



# SIRN FORND



November 2020

# WHAT IS SIRN?

STATEWIDE INTEROPERABLE RADIO NETWORK



**SIRN:** Is a communication system for first responders to serve and protect citizens

**SIRN:** Is a statewide solution for delivering an interoperable radio system for public safety community

**SIRN:** Is a collaborative effort by state, county, and municipal public safety agencies





# PUBLIC SAFETY COMMUNICATIONS IN ND

- 
- 20,000 Users & Devices
  - 900+ Public Safety
    - 114 Law Enforcement Agencies
    - 175 EMS Departments
    - 359 Fire Agencies
  - Public Sector Entities
    - Public Works, Highway Depts, Hospitals & School Transportation

# PUBLIC SAFETY COMMUNICATIONS IN ND

230,000 Calls to 9-1-1 each year

9-1-1 Calls are received every 2 MINUTES  
24 hours a day, 365 days a year





# SIRN HISTORY

## CHALLENGES IDENTIFIED



**NORTH DAKOTA  
STATEWIDE  
INTEROPERABLE  
RADIO NETWORK**

- Lack of Coverage
- “End of Support” for 40% of communications equipment in 2018-2020
- Dozens of fragmented systems
- Lack of features required by public safety community
- Cumbersome Interoperability
  - Limited communication capabilities between jurisdictions & disciplines
- Interference
- Unreliable “In-Building” Service

# SIRN HISTORY

## INTEROPERABILITY CHALLENGE



Example of Communication Challenge  
During Crisis Response Situation:

Three Responders could see each other but were unable to communicate using the current radio network because they were from different agencies.

This jeopardizes the safety of public and first responders.

# SIRN HISTORY

## TIMELINE



- **2011** Exploratory Study Focused on Land Mobile Radio Interoperability
- **2015** Legislature Authorizes Feasibility Study
- **2016** Televate Study Conducted; Recommendations Provided
- **2017** Legislature Authorizes and Governor Signs into Law - Execution of SIRN 20/20
- **2017** SIRN 20/20 Program Initiated
- **2018** Requests for Proposals
- **2019** January - Contract Awarded to Motorola
- **2019** April - Legislature Authorizes and Governor Signs SIRN Project Funding into Law
- **2019** May - Project Kick Off
- **2019** August – Construction on Phase 1 Begins
- **2020** August – Phase 1 Group 1 Completed



# SIRN HISTORY

## TELEVATE STUDY FINDINGS



### STUDY PURPOSE:

Evaluate viability of statewide interoperable radio network (SIRN) to consolidate the myriad State and Local systems into a common network

### STUDY FINDINGS:

- State & Local systems based on legacy technologies
  - Limited functionality
  - Diminishing Service Lifespans
- Systems unable to keep pace with population increase & rise in public safety incidents & activities
- New system must provide:
  - Performance
  - Reliability
  - Interoperability

### STUDY SOLUTION: SIRN 20/20

Holistic evolution of State & Local communications networks into single integrated statewide solution

- Adequate & affordable replacement
- Significant State funding allocation
- Proper Governance
  - Transparency
  - Responsiveness to local partners



# SIRN HISTORY

## CONTRACT

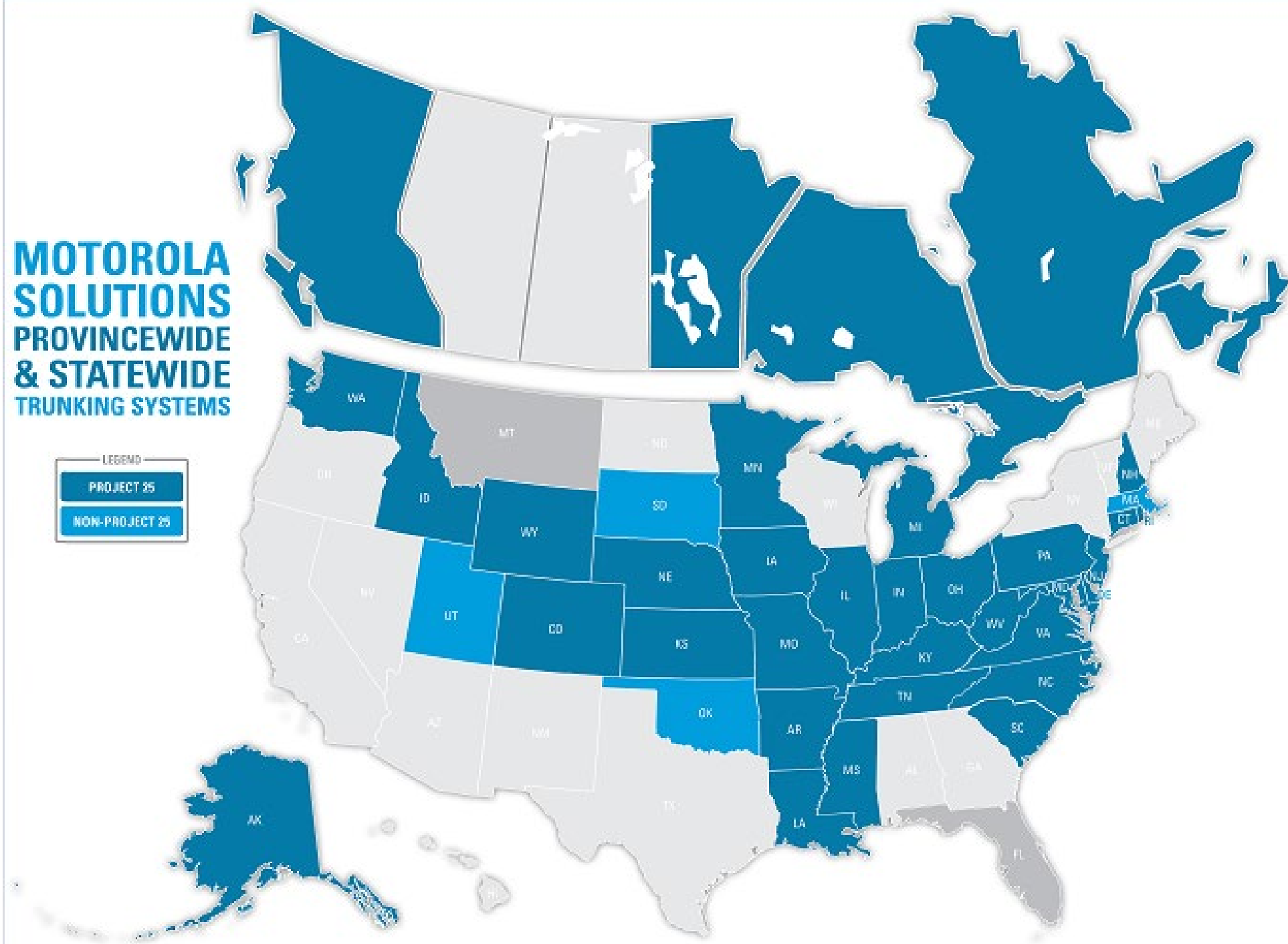
- Contract with Motorola
- Provides single, statewide solution
- Coverage challenges mitigated
- End of life challenges mitigated
- Interoperability challenges mitigated
- No frequency transfers required
- 5 Year project
- Emphasis on phased functional deliverables



**NORTH DAKOTA  
STATEWIDE  
INTEROPERABLE  
RADIO NETWORK**



**MOTOROLA  
SOLUTIONS  
PROVINCEWIDE  
& STATEWIDE  
TRUNKING SYSTEMS**





# SIRN

## SOLUTION



**NORTH DAKOTA  
STATEWIDE  
INTEROPERABLE  
RADIO NETWORK**

- Shared Infrastructure Utilized by All Public Safety Users
- 800 MHZ Frequency Band
- Project 25 Technology
- 99.999 Reliable is the national standard for public safety communications hardware
- Hardware Meeting Standards Usable on SIRN System
- Guaranteed Coverage
  - 95% Mobile Coverage
  - 85% Portable Coverage
- Addresses End of Life & End of support of Equipment
- Future Integration with LTE & Wi-Fi Technology
- Guaranteed System Support for 25 years

# SIRN HISTORY

**SOLUTION – 800 MHZ SYSTEM**



- 140 Tower Sites
- Better In-Building Penetration
- Reduces Congestion
- Open Spectrum – No Channel Scarcity
- Lessens Interference
- Eliminates VHF Skip
- Lower Noise Floor
- Consistent Predictable Coverage



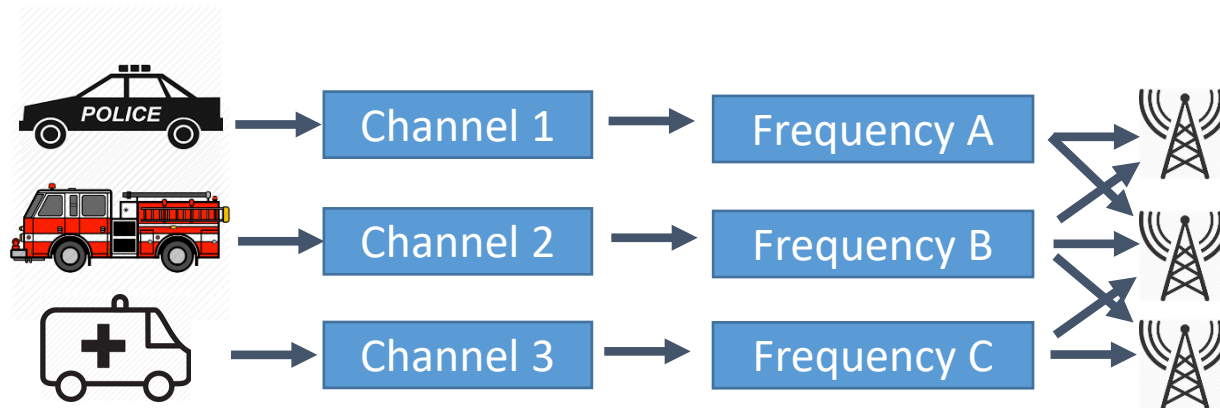
# SIRN HISTORY

## CONVENTIONAL VS TRUNKING



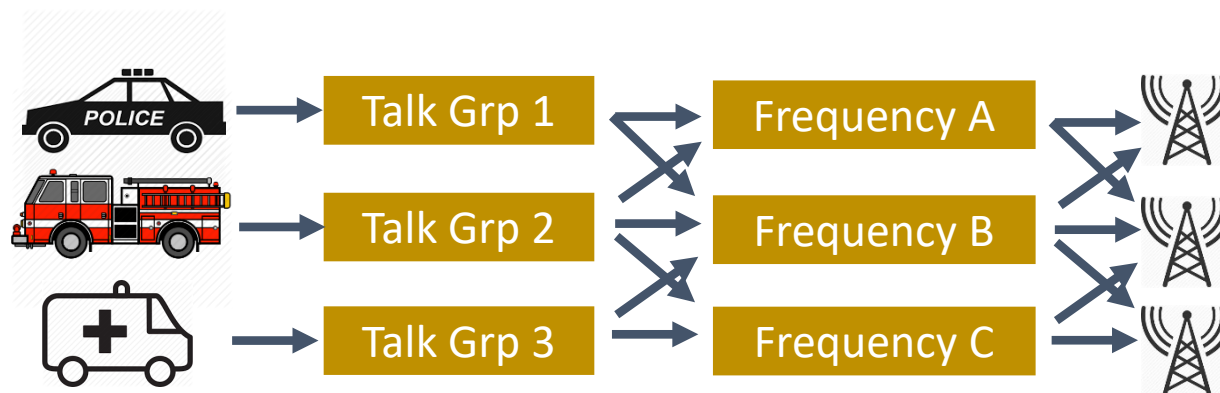
### Conventional Radio System:

- User chooses a frequency
- Bound to a specific set of towers
- Assigned to a specific purpose



### Trunked Radio System:

- User chooses a specific trunk group
- Assigned to a specific purpose
- Not bound to a frequency
- Not bound to a specific set of towers
  - System programmable
- Can be local, county, regional, state, federal



Citizen makes 9-1-1 Call

Dispatcher at PSAP sends message to responders

# HOW SIRN WORKS

Dispatch information sent out using all required towers to cover incident area

Message can reach responders regardless of location in state

Message delivered to responders

Responders can communicate within and outside jurisdictional boundaries







# SIRN FUNDING



**NORTH DAKOTA  
STATEWIDE  
INTEROPERABLE  
RADIO NETWORK**

COMPONENT	SIRN FUND or STATE APPROP.	STATE AGENCY BUDGETS	LOCAL GOVERNMENT
Core Infrastructure & RF Network (Bismarck, Fargo, State Radio, & Towers )	\$90 MILLION		
PSAP Equipment (Includes Equipment & Training)			\$8.5 MILLION
Local & State Public Safety Devices	\$30 MILLION (\$1500 local cost share)	Individual Agency Responsibility	Local Responsibility Minus \$1500 cost share

# SIRN

## RADIO REIMBURSEMENT



- 2019 Legislature provided funding for radio's in HB 1435
- Anticipate most agencies will purchase radios in 2022-2023
- **\$1,500 cost share per radio**
  - City/County Law Enforcement, Fire, Emergency Medical Personnel
- Eligibility:
  - Agencies must complete ITD radio survey
  - Available for radios purchased between 4/2019-1/2024
  - Agencies purchase [approved radio](#) & submit receipts for reimbursement





# SIRN

## RADIO ENCRYPTION REQUIREMENT



**FBI Security Policy Requires  
ALL Communication of  
FBI Criminal Justice Information (CJI)  
to be encrypted**

ND BCI memo issued 1/3/20

**Examples of CJI that could be  
communicated over a radio include:**

**Warrants, Missing Persons, Wants & any  
information obtained from NCIC.**



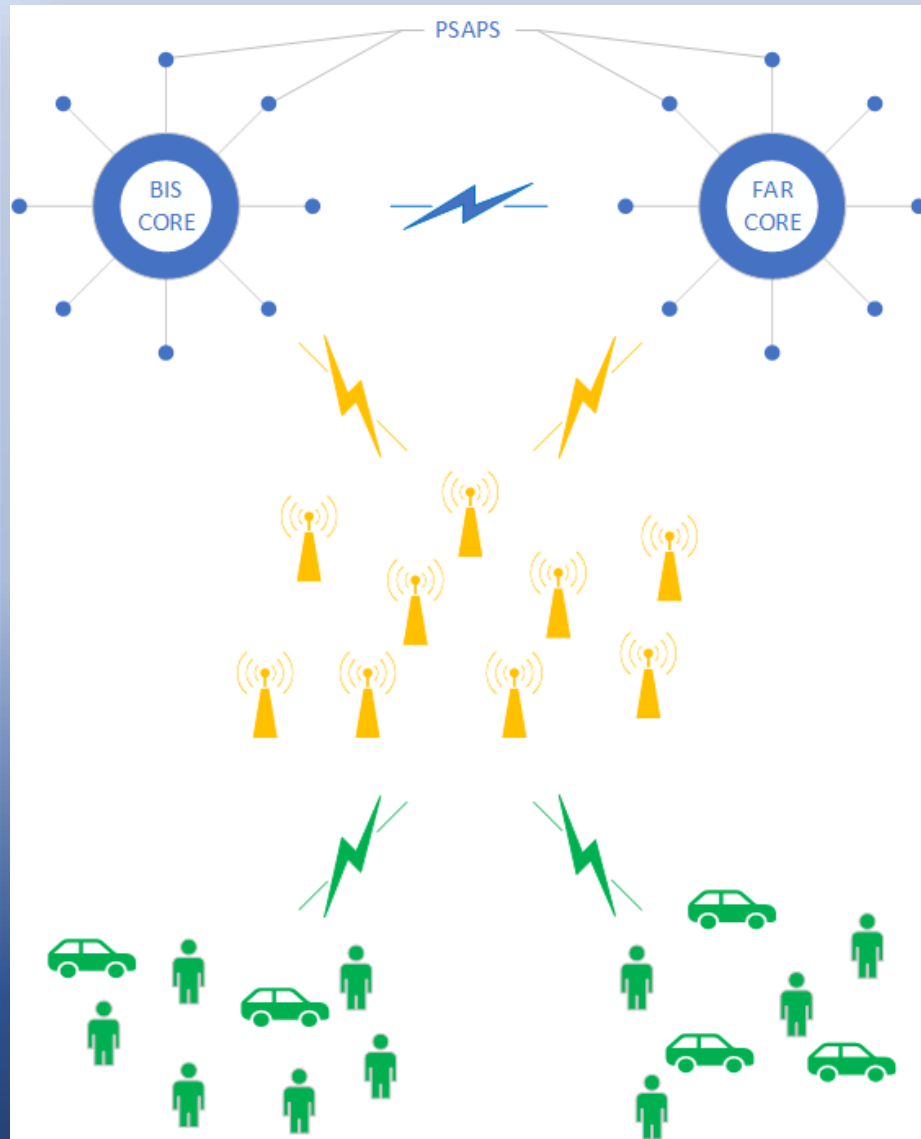
# SIRN

## RADIO ENCRYPTION REQUIREMENT



- Law Enforcement required to purchase encrypted radios
  - \$700 approximated increased cost for each mobile & handheld device

# SIRN BUILD-OUT: BY THE NUMBERS



## 23 PSAPs

Public Safety Answering Points  
Consoles & Core Network

## 140 Towers

Across North Dakota

## 20,000 Radios

for Emergency Responders  
Law Enforcement, Fire, Ambulance,  
State Agencies (HP, G&F)

# SIRN

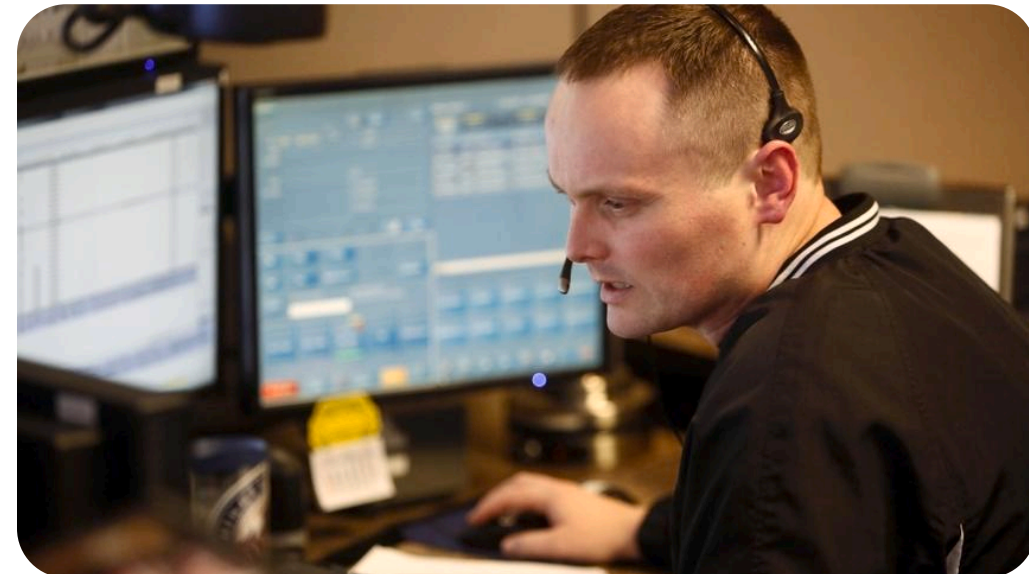
## PROJECT STATUS

### PHASE 1: CORE & PSAPs

- Bismarck Core-**Completed**
- Fargo Core – **Completed**
- Core Encryption, GPS, IV&D, OTAP, OTAR - **Completed**
- Group 1 PSAPs - **Completed**

(Grand Forks, Minot, Stutsman, Barnes, & Richland)

- 
- **Group 2 PSAPs – Planned End Date Est. 1/2021**
    - Cavalier (Completed)
    - UMRRDC -Williston/Williams
    - Bottineau/Renville (Completed)
    - Central Dakota Communications
    - Stark/Dickinson
    - State Radio





# SIRN

## PROJECT STATUS

### PHASE 2: Radio Frequency Buildout

Group 1 - Planned End Date 1/23

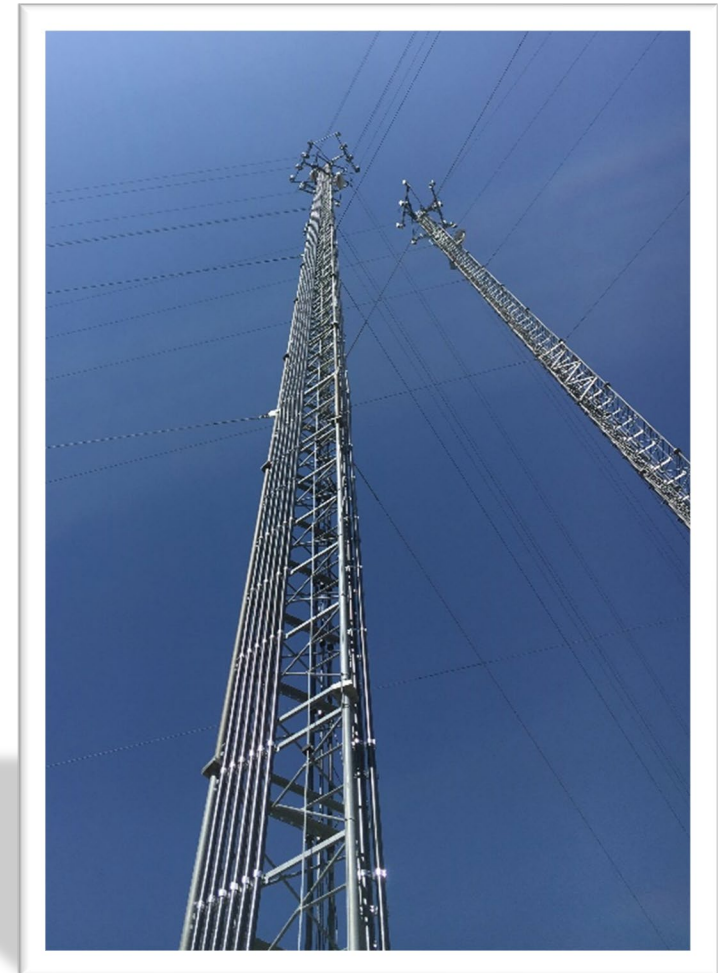
- **40 DOT Towers**

Group 2 - Planned End Date 11/21

- **5 DOT Towers + 16 Leased Towers**
- **Simulcast Towers**
  - Grand Forks, Minot, Williston,  
Bismarck/Mandan

Group 3 & 4 - Date TBD

- **78 Tower sites TBD**



# SIRN

## PROJECT STATUS



**NORTH DAKOTA  
STATEWIDE  
INTEROPERABLE  
RADIO NETWORK**

- **2019** May - Project Kick Off
- **2019-2021** – Phase 1 : Core & PSAPs
  - Group 1 – PSAP's (5) Complete
  - Group 2 – PSAP's (6) ETA to completion February 2021
- **2019** October – Construction begins on Phase 2: RF Network
- Estimated completion 2023-2024

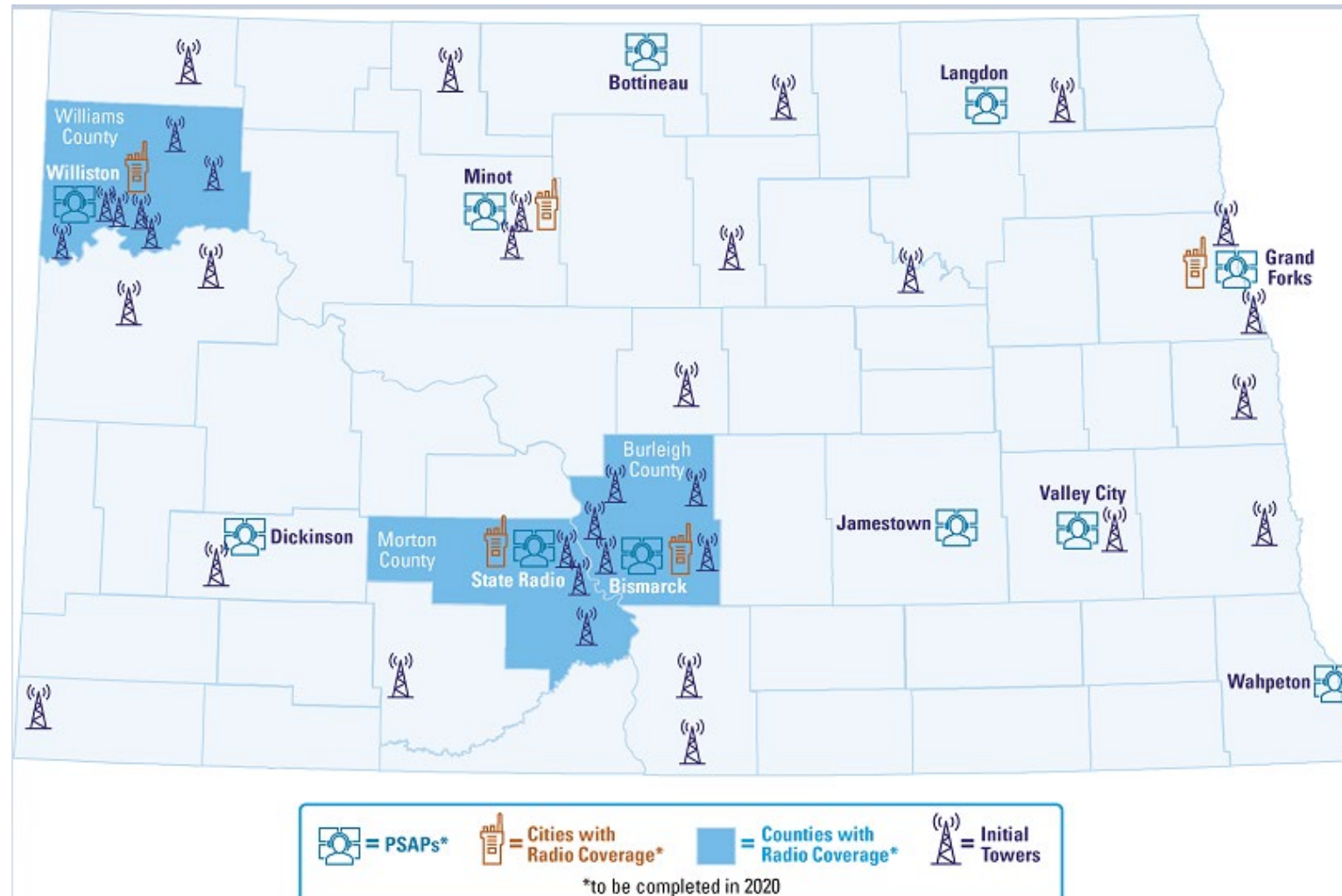


# SIRN

EARLY ADOPTERS  
TO BE COMPLETE IN 2020



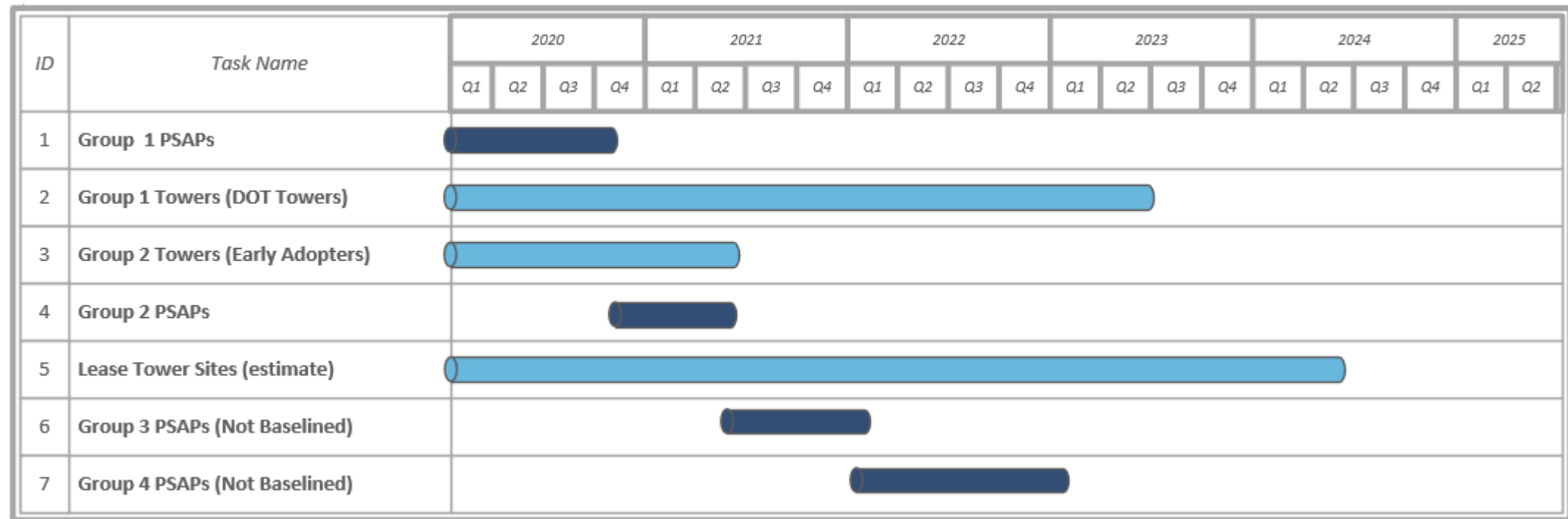
**NORTH DAKOTA  
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# SIRN

## PROJECT TIMELINE



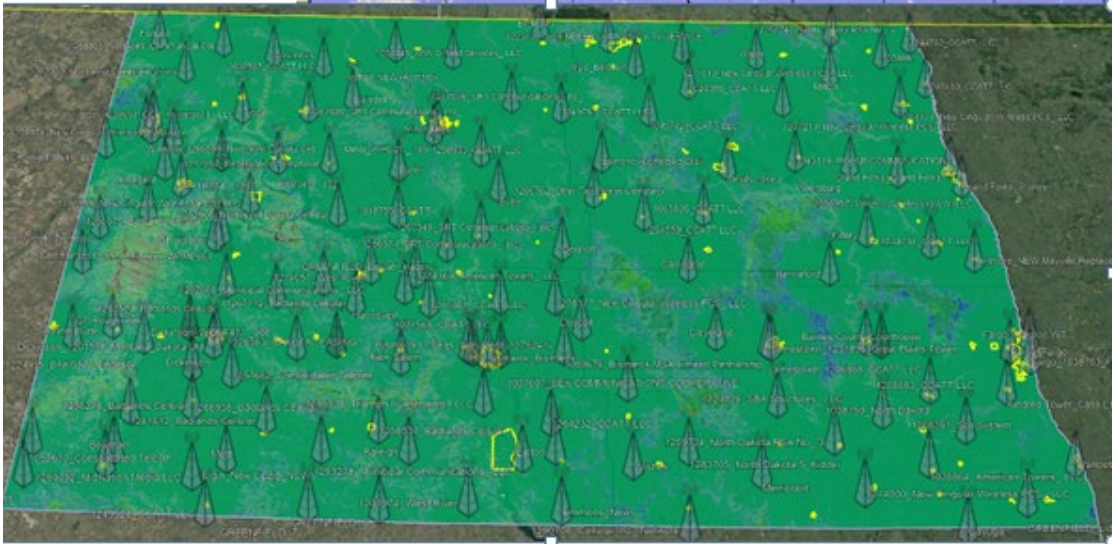
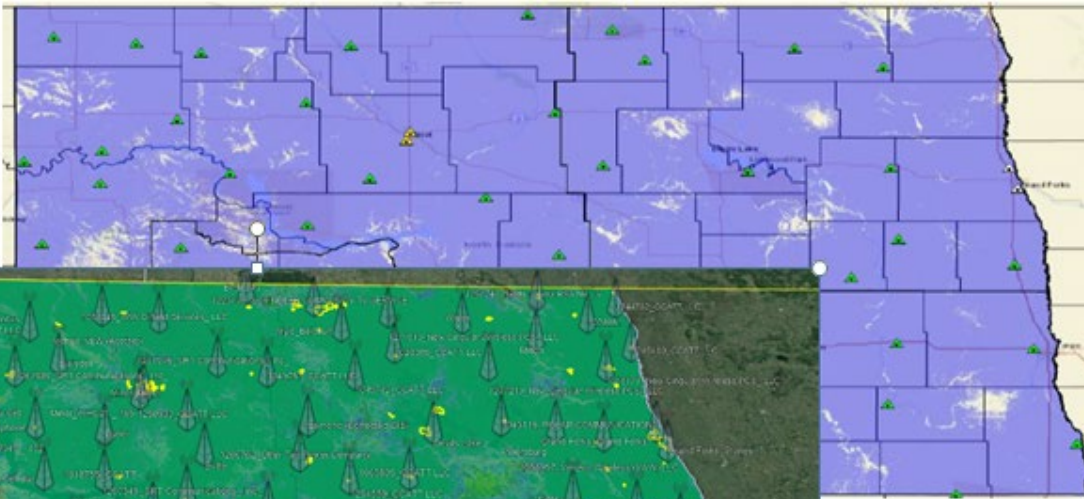
# SIRN HISTORY

## SOLUTION



### Contract Requires Coverage:

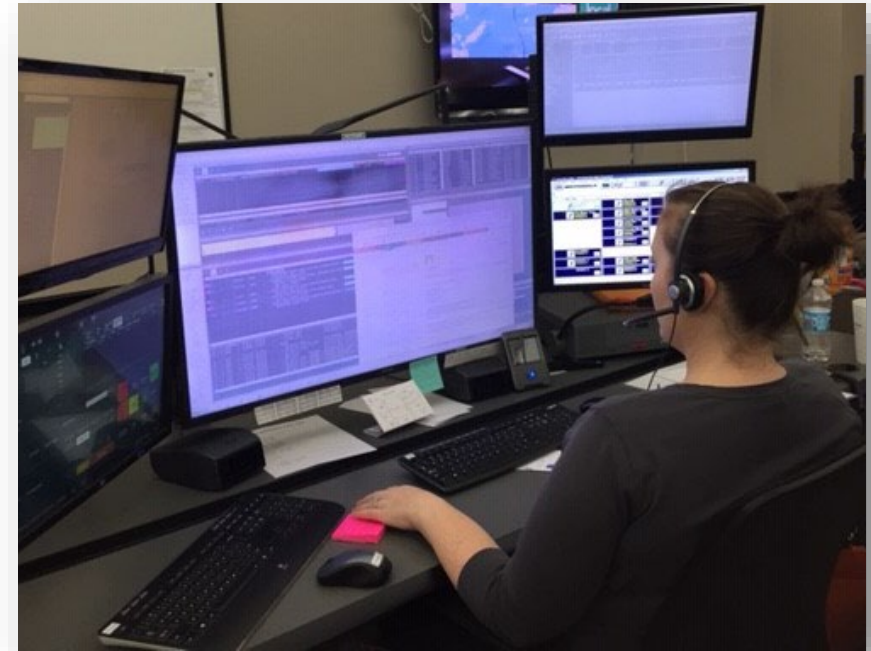
- 95% Mobile Coverage with 95% reliability
- 85% Portable Coverage with 95% reliability
- Major Highways
- 127 Largest Cities
- All County Seats
- Communities with Law Enforcement, Fire & EMS



# SIRN

## ADVANTAGES

- Maintain contact with dispatch center while out of jurisdiction
- PSAP Redundancy across the state
  - Capability to dispatch & maintain communicate if dispatch center is out of service
- Interoperability with surrounding states & internationally
- Guaranteed voice audio quality of 3.4 means 95% of communications will be very clear



- More efficient management of frequencies means greater availability of channels



# SIRN

## ADVANTAGES



- The ability to communicate with **ANY PUBLIC SAFETY PERSONNEL, AS NEEDED, ANYWHERE** in the state
- 95% coverage for mobiles and 85% coverage for portables for each region with 95% Reliability within the state
- SIRN readily incorporates the future of technology
- Interoperability between existing VHF & 800 MHZ SIRN system during transition
  - VHF system will reach end-of-life
  - Date TBD

# SIRN

## ADVANTAGES

- Far superior coverage throughout ND than existing systems
  - Guaranteed coverage in all cities with populations 500+ & county seats
- Capable of over the air programming and re-keying
- Improved in-building coverage in dense areas



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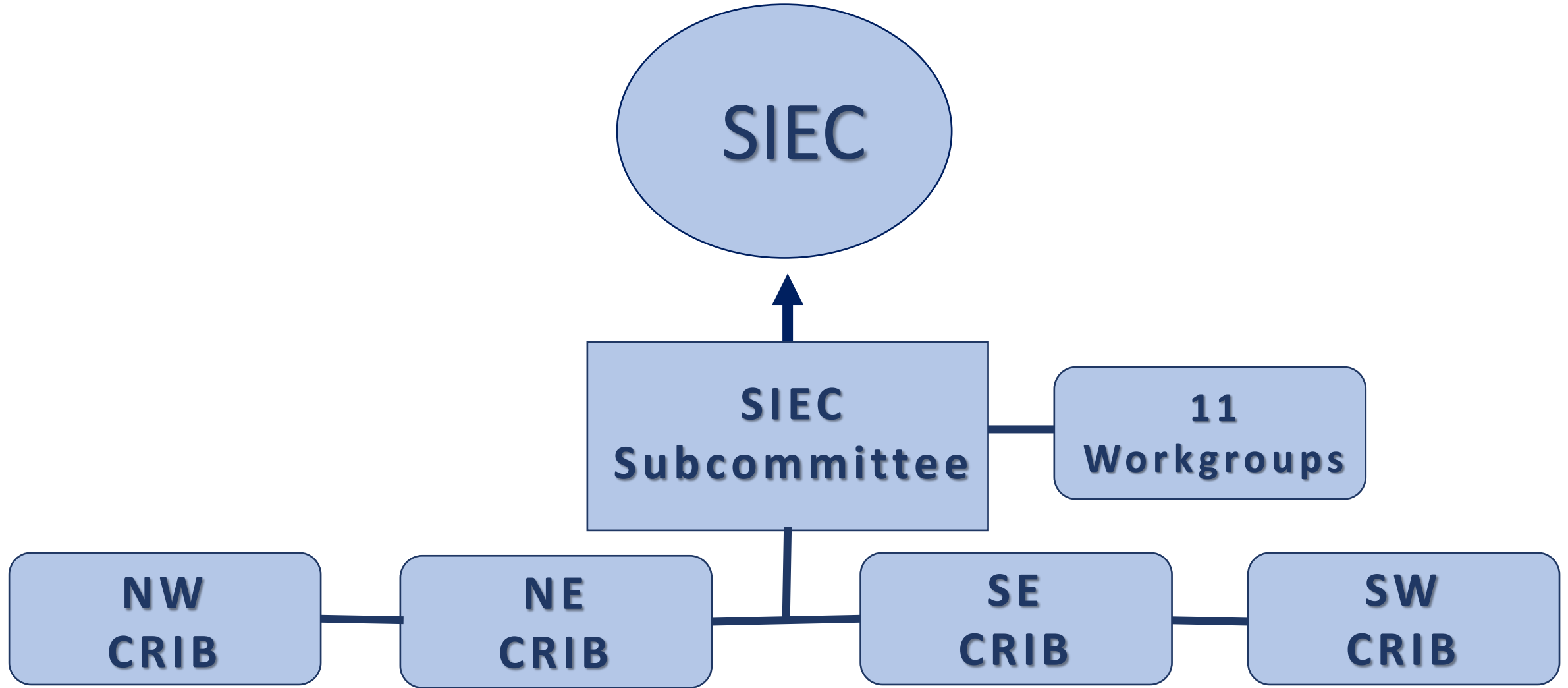


# SIRN

## GOVERNANCE



**NORTH DAKOTA  
STATEWIDE  
INTEROPERABLE  
RADIO NETWORK**



# SIRN

## GOVERNANCE



➤ 7 Workgroups made up of 75+ volunteers - “Users” of SIRN

- Provide subject matter expertise and direction to SIEC subcommittee
- Develop standards recommendations for SIEC subcommittee



**Workgroups include:** Simulcast/Fire, Fleet Mapping-Talk Groups, Radio, Encryption, Public Info/ Education/Training, PSAP-Users, EMS/Hospitals



# SIRN

## GOVERNANCE



**NORTH DAKOTA  
STATEWIDE  
INTEROPERABLE  
RADIO NETWORK**

SIEC Governance structure  
allows for INVOLVEMENT at  
all levels

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User involvement is critical to  
successful implementation of  
SIRN



# SIRN

## ADVANTAGES



**NORTH DAKOTA  
STATEWIDE  
INTEROPERABLE  
RADIO NETWORK**

No single ND entity could construct, operate and maintain a statewide communications system with the **coverage, capacity, capabilities and redundancy** of SIRN



# SIRN2020.ND.GOV



## SIEC

FirstNet

SIEC Info

## SIRN 20/20

Background

Current Events

FAQ

Library

Policy

Quick Links

Study Resource Page

## SIRN 20/20

### Recent news

[SIRN 101 Presentation](#) (August 2020)

[SIRN - Infographic](#)

[Radio Reimbursement](#)

PSAP Replacement Schedules: [SIRN Phase 1 – Group 2 Schedule](#)

Tower / RF schedules: [SIRN Phase 2 – Group 1 Schedule](#), [SIRN Phase 2 – Group 2 EA](#)

[Project Status as of September 2020](#)

[Telestate Landscape Survey Summary Report](#) and [SIEC Briefing](#)

[SIRN Project Workgroups with Mission Statements](#), and [Workgroup Members](#)



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