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Statewide Interoperable Communications Grant (SICG)

Project 25 Phase 2 Requirement

Further explanation of the P25 Phase 2 requirement of SICG

This document is to further clarify requirements in SICG RFA as they relate to eligible technology. Specifically, requirements listed in RFA in relation to Project 25 equipment and its relevance to a County's projects.

The requirements of the RFA read as follows:

"... New LMR systems and equipment must be public safety grade Project 25 Phase 2 compliant. County agrees that new LMR systems will be public safety grade operated as Project 25 Phase 1 or Phase 2. All subscriber equipment purchased must support and contain all hardware and/or software options to operate Project 25 Phase 1 at time of purchase. Additionally, all subscriber equipment that operates on, or may operate on (through software options, programming or other methods) trunking system(s) must contain Phase 2 hardware and/or software options at time of purchase.

Note: this requirement does not preclude the limited expansion of existing conventional systems in analog mode, although subscriber equipment must still adhere to the requirements above. Also please note that VHF, UHF and 800 MHz National Interoperability and State Common Channels equipment must meet the requirements above, however they will be operated in analog mode on those channels as directed by guidelines published by OIEC and the US Department of Homeland Security's National Interoperability Field Operations Guide (NIFOG).

Exception: VHF "Low band" (e.g. 30-50 MHz) equipment purchased as part of an existing system may be purchased and operated as analog only.

(Intent: The State of New York supports Project 25. All new systems must adhere to this requirement, however the State understands many existing systems are analog and do not require a complete replacement. In addition, the State requires Project 25 trunking radios to, at minimum, support Project 25 Phase 2 to ensure that future upgrades do not need to be purchased. County specific usage of Phase 2 in new systems will be determined by county need, loading, Federal spectrum requirements and Regional Planning Committee requirements, as applicable)..."

This document provides a matrix and decision making flowchart to help counties in making a determination whether the P25 Phase 2 requirement is applicable for their application or not.

Definitions

Conventional Radio System – is a radio system that operates on fixed frequencies and each channel selector on the portable or mobile radio corresponds to one specific frequency. Channel = Frequency.

Trunked Radio System – is a radio system that uses a group of frequencies to dynamically create communication access for users. In the trunked radio system, a channel is not a frequency; it is a “Talk Group.” Each channel selector on the portable or mobile radio corresponds not to a specific frequency, but a “Talk Group.” Channel = Talk Group. “Talk Groups” can use any system frequency available at the time of communication and this frequency is assigned by a radio system.

Analog Radio System – is a typical legacy system with design that does back almost 100 years and does not have a digital component. Analog radio system can be conventional or trunked.

Digital Radio System – is a radio system where signals are digitized by software on the mobile or portable radio. The only digital standard recommended for public safety radio systems at this time is Project 25 (P25). Digital radio systems can be conventional or trunked.

Project 25 (P25) – is a suite of open standards for a digital radio communications. P25 sets standards for radio system manufactures to assure interoperability and compatibility of radios and radio systems produced by different manufacturers. P25 radios can operate in either analog or digital modes. There are two phases in the P25 standard: Phase 1 and Phase 2. **P25 Phase 1** radio system operates in 12.5 kHz mode while a **P25 Phase 2** system has a spectral efficiency of 6.25 kHz. P25 Phase 2 standards have been developed for trunked systems only at this time. P25 Phase 2 radios are backward compatible with P25 Phase 1 radios and systems. P25 radios, Phase 1 and Phase 2 can also operate in analog mode.

Overview

There are many types of different public safety communications systems in New York. As of today, we have all four major types: analog conventional, analog trunked, digital conventional and digital trunked radio systems. Many of these systems are being expanded and some are being replaced. The SICG program offers counties additional resources, whether it is for system improvements or a complete replacement of a radio system. The SICG program supports both.

The existing grant requirement for systems to be capable of operating in P25 Phase 1 mode is consistent with federal requirements, interoperability goals and overall direction of this grant program.

Why do we have P25 Phase 2 requirement in our grant program? It is simply to assure that public safety communication systems are consistent with federal guidelines and ready for compliance with future federal requirements. The FCC expects that licensees will ultimately implement equipment designed to operate in 6.25 kHz channel or less. While there is no certain deadline set for this migration yet, it is a best practice to be prepared for it.

P25 PHASE 1 & PHASE 2 REQUIREMENT MATRIX

	Radio System Type	Must I Purchase Infrastructure Equipment with P25 Phase 1 Options?	Must I Purchase Subscriber Equipment with P25 Phase 1 Options?	Must I Purchase Infrastructure Equipment with P25 Phase 2 Options?	Must I Purchase Subscriber Equipment with P25 Phase 2 Options? *
NEW RADIO SYSTEM¹	Analog - Conventional	Yes	Yes	No	No*
	Analog - Trunked	Yes	Yes	Yes**	Yes**
	Digital – Conventional	Yes	Yes	No	No*
	Digital - Trunked	Yes	Yes	Yes**	Yes**
IMPROVING EXISTING RADIO SYSTEM	Analog - Conventional	Yes	Yes	No	No*
	Analog - Trunked	Yes	Yes	No	Yes
	Digital – Conventional	Yes	Yes	No	No*
	Digital - Trunked	Yes	Yes	No	Yes

Note: *If Subscriber Equipment to be purchased with the SICG funding will operate on a trunked radio system (e.g. currently, planned or via mutual aid), the new Subscriber Equipment must support P25 Phase 2 as delivered (no further upgrades required).

Note: ** Systems can be deployed as Phase 1 or Phase 2, depending on the county's need for compatibility with existing equipment and frequency use.

National and State Interoperability Channels:

National Interoperability Channels will be operated in the mode specified in the National Interoperable Field Operations Guide (NIFOG). State common channels will be operated in accordance with the guidelines published on the DHSES website <http://www.dhSES.ny.gov/oiec/plans-policies-guidelines/>.

Reminder:

All subscriber equipment must be programmed with the in-band interoperability channels (as minimum).

Reminder:

While encryption is not required to be purchased or used, if the county desires to purchase or use it, it must be AES-256.

¹ **New Radio System**, for the purpose of this document, is a new radio system where the procurement process will start with current SICG funding. If a County already assumed financial responsibility and started procurement process prior this grant announcement, the project would be considered as an existing radio system improvements.