



South Dakota Public Safety Communications Council



Annual Interoperability Report on Public Safety Communications in the State of South Dakota

**Submitted by Dennis Gorton
Chairman, South Dakota Public Safety Communications Council
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Executive Summary

The South Dakota Public Safety Communications Council (SDPSCC) was created by Executive Order 2007-05 on March 14th 2007 with the following directive:

"The South Dakota Public Safety Communications Council shall foster collaboration among stakeholders at the local, federal, and state level."

The communications landscape has been permanently changed with the construction of the statewide radio network. Previously the state-supported communications system primarily supported state users and traffic. The current system user base has 9% federal/tribal, 22% state, and 69% local participation by radio count. It has become more important than ever to integrate the views and needs of all users on the network.

Appointed to the PSCC are the following individuals:

Steve Christensen (Platte Police Chief) -- SD Police Chiefs Association -- **Member at Large**
Fred Lamphere (Sheriff, Butte County) -- SD Sheriff's Organization
Craig Price -- SD Division of Criminal Investigation
Andy Alban -- SD Game, Fish, and Parks
Greg Fuller (Director of Operations) -- SD Department of Transportation
SGM Dayton Myers (State Communications Chief) -- SD National Guards
Brad Stiefvater (McCook EM) -- SD Emergency Managers Association -- **Vice Chairman**
Dennis Gorton (Pennington Co Fire Director) -- SD Firefighters Association -- **Chairman**
Rebekah Craddock (Vice President) -- SD Association of Healthcare Organizations
David Atherton (Former Director, Metro Communications) -- SD APCO/NENA Chapter
Danny Hayes (President) -- SD Emergency Medical Technicians Association
Ken Wesche (Dispatcher) -- Great Plains Interagency Fire Center
Robert Wilcox -- SD Association of County Commissioners
Jim Holmes (HAN Coordinator) -- SD Department of Health
Larry Jandreau (Facilities Director) -- Lower Brule Sioux Tribe
Christopher Lewis (PS Comm Project Manager) -- US Dept of Interior
Jeff Pierce (Engineering Manager) SD BIT -- **Executive Board Member**
Darin Ketcham -- SD Department of Public Safety

The SDPSCC has met four times starting with the organizational meeting on August 11th, 2007, followed by meetings on October 22, 2007, April 25th, 2008, and September 25th, 2008. The topics of discussion are not unique to South Dakota: the challenges of funding and technology changes.

South Dakota is unique however in the fact that we have one of the most comprehensive communications systems in the nation. With over 97% of the geography of the state covered and 14,000+ users, the SDPSCC has an ongoing challenge to continue to provide our first responders with the best communications system possible.

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Purpose

As required by the bylaws of the SDPSCC: *(5) prepare and submit an annual report to the Governor, the BIT Commissioner, and others as necessary on the status of communications interoperability in the state;*

Introduction

The State of South Dakota recognizes the importance of communications interoperability within our state. As a rural state, we rely upon multi-agency response and shared resources to cooperatively provide for the public's safety.

This report serves to update the Governor, BIT Commissioner, and others on the progress of the SDPSCC on the following charges outlined in Executive Order 2007-05.

- Update Protocols and standards for the operation and use of the South Dakota Interoperable Communications System
- Develop strategies and recommendations to improve current and future operations of the radio network
- Develop recommendations for legislation or other state action that may be required to further promote public safety communications in South Dakota
- Develop recommendations and strategies for best utilization of grant funding to improve communications in South Dakota.

2007/2008 SD Interoperable Communications System Report

The progress of the PSCC is not limited to the responsibilities charged to it in the introduction above, but this report will concentrate on those points and then provide a general technical and statistical overview of the network.

A. Update Protocols and standards for the operation and use of the South Dakota Interoperable Communications System.

PSIC. The Public Safety Interoperable Communications grant is a US Department of Commerce grant that is being funded by expected revenue from the Digital Television conversion and expected revenue from the vacated 700Mhz spectrum formerly held by the analog broadcasters.

The PSIC grant process required a major rework of an existing plan developed in 2003/2004 by an interdisciplinary group from across the state. A considerable amount of effort was given by council members to add the content and planning required of the Statewide Communications Interoperability Plan (SCIP). The South Dakota plan has

received approval from a peer review group and has been accepted by the Department of Homeland Security as meeting the major criteria required.

<ftp://ftp.state.sd.us/BIT/Radio%20Manual/>

Other. A number of other recommendations have been forwarded by the group and will be integrated into the plan during the next annual review process. Included in those are redistributing radios and further defining qualified users.

B. Develop strategies and recommendations to improve current and future operations of the radio network.

P25 Upgrade. The P25 system standard is the first industry-wide common-air interface in the history of land mobile radio. The current trunking network technology utilized is in the process of being phased out by Motorola, and by 2015 will be completely discontinued. A considerable amount of time has been spent during council meetings in discussion of the alternatives:

1. Stay the course with current technology. The current platform is a very stable, reliable technology, but support for the networking equipment will be phased out completely by 2015. The system also cannot be expanded beyond current system size. No additional cost associated.
2. A rapid deployment of a full P25 system upgrade. At this point 9 manufacturers are producing network and subscriber equipment compatible with each other. In addition to a long-term platform that will be supported industry-wide, cost of subscriber equipment is approximately 40% less at this time, depending upon model and options compared with the proprietary equipment users in South Dakota are purchasing. The cost to convert at one time would include network and field upgrades and would cost between \$10m and \$20m depending upon how many subscriber radios would be replaced.
3. A modified roll-out. Motorola has an option to a full deployment of new technology. Network protocol adaptors (Smart-X) will allow user of systems such as used in South Dakota to replace the infrastructure to a P-25 standard in one step, and then gradually replace subscriber radios until all are up to standard. The initial upgrade with adaptors is \$5.8m. A \$3m upgrade to site equipment would be required at some time in the future, along with the subscriber radio updates. The council liked the approach from a number of different angles:
 - a. \$5.8m is within the funding allowances of grants such as COPS.
 - b. User radios could be replaced over a period of time without the threat of the network becoming obsolete.
 - c. The network would be able to accommodate additional 911 centers over an IP-based connection, and would not require expensive dedicated circuits. This would allow better and more efficient communications from the centers.
 - d. System upgrade would double the system site capacity.

The council did express some reservations about the untested Smart-X technology and have asked for real-world testing results before a final commitment to follow this approach would be given.

C. Develop recommendations for legislation or other state action that may be required to further promote public safety communications in South Dakota.

To date, the only recommendation by the council has been to assist BIT/State Radio in its efforts to get replacement funding for the DHS grant funding currently used to supply telecommunications circuits across the state.

D. Develop recommendations and strategies for best utilization of grant funding to improve communications in South Dakota.

The primary grant funding opportunity during the first year of the PSCC has been the Public Safety Interoperable Communications (PSIC) process.

The grant guidance has changed considerably from the initial announcement. A group of state and local representatives traveled to Los Angeles in early 2007 for a grant workshop during which information was given that led those attending to understand that current general funding used to support the existing network could be used as a soft-match. Later grant guidance was released that restricted this to new hires and purchases only, at which point the PSCC decided that state and local recipients of PSIC funding would be responsible for their own 20% match.

At the April 2008 meeting in Pierre, a formula for distribution was agreed upon by the PSCC, using the results from a radio survey completed in 2007 as a basis for distribution to counties.

PSCC Website

The PSCC Website is under construction! When completed the website will allow the dissemination of information, allow member organizations to post links for access to their websites, and encourage further development of wireless standards and methodologies.

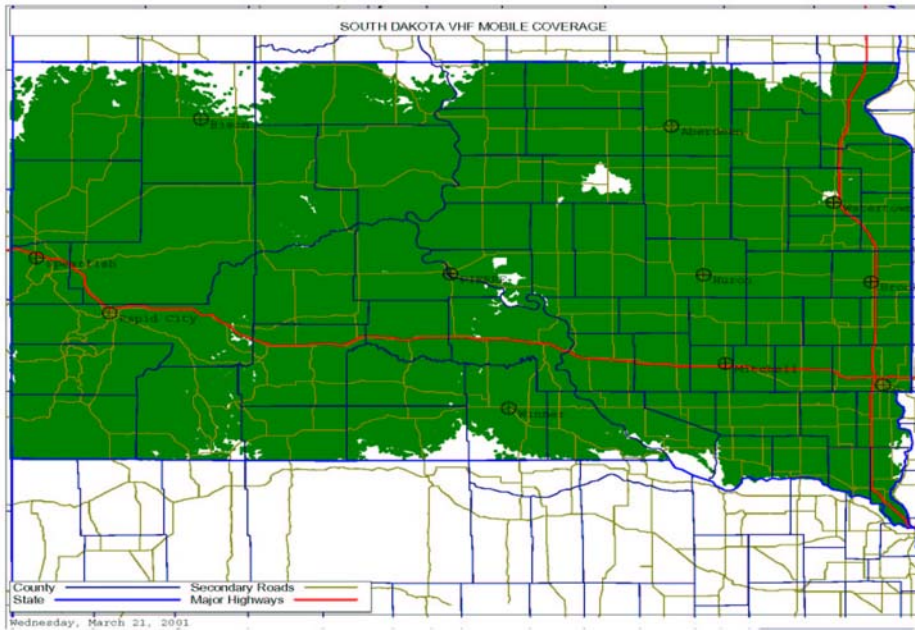
The website will also be utilized to post public announcements, and post council meeting notes.



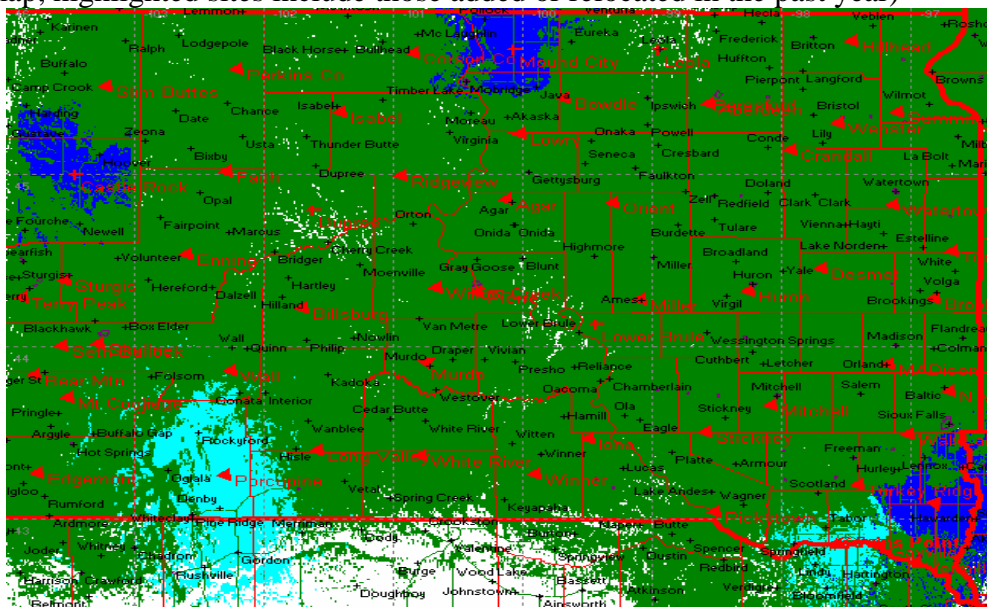
Statewide Radio Network

System

The current radio system serving the State of South Dakota was offered for service in October of 2002. The system at that time had 35 regional sites, approximately 9,000 radios, and covered 90% of the geography of the state. (See below map)



Over the course of the past 5 1/2 years, and additional 18 sites have been installed, and nearly 5,000 radios have been added to the network. The current system has 54 sites on line, 299 voice repeaters, and now exceeds 97% of the geography of the state. (See below map, highlighted sites include those added or relocated in the past year)



During the course of the past 12 months of recorded data for the system has shown:

- 23,466,995 radio calls over the network.
- 64,293 radio calls on the average per day.
- 2,276,225 radio calls over the busiest site -- Sioux Falls Simulcast.
- 6,263 radio calls per month on the least busy site -- Slim Buttes (Harding County)
- 2,187,966 radio calls during the busiest month -- August (Sturgis Rally)
- 15,722,887 radio calls by local agencies (67%)
- 6,570,759 radio calls by state agencies (28%)
- 1,173,350 radio calls by Federal/Tribal agencies (5%)
- 9,606 local radios (69%)
- 3,090 state radios (22%)
- 337 Federal radios (2%)
- 960 Tribal radios (7%)

Areas targeted for improvement over 2008/2009 year are:

- McPherson County (Leola area) work to improve coverage
- Chamberlain area, work to improve coverage.
- Hot Springs area, work to improve coverage.
- Madison, add repeater to improve capacity.
- Vermillion, add repeater to improve capacity.
- Turkey Ridge (Turner County), add repeater to improve capacity.
- Wall Lake (Minnehaha County), add repeater to improve capacity.
- Relocate site from State Penitentiary to North Drive site to reduce interference.
- Replacement of antennas across the state to improve coverage.

State Radios

Currently the majority of Motorola public safety radios in use by state agencies will need to be upgraded before a full change to an upgraded P25 Network. State agencies plan to utilize state PSIC and DHS funding to begin working on this upgrade.

Local Radios

Local radios are a general mix of Motorola and EF Johnson, and a portion of the Motorola radios will need to be replaced prior to conversion to a P25 Network. Local agencies are planning to utilize PSIC and other funding sources to replace obsolete radios.

EF Johnson has committed to an upgrade of the software/firmware in existing radios throughout the state to address longstanding issues. This upgrade will improve operation of these current radios on the existing system. The upgrade process will involve EF Johnson technical assistance and training and equipping of local agencies to make changes to their own radios.

Tribal/Federal Radios

The BIT State Radio staff does provide limited technical assistance with the federal and tribal radios operating on the statewide system, but generally service is provided by in-house personnel or contractors.

Wireless Data Networks

Wireless data or Mobile Data Terminals (MDT) as they are also referred to as is becoming more commonplace across the state. A number of our class A cities has private systems in place, and the state has worked out the operational and technical issues for a cellular telephone based system. This system will allow a statewide mobile data service that will enable all law-enforcement field units to access data from the vehicle without interaction with a dispatch center.

Cross-Border Communications

State technical staff has been engaged with bordering states for many years working on cross-border communications. To this point, different technologies have restricted the ability to communicate between South Dakota and neighboring jurisdictions to nationally-designated mutual-aid channels. The upgrade that is in planning for the South Dakota system will allow direct communication, unit to unit, and dispatch to dispatch without regard for borders.

The States of Wyoming, Montana, North Dakota, Minnesota, and Iowa have all installed or are in the process of installing networks that would be compatible to the system upgrade being considered in South Dakota. Cross-border interaction of first responders in the Emergency Medical Service, fire, and law-enforcement disciplines is routine and better communications will only improve public safety.

Conclusion

Interoperability in South Dakota has taken large strides in the past six years. We currently have every first responder in the state that has been provided radio equipment to communicate with any other first responder, irregardless of discipline. We are working on mobile data technology that will allow the exchange of data to and from units in the field to improve the safety of officers. Planning is also ongoing for regional communication plans that extend beyond our borders.

The emphasis at the current time needs to be:

1. Upgrade of the network to ensure a long-term future for the system
2. Secure funding for upgrade of the infrastructure (zone controller, sites, etc), and for upgrade or replacement of non compliant radios used by state, local, and tribal users within the state.

The PSCC is pleased to report that interoperability in South Dakota is on track and heading in the right direction. Our council will strive to ensure that this progress continues.