

Town of Darien

Emergency Services Radio System Project

Background- The emergency services (police, fire, and ems) utilize a multiple site and multiple frequency radio network that provides for primary communications for emergencies and their daily needs. The “network” was designed then to standards that provides for approximately 95% radio communication coverage of the town. The system was designed by Motorola and installed by their installation and service vendor Northeastern Communications in 1997/1998. During this period, the technology only allowed and supported one site that could transmit out to the users. The others only provide input back into the transmitter. It is commonly called a duplex system, as it uses separate radio frequencies for transmit and another to receive audio. Today the technology has changed to allow multiple sites to transmit in unison which is called “simulcasting”, which is supported by GPS technology to “time exactly” the broadcasting of the voice signal from the different sites, insuring proper clarity, and improving coverage.

Problem/ project- The project is two-fold, first to provide coverage in spots that are known “dead spots”. Second to replace the aging infrastructure that is no longer manufactured, and soon to be unsupported.

- **Coverage**- add site to fill in reception and transmission gap along stretch of upper Hoyt Street, an area running approximately north of train tracks to Country Club Road and area side streets. (new site would be at Sterling Farm Golf Course)
- **Upgrade technology**- convert from a single transmit site to 3-site simulcast system.
- Convert system from single site transmit to 3 site simulcast, using IP connectivity.

Timeline- We expect to be able to be operating on new platform in 3-6 months. Process to remove and replace equipment must be done in parallel to keep all of us online at all times.

Engineering/ Consultation-This was all done through Northeastern Communications and our staff.

Failures-The system is built with redundancy, as failures will occur. We have a main and backup transmitter for each of the services.

- Most frequent failures are connectivity related; old copper telephone point to point circuits, and even on the IP town network.
- The other failure of several of the transmitters and receivers are related to power supplies; which have failed over the past few years. System components are operated 24 hours a day-7 days a week, for 365 days a year.

Users- All police officers, animal control, firefighters, and emergency medical technicians use this radio network, for emergency and daily operations. Approximately 200 first responders are users of the radio network. Each police officer is provided a portable radio, and in the police vehicles each one has a mobile radio. The fire and EMS personnel similarly have mobile radios in their respective vehicles/ apparatus, however only the officers of the organization have portable radios, with some additional units on the apparatus themselves. One major difference for the volunteers is that they are provided voice pagers. These pagers are their direct communication link to being made aware that they are needed for emergencies. Unlike police officers who are on duty, the other services rely on being paged to their calls. Either a failure of the system or coverage problems can impede their responses.

Peer Comparison- Close to all of our surrounding communities operates on simulcast systems. Many have recently upgraded their aging communication equipment over the last 5 years.