



Grand County shares with all other government agencies the impacts of technology change and FCC mandates related to the use of VHF radios and narrow banding.

Narrow Banding briefly explained

The VHF band is held in a finite spectrum, ranging from 30 MHz to 300 MHz. Much like your FM radio dial this spectrum is divided up into increments and allocated to those who need to broadcast using a radio frequency. Each VHF user is given a unique frequency to use including a sufficient amount of margin between the next users frequency so that interference between these users is avoided.

“Narrow Banding” simply constricts these margins so that new usable VHF frequencies can be issued to meet increasing demand. The constriction or narrow banding is accomplished through new better radios and transmitting devices. Grand County will have to adjust to meet these changes in order to effectively use VHF as the backbone of its communications system.

As far as I can ascertain the FCC rule is incremented in two phases. The first phase is scheduled in 2011 and the second in 2013. The phasing will step in the compression or constriction of the band width first by 50% from (25 kHz current) to 12.5 kHz then followed by the final 50% 12.5 kHz to 6.25 kHz. Dates for user migration to 12.5 kHz are mandated 1/1/2011; no dates set for user migration to 6.25 kHz – FCC intent needs clarification.

I checked with communications Officer of the Grand County Sheriffs office and he informs me that portable radios have featured the ability to use narrow banding for at least the last 10 years. (any VHF/UHF radio equipment accepted by the FCC after February 14, 1997, had to have 12.5 kHz capability.) In that time it would be difficult to purchase a VHF radio that did not include the ability to be re-programmed to function with narrow banding. The idea that there would be a large county inventory of portable radios that would not have the capability to be programmed to use narrow banding frequencies is unlikely.

The fact that newer radios are using a narrower frequency band has caused some concern among those who are familiar with the technology. The state radio engineers concur that we will get less range (10 15%) with narrow band. There maybe a need to re-engineer our repeater pattern to compensate for the negative effects narrow banding creates. However there is no way of estimating the additional equipment needed to maintain the radio system at its current range without a technical study of the system. It is my understanding that Ray Jennings paid for a county wide study of this and other communications issues, perhaps a recommendation is forth coming on the impact this change will have on our radio system so that a plan and budget can be established to mitigate any impacts this will have on E911 Dispatch. This is an issue important to the GCETSA.

Lieutenant Campbell also stated that some of our existing repeaters would need to

be upgraded. The last repeater we replaced did have narrow banding ability and cost about \$5,000. How many of these we have and what other equipment will be impacted is not known to me. Lt. Campbell estimates we have three repeaters left that will need to be replaced to meet the narrow banding mandate. I offer these examples to illustrate now in terms of magnitude how serious this problem is or is not. Perhaps a gap analysis is forthcoming from our county wide communications study that would give us the data needed to plan for and budget compliance to VHF narrow banding.

Digital Trunked Radio system or DTR briefly explained

The other communications issue discussed by the GCETSA was the Digital Trunked Radio system or DTR system. As most of us are aware the build out of the State of Colorado's DTR system has been an ongoing project for over ten years. The project was designed to be a sharable radio system incorporating federal, state and local governments, to a common radio system. The DTR program was designed to build out the system in regional phases and Grand County was included in the last and most recent phase.

Many counties and cities have already embraced the State of Colorado DTR system and have incorporated it into their communications plan. There are many opinions good and bad regarding the State of Colorado DTR system. What is not debatable is that we must join and participate in the DTR system in at least at an Emergency Management level. The DTR system will not soon replace our VHF system as the back bone communications system. Actually all counties I spoke to still use VHF to some degree as well the State of Colorado Highway Patrol. Any suggestion that Grand County would need to rapidly place a DTR in every government vehicle at this time is impractical.

The fundamental mission of the State sponsored DTR system was to connect all government agencies, not to replace all government radio communications systems. We will find that the placement and range of the States DTR towers are designed for the use of the State of Colorado and will not necessarily satisfy the range and reach needed by the county. There are some agencies that have replaced VHF systems with DTR and many are working towards a complete DTR system. I should mention that all agencies that have implemented DTR's are now in the process of re-banding the 800 Mhz spectrum they share due to interference issues with other mobile radio services like Nextel. We need to encourage our user groups to be sure to program with both the old and new ITAC/ICALL and simplex frequencies.

How DTR will affect E-911 dispatch is important to the GCETSA. What new equipment will be required to receive and transmit DTR communications is not clear to me at this time. Of course the timing, equipment, training, and cost should be reflected in the communications study mentioned earlier.

There is a very strong directive in place to drive local government to the DTR system from the State and Federal level through grant funding. It is almost impossible to get State or Federal grants to finance VHF projects; however money for DTR equipment has been available for six years through grants based on Homeland Security including the All Hazards and Bio Terrorism grant pools. In addition a new grant called the Public Safety Interoperable Communications (PSIC) Grant program that proposes 14.6 million to be distributed for government agencies. We should expect that there would be future opportunities as long as these Federal programs remain funded.

I have found through my study of this subject the Consolidated Communications Network of Colorado (CCNC) users group for the Colorado Statewide Digital Trunked Radio (DTR) System. They meet monthly and are dedicated to creating a standards based statewide interoperable radio system. I will begin to attend these meetings and

bring myself up to speed with this issue.

GCETSA role in radio communications

Our first obligation would be to comply with the up coming FCC mandate to User licensing/operations from the 25 kHz current to 12.5 kHz frequency band.

- 1/1/2011: No new/expanded 25 kHz efficiency licenses issued
- 1/1/2011: 25 kHz efficiency mode no longer allowed
- Replace repeaters or other infrastructure essential to public safety to operate at 12.5 kHz equivalent efficiency or better before 1/1/2011

Secondly how will Grand County emergency and Public Safety Responders embrace DTR?

- How soon will there be a justifiable demand on GCETSA to provide an E911 system capable of DTR services?
 - What equipment will be required for 911 Dispatch to receive and transmit DTR communications?
 - What additional equipment, training and personnel will be required to insure adequate radio coverage using the DTR system
 - What tower configuration will be required to provide an adequate radio range and reach for DTR and who will pay for it?
 - How do we leverage the Public Safety Interoperable

Communications (PSIC) Grant opportunities

I hope this is helpful

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