

# CASE STUDY

## CITY OF PHOENIX

### THE STORY

Digital radios like P25 systems provide numerous benefits and are being widely adopted. However, they are not without their drawbacks. For example, when firefighters for the City of Phoenix and its adjacent automatic aid areas respond to hazard sites such as fires or chemical spills, their Self-Contained Breathing Apparatus (SCBA) gear muffle or distort their voices to such a degree that the P25 system does not translate the audio. This leaves firefighters dangerously unable to communicate back to the alarm room, which in turn hinders on-site response coordination.

Realizing that a simplex audio VHF radio system would not have this drawback, they decided to incorporate one specifically for their responders in SCBA. The question then became how to go about doing this for such a large area, tie it back into their P25 system, and ensure the best signal.

### INDUSTRY

Public Safety

### APPLICATION

LMR Coverage Expansion

### THE CHALLENGE

The two City of Phoenix alarm room dispatch centers dispatch for 29 automatic aid or fire districts covering an impressive 5,600 square miles in and around the Phoenix valley. Getting audio back to the alarm rooms is increasingly challenging because the local telephone companies are reducing copper POTS lines support. Microwave and/or fiber are being integrated to replace POTS backhauls, transmitting the VHF audio back to the alarm room for the dispatcher. The challenge, therefore, is to provide the best sounding audio from any of the receiver sites to both alarm centers, then send it to the P25 system for rebroadcast back to the battalion chiefs or command.

#### STORY

When firefighters for the City of Phoenix and its adjacent automatic aid areas respond to hazard sites such as fires or chemical spills, their (SCBA) gear muffle or distort their voices such that the P25 system does not translate the audio.



#### Challenge

Getting audio back to alarm rooms is increasingly challenging.



#### Solution

SNV-12 Voters were installed in each of the two dispatch centers.



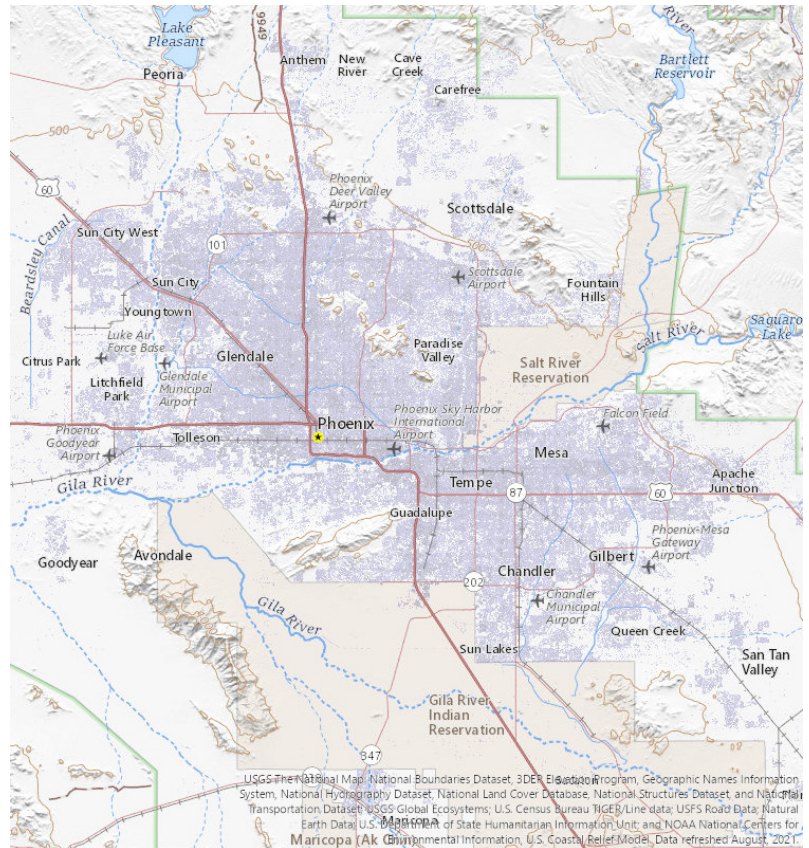
#### Benefits

JPS SNV-12 voters allow the hazard zone audio to be heard by the alarm room dispatcher.

## THE SOLUTION

SNV-12 Signal-and-Noise Voters were installed in each of the two Phoenix dispatch centers and receive audio from receiver sites throughout the entire 5,600 square mile area. There are five receivers at each of the many sites located throughout the 29 districts. Channels are apportioned for operational needs as well as three channels using the same frequency to provide VHF coverage plus backup in case of multiple events in the same area. When a responder in SCBA uses his or her VHF radio, the audio is often picked up by more than one receiver site, so the voter is used to choose the best, clearest audio to send to the dispatcher. The voted audio is also interfaced to a Telex IP223 box connected to a P25 mobile radio. This allows the audio to be rebroadcast over the P25 network.

Currently, twelve voters are in use to vote multiple channels from over 75 sites, with 393 receivers being voted. As the Phoenix area grows, coverage areas increase, and backhaul methods change, new sites are easily added.



## THE RESULT

JPS SNV-12 voters allow the hazard zone audio to be heard by the alarm room dispatcher. Responders at the hazard zone use simplex VHF radio because their SCBA gear impedes clear P25 audio. SNV-12 voters analyze the audio from the receiver sites picking up responders' audio and vote for the best audio quality, sending it to the dispatcher at the alarm rooms. The dispatcher can reply, react, and/or he or she can rebroadcast the voted audio to the P25 radio users, such as command and battalion chiefs. The entire system can work with different backhaul types – copper, microwave, or IP, for example – making it future-friendly as the number and types of receiver sites increase with population and demand.

### KEY BENEFITS



Reliable, straightforward solution.



Scalable and flexible.



Critical communication link with responders.