Document Section	3 – Configuration & Allocation	Status: SIEC Sub Committee Approval Date: 8/30/2021
State Standard Number	3.6.0	
Standard Title	**Talkgroup Site Access and Roaming Permissions**	
Date Established	**8/30/2021**	**SIEC Approval**: 08/30/2021
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1. Purpose or Objective

The purpose of the Standard is to establish policy and procedure to manage user mobility and roaming across SIRN sites in a manner that conserves system resources while ensuring subscribers have highly available system access in their respective areas of operation (or jurisdiction), and systemwide (or statewide) access as operationally required.

2. Technical Background

- **Capabilities**

SIRN uses trunking technology and roaming configurations to assign system resources and to manage user mobility across the network. The SIRN platform maintains approximately 150 repeater sites across the State of North Dakota to support thousands of subscriber radios assembled into functional groups (called talkgroups) by agency or discipline. The SIRN platform provides the ability to allocate site access permissions by talkgroup. Each talkgroup can be configured to operate (or roam) across all 150 sites or can be restricted to a subset of sites. To deliver reliable service to all SIRN users, site affiliation permission must be proactively managed by sound system and radio programming guidelines.

- **Constraints**

Each SIRN repeater site has a limited number of channels to support group calls or radio transmissions. Enabling all or a large number of talkgroups to access all sites across the State may consume significant system resources, overloading the network. If care is not taken to program talkgroups and radios to be allowed only on certain sites, radio traffic could unnecessarily overburden a site, preventing some radio messages from being sent. To preserve system resources, talkgroups should generally be configured to access only the sites within the user agency's jurisdiction of operation. Regional or statewide roaming capabilities will be provided through a set of specialized talkgroups established if users need to access the SIRN outside of their jurisdiction.

3. Operational Context

Public safety agencies generally have a well-defined jurisdiction where the majority of their day-to-day duties take place. SIRN talkgroups will be provisioned to maximize system capacity in support of these primary duties. However, a key mission of the SIRN platform is to enable agencies to use their radios across the State to support special assignments and multi-jurisdictional incidents. Enabling all talkgroups across all sites could negatively affect system capacity; therefore, purpose-specific interoperability or

roaming talkgroups will be available for such multi-discipline, multi-jurisdictional incidents with *statewide site access*.

4. Recommended Protocol/ Standard

Local Agency Talkgroup Site Access Profiles
Each SIRN talkgroup will have a <u>Site Access Profile</u> defining its site affiliation permissions—a list identifying which set of SIRN repeater sites it can access.

In principle, <u>local agency talkgroups, unless otherwise approved, are provisioned for access at sites that serve their primary area of operation.</u> Talkgroups will be permitted to affiliate only to the radio towers within the talkgroup owner's typical service area and to radio towers within an additional buffer zone to ensure sufficient coverage. In the sample illustration below, talkgroups local to Ward County and other County municipalities will have site affiliation permissions at sites within the County and at "Border Adjacent" sites.
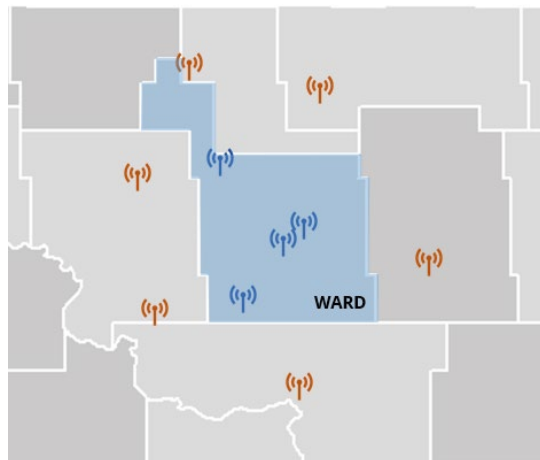

Figure 1: Service Area Plus Site Access Profile

Fire and EMS districts with unique service areas that traverse multiple jurisdictions or counties will be configured with similar site access profiles, including towers within their service area and adjacent sites.

Statewide or Regional Site Access Profiles
Various purpose-specific talkgroups will be configured with statewide Site Access Profiles to support specific use cases, notably when agencies leave their primary response/service area or communicate while roaming outside their standard coverage footprint. These include:

- *Regional and Statewide Interoperability Talkgroups*
- *Travel Talkgroups* or users with duties such as prisoner transportation, ambulance transports and other similar functions
- *PSAP Pursuit Talkgroups* which refer to designated PSAP-specific talkgroups used typically for local pursuits

- *Special-purpose State agency talkgroups* such as DOH, NDHP, BCI regional drug taskforce talkgroups as permitted by the SIEC
- *Emergencies*: Radios activating the emergency button will be granted site access regardless of location or what talkgroup they are using

Emergency Access

In an emergency, a Local Administrator, Communications Unit Leader (COML) or Communications Unit Technician (COMT) may make a request to the Statewide System Administrator or designee to temporarily allow a talkgroup statewide access. The System Administrator or designee will notify and obtain concurrence from one of the following individuals, in the order indicated, prior to implementing the emergency access: (1) Statewide Interoperability Coordinator (SWIC), and (2) SIEC Chair. If neither can be reached, the Statewide System Administrator may honor the request and notify the SWIC as soon as possible. The temporary access may be granted for up to 14 days.

In addition, dispatchers could guide users to regional or statewide talkgroups to address urgent needs for broader extra-jurisdictional roaming.

Site Access Profile Definitions

SIRN roaming will generally be driven by operational need. Roaming for non-essential operations is subject to being restricted, in order to maintain an acceptable grade of service for mission-critical operations. The following Site Access Profiles are established:

- **"Service Area Plus":** Includes all sites within a county or geopolitical subdivision plus one ring of adjacent repeater sites encircling the county or geopolitical subdivision engineered to serve the county or geopolitical subdivision (see illustration in the Local Agency Talkgroup Site Access Profiles section). Certain entities, such as Fire and EMS Districts, with atypical geographic boundaries will follow a similar methodology with their service areas as their "geopolitical subdivisions." Most if not all local agency talkgroups will be provisioned with a Service Area Plus profile.

- **Regional Sites:** Includes all sites within a Homeland Security (or Emergency Management) Region plus one ring of sites encircling the Regional Profile. Note: Upon initial deployment, regional interoperability talkgroups on SIRN will be granted statewide site access. Site Access Profiles for regional interoperability talkgroups may be adjusted based on an on-going assessment of impact to site capacity.

- **Statewide Sites:** Includes all SIRN sites.

- **Requested Site:** Transmissions on talkgroups with this site access profile are *pushed* to all Requested Sites whether users are affiliated to the site. Trunked systems typically route talkgroup audio traffic only to sites where active users on that talkgroup are registered. This designation always broadcasts radio traffic to the requested site regardless of user affiliation with the repeater.

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This Profile consumes additional system capacity and should be limited to very well-defined use cases where it is necessary (typically agencies that require talkgroup scanning over a wide area). Requested Site profiles must be approved and documented by the SIEC subcommittee.

Site Preferences

In addition to the Site Access Profiles discussed above, talkgroups may also be provisioned with Site Preferences.

Automatic Roaming: The SIRN network controller *automatically or dynamically* manages talkgroup mobility using system-based technical parameters affiliating users to sites that provide the best service or coverage to that user group.

Preferred Site Roaming: Site Preference enables system administrators to adjust or optimize the automatic roaming parameters on a per-talkgroup basis such that radios "prefer" certain sites or a constellation of sites. This approach may be taken, for instance, to confine high traffic users to high capacity sites improving their quality of service.

The following Site Preference standards are established to define individual radio or talkgroup access to SIRN repeater sites:
- Generally, SIRN talkgroups will be provisioned for automatic roaming and shall not have special site access preferences; site access will be primarily managed dynamically by the system's roaming parameters.
- Generally, talkgroups with wide area access (e.g. statewide) should be set not to prefer one repeater site over another.
- Users of high-capacity urban area simulcast cells *may be provisioned to prefer* their serving simulcast cell, which will typically provide better wide area coverage and has a higher number of channels.

Site Access Permission by Individual Radio Units
In addition to talkgroup-based access profiles, the SIRN platform can control access (permit or restrict) to sites on an individual radio basis.

SIRN Site access will only be managed at the Talkgroup level; radio ID based access controls will not be used on SIRN.

Typically this setting is used to manage users conducting private (i.e., non-talkgroup based, or unit-to-unit) calls. *Private Calls are not permitted on SIRN.*

Exceptions and Deviations

Deviations from these Site Access Profiles and Site Preferences must be reviewed on a case-by-case basis by the SIEC Sub-committee and are subject to SIEC board approval. Emergency exceptions to the standard or emergency resolutions of site access issues may be temporarily authorized by agreement

between the Statewide Administrator and the Chair of the SIEC or the Chair of the SIEC Sub-committee. Temporary authorization may exist until the next meeting of the SIEC Sub-committee or a maximum of sixty days.

5. Recommended Procedure

The Statewide System Administrator is responsible for ensuring that radios and infrastructure comply with this Standard.

6. Management

The Statewide System Administrator is expected to manage and enforce this Standard. Conflicts should be handled through the Compliance and Conflict Resolution process.