



SULLIVAN COUNTY E-911 COMMUNICATIONS

SULLIVAN COUNTY AIRPORT

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MONTICELLO, NY 12701

September 27, 2016

In late July a survey was mailed to each agency in the County to see if there was an opportunity for the County to help leverage better pricing from radio equipment manufacturers given the anticipated quantities across the County. The results of this survey are as follows with 33 out of 54 agencies responded:

- Mobile Radio Needs
 - Kenwood preferred = 141 mobile radios
 - Motorola preferred = 55 mobile radios
 - Other vendor preferred = 6 mobile radios
 - No preference (price factor) = 21 mobile radios
 - Total of 223 mobile radios

- Portable Radio Needs
 - Kenwood preferred = 182 portable radios
 - Motorola preferred = 143 portable radios
 - Other vendor preferred = 15 portable radios
 - No preference (price factor) = 117 portable radios
 - Total of 457 portable radios

- Pager Needs
 - Unication preferred = 224 pagers
 - Motorola preferred = 751 pagers
 - No preference (price factor) = 135 pagers
 - Total of 1110 pagers

The communications workgroup comprised of 9-1-1 Dispatch, Fire, EMS, Law Enforcement and DPW representatives, with the help of the County Purchasing Department, met with representatives from Kenwood and Motorola since they are the foremost radio brands used throughout the County. Together with the manufacturers input, the workgroup identified several analog and digital (P25) mobiles and portables that are **public safety grade recommended radios** which would work on our future system. While it's important to note that our new radio system is an analog-conventional system and the County has no intention of utilizing digital P25 capabilities; the workgroup felt it was important for the vendors to provide pricing for digital P25 capable radios in case any agency is using grant funding to purchase radio equipment. You will find that most NYS or Federal funded grant programs require you to buy P25 (or P25 phase II) capable radios, after which you can program them in analog mode to work on the Sullivan County system.

Radio model considerations:

After meeting with both Kenwood and Motorola, it was valuable to learn that while both brands do carry business/commercial grade radios (for ie: Taxi companies, utility companies, schools, etc.) which may work fine on our new radio system and be slightly less expensive; they are not recommended by those manufacturers for public safety use. Features such as water resistance, safety features, and durability are the greatest differences in design of the radios. Realizing that cost/price may be a factor to many departments, please keep in mind that your radio could be your lifeline to get help in a mayday situation or speak to your nearest backup unit responding. Having a reliable communication device which will stand up to the rigorous nature of your operation is highly recommended for the safety of your members.

One other point to consider when making your radio purchase decision is your agency’s radio output power needs. All of the primary simulcast channels of the new system carry an FCC license limit of 25 watts output for mobile equipment. With the exception of (1) proposed countywide ground channel which is licensed for 100 watt output, all of the ground channels in the new system all carry a 50 watt limit as allowed by the FCC. Therefore, your agency may want to consider purchasing 50 watt mobile radios which can further be programmed by channel down to 25 watt output. This could provide some cost savings over purchasing 100 watt higher powered radios if price is a factor for your agency. Be sure to review power output needs with your radio vendor.

The following radio models were recommended by both the workgroup and the manufacturers based on feature sets defined below, and are public safety grade equipment:

MOTOROLA:		
	Analog	Digital (P25)
Mobile	APX-1500 APX-4500 APX-6500	APX-1500 APX-4500 APX-6500
Portable	APX-1000 APX-4000 XE-6000	APX-1000 APX-4000 XE-6000
Pagers	Minitor 6	
<i>Note: Motorola’s APX line is software driven. Meaning, you could buy any model radio with analog software today, and that same radio can be made digital with a software license upgrade.</i>		

KENWOOD:		
	Analog	Digital (P25)
Mobile	TK-790 TK-7360 TK-7180	NX-5700 TK-5710 (100w) TK-5720 (50w)
Portable	TK-2180	TK-5220 NX-5200
Pagers	Kenwood does not offer pagers	
<i>Note: It’s believed that many fire departments currently have the TK-690 radios installed in their trucks. Kenwood has indicated some cost savings could be realized by upgrading to the 790 high-band radios leaving in the current remote heads/accessories and simply replacing the radio shelf and the antennae. All cabling would remain the same. One consideration however, is that the TK-790 line is nearing end of life by the manufacturer. Assuming the 790 lasts as long as your 690’s have – it may be an approach your department wants to consider to reduce cost.</i>		

Specifications:

Here are some general specifications and capabilities that should be considered when purchasing your radio equipment for the new public safety system. These specifications were requested in the above recommended models:

Capacity

- All radios would have the capacity to allow for future growth. The basic initial County programming will require 2 banks and almost 16 channels in each bank.
- **REQUIRED CAPABILITY** - All radio have should have the ability to have up to 4 banks with 64 total channels.

Common Channel Plan

- All radios shall have the same channel plan in banks one and two of the radio. The County has established a channel plan which will be the backbone of emergency radio operations. The goal of the channel plan is to commonize the operation for all radio users which will standardize radio programming, the radio interface and training, reduce confusion and increase efficiency.
- **REQUIRED CAPABILITY** - All radios are programmed to the standard Sullivan County template. Standard programming would be required for both mobile and portables.

Common Channel Display

- All radios should have a common channel display. This would allow all radios which implement the channel plan to use the same position on the portable radios, but also have a common display identification of the radios. This is especially important when implementing the same channel plan in both mobiles or portables, because in general mobiles do not have a selector knob with stops and the spacial relationship between the select knob stop/beep and channel is no longer present.
- **REQUIRED CAPABILITY** - All radios should have a minimum 8 character display.

Channel Selector Knob Stop/Beep (Portable Only)

- All radios should have channel knob stop or audible beep to allow for a spacial relationship understanding of channel selected and channel stop. This will allow a user to understand what channel the radio user is on by understanding the number of "clicks" the radio is from the stop or beep. Also, all radios would be programmed that the dispatch channel would be adjacent to the top and bottom channel stop to allow a radio user in a stressed condition to easily select the dispatch channel.
- **REQUIRED CAPABILITY** - All portable radios should have a channel selector knob stop or an audible beep when channel 1 is selected.

Radio Identification

- All radios should have a common method of identification of the radio. This feature not only allows other radio users and the dispatcher to identify radio users, but also is necessary for the use of emergency signaling.
- **REQUIRED CAPABILITY** - All radios are capable of MDC1200 signaling and encode on PTT release.

Emergency

- All radios should have a common method of emergency activation and operation. This feature would allow a user when in an emergency situation to be able to enact an emergency button and alert other radio users of the emergency condition. This would also provide the radio ID of the users.
- **REQUIRED CAPABILITY** - All radios must be capable of MDC1200 signaling Emergency activation.
 - When radios emergency mode is activated, the radio should stay on the channel it is on to emit the emergency tones along with Unit ID.
 - Radio will emit 5 emergency messages within 30 seconds, equally spaced 5 seconds apart. This function shall be tested prior to operations.
 - Radio will self-clear without an "acknowledgement" coming back from the dispatcher.

Mechanical/Electrical Characteristics

- All radios should be of a quality to provide an extended lifecycle as a public safety radio. In addition, the radios need to have the operational characteristics to perform within the designed parameters of the system.
- **REQUIRED CAPABILITY**
 - All radios should be IP57 or IP67 rated.
 - Operate within the frequency range 136-174 MHz
 - Power Output - 4 Watts (portable) or 50 Watts (mobile)
 - Battery Life - 5/5/90 - 11 hours
 - Receive sensitivity - 12dB SINAD - .25 microVolt or -119 dBm
 - (Option) Depending on the environment in which the radio will be utilized, agencies/departments may consider the use of an intrinsically safe (IS) model radio.

Pricing:

In order to provide fire districts and other municipal agencies in the County a legitimate purchasing mechanism, both Kenwood and Motorola have agreed to utilize the NYS OGS contract AND provide an additional discount to the list price on equipment for Sullivan County agencies. The pricing sheets indicating NYS OGS List Price, NYS OGS discount price and the Sullivan County discount price are attached by email.

Kenwood has offered an average 1% discount over the NYS OGS discount price on their radios and many of their accessories. They have also standardized the install prices with their local dealers and reduced/eliminated the programming cost using the standard Sullivan County channel lineup template. After several attempts to have them reconsider further discounts, LD Allen the NYS Contract holder and Kenwood representative indicated this was the best they could offer without jeopardizing their other contracts. They also indicated that from time-to-time Kenwood will offer "specials" which could provide some additional savings. Contact your local Kenwood dealer if you'd like to be made aware of those "specials". Also contact your local Kenwood dealer if you'd like to take advantage of this discount pricing and reference NYS OGS contract# PT67414 and the Sullivan County pricing sheet attached.

While Kenwood does not offer a pager solution, KJBL Electronics is the local Unication pager distributor. Unication pagers are not on NYS OGS contract and no bulk pricing was available from the manufacturer. KJBL is offering the G3 Unication pagers at a rate of \$420 each, and you may contact them direct for further pricing incentives if available.

Motorola has offered an average 6% discount over the NYS OGS discount price on their equipment to Sullivan County agencies which purchase 5 or more radios on a single purchase order. They've included their pager prices as well within the pricing spreadsheet attached. To take advantage of the Sullivan County pricing discounts for Motorola reference NYS OGS contract # PT67405 and contact:

Carlo Romaniello
Motorola Northeast Region MR Sales Lead
Phone: 973-809-0977
Email: carlo.romaniello@motorolasolutions.com

Next Steps and conclusion:

We will be setting up a vendor day in the near future in which both Kenwood and Motorola could present departments an overview of their products outlined above. This should provide a good opportunity for agencies to have a side-by-side comparison of the various radio models, discuss accessory options for each brand and other questions you may have directly with the radio vendors.

The tentative migration to the new radio system remains the 2nd quarter of 2017. Departments that need to procure equipment should begin speaking to their radio vendors to plan for purchase, shipping, delivery, and installation timelines as necessary to meet an April 2017 timeframe. As the migration plan is developed with our various vendors and consultants, we will be sure to keep all departments updated as it progresses.

As a reminder, the County will be providing each department with (9) Minitor pagers which were procured by Commissioner Martinkovic's office utilizing homeland security funding. We are awaiting the new paging tone matrix for the new Motorola paging system at which time the County will program the (9) pagers for your department and release them accordingly. We will also provide the new paging tones to all our local radio shops so that they will have them available for programming of your new equipment as well.

Lastly, I know many departments have been inquiring about a channel lineup for programming purposes of your new equipment. The communications workgroup has drafted a channel plan, however the County is still awaiting FCC licensing of one ground channel which is required to complete the plan. Once that frequency is licensed appropriately we will finalize and disseminate the channel plan to all agencies. Sullivan 911 along with the Bureau of Fire are working on a communications procedure training class which will be offered after the new year to provide end users a detailed overview of the new radio system and its use before we "go live".

If you have any questions on the pricing or about the new radio system in general, please contact me at any time by email (alex.rau@co.sullivan.ny.us) or by phone 845-807-0134.

Thank You,

A handwritten signature in black ink, appearing to read "Alex Rau". The signature is fluid and cursive, with a long horizontal stroke at the end.

Alex Rau
E911 Coordinator