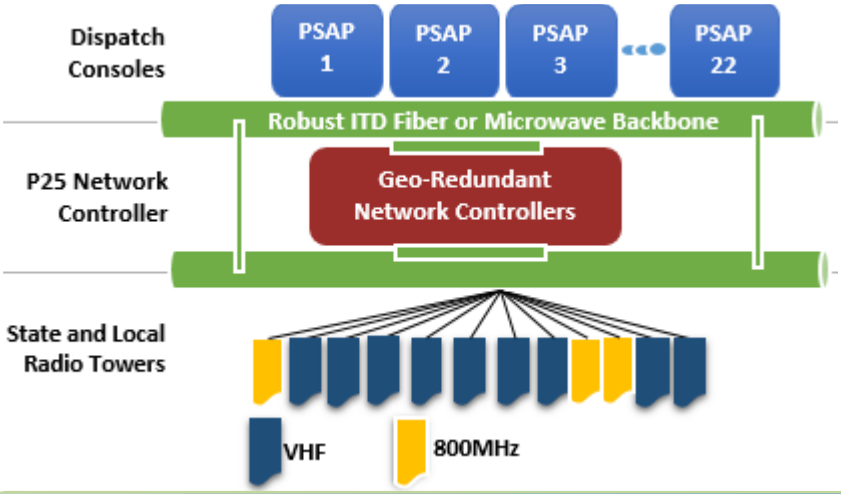
NORTH DAKOTA RADIO INTEROPERABILITY NETWORK (ND-RIN)

Project Overview

The State of North Dakota is undergoing tremendous social and economic changes in response to the rapid growth in the State's energy resource sector. While the State and its citizens receive undeniably important benefits from the energy boom, the resulting growth is stressing critical infrastructure and services vital to the life and safety of the citizens of the State. On behalf of public safety entities in the State of North Dakota, the Statewide Interoperability Executive Committee (SIEC) is spearheading a program to advance mission critical voice and paging communications across all state and local agencies. The SIEC commissioned a study to assess the growing technical and operational communication needs of first and second responders and to develop a solution that enhances and modernizes land mobile radio (LMR) communications in the State of North Dakota.

PROPOSED ND-RIN OVERVIEW

- Unified statewide network – anchored on standards based **Project 25 radio trunking technology** – interfacing all PSAPs(9-1-1 call centers), radio sites and user devices
- 125+ base station radio tower facilities serving all agencies
- Statewide VHF radio system with 800 MHz in metro areas
- Replacement or upgrade of 16,500 mobile and portable devices
- Updates to equipment at 22 PSAPs

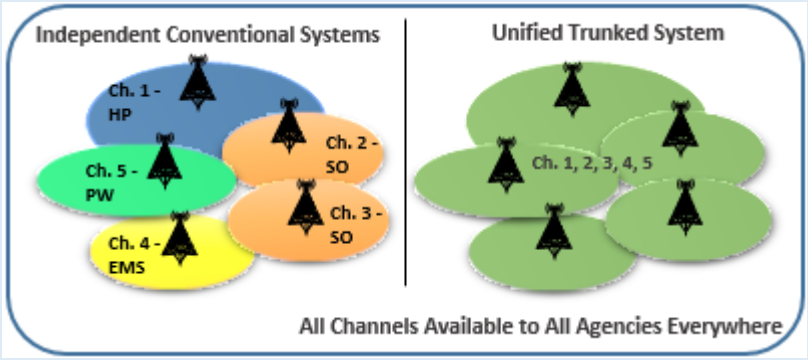


Benefits of Centralized Statewide Trunked System

Trunking Technology

Trunking technology was developed in the 1980s to ensure efficient usage of the radio spectrum and to deliver enhanced first responder communications capabilities not supported by conventional radio networks. Conventional radio networks cover limited geographic areas and require greater end user call management, while centralized trunked systems support wide area coverage and employ an automated controller to seamlessly interface all network components including radio towers, dispatch consoles, and frequencies in an efficient manner.

Trunked systems do not require dedicated channels for a specific use, rather, any available resource is allocated based upon the end user agencies' needs. From an operational perspective, digital trunked systems simplify radio user communications, and support several key capabilities including higher network capacity, automated radio mobility management, user prioritization, wide area roaming, enhanced interoperability, dispatching features.



Benefits of Centralized Statewide Trunked System

Increased Technical and Operational Efficiency

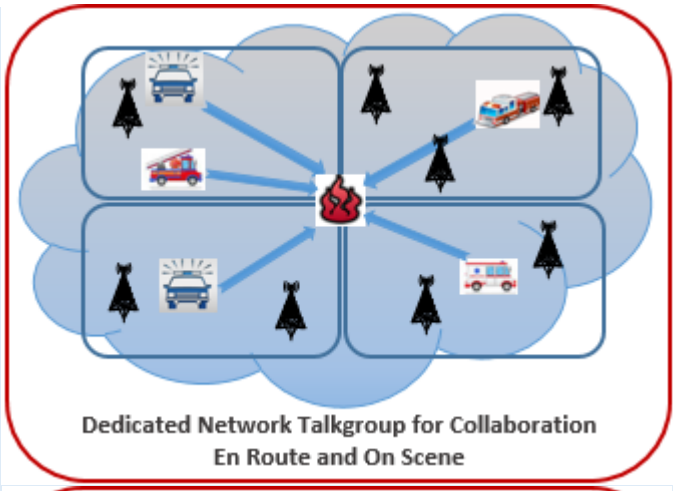
- Shared use of frequencies and tower assets
- Higher network capacity to support high traffic incidents
- All authorized users have seamless access to any radio site
  - Neighboring sites with better service along city and county borders can be used by all authorized network subscribers

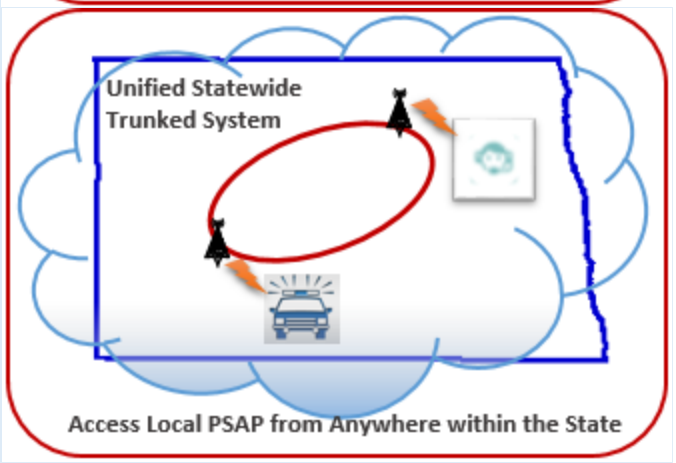
Enhanced Group Calls & Features

- Individual talkpaths for each entity and function
  - Supports user defined talk paths and eliminates nuisance conversations
- Priority access for emergency use
- Multi-group calls to support inter-agency and inter jurisdiction communications interoperability
- Dynamic group calls created by PSAP to support spontaneous incidents and cross agency interoperability
- Ability to remotely deactivate lost radios
- Device registration – dispatchers know all active users
- Out of coverage alert (to resort to vehicular repeater or direct mode)

Wide area communications

- Seamless interoperability and statewide roaming (without need to know the radio tower location or to change channels)
- Access local dispatch from anywhere in the State (e.g., prisoner transport, out of home area communications)
- System selects best serving radio base station and channel for each field user
- Ability to communicate with mutual aid partners while en-route and on scene
- No knowledge of tower location required by dispatcher or field user
- Simplified dispatcher and field user operations
- Greater safety for the first responder community





Enhanced Redundancy and Maintenance

- Backup and shared PSAP services capability
- Remote dispatch from anywhere on approved IT transport networks (fiber optic and microwave)
- Advanced features and system interference mitigation
- Decreased end user device maintenance and programing burden
- Reduced network operations and maintenance costs