on an extra tall mast. The set of flashers 6 ft. from the pavement are directed to cover the first 300 ft. of pavement from the track down the hill, approaching the crossing, and the upper set of flashers are directed to cover the range of 200 ft. to 500 ft. from the crossing. The upper set display flashing-lights over trucks which often park alongside the curb.

In some locations in this area, narrow driveways run along between the tracks and the building. The use of these driveways may not be strictly legal, but many years of this practice seems to have established a privilege. Therefore, at several locations, "No-Right-Turn" and "No-Left-Turn" signals and bells were installed to direct truck drivers not to turn onto the tracks when trains are approaching.

The principal purpose for the crossing at Brooklyn street is for trucks to go to and from the warehouse of the General Waste Trading



Company which is just east of the tracks and north of the crossing. Truck drivers coming from this warehouse cannot see approaching southbound trains because the building obstructs the view. Therefore, a gate with flashing-light signals and bell was installed on this side of the track.

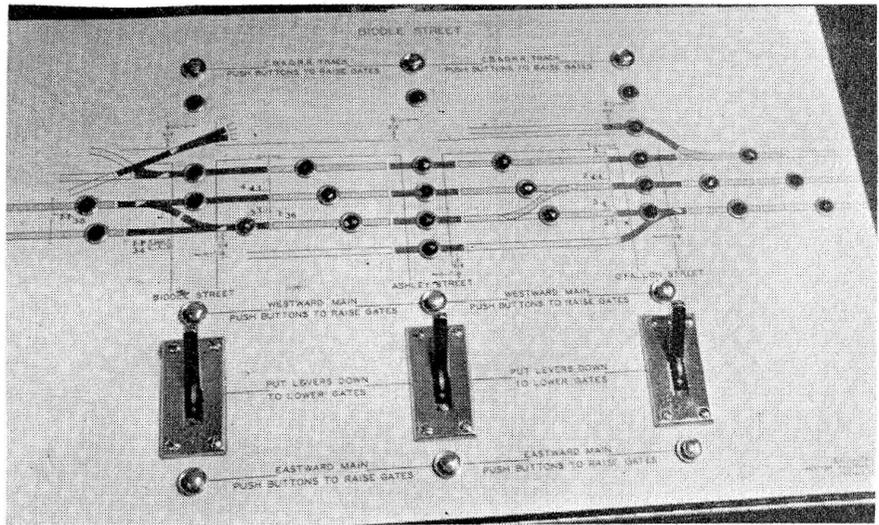
Trucks approaching this crossing from the other side have an unobstructed view of approaching trains. Also, local physical conditions with respect to the driveways are such that a gate on the west side of the track did not seem to be desirable. Therefore, standard reflectorized crossbuck signs with "No-Left-Turn" and "No-Right-Turn" signs were installed on the west side of this crossing.

All of this new crossing protection is normally controlled automatically by trains on track circuits. When a train enters an approach control track circuit, the bells start to operate, the lamps in the flashing-light signals and on the gate arms are operated, for a pre-warning period of about 5 seconds. Then the gate arms are released, and are lowered to the horizontal position in about 11 seconds. Then the bells are cut out.

The eastward interlocking home signals are just west of Biddle street, and the westward home signals are not far east of Biddle street. If the home signal has not been cleared for an approaching train, the approach control track circuits are cut out of controls for the crossing protection so that this protection will not be set in operation. The purpose is to eliminate unnecessary delay to street traffic. In all instances, the crossing protection is started in operation and the gates are down before the train can approach the crossing.

Supervisory Manual Control

In addition to the automatic control discussed above, supervisory manual control was installed for use during switching moves, so that when approach circuits are occupied by switch engines, but no move over a crossing is imminent, the leverman can raise the gates to let street traffic proceed over the crossing.



MANUAL CONTROL PANEL at Biddle Street

A manual control panel in the interlocking tower at Biddle street includes controls for the protection at Biddle, Ashley and O'Fallon street crossings. A similar control panel at Mullanphy street interlocking controls the gates at Florida, Mullanphy and Brooklyn street crossings. The panels of these machines slope at an angle of about 75 deg. above horizontal. At the top of the panels is a diagram of the tracks and streets. Lamps on the diagram repeat occupancy of each section of track which is in approach or between crossings, or one of the short track circuits which extend the width of each street on each track. These lamps are amber and are normally dark, being lighted when corresponding track circuits are occupied.

Just above the symbol for each street crossing there is a red lamp which is normally dark, being lighted flashing red when the gates at a corresponding crossing are down. Below the symbol for each crossing is a toggle type lever, the purpose of which is to place the protection in operation and lower the gates at a crossing independent of track circuit control; for example to protect a crossing for the passage of a track motor car. Such a lever is normally in the raised position, and is thrown down to lower the gates, and is thrown back to the "up" position to raise the gates.

In some instances the switch en-

gine occupies an approach, and thus sets the protection in operation and lowers the gates at a crossing, but stops short of the crossing to set out cars on a spur. For example, a southbound switch engine on the southward track stops in the approach section for Biddle street crossing. When the towerman sees that the switch engine has stopped, he pushes the button just above the lever for Biddle street. This cuts out the control of the track circuit occupied by the switch engine, and the gates at Biddle street are raised. The leverman is then responsible for watching the switch engine, and when it starts to move toward the crossing, he throws the lever for Biddle street to cut the occupied track circuit back into the controls, so that the flashing-light signals operate and the gates go down.

For such a switching move on the northward track, the button to raise the gate at a crossing is below the toggle lever for that crossing. The push-to-raise buttons for the Burlington track are at the top of the panel.

This crossing protection was planned and constructed by railroad forces under the direction of O. E. Miller, signal engineer, TRRA of St. L. The gates and flashing-light signals were furnished by the Transport Products Corp., Louisville, Ky., and the manual control panels were made by the Western Railroad Supply Co., Chicago.

