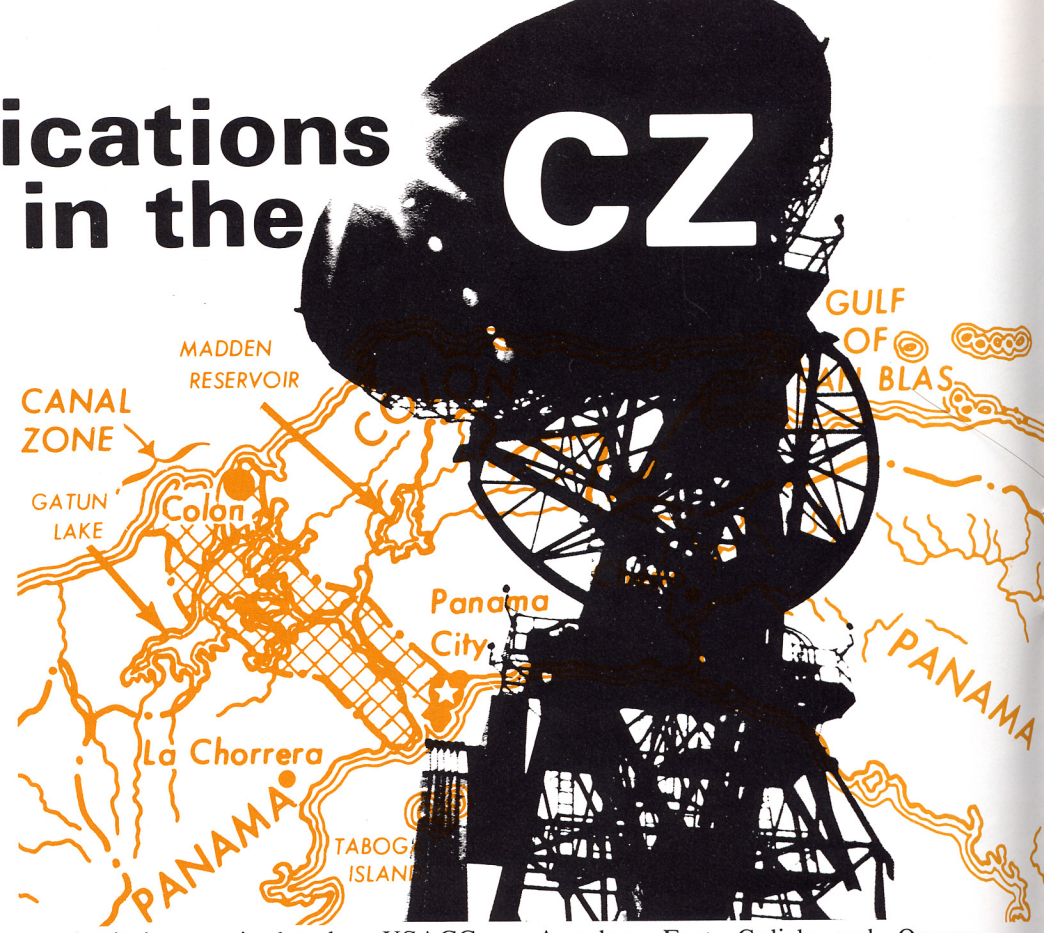
Communications in the CZ

by 2LT Linda Benko

During the construction of the Panama Canal, President Theodore Roosevelt stated that he would put the canal in the charge of "men who will stay on the job until I get tired of keeping them there, or till I say they may abandon it. I shall turn it over to the Army."

Since those early days, the US Army has been the major US military component in the Canal Zone, and, in recent years, the US Army Communications Command-Panama has been the primary communications element. The agency, now commanded by COL Henry J. Schumacher, traces its origin to Telegraph Company H, Signal Corps, which arrived in the Canal Zone in March 1915, and began providing administrative telephone service to Army units. By World War II, the various Signal units in the Canal Zone were organized into a battalion. Hundreds of miles of cable were laid and permanent telephone exchanges installed.



This soldier inspects the antenna of the MSC-46 earth terminal at Howard AFB.

As it is organized today, USACC-Panama has virtually the same responsibility of providing the best possible communications service to the user as its 1915 predecessor. Its mission is multi-faceted in that it includes the provision of all military telephone service, including cable facilities for inter-post trunking and individual circuits, microwave trunking, telecommunications centers, and satellite communications to the continential United States for all Department of Defense and selected non-Defense users in the Canal Zone and the Republic of Panama. An additional mission is the operation of the air traffic control tower at the Albrook Army Airfield.

The need to upgrade many of the existing aged communications systems in the Canal Zone and the Panama Canal Treaty of 1977 are expected to have a substantial impact on fixed communications-electronics in the Canal Zone.

The treaty, which becomes effective 1 Oct. 1979, requires certain alterations to the present arrangement of US military installations in the Canal Zone. Under the terms of the treaty, most of the existing military installations will be retained by the United States as defense sites under the full control of US forces until 31 Dec 1999. Others (such as Fort Amador, Fort Gulick and Quarry Heights) will become military areas of coordination —also under the control of US forces, with some areas returned to Panama during the life of the treaty.

Under the provisions of the treaty, a portion of Fort Amador (which houses the headquarters and several staff elements of the 193d Infantry Brigade (Canal Zone) and the 470th Military Intelligence Group), the Albrook Army Airfield (site of the brigade's 210th Aviation Battalion) and most of the adjacent Panama Air Depot area, a subpost of Fort Clayton, must be turned over to the Republic of Panama on 1 Oct. 1979. Thus, those elements of the brigade affected will be relocated to other military installations, with the headquarters and most of the affected staff elements going to Fort Clayton and the 210th Aviation Battalion going to nearby Howard Air Force Base. These relocations, which require realignment of C-E resources in support of the moves, must be completed before the 1 Oct. date.

The relocations will have the greatest impact on the telephone switching equipment. The present military telephone system in the Canal Zone evolved from separate Army, Navy and Air Force systems. The dial central offices in the system consist of Strowger type, step-by-step switching equipment,

which was installed between 1940 and 1959. The normal useful life of this type of equipment is 35 years, but this life expectancy is reduced in Panama because of weather extremes, such as high humidity and high temperature, that the equipment was exposed to prior to air conditioning in the dial central offices. The percentage of fill on the switches ranges as high as 92 per cent. Currently, there are approximately 10,000 lines in use, serving approximately 20,000 instruments in the system.

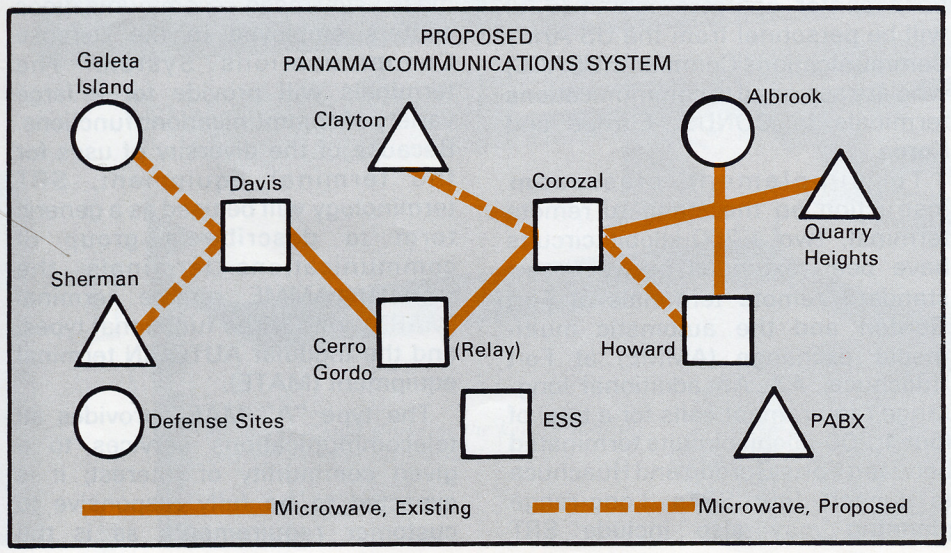
There are two alternatives to provide telephone switching for official subscribers: expand the existing equipment, or replace it with modern, state-of-the-art switching equipment. The first alternative has several drawbacks: the age of the equipment makes procurement of repair parts expensive and difficult, maintenance problems abound, and expansion of the equipment would require expansion of the dial central office building, leading to significant military construction costs.

The second alternative is the more viable solution. The Panama Communications Upgrade Plan calls for the installation of three electronic switches (ESS) and three smaller satellite EPABX to handle all official subscribers, leaving only the Class B subscribers on the step-by-step equipment. Implementation of the ESS program will eliminate the need for extensive building expansion and upgrade of existing obsolete equipment. Additionally, treaty provisions require the separation of non-military telecommunications from those used specifically for defense: "The US Forces shall use, to the maximum extent possible, the telecommunications services of the Republic of Panama in order to meet their needs." The separation of Class B from official (A and C) subscribers allows for the eventual turn-over of Class B service to a contractor or to the Republic of Panama in compliance with this provision.

The second major area within the upgrade plan is microwave trunking facilities. Transmission systems between the dial central office within the Canal Zone consist of a cable system hurriedly installed during World War II. Most of this cable is very old and vulnerable. There is serious doubt as to the advisability of further installation of fixed cable plant in areas that will not be controlled by the US government; access for maintenance and repair in non-US areas will require clearances and extensive coordination with the Republic of Panama.

To avoid the potential hazards of dependence on cable for official and command and control subscribers, the upgrade plan calls for the installation of microwave links to meet the trunking requirements for all official communications. This concept will provide secure trunking capability to all defense sites, independent of any requirement to negotiate cable access with the government of Panama, and will provide priority trunking for command and control functions in conjunction with the electronic switches.

A third area impacted by the treaty, and part of the upgrade plan, is



This is the bunker that will house the MSC-61, which is scheduled to arrive in Panama in fiscal year 82.

telecommunications centers. The plan is to replace the automated relay with an upgraded AUTODIN terminal and to upgrade the major Army subscriber terminals.

Once again, the relocation of units for compliance with treaty provisions will impact on this system. The brigade headquarters' telecommunications center equipment will have to be relocated when the brigade moves from Fort Amador to Fort Clayton. Also relocating is the Military Intelligence group's terminal and the terminal serving the Atlantic side of the Isthmus of Panama.

There are currently three paths by which Canal Zone users access CONUS: the military satellite, a commercial ITT cable and a commercial satellite in the Republic of Panama. The military satellite, an AN/MSC-46, has only 12 channels. The upgrade plan calls for the installation of an AN/MSC-61 in Panama by 1982. The new satellite will be housed in an old Coast Artillery bunker complex, saving approximately $2 million in projected construction costs.

To meet the requirements and changes imposed on Canal Zone telecommunications, the planning effort had to be directed at the total system, considering both in-country and out-of-country paths, and the minimum essential requirements for command and control subscribers. To facilitate implementing the plan, the requirements are prioritized according to need and treaty requirements.

Much work remains to be done and many difficulties will have to be overcome, but the goals established by those first Army communicators in the Canal Zone in 1915 will continue to be the goal of the US Army Communications Command-Panama.