CITY ISLAND MANUAL REPLACEMENT

Two hundred years ago City Island was envisioned as a rival to the then far distant City of New York. Ships seeking to make port on Manhattan Island, after coming in through Long Island Sound had to run the risk of the treacherous currents and dangerous rocks of Hell Gate before reaching New York City. City Island on the other hand, afforded a safe anchorage and a refuge from storms or so read the advertisement of the day. The backers of a project to establish a major seaport in the New World dubbed the island "City Island" and offered the most desirable building plots for as high as 300 to 1,000 pounds (£). The Revolutionary War however interrupted their plans and the British laid seige to the island. The project was revived after the War but was finally abandoned when money could not be raised to build a bridge to the mainland. From that time on the island's growth was slow and centered around ship building. Today, shipyards for small craft and summer recreational facilities account for the principal business of the island.

"Minneford's" Island, as it was known in the earliest days, was part of the Westchester Deed purchased from an Indian chieftain in 1654 by Thomas Pell. It was not until 1894 that the islanders, along with the inhabitants of other portions of the East Bronx, voted for secession from Westchester and to become a part of New York City. Twelve miles northeast of midtown Manhattan and one and a half miles in length and a half mile wide, the island is reached by land through Pelham Bay Park and across the City Island Bridge or by sea through Long Island Sound or Eastchester Bay.

In May of this year City Island passes through a memorable phase of a bygone era, that typified by manual telephone service. One of the many interesting facts about the replacement of its manual office is that it is the last manual exchange in New York City.

Several arrangements for providing dial service at City Island were considered. They included:

1. #5 crossbar at City Island without AMA.
2. Line concentrators at City Island with #5 crossbar at the adjacent Tratman Avenue central office.
3. Trunking all City Island lines to Tratman Avenue and serving on either #1 or #5 crossbar.
4. #1 crossbar at City Island.
5. Senderized step-by-step at City Island.
6. Standard step-by-step at City Island.

An early study indicated that line concentrators were attractive but their cost has since increased to the extent that their use would be prohibitive. Trunking, in like manner, is prohibitive since the cost of cable alone, including a considerable section of submarine cable to Tratman Avenue, would be greater than the cost of a dial unit at City Island. Standard step-by-step was not seriously considered because of the dialing limitations and the difficulty of integrating 10 and 13-digit dialing with MEA (Metropolitan Exchange Area) operations.

The remaining plans for replacement (and their associated costs) then called for:

	Initial Cost 1960	Ultimate Cost 1960 to 1980
#5 crossbar with message registers (non-AMA)	$370,000	$488,000
Step-by-Step (Senderized)	419,000	570,000
#1 crossbar	540,000	602,000

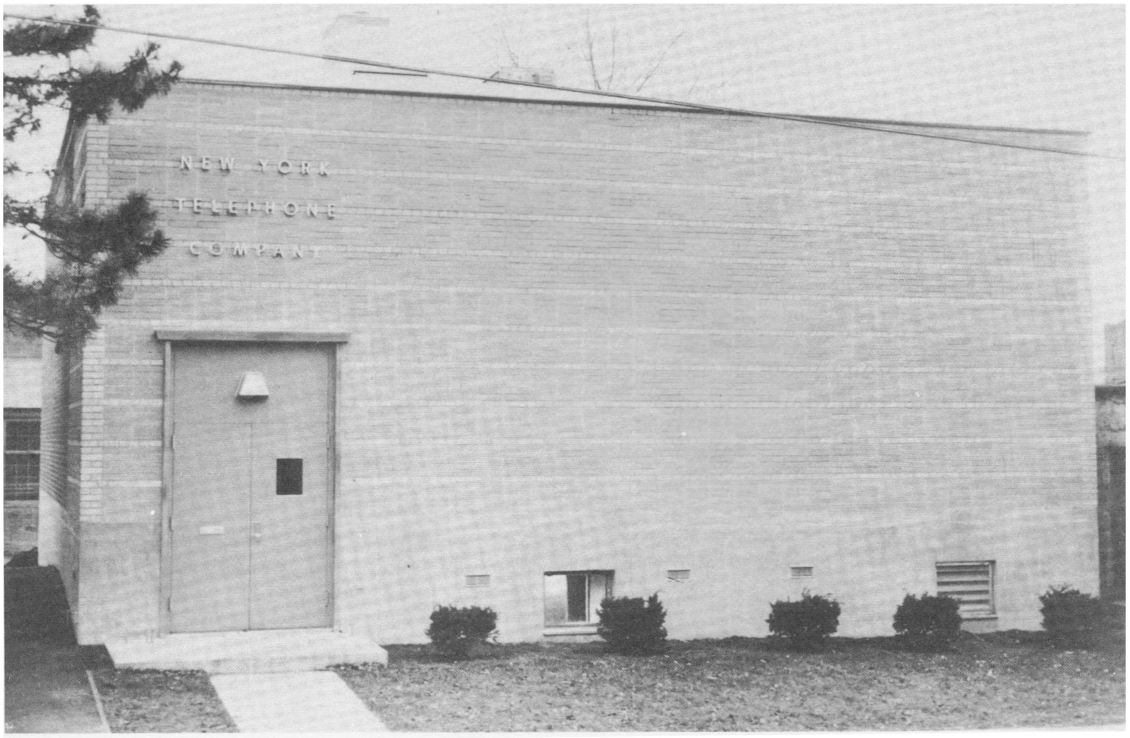
Inasmuch as the cost of step-by-step and #1 crossbar substantially exceeds the cost of #5 crossbar, only the latter was given detailed treatment in an economic study made in November, 1958. Results of that study indicated the following:

	At Cutover New Money	Annual Charges
Cost (Includes C.O. Equipment, Land & Building)	$528,700	$92,500
Savings Over Continued Manual Operation		63,000
Return on New Money After Interest & FNI Taxes		11.9%

As shown on the accompanying chart the 11.9 per cent return realized shortly after replacement equates to a 22 per cent return on the present worth of new money over a 20-year study period.

The recommendation set forth in the study has been followed as planned and a new building to house a #5 crossbar office was completed on November 1, 1959. The installation of central office equipment is nearing completion.

The original plans contemplated the erection


NEW YORK
TELEPHONE
COMPANY

CITY ISLAND 8 MANUAL REPLACEMENT

ECONOMIES OF REPLACEMENT

1960 – 1980 Program Study

	Net New Money	Present Worth Of New Money	Equated Annual Charges
Manual	$344,100	$230,900	$247,400
#5 X-Bar	708,700	635,100	107,700
		Savings with #5 X-Bar –	$139,700
		% Return on P.W. of New Money –	$\frac{139,700}{635,100} = 22.0\%$

Cross Section Studies

	Net New Money	Annual Charges	Savings In Annual Charges Over Cont'd Manual Operation	% Return On Net New Money
At Cutover	$528,700	$ 92,500	$ 63,000	11.9
1965	595,700	105,000	136,200	22.9

of a small building to the rear of the existing manual building. It was possible, however, to purchase vacant property one lot west of the existing location on Schofield Street at a price which made it more economical to erect a building on the new site and to sell the old property.

The new one story and basement building, designed by Voorhees, Walker, Smith, Smith and Haines, Architects, is of cement block construction. It is 39½ feet wide and 50 feet deep and provides about 1650 square feet of usable space on the first floor and 1550 square feet of usable space in the basement. A 20-foot extension or a second story can be added should future growth require it. The first floor is windowless. A rear door will be used for receiving first floor equipment and an inner stairway is arranged to permit delivery of equipment into the basement from the front entrance. The architectural treatment calls for relieving the severity of the windowless building by the use of face brick in a stacked bond with a definite pattern, and the application of New York Telephone Company lettering on the face of the building. The combination main frame and terminal room is air-conditioned to maintain cleanliness and humidity control as required for the crossbar equipment. The air conditioning unit is located over the stairs to save floor space. The condenser is on the roof and so permits air cooling and eliminates the need for a water tower. It is the first new telephone building to be completed in the Bronx since the erection of the 1775 Grand Concourse Building in 1927.

The initial #5 crossbar unit will serve 1500 main stations and has a capacity of 1900. The initial installation provides for four 490 type line link frames which can be expanded to 590's. This enables the installation of an optimum of equipment to meet initial and growth requirements and affords relatively inexpensive additions of supplementary bays when relief is required. Since almost 80 per cent of the originating traffic is single unit charge traffic from City Island, message registers will be installed in lieu of AMA equipment. If the proposed rate plan to place all of New York City on a single unit charge basis is approved, the single unit traffic will increase to over 90 per cent. Multi-unit traffic, which cannot be recorded on message registers operating with #5 crossbar, and dialable customer toll traffic will be routed to the Bronx Tandem where it will be recorded on CAMA tape. For greater trunk efficiency, single unit traffic,

other than intra-office, will be routed through the tandem on a non-CAMA basis. Coin traffic beyond the 10-cent calling area, assistance and non-dialable toll traffic will be handled on existing positions at the Cruger Avenue TDSA switchboard.

City Island will be the first office in the Bell System to use combined connector frames which have been designed for small, slow growing #5 offices. Four of these combined frames will be installed:

1. Two combined LLC (line link connector)-TLC (trunk link connector) frames. Each arranged for 4 LLC, 2 TLC and 6 Connector Control Circuits.
2. Combined NGC (number group connector)-OSC (outgoing sender connector) frame. Arranged for 4 NGC, 2 OSC and 6 connector control circuits.
3. Combined LLMC (line link marker connector)-ORMC (originating register marker connector)-IRMC (incoming register marker connector) frame. Arranged for 4 LLMC and associated preference control and traffic control circuits, 2 ORMC and 2 IRMC with associated connector control and preference control circuits.

The use of combined connectors, where applicable, saves floor space and results in material savings as well.

The equipment layout is designed, and is the first, to utilize the standard equipment area plan E-1 recommended in A.T. and T. PEL 6260 for #5 equipment in small buildings. Accordingly, it provides for the use of standard inserts, lighting and cabling plans. A bus duct system for the distribution of electrical power for central office lighting will be the first such system in use in the MBW Territory.

The first floor of the new building will accommodate the main frame and sufficient #5 equipment to care for ultimate requirements of 3400 main stations. The building utilities, emergency power, power plant and N-1 carrier (when required) will be located in the basement.

The limited cable facilities between City Island and Tratman Avenue have long been a deterrent to the economical replacement of the manual office. To provide adequate trunking for a dial unit ordinarily would require costly cable reinforcement. A 303-pair 19-gauge cable between City Island and Tratman Avenue consisting of aerial, underground and submarine sections provides only 201 trunk conductors. At the time of the study, 76 pairs were not continuous and were used for subscribers' lines from the two central office buildings and for Orchard Beach coin lines. These coin lines are trunked to Tratman Avenue for dial service. The remaining 26 pairs are defective. Although the concentration of various miscellaneous circuits, the provision of an announcement amplifier system for Meridian 7 service and the use of the Bronx Tandem minimizes outgoing trunk requirements, additional trunk conductors are required. These will be obtained by returning the Orchard Beach coin lines to City Island. This realizes about 20 trunk pairs in the congested section of cable between Orchard Beach and Tratman Avenue. There is sufficient cable between Orchard Beach and City Island for the transfer, with the exception of a small complement of aerial cable which is also required for subscriber relief on the island which will be reinforced.

No single factor accounts for making the replacement attractive. It is rather a combination of circumstances which holds the investment down while taking advantage of the savings inherent in dial operation. The proximity of the new building to the existing center entails no recentering and only a small cost for cable relocation. The installation of the Bronx Tandem in February, 1960 affords a centralized switching point for trunking from City Island, thereby eliminating costly cable reinforcement. Message register operation and the latest #5 crossbar features substantially reduce the cost of a new central office. CAMA equipment at the Bronx Tandem provides a substitute for the local AMA equipment which ordinarily is installed with #5 crossbar and which in the case of City Island would require a larger investment for relatively few main stations. N carrier for future trunk relief will obviate the need for further cable reinforcement between City Island and the mainland.

This story would not be complete without mentioning one more "first" in City Island's history. This one occurred in the early days, back in 1665 - the first recorded case of witchcraft in the Province of New York. However, as in all BULLETIN stories, the case has a happy ending. Ralph and Mary Hall were aquitted.

- E.J. Groh, formerly of Bronx Engineering but now in Marketing

(Ed. Note - After reading Ed's opening paragraphs, we thought he'd become the Diedrich Knickerbocker of City Island, but then he went on to - after all he is an engineer - his dissertation on #5 crossbar. He again titillated our palate, in his final paragraph, with his too brief reference to witchcraft. We hope he tells us the whole story someday, which will truly make him City Island's Diedrich - not Cholly - Knickerbocker. We rather suspect that telephones and #5 crossbar would be considered witchcraft by the 1665 City Islanders. A nice story, Ed.)