

Signaling

1960

Signal construction planned for 1960 will equal or surpass that carried out in 1959. A Railway Signaling and Communications survey reveals that 21 railroads plan to spend \$37,636,880 on signal projects during 1960. CTC and highway crossing protection installations lead the list of projects that will be undertaken. Subway construction is the largest single item.

Of the 21 railroads reporting to Railway Signaling and Communications, seven plan to spend more money on signal construction during 1960 than they did during 1959. Eight roads will spend the same amount next year as they did this year. Six roads will spend less money next year, compared to this year. The largest single expenditure is \$15,220,000 budgeted by the New York City Transit Authority for modernization of signaling and interlockings on the IRT division. They expect to spend \$6.8 million for signaling on the Lexington Ave. line from 86th St. to 125th St., and \$8.2 million on the Broadway-Seventh Ave. lines from 145th St. to 242nd St., including the 242nd St. yard.

Centralized traffic control installation projects reported at this time amount to 326 miles. In addition, four railroads report that they plan to install CTC next year, but gave no mileages. Several roads are planning to extend present CTC installations. The B&O, for example, plans to extend its Gilkeson, Pa.-Wheeling, W. Va. CTC, 20 miles north into Glenwood, Pa., near Pittsburgh. Another railroad is going to install over 200 miles of double-track CTC to provide reverse running.

Other CTC projects planned for next year include: (1) consolidating territories; and (2) modernization of existing installations. One road plans to consolidate two CTC installations into one, with controls in a new pushbutton machine. Another road, after taking a look at a 15-year old CTC

installation, is respacing signals and removing some sidings to reflect the change in operating conditions.

At this early date (many roads report budgets not complete), the survey shows that railroads expect to install flashing-light signals at 40 highway-railroad grade crossings, and gates and flashers at 34 crossings. In addition to these figures, the Frisco plans to install new protection equipment at 20 highway crossings. Similar work is to be undertaken by the M&StL at five crossings. The Terminal Railroad in St. Louis is installing gates at eight crossings. Most of the reporting roads said that they are planning to modernize existing protection equipment and install new equipment at heavily traveled crossings. The B&O plans to install flashing-light signals at 20 crossings, and gates with flashing-light signals at 18 highway crossings. The Georgia & Florida, with federal aid, plans to install new equipment at 15 or more crossings.

Several railroads have indicated that they plan to install additional hot box detectors during 1960. Although the first installations were at locations where the hot box incidence was high, the trend now appears to be for installations at entrances to yards. Two roads indicate that they expect to complete, during the next two years, installations of hot box detectors at approaches to their major classification yards. They have begun the practice of inspecting only those journals that are indicated hot by the detectors. This practice enables them

to inspect trains faster and get them on the road in less time than previously. The reduction in operating expenses, including fewer car inspectors, has paid for the detectors.

Most railroads indicated in the survey that they will continue to modernize interlockings, and several are working towards elimination of mechanical plants. In several instances, roads are replacing existing local control interlockings with automatic plants. The Frisco, for example, plans to modernize and consolidate five interlockings into two. At three locations, they plan to install automatic interlockings to replace electro-mechanical plants and levermen. Another road is planning to consolidate three interlockings into one new relay plant. The Denver Union Terminal recently announced that they plan to install a new pushbutton, route-type interlocking in the terminal area next year.

Although technically feasible for several years, no automatic train operation has been placed in service. This may change because the New York City Transit Authority expects that a contract will be delivered in 1959 or 1960 for furnishing and installing train control equipment for automatic operation on one track of the Times Square-Grand Central shuttle line of the IRT. The preliminary estimate of the cost is \$250,000.

Several retarder classification yards are now under construction. Two roads have indicated they will build new yards next year. The B&O plans to install car retarders at their new Cumberland, Md., yard and the NYC has announced that it expects to start construction of a new electronic classification yard at Indianapolis. Several other roads are well along with plans for new yards and 1960 should see construction started on several yards.

From the survey information and conversations with railroad men, it would appear that 1,500 road-miles of CTC will be installed. Highway crossing projects should total about 1,500 crossings. Interlocking construction, including automatic plants and interlocking consolidations, will continue at a rapid pace. Several retarder classification yards are now under construction, and probably six to eight more will be undertaken during 1960. Signal construction should keep pace next year, due to that all-important impetus—spend money to save money.

Spending for communications in 1960 by 23 railroads is estimated to be \$8,083,725, according to a survey made by Railway Signaling and Communications. Of the roads reporting, 52 per cent plan to spend more money next year on communications than they did this year. Only 16 per cent plan to spend less, while the remaining 32 per cent plan to spend about the same.

Major work to be undertaken by railroads next year includes pole line rebuilding, installing carrier for additional telephone and printer circuits, and additions to radio systems. The D&H, for example, plans to install wayside base stations along its entire mainline to provide solid train-to-wayside radio coverage. Also included in D&H plans for next year is radio for 30 locomotives. Similarly, the CN plans to install 45 wayside base stations to provide solid point-to-train coverage from Edmonton, Alta., to Vancouver, B.C. These wayside stations will have remote controls whereby the dispatcher, from a division headquarters, can control them over open wire lines. The CN expects to buy 72 locomotive radios for use in this territory. The L&N plans to install 100 radios on locomotives and cabooses during 1960, as part of its program to provide complete radio communication on moving trains. One road will add over 300 wayside radio stations.

More Yard Communications

Several roads are adding to their yard radio systems, including walkie-talkies and base repeater stations for car inspectors' use. The CN plans to install radio at four yards. This includes work now underway at Moncton and Montreal, where intercom and paging systems, an automatic telephone exchange and closed circuit television will be installed.

Four railroads have plans before their managements for 1,700 miles of microwave installations, which if ap-

proved, would be started next year. One railroad plans to remove its communication pole line if the microwave is installed. Radio would take the place of phone communications from conventional pole boxes.

The Southern Pacific is planning a 760-mile microwave system from Dunsmuir, Calif., to Los Angeles with San Francisco as the hub. The plan calls for 180 telephone channels initially, plus a large number of printing telegraph channels. The system will accommodate facsimile, data transmission and other forms of high-speed communications. Some of the voice channels will be used for remote control of wayside radio stations.

The proposed system will be capable of a maximum load of at least 240 voice channels. Four intermediate legs are planned for the section just south of Dunsmuir, to determine the feasibility of eliminating the communications physical wire line plant entirely over a 100-mile section of the mainline.

The D&RGW has announced that it has begun construction of a microwave system from Pueblo and Denver, Colo., to Ogden, Utah. The system may be completed next year. The 700-mile, 21-station microwave system includes eight terminals and 13 repeater stations. The main route of the system is to run from Pueblo, north to Denver; west to Salt Lake City, and north to Ogden. Pueblo, Denver and Ogden are terminals. The five other terminals, at the freight house and North Yard in Den-

ver; Grand Junction, Colo.; Provo and Roper Yard, Utah, will be connected by short microwave stub lines. They initially plan to use 12 channels for voice communications in addition to high speed facsimile transmission.

Carrier for More Circuits

Practically all of the roads reporting to the survey indicated that they plan to install more carrier equipment next year to provide voice circuits for telephone service, and printer circuits for car reporting systems. Three roads indicated that they expect to make good progress on car reporting systems next year. The T&P will use printing telegraph at 17 points in connection with punch card-to-tape equipment.

Several roads indicated that they expect to make further progress on their direct dial telephone systems. The T&P will start on such a system next year, using carrier for through trunk circuits. The PGE, which has system-wide microwave, is adding channels for voice and printer. Similarly, the L&N is adding carrier telephone and telegraph between Atlanta and Memphis, 510 miles. The M&StL plans to install voice carrier equipment and an automatic exchange at Monmouth, Ill., to complete a dial system from Minneapolis to Peoria, Ill.

Reports to the survey show that many roads plan to install yard loudspeaker systems next year. Some of them will be in new retarder classification yards, while others will be in new or existing flat switching yards. The L&N, for example, plans to install a loudspeaker system at its Wauhatchie, Tenn., yard. Another railroad is planning to upgrade one of its older freighthouses by installing a centralized checking loudspeaker system.

The communications outlook is good for 1960. This is based on information from this survey as well as conversations with railroad men. More circuits for voice, printer and data transmission is the big demand of railroad managements today. Another strong demand appears to be complete radio communications on a railroad. Most roads have a great deal of radio equipment, but the demand for more continues. The survey also shows that most roads are upgrading their pole lines, with new wire and improved construction practices.