Nebraska Regional Interoperability Network

May 2016

What is NRIN?

- **A Transport System**
- IP based Microwave network that connects 911 centers and/or Public Safety Access Points (PSAP) across the state.
- Network "transport" data at a 100mbps rate at 5 (9's) capability.
- Capable of transporting data, radio, voice and video
- NRIN allows public safety centers to share large amounts of data and communications quickly and efficiently with each other over long distances in a way that is secure and reliable.

How did all of this get started ?

- After 9/11, the Federal Government was tasked with finding solutions to many failed critical components in the response to this this horrendous disaster. They concluded that one of the biggest deficiencies was the inability of first responders to be able to communicate with each other.
- In 2005, the Public Safety Communications Grant (PSIC) was created to allow funding for "Interoperable Communications". This grant was amended in Law (110-53) and a bill was created to allow funding for the Interoperable Emergency Communications Grant Program (IECGP).
- On September 30, 2007, the PSIC grant awarded $900 million dollars to 56 States and Territories to assist state and local first responders and public safety agencies in a "state-wide" project for
- **the acquisition of, planning and coordination of, deployment of, and/or training for the use of interoperable communications systems.**

Who made this decision?

- In 2009, a working group was appointed consisting of 4 local Regional representatives and 4 state representatives.
- These representatives created a functional plan based on a high speed network, owned and maintained by local and Regional entities. The concept is to keep from consolidating PSAP's and save dollars by using the network to replace lines and current connections like teletype.
- These 8 people spent the next 2 years putting together an RFP for this network. The bid was awarded in 2010, and the group made the decision to start from the Western part of the state and move toward the East, allowing the Western portion of the state to be able to utilize the capabilities of this high-speed network.
- NEMA's role? NEMA manages the grant dollars and has been tasked with completion of the build out.

Why does it all take so long?

- Find a site (towers, water towers, rooftops or even grain elevators) – preferably one with no least or rent cost.
- Initial agreement with the site owner to access the site.
- LOS and a Path Calculation
- An application for an EHP with the Feds for grant dollars.
- A Mapping and Structural Analysis of the structure
- An MOU with the site owner – is the city/county willing to add the equipment to their insurance policy when the equipment is hung.
- A Request to the FCC for use of the frequency range
- Installation of equipment
- Wait for the FCC license
- Turn on equipment

When work is completed:

- When completed, the County or City will receive an “As-Built” of the site with all parts and pieces listed as well as serial numbers for each.

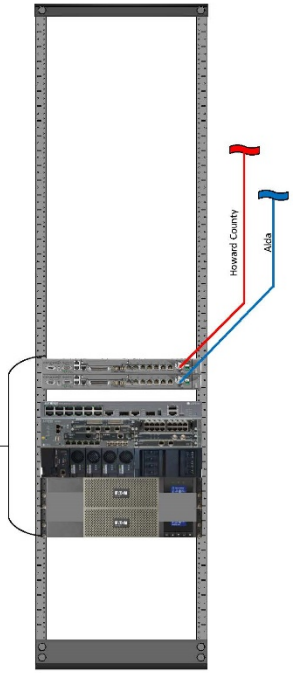
- **Federal Grant=Federal Audit**

What's an As-Built?

Opposite End: Howard County
Antenna Model: VLP800-11-6WH
Antenna SN: 13US460148058
RFU Model: 15HPS-1R-RFU-11
RFU Serial: F501505026
OCB Serial: UM13100966
Centerline Height: 132 ft.
Azimuth: 333.71 deg
Frequency: 10915/11405V

Opposite End: Alda
Antenna Model: VLP800-11-6WH
Antenna SN: 13US462330930
RFU Model: 15HPS-1R-RFU-11
RFU Serial: F461B01375
OCB Serial: UM13391522
Centerline Height: 132ft
Azimuth: 135.49 deg
Frequency: 10835/11325V

Project: Nebraska Regional Interoperability Network		Revision: 1.0	Engineer: Josh Scheer	Notes:	Cornerstone Tower Service Inc. PO Box 6222 Grand Island, NE 68802 1-877-26-TOWER www.cornerstonetower.com
Site: Cairo WT		Date: 7/15/2015	This drawing is the property of Cornerstone Tower Inc. Any duplication or distribution of materials herein is prohibited.		



Remote End 1: Howard County
Ceragon IDU Model: Ceragon IP-10G
Ceragon IDU Serial: F192312579
Remote End 2: Alda
Ceragon IDU Model: Ceragon IP-10G
Ceragon IDU Serial: F103I01782

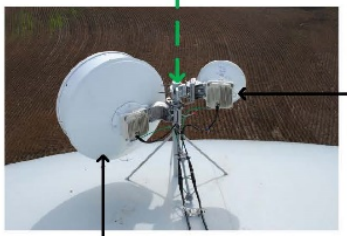
Juniper Router Model: SRX550-645AP
Juniper Router Serial: AL0513AA0046
Juniper Switch Model: EX2200-C
Juniper Switch Serial: GP0214268296

Alpha Rectifier Shelf Serial: N301823/0711
Alpha Controller Serial: 511030844920542
Alpha Rectifier Slot 1 Serial: 409984/0911
Alpha Rectifier Slot 3 Serial: 008367/0413

Eaton UPS Model: 5PX1500RT
Eaton UPS Serial: G090D36139
Eaton UPS Network Card Serial: 301C49180
Eaton Battery Pack Model: 5PX EBM 48V RT2U
Battery Pack #1 Serial: GP086C49033

Project: Nebraska Regional Interoperability Network		Revision: 1	Engineer: Josh Scheer	Notes:	Cornerstone Tower Service Inc. PO Box 6222 Grand Island, NE 68802 1-877-26-TOWER www.cornerstonetower.com
Site: Cairo WT		Date: 8/4/15	This drawing is the property of Cornerstone Tower Inc. Any duplication or distribution of materials herein is prohibited.		

Wahoo Water Tower



Opposite End: Mead NET
Antenna Model: VHLP800-11-CR4A
Antenna SN: 13US462254396
RFU Model: RFU-CX-11-Hz-TH
RFU Serial: F093A04085
Centerline Height: 118'
Azimuth: 124.63 deg.
Frequency: 11445.000H/10955.000H

Opposite End: Saunders County
Antenna Model: BHLP800-11-CR4
Antenna SN: 12US461720336
RFU Model: RFU-CX-11-Lz-TL
RFU Serial: F453E10533
Centerline Height: 118'
Azimuth: 290.12 deg.
Frequency: 10875.000V/11365.000V

Opposite End: Wahoo Dispatch
Antenna Model: VHLP1-23-CR4B
Antenna SN: 13US462295387
RFU Model: RFU-CXm-F-23-L-TH
RFU Serial: F332M06786
Centerline Height: 118'
Azimuth: 169.04 deg.
Frequency: 21885.000V/23085.000V

Project: Nebraska Regional Interoperability Network	Revision: 1.0	Engineer: Josh Scheer	Notes:	CORNERSTONE TOWER	Cornerstone Tower Service Inc. PO Box 5222 Grand Island, NE 68802 1-877-25-TOWER www.cornerstonetower.com
Site: Wahoo Water Tower	Date: 3/9/2015	This drawing is the property of Cornerstone Tower Inc. Any duplication or distribution of materials herein is prohibited.			

Wahoo Water Tower Rack Equipment

Opposite End: Saunders County
Radio Model: Ceragon IP-10G
IDU SN: F103901724

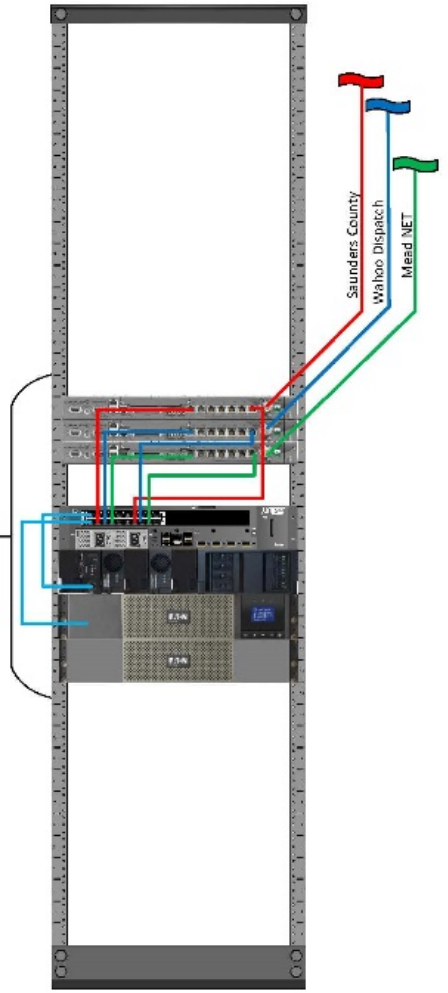
Opposite End: Wahoo Dispatch
Radio Model: Ceragon IP-10G
IDU SN: F103J01752

Opposite End: Mead NET
Radio Model: Ceragon IP-10G
IDU SN: F103P01751

Router Model: Juniper CHAS-MX5-T-S-A
Router SN: T4848

Alpha Shelf SN: N500041
Alpha Controller SN: 510100604920086
Alpha Rectifier Model: CXRF 48-1.2kv
Alpha Rectifier Slot #1 SN: 008373/0413
Alpha Rectifier Slot #3 SN: 007954/0313

UPS Model: 5PX1500RT
UPS SN: G090D36021
UPS Network Card SN: 301D36363
Battery Pack Model: 5PXEMB48RT
Battery Pack #1 Serial: G080D36070



Project: Nebraska Regional Interoperability Network	Revision: 1	Engineer: Josh Scheer	Notes:	CORNERSTONE TOWER
Site: Wahoo WT	Date: 3/9/2015			

What has been done so far and what have been the holdups?

- An estimated 75% is completed.
- As much as possible will be completed when the FY2016 grant dollars sunset in August 2017.

- **Delays:**
- **Change in contractors due to legal issues. – Work was completely stopped for 6 months.**
- **Grant dollars ran out from one year to the next – another 6 months of no work.**
- **Amount of work is determined by amount of dollars that is allocated during the Investment Justification process.**
- **Currently there are only $288,000.00 allocated for FY15 and $300,000.00 allocated for FY16.**

- Current contractor has green light for all remaining work for sites that have MOU's in place.

Is our local entity required to join this network?

- No, there are no “State” mandates or Marshal Law forcing anyone to be a part of this network. It is a locally owned network, run and governed by local governments.

- Why would you want to? For all the reasons we just talked about
- If you become part of the network now, the grant dollars will pay for the installation.
- You will be assisting other Regions with a redundant ring backup system enabling them to utilize this network to its fullest.

How will it Improve Public Safety?

- Improve public safety by increasing the amount and type of information that can be shared as well as the number of participating agencies such as:
  - 911 dispatch/Sheriff's Office/Local Police/Fire
  - Public power
  - Emergency Operations Center
  - National Weather Service
  - Crime information centers
  - Emergency Alert System (EAS)
  - Roads and motor vehicle agencies
  - Courthouses
  - Long Distance Video Arraignment

Current & Potential Uses:

- 911 Equipment sharing – NRIN could provide the primary or backup communications link to allow for cost effective 911 equipment sharing across multiple counties or regions. The East Central Region is using NRIN as their “Primary” means of dispatching for their Region.
- Conducting video arraignments – Multiple Courthouses and Detention centers can use this technology on this network and eliminate the need to pay for dedicated data connections.
- Expensive communications lines that connect radio repeaters and radio base stations could be moved to NRIN and costly monthly fees could be eliminated.
- Interoperable radio base stations that are currently being installed across regions could connect back to multiple dispatch centers. IE Vcall, Ucall, Vtac, Utac, etc. The North Central Region currently has all of their mutual aid base station system running through NRIN.
- Security cameras at remote locations can utilize NRIN to connect back to dispatch centers or other security centers.

Potential future uses:

- City and County Government can utilize NRIN to share data or provide off site backups as part of a COOP plan.
- NET has offered to share their on-line video training locations.
- NPPD is offering a “cost allowance” for partial use in lieu of rent on their towers.
- Law Enforcement Agencies can connect their Records Management Systems together to share information.
- Replacement of the actual tele-type system is being tested.
- Department of Roads is interested in paying for connections to their multiple camera sites.

South West Region – Pat Gerdes

Director, Region 15 Emergency Management

- Currently, the Southwest Region is using the NRIN to operate a VHF Mutual Aid base station at Benkelman, and some connectivity is being used to connect Perkins County Dispatch to Keith County Dispatch.

- It is hoped to use it more in the Red Willow County area in the future for connecting PSAP's as well. Depending on what happens with Paraclete, we were hoping to use NRIN for connectivity to operate that system and eliminate monthly costs.

- Discussion has also been related to using the NRIN to possibly set up a virtual meeting site across the regions to meet by video conference rather than traveling to save costs at the local level.

Serving Phelps, Gosper, Frontier, Hitchcock, and Dundy Counties

South East Region – Ray Ryan

Lincoln/Lancaster Co. Communications Coordinator

- Interoperability with neighboring counties during incidents.
- Mutual Aid Radios
  - Access to State wide Interoperability Frequencies for communications back to your home county when outside the coverage of your home radio system.
  - Lancaster County has some additional interop frequencies are available for use by other agencies that have to come to Lincoln for business.
- Access to Lancaster Counties Rural Fire paging by neighboring dispatch centers that page off of our system
  - Seward – Plattsmouth -- Gage
- Console to neighboring Base station links
  - Some counties in the region are discussing ways they can be a backup for their neighboring counties in the event of an event that disables their dispatch center.
- Backup connections for the Southeast Regional 911 telephone system being installed in 2016.
- Video conferencing
  - Incident/disaster coordination with neighboring counties
  - Mutual Aid meetings
  - Regional planning and training

North Central Region – Pete Peterson

Mayor, Ogallala
NC Region Representative
Initial Pilot Region Testing Coordinator

- Mutual Aid Base Stations on most of the towers
- Security camera's that are controlled at the 911 centers
- Video arraignments
- County by County shared information

- **East Central Region – Tim Hofbauer**
  – see handout

What is Needed to Support NRIN?

- Governance
- Management and Monitoring
- Maintenance/Equipment Repair
- Sustainable Financing