



# St. Clair Countywide Radio System



# Project Update Report

Edition # 3: December, 2004 (Yes, we missed November!)

## Why this report?

This report is intended to be one in a series of reports that will come over the next few months as the implementation of the County's new state-of-the-art 800 Megahertz (MHz), digital, trunked radio system moves into high gear. The purpose is to keep folks who need to know and those who want to know up to speed on how the implementation is progressing.

## Let's talk **INTEROPERABILITY**

As you may be aware, just under \$4 million of the total cost of our new radio system is coming from the U.S. Department of Homeland Security (FEMA) grant for what is called **Interoperable Communications Equipment or "ICE"**. Since September 11, 2001, one of the federal funding priorities has been "ICE" related projects throughout the U.S.

What does **interoperability** mean, anyway?

The "layman's version" (the one that many politicians believe and are guided by) is that "*way too many first responders can't communicate with each other*". And it follows, that if they believe that to be the case, then that's the problem they'd like to solve with their federal grant funds.

Simply put, we define interoperability in two different technical ways:

1. When radios from one agency cannot communicate with radios from another agency due to either frequency or technology incompatibility. For example, if a police agency has UHF (450 MHz radios) only, they could not communicate (using those radios) with police agencies using VHF (150 MHz radios) or 800 MHz radios. There are several examples of this occurring in and around St. Clair County. For example, St. Louis P.D. uses 800 MHz radios and (thus far) nobody in St. Clair County does, so nobody in St. Clair County can talk direct to any SLPD units today.
2. When radios from different vendors cannot be tuned to operate on the same radio system. This applies almost totally to digital and/or trunked radio systems. For

example, only radios made by Motorola can operate on the SLPD 800 MHz trunked radio system. If you bought an 800 MHz radio from Kenwood, E.F. Johnson, and Bendix - King, M-A/COM (formerly GE/Ericsson) there is no way you could get it to work in a trunked mode on the SLPD radio system. This probably means that SLPD does not get any real good pricing deals from Motorola when they add radios, due to no effective competition. **Importantly**, the new radio system we are getting in St. Clair County is specifically engineered to be “Project 25 Compliant”, which means that radios from competing vendors will be able to operate on the system. Today, there two vendors (over and above Motorola) who make competitive radios for our system. However, our initial purchase of radios will all be from Motorola.

### **So how does the new St. Clair system solve/improve INTEROPERABILITY?**

Actually, in several ways:

1. As stated above, our system will accept competitive radios that are also “Project 25 Compliant”.
2. Our new dispatch console system will have the ability to “patch” two otherwise incompatible radio channels to each other. For example, IREACH is a VHF radio channel that would normally not be accessible to our 800 MHz trunked portable radios. *(We will be keeping VHF mobile radios in Sheriff’s cars for interim direct access to ISPERN and IREACH).* But, since CENCOM has IREACH, and since the new portables will be able to reach CENCOM from all over the County, CENCOM could “PATCH” a transmission from our trunked portable to IREACH through their console.
3. Our new 800 MHz trunked radios will also have five 800 MHz **non-trunked** radio channels in them which are nationwide “interoperability channels” to be used to talk to other 800 MHz radios. One of these channels is a “CALLING CHANNEL” over which one makes contact with a dispatcher at the agency where the field radio you want to talk to is from. The other four are TACTICAL channels, to which you would then be instructed to change to talk direct to the “foreign unit” you want to talk to. For example, our radio will have these channels, as will the St. Louis PD radios, so even though our two trunked radio systems will not be directly compatible, radios from both will still be able to communicate with each other directly over these non-trunked “conventional” channels. It is also important to understand that communications on these channels **will not be digital**, so any inherent “privacy” we gain by using either trunking or digital transmissions on our regular trunked system will not be there when we use these five interoperability channels.
4. As stated in previous Project Update Reports, we are installing radios on the new trunked system in each 911 dispatch center in the County, so that any County unit will be able to talk to any 911 dispatch center, and vice versa, and if that local 911 dispatch center (such as Belleville, for example) is equipped to patch the County unit on the trunked system to a Belleville unit on their local system, they could intercommunicate through that patch.
5. All radio users in County government will be on the same trunked radio system. This means (for example) that a Sheriff’s radio can talk to a Highway Department radio, and both of them could talk to a Public Health Nurse’s radio.
6. St. Clair County is also taking a lead role in a greater St. Louis Metro Area Federal-State-Local Communications Interoperability system and project that is about to begin

installation. Described as simply as possible, this system is designed to create the capability for **any type of public safety radio**, be it Federal, Illinois or Missouri state or local VHF, UHF or 800 MHz to be equipped with one or more common interoperability channels within their operating band. If it's an 800 MHz radio, they'll have the 5 channels mentioned above. If it's a VHF or UHF radio, they'll be permitted to have a new federally assigned interoperability channel in whichever of these bands they are tuned programmed into them.

If the user of any of these radios chooses one of the above channels, and the radio being used can get a signal to the "SAVE" tower in the middle of St. Clair County, or to the 1200 Clark Street (SLPD HQ) building in downtown St. Louis, or a tower at what is called "Sublette" in St. Louis, or one at Lambert Field, their in-bound signal will be received and then it will be:

Re-broadcast out from those towers in a simulcast mode over its "native frequency" (*meaning if it came in VHF it would go out VHF*) to be heard across the metro area in most of St. Louis and St. Clair Counties, and parts of Jefferson, St. Charles and Madison Counties. **Plus** (and this is the cool part) that inbound transmission on either VHF, UHF or 800 will not only be received and re-broadcast in its "native frequency band", it will also be re-broadcast out simultaneously (and simulcast) over the two frequency bands that were not "native" to it. For example, if it's an 800 MHz radio, and it's on the "TAC 1" 800 MHz interoperability channel we mentioned earlier, everything said will be heard at one (or more) of these four tower sites and then re-broadcast from all of them on that 800 MHz channel, plus the corresponding VHF and UHF Tactical Interoperability channels. The same process would apply if the inbound radio was a VHF or UHF radio as well.

This "ICE" system is being funded by the U.S. Department of Justice and our St. Clair County "ICE" grant and should be functional by mid 2005. The all-important legal agreement papers have just been signed, and a procedures setting committee is just getting geared up. Our bid spec for the parts St. Clair County is buying should be opened and a bid awarded in the next several weeks. On the next page we are inserting a rough map showing where these tower sites will be and what frequencies will be at each of them. Note that the site labeled "Sublette" over in St. Louis does not have any of the 800 MHz channels.

Finally, each and every 911 dispatch center in the entire metro area will also be eligible to install new or tuned to existing radios which would have one or more of these three sets of interoperability channels, thereby gaining full interoperability access like above. Adding these radios or channels can be very inexpensive and any St. Clair County 911 dispatch center will have access to the five 800 MHz channels via the County 800 MHz trunked system radios we are providing to them.

Obviously, all of this interoperability equipment and procedures will require some training and further documentation, which the County and the region will be developing and providing to all who can benefit from it.

