

Wake County Radio System - Frequently Asked Questions

1. What is P25?

Project 25 (P25) is a standard for the design and manufacture of interoperable digital two-way wireless communications products. Developed in North America with state, local and federal representatives and Telecommunications Industry Association (TIA) governance, P25 has gained worldwide acceptance for public safety, security, public service, and commercial applications. The published P25 standards suite is administered by the TIA Mobile and Personal Private Radio Standards Committee. Radio equipment that demonstrates compliance with P25 is able to meet a set of minimum requirements to fit the needs of public safety. The P25 standard was created by, and is intended for, public safety professionals.

2. What is trunking?

There are two types of radio systems: conventional and trunked.

- In a conventional system the radio message between the station and units in the field occur on one frequency. At any given time, some of the frequencies or channels may be so busy that messages are delayed or "stepped on," while other channels are lightly used or not used at all. When several departments share a single frequency, they may cause interference with each other.
- In a trunked system, all stations and units share all the frequencies. When a message between a station and a unit is commenced, the trunked system automatically selects an unused frequency and switches all radios in the system to that frequency. No one frequency is assigned to any department and the frequency may change every time a transmission is made. Trunking is a method that utilizes all frequencies in the radio system to its maximum potential.

3. What is communications interoperability?

In general, interoperability refers to the ability of emergency responders to work seamlessly with other emergency responders, systems or products without any special effort. Wireless communications interoperability specifically refers to the ability of emergency response officials to share information via voice and data signals on demand, in real time, when needed, and as authorized. For example, when communications systems are interoperable, police and firefighters responding to a routine incident can talk to each other to coordinate efforts. Communications interoperability also makes it possible for emergency response agencies responding to catastrophic accidents or disasters to work effectively together. Finally, it allows emergency response personnel to maximize resources in planning for major predictable events such as a college football game or an inauguration, or for disaster relief and recovery efforts.

4. Why is communications interoperability important?

Interoperability improves the ability of emergency responders to reduce the loss of life and property in emergency situations; facilitates rapid and efficient interaction among all emergency response organizations and provides immediate and coordinated assistance in day-to-day missions and task force operations. Adequate emergency response radio communications interoperability is essential for

emergency responders to function promptly, effectively, and cost efficiently. If emergency response agencies cannot communicate directly with one another by radio to coordinate emergency response, lives and property are at risk.

5. What are the barriers to creating a truly interoperable communications system?

There are a variety of challenges to interoperability: some are technical, some financial, and some stem from human factors such as inadequate planning and lack of awareness of the real importance of interoperability. According to a report published in February 2003 by the National Task Force on Interoperability, the emergency response community views the following as the key issues hampering emergency response wireless communications:

- Incompatible and aging communications equipment
- Limited and fragmented budget cycles and funding
- Limited and fragmented planning and coordination
- Limited and fragmented radio spectrum
- Limited equipment standards

6. What are the benefits of moving to a P25 digital radio system?

P25 Digital radio systems provide key benefits such as improved audio quality and clarity – especially at low signal levels near the edge of coverage. Other benefits include enhanced user features such as secure end-to-end encryption capability which is superior to analog scrambling/encryption techniques. In addition, P25 is a standard specified by public safety users for public safety users, and as such has the objectives of enabling multi-vendor sourcing and equipment interoperability. The standard specifies and provides backwards compatibility to analog and conventional systems and is a proven technology used operationally by hundreds of public safety agencies.

7. What is generally going on with VIPER and Wake County related to their system separation?

Prior to the month of June 2014, the North Carolina State Highway Patrol's (SHP) VIPER (Voice Interoperability Plan for Emergency Responders) system and Wake County radio system were one and the same radio platform. The County manages their radio system infrastructure assets separately, but are technically the same system. During the month of June (June 16th – 25th), 2014 the SHP will be converting their infrastructure assets (VIPER) over to their new P25 System. After this point the County and the SHP are operating two separate radio systems. The County plans to upgrade their system to P25 compliance in late 2016, early 2017.

8. How will the County interoperate with VIPER after separation?

To allow for interoperable communications with the new VIPER P25 system, Wake County Information Services staff programmed the new VIPER P25 talkgroups into Wake County Radio System radios. Wake County radio system users will be able to switch to those channels and talk to VIPER users, and VIPER users will be able to talk to Wake County users.

As part of the SHP's upgrade to their new P25 system, they will abandon old talkgroups and begin using new P25 talkgroups. Post separation, Wake County Information Services staff will systematically reprogram all Wake user radios over a 12-18 month period to remove the old talkgroups

9. Why can't I add the new VIPER P25 channels to my scan list?

There is a limitation on the scan feature - compared to how you use it today - once VIPER converts to their new P25 system.

The mobile and portable radios have three modes of scan setups; "Priority Monitor", "Talkgroup", and "Conventional". For purposes related to this discussion, two are indicated below:

- Priority Monitor – allows you to set a priority to the scan list members, but restricts you to a single system.
- Talkgroup – Allows you to scan any talkgroup from any system, but will not allow Priority assignment.

Under normal operations, once the SHP converted to their new P25 system, Wake County radio system users will no longer be able to add VIPER talkgroups to their Priority Monitor scan list because the VIPER talkgroups now reside on a separate radio system (again which is not supported by Priority Monitor scan). To facilitate continued interoperability between Wake County law enforcement users and the SHP, Information Services staff implemented a permanent "patch" between the SHP's new P25 VIPER radio system and the County's radio system to allow the SHP C3 Dispatch talkgroup radio traffic and the Sheriff's Office Dispatch talkgroup radio traffic to be "passed" between systems. This patch allows the two entities Dispatch talkgroups to continue to be used in Priority Monitor scan lists.

As an alternative, Wake County radios system users using the Talkgroup scan feature can continue to add VIPER, or any other radio systems' talkgroups to their scan list as in the past.