Barry County

Their radio channels had various issues

- Lack of coverage from multiple simplex bases
- Lack of County Wide Fire paging
- Lack of County Wide Fire coverage
- Spectrally inefficient (did not meet 12.5 mandate)
- Aged equipment
The Solution

• A 7-site simulcast Fire Channel

• A cost-effective approach
  – 7 UHF links to/from transmit sites (14 cross-band repeaters)
Coverage

• The county had already established the sites that would be utilized for the system
• Communications Specialists verified the suitability of selected sites for simulcast system operation
• The county assumed overall coverage responsibility
• Communications Specialists had to assure seamless coverage
Talkback from a 5 watt portable radio with antenna 1.5 meters above ground.
Final System
Head End Block Diagram

- SNV-12 Voter
- TKR 840 Link
- Rx Audio from Remote
- COR
- From Other Remote Sites
- Convex Audio/PTT Dist Amp
- Tx Audio
- PTT
- To Other Links

Console

Diagram showing connections and flow of audio signals between the SNV-12 Voter, TKR 840 Link, and Convex Audio/PTT Dist Amp.
Remote Site Block Diagram

TKR 840 Link

TKR 740 Simulcast Base Station

Convex VDL-RS

COR

Spectracom GPS Master Oscillator

Spectracom 1118 CTCSS Filter Assembly

10 MHz

PTT

CTCSS

Rx Audio

M-Lead

Receive Audio

Delayed Audio

CTCSS
Head End

- Raytheon JPS voter comparator
- Convex Audio Distribution Amplifier
- Kenwood TKR840 Base Stations for Links (qty 7)
Typical Transmit Site

- **Kenwood TKR 740 Simulcast Base Station**
- **Spectracom GPS Master Oscillator with CTCSS generator**
- **Convex VDL Variable Delay Line**
- **Kenwood TKR840 Links**
Linking Infrastructure

- 14 Kenwood UHF repeaters. All system links were UHF low power. Each site consisted basically of 2 crossband repeaters
- Utilized BPBR duplexers from EMR
Lessons Learned

• Make sure all jumpers are set exactly the same
• Set ALL audio levels throughout the system to the same 1.5kHz
• NEVER overdrive any audio levels
Customer is very satisfied

- System works as designed
Thank You

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