

# Nebraska Interoperable Public Safety Communications

## Mutual Aid Base Station Information

One key component of the plan for statewide interoperable public safety communications is the deployment of mutual aid base stations. These base stations would have control points at one or more local dispatch centers and the State Patrol dispatch center that serves the area of the base station coverage. As plans develop for expending existing and future Homeland Security Grant funds, it is vital to arrange funding for the purchase, installation and connection of these base stations. To assist in obtaining cost estimates and to get a very general idea of the mutual aid base station strategy, the following information is being presented.

This information is the result of many meetings and discussions among operational and technical local and state government representatives. These issues are to be considered final for this component of the overall statewide interoperable plan.

### **Base Station Frequencies**

#### **VHF**

- All VHF base stations will be simplex.
- VHF base stations must be planned in every region for a statewide coverage overlay.
- Frequencies:
  - VCALL – 155.7525 (transmit and receive), Tone 156.7
  - VTAC2 – 154.4525 (transmit and receive), Tone 156.7
  - VTAC3 – 158.7375 (transmit and receive), Tone 156.7
  - VTAC4 – 159.4725 (transmit and receive), Tone 156.7

#### **UHF**

- With the exception of UTAC3, all UHF base stations will be simplex.
- UHF base stations must be planned for coverage along Interstate 80 throughout Nebraska, all areas south of the Interstate and in areas where UHF is of predominant use.
- Frequencies:
  - UCALL – 453.2125 (transmit and receive), Tone 156.7
  - UTAC1 – 453.4625 (transmit and receive), Tone 156.7
  - UTAC2 – 453.7125 (transmit and receive), Tone 156.7
  - UTAC3 – 453.8625 (transmit), 458.8625 (receive), Tone 156.7 (optional repeater)

#### **800MHz**

- With the exception of the calling channel (8CALL), 800 base stations will be duplex (repeated).
- 800 base stations must be planned for coverage along Interstate 80 throughout Nebraska and in areas where 800 is of predominant use.
- Frequencies:
  - 8CALL Transmit 851.0125, Receive 851.0125, Tone 156.7 (NPSPAC Ch. 601)
  - 8TAC1 Transmit 851.5125, Receive 806.5125, Tone 156.7 (NPSPAC Ch. 639)
  - 8TAC2 Transmit 852.0125, Receive 807.0125, Tone 156.7 (NPSPAC Ch. 677)
  - 8TAC3 Transmit 852.5125, Receive 807.5125, Tone 156.7 (NPSPAC Ch. 715)
  - 8TAC4 Transmit 853.0125, Receive 808.0125, Tone 156.7 (NPSPAC Ch. 753)

### **Equipment Requirements**

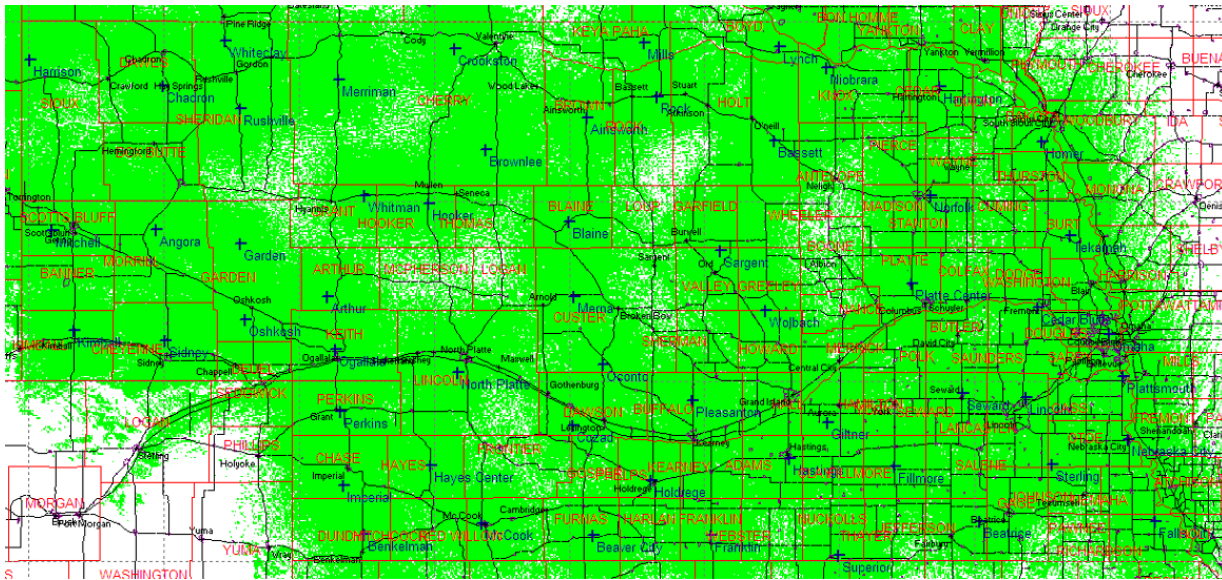
- Base station equipment will be narrowband, simplex and analog. (Note exception above for UHF and 800Mhz.)
- Base station equipment must have Ethernet interface.
- Base station equipment will be 100 watt and continuous duty.
- Antennas will be gain and of commercial quality with 7/8 inch coaxial cable used in installation.
- Communications Centers controlling base station equipment must have consoles with the ability to connect to IP based radio systems or the Paraclete application available.

## Locations

- Coverage maps, as developed by the State of Nebraska OCIO with assistance from ICTAP, are provided that show suggested sites for base station development.
  - These suggested sites may or may not be available or the best choice and regions may need to consider alternate sites while still assuring coverage.
    - All sites will require a tower structure analysis.
    - All sites will have to meet federal grant requirements including required environmental standard compliance.
- Mutual aid base stations shall be co-located with the planned regional broadband network project wherever possible.

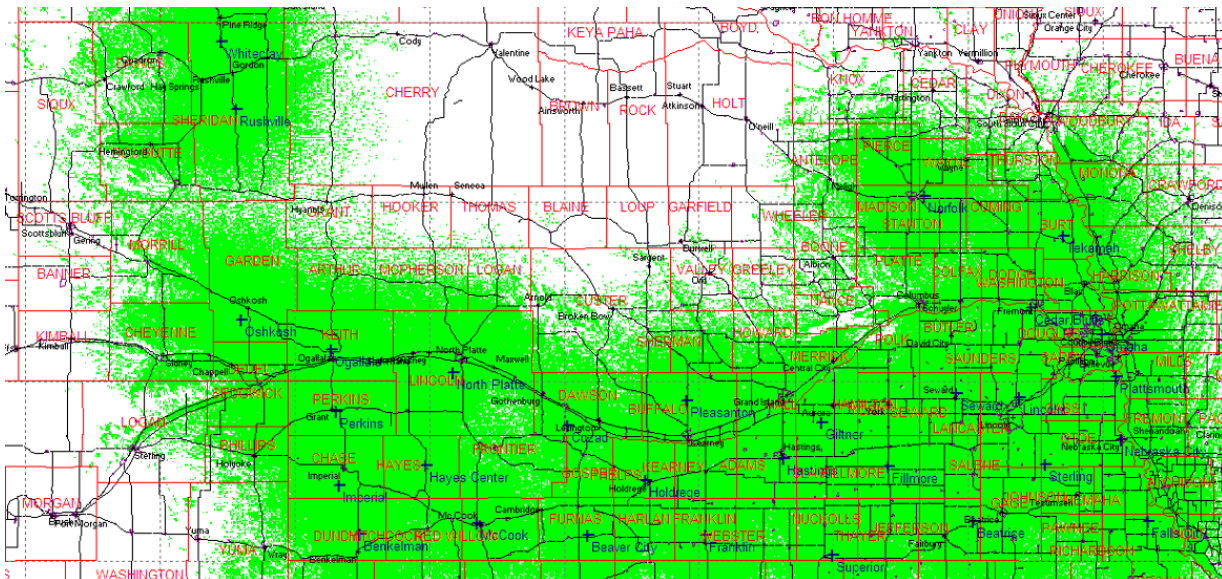
## VHF Mobile Coverage

- 57 towers as shown represents possible coverage design



## UHF Mobile Coverage

- 30 towers as shown represents possible coverage design



## **Standard Operating Procedures**

- Mutual Aid operational procedures have been discussed in various venues with nothing yet finalized.
- Involvement among all public safety disciplines will be necessary before procedures are finalized.

## **Radio Programming**

### **VHF**

- VCALL – 155.7525 (transmit and receive), Tone 156.7
- VTAC1 – 151.1375 (transmit and receive), Tone 156.7 (mobile use only)
- VTAC2 – 154.4525 (transmit and receive), Tone 156.7
- VTAC3 – 158.7375 (transmit and receive), Tone 156.7
- VTAC4 – 159.4725 (transmit and receive), Tone 156.7

### **UHF**

- UCALL – 453.2125 (transmit and receive), Tone 156.7
- UTAC1 – 453.4625 (transmit and receive), Tone 156.7
- UTAC2 – 453.7125 (transmit and receive), Tone 156.7
- UTAC3 – 453.8625 (transmit and receive), Tone 156.7
- UCALL-RPT – 458.2125 (transmit ), 453.2125 (receive), Tone 156.7
- UTAC1-RPT – 458.4625 (transmit ), 453.4625 (receive), Tone 156.7
- UTAC2-RPT – 458.7125 (transmit ), 453.7125 (receive), Tone 156.7
- UTAC3-RPT – 458.8625 (transmit ), 453.8625 (receive), Tone 156.7 (optional repeater)

### **800MHz (more discussion needed)**

- 8CALL Transmit 851.0125, Receive 851.0125, Tone 156.7 (NPSPAC Ch. 601)
- 8TAC1 Transmit 806.5125, Receive 851.5125, Tone 156.7 (NPSPAC Ch. 639)
- 8TAC2 Transmit 807.0125, Receive 852.0125, Tone 156.7 (NPSPAC Ch. 677)
- 8TAC3 Transmit 807.5125, Receive 852.5125, Tone 156.7 (NPSPAC Ch. 715)
- 8TAC4 Transmit 808.0125, Receive 853.0125, Tone 156.7 (NPSPAC Ch. 753)