

Subject: Roaming

Date Issued or Revised: Revised 1/12/07

Date Review: 6/30/08

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### 4.1.3 Roaming

#### I. Subject and Purpose

The MPSCS offers the unique opportunity for interoperability among all our subscribers. It is the intent of the MPSCS to allow users to roam freely throughout the system as dictated by their operational needs. However, it is also necessary to put in place controls to insure an acceptable grade of service for all users. This is especially true during mission critical operations and emergencies. The challenge is to effectively define and manage appropriate system use while not hindering communications needs.

In the event that roaming or system configuration settings adversely affect MPSCS performance, the affected parties shall meet with the MPSCS and use their best efforts to resolve the issue. If agreement is not reached MPSCS will take steps necessary to maintain acceptable grade of service.

Seamless roaming should assure wide-area communications with acceptable voice quality while minimizing site switching. Coverage overlap is important to maintain acceptable voice quality while switching between sites too often unnecessarily can lead to “missed” audio. Roaming is dependent on several factors and system configuration settings including site access profiles and site preference settings. The goal is to optimize for best system performance while meeting the operational requirements of the user. In the event of an emergency it may be necessary to adjust site access or operations to mitigate system performance issues. Ultimately, operational requirements should dictate how these parameters are set.

#### II. Procedures and Guidelines

There are typically five talkgroup profile classifications that can help define appropriate communications operational boundaries. These are used to promote interoperability while still maintaining a communications structure that can be managed to insure an acceptable grade of service:

- Statewide
- Regional
- County
- Local (or agency specific)
- Special Events

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### **MPSCS Roaming Configuration**

Mobile and portable radios are recognized by the system and granted access based on valid system ID, talkgroup ID and individual ID. Currently the system is configured so that if EITHER the talkgroup ID or the individual radio ID is not allowed at a site, the radio will be sent a site access denial reject upon affiliation. Individual IDs are valid at all MPSCS sites; therefore, talkgroup IDs are used as the limiting factor when developing site access profiles. Talkgroup site access profiles define the available valid sites for a specific talk group.

Typically, for example, valid sites for a county include those within the county boundary and a first layer ring of sites within adjacent counties. These are sites that a radio may roam to during normal day-to-day operations. In some instances this may not be desirable. For example, loading may be such that there are limited system resources available on adjacent or outlying sites that could cause the user or other users to experience grade of service problems. Or as another example, during certain failure scenarios such as site-trunking, it may be more important for users to be steered to a predetermined site. This is evident in situations where simulcast subsystems are used. For simulcast subsystem operational purposes, county and local proprietary talkgroups can be configured to prefer the simulcast system within some models of radios. This will insure that the majority of affected users will stay together during a simulcast site-trunking event.

There are statewide talkgroups available to users for non-routine activity such as emergencies, prisoner transport and special events. These talkgroups are configured with no site preferences. Some of these talk groups are always available and some require activation by the Network Communication Center (NCC).

Good operational planning will have the added benefit of facilitating appropriate system utilization, which should promote the efficient growth and expansion of system infrastructure as new users are added.

### **Technical Background**

The system infrastructure settings that control how site access is handled are called the "Site Access Denial Type" parameter. They have the following definition:

**Individual Only:**       The radio is rejected if the individual radio user does not have access to the site.

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Talkgroup Only:	The radio is rejected if its current selected talkgroup does not have access to the site.
Both:	The radio is rejected if neither the talkgroup nor the radio has access to the site.
Either:	The radio is rejected if either the talkgroup or the radio does not have access to the site.

The subscriber radios contain site preference settings that influence the tendency of a radio to select one site over another. These settings can be configured on a per talkgroup basis. As an example, Motorola radios contain the following site preference settings:

Least Preferred:	The site will be avoided unless it is the only usable site for operation.
No Preference:	The site is given no preference. If the site is not listed then it is automatically assigned no preference.
Preferred:	The site will be used over all non-preferred sites with similar signal strength.
Always Preferred:	The site will be used over all non-preferred sites with similar signal strength even if the site losses communication with the wide area system and enters site-trunking.

### III. Responsible Party

A. Contact for Questions  
Engineering Manager

B. Phone, Fax and Email Addresses  
517.336.6240  
517.336-6222 (fax)

### IV. Applicable Forms – N/A

### V. Termination or Review Responsibility

The Engineering Manager of MPSCS is responsible for review and update of this policy.

### VI. Linkages to Other Relevant Data