SOUTH DAKOTA
STATEWIDE COMMUNICATION INTEROPERABILITY PLAN

September 2024

Developed by the South Dakota Public Safety Communications Council with support from the Cybersecurity and Infrastructure Security Agency

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LETTER FROM THE STATEWIDE INTEROPERABILITY COORDINATOR

Greetings,

As the Statewide Interoperability Coordinator (SWIC) for South Dakota, I am pleased to present to you the 2024 South Dakota Statewide Communication Interoperability Plan (SCIP). The SCIP represents the state's continued commitment to improving emergency communications interoperability and supporting the public safety practitioners throughout the state. In addition, this update meets the requirement of the current U.S. Department of Homeland Security grant guidelines.

Representatives from South Dakota's public safety community collaborated to update this SCIP with actionable and measurable goals and objectives with champions identified to ensure completion. These goals and objectives focus on governance, technology and cybersecurity, and funding. They are designed to support our state in planning for emerging technologies and navigating the ever-changing emergency communications landscape. They also incorporate the National Emergency Communications Plan (NECP) goals and SAFECOM/National Council of SWICs (NCSWIC) State Interoperability Markers which describe South Dakota's level of interoperability maturity by measuring progress against 25 markers.

As we continue to enhance interoperability, we remain dedicated to improving our ability to communicate among disciplines and across jurisdictional boundaries. With help from public safety practitioners statewide, we will improve probability in achieving our goals set forth in the SCIP as we seek to become a nationwide model for statewide interoperability.

Sincerely,

Todd Dravland

Todd Dravland
South Dakota Statewide Interoperability Coordinator
South Dakota Bureau of Information and Telecommunications

INTRODUCTION

The SCIP is a one-to-three-year strategic planning document that contains the following components:

- **Introduction** – Provides the context necessary to understand what the SCIP is and how it was developed. It also provides an overview of the current emergency communications landscape.
- **Vision and Mission** – Articulates South Dakota's vision and mission for improving emergency and public safety communications interoperability over the next one-to-three-years.
- **Governance** – Describes the current governance mechanisms for communications interoperability within South Dakota as well as successes, challenges, and priorities for improving it. The SCIP is a guiding document and does not create any authority or direction over any state or local systems or agencies.
- **Technology and Cybersecurity** – Outlines public safety technology and operations needed to maintain and enhance interoperability across the emergency communications ecosystem.
- **Funding** – Describes the funding sources and allocations that support interoperable communications capabilities within South Dakota along with methods and strategies for funding sustainment and enhancement to meet long-term goals.
- **Implementation Plan** – Describes South Dakota's plan to implement, maintain, and update the SCIP to enable continued evolution of and progress toward the state's interoperability goals.

The Interoperability Continuum, developed by the Department of Homeland Security's SAFECOM program and shown in Figure 1, serves as a framework to address challenges and continue improving operable/interoperable and public safety communications.[1] It is designed to assist public safety agencies and policy makers with planning and implementing interoperability solutions for communications across technologies.

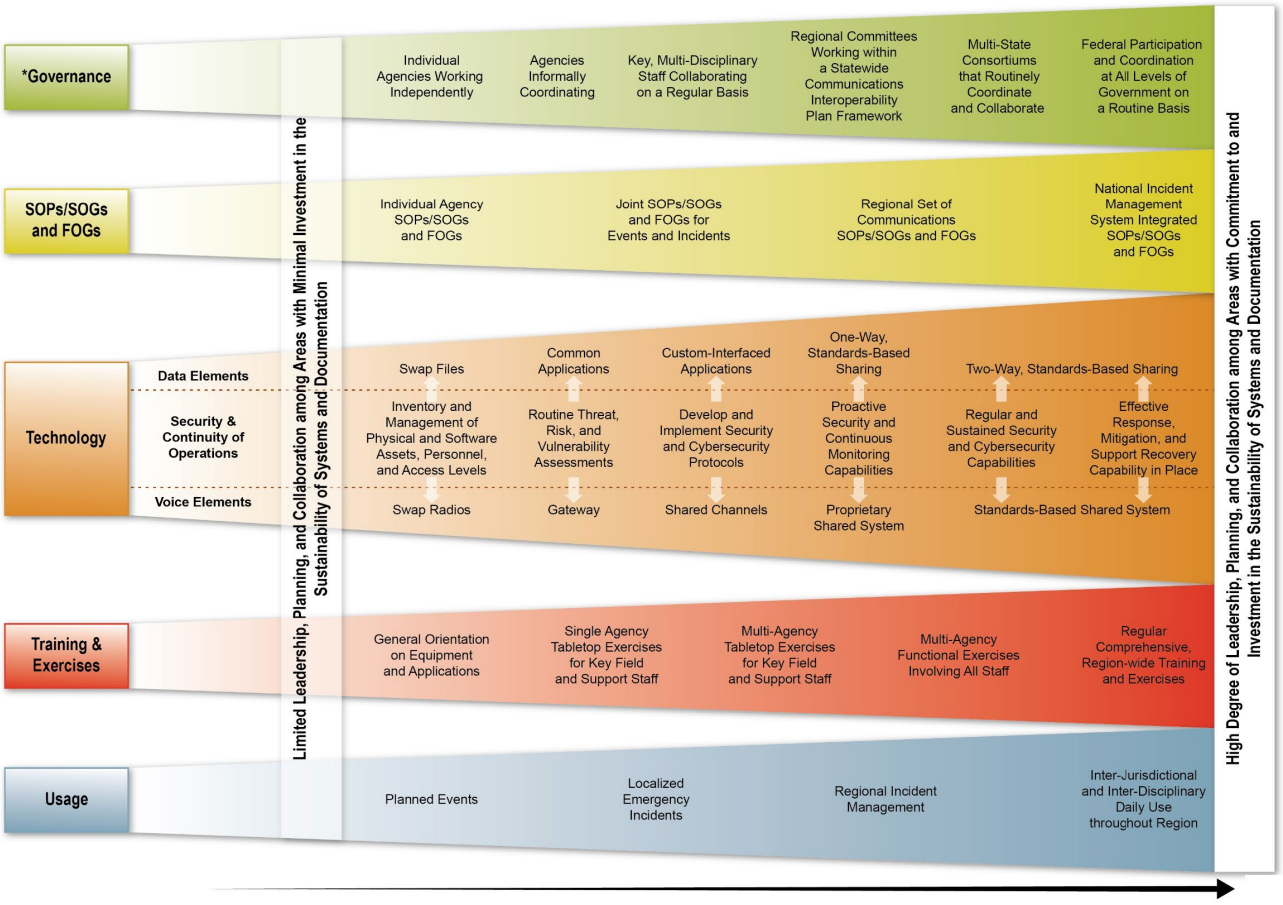


Figure 1: Interoperability Continuum

The Emergency Communications Ecosystem consists of many inter-related components and functions, including communications for incident response operations, notifications and alerts and warnings, requests for assistance and reporting, and public information exchange. The primary functions are depicted in the 2019 National Emergency Communications Plan.[2]

[1] Interoperability Continuum Brochure
[2] 2019 National Emergency Communications Plan

Figure 2: NECP 6 Strategic Goals

Interoperability and Emergency Communications Overview

Interoperability is the ability of emergency response providers and relevant government officials to communicate across jurisdictions, disciplines, and levels of government as needed and as authorized. Reliable, timely communications among public safety responders and between public safety agencies and citizens is critical to effectively carry out public safety missions, and in many cases, saving lives. A critical component of statewide interoperability is the resources coupled with skills, knowledge and abilities to achieve several critical success factors.

Traditional voice capabilities, such as land mobile radio (LMR) and landline 911 services have long been and continue to be critical tools for communications. However, the advancement of internet protocol-based technologies in public safety has increased the type and amount of information responders receive, the tools they communicate with, and complexity of new and interdependent systems. Emerging technologies increase the need for coordination across public safety disciplines, communications functions, and levels of government to ensure emergency communications capabilities are interoperable, reliable, and secure.

An example of this evolution is the transition of public-safety answering points (PSAPs) to Next Generation 911 (NG911) technology that will enhance sharing of critical information in real-time using multimedia—such as pictures, video, and text — among citizens, PSAP operators, dispatch, and first responders. While potential benefits of NG911 are tremendous, implementation challenges remain. Necessary tasks to fully realize these benefits include interfacing disparate systems, developing training and standard operating procedures (SOPs) and ensuring information security.

VISION AND MISSION

This section describes South Dakota's vision and mission for improving emergency and public safety communications interoperability:

Vision:

Reliable, sustainable, and interoperable statewide public safety communications.

Mission:

Striving to provide the highest level of interoperable public safety communications for all responding entities throughout South Dakota by fostering and providing an effective organizational structure to oversee the proper planning, training, and resources to responders at all levels now and in the future.

GOVERNANCE

In March 2007, an Executive Order created the South Dakota Public Safety Communications Council (SDPSCC). The SDPSCC is an oversight council of 20 members that provides policy-level

direction to address South Dakota's public safety communications interoperability issues. As of 2020, the SDPSCC expanded to include a member from each house of the state government. The Council assumes responsibility for the Statewide Communications Interoperability Plan (SCIP), defines priorities for grant funding, and continuously updates the SCIP.

The functions of the SDPSCC are as follows:[3]

- Update protocols and standards for the operation and use of the South Dakota Interoperable Trunked Communications System.
- Develop strategies and recommendations to improve current and future operations of the SDICS.
- 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 the best utilization of grant funding to improve communications in South Dakota.
    - Prepare and submit an annual report to the Governor, the Bureau of Information and Telecommunications (BIT) Commissioner, and others as necessary on the status of communications interoperability in the state.

During the SCIP process, it was noted that the SDPSCC has strong participation from diverse public safety entities. However, concerns persist regarding the authority and leadership of it, with some counties and local entities awaiting more decisive action. Furthermore, both state and local levels lack trained personnel to adequately and timely repair or maintain LMR subscriber units, whether on government staff or from vendors. Concerns emerged about managing the diversity of vendors providing various feature sets on subscriber equipment including encryption keys and a diversity of individuals providing radio programming in some cases not using common naming conventions and talk group placement in radios.

The introduction of the Project 25 (P25) system added features that may not be compatible with legacy radio and dispatch console purchases. This has prompted the SDPSCC to review and align their approved radio list accordingly. While the current governance structure is functioning effectively, there are notable gaps in awareness and understanding among counties and local entities about the existence of the governance structure and the operations of the new system, particularly in utilizing advanced features. The Governance Committee must take efforts to enhance and market to users how the P25 system functions and the processes for engaging with SDPSCC in a consistent way. Additionally, PSAP consolidations in rural areas underscore the potential efficiency gains presenting opportunities to leverage the P25 system, but significant gaps in training and knowledge about usage options persist.

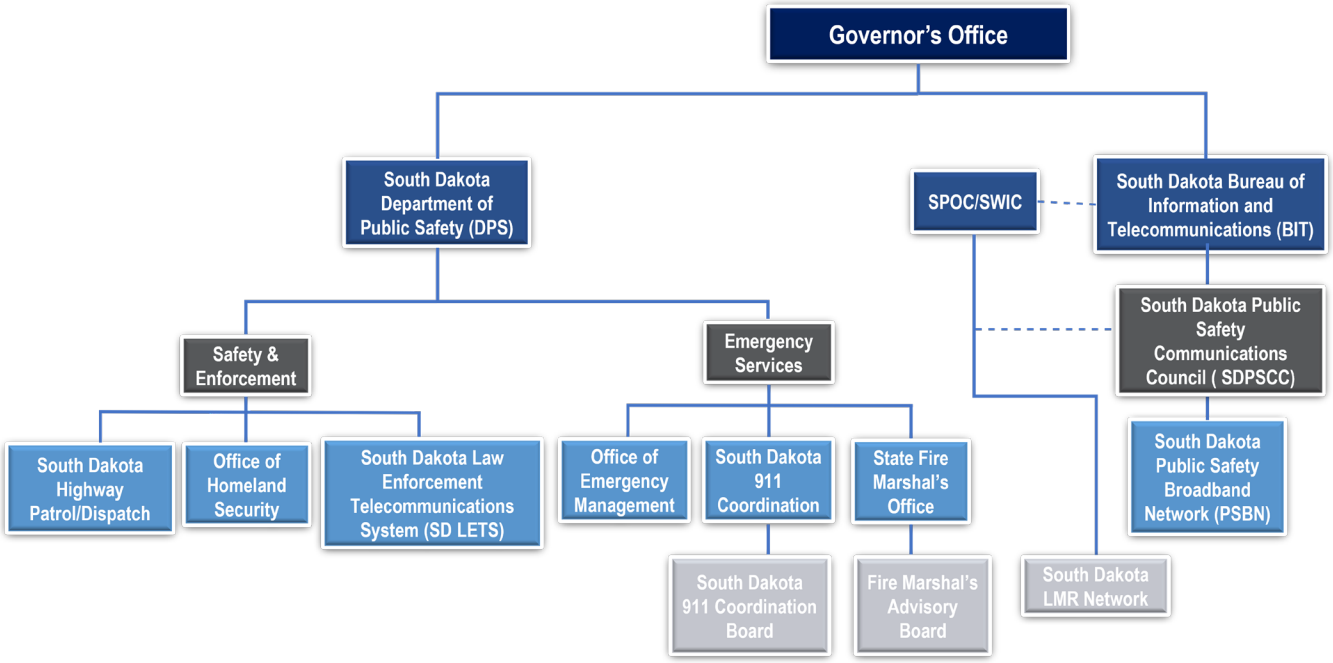
SCIP participants stated the SDPSCC would do well to enhance communication with current and potential users regarding its existence and any changes in governance attributable to exploiting features and functions of the P25 system and PSAP consolidations, which would enhance understandings of potential effectiveness or efficiencies in operations. Desired improvements in outreach and information dissemination include providing a centralized location on the SDPSCC website for accessing information. One option discussed was creating email updates, as well as creating an information repository to assist counties and local entities in understanding the state P25 system, such as online training resources. Establishing centralized statewide authority and

[3] Bylaws of the South Dakota Public Safety Communications Council

leadership is intended to result in effective interoperability solutions for all levels of government. Additionally, there is a desire to establish and distribute recommendations for testing and communications training exercises.

South Dakota's emergency communications governance map is depicted in Figure 2.

Figure 3: South Dakota's Emergency Communications Governance Map



Governance goals and objectives include the following:

Governance	
Goals	**Objectives**
1. Ensure statewide redundant communications pathways	1.1 Review and modify Standard Operating Procedures (SOPs) at the state and regional level.
	1.2 Examine the use of digital vehicle repeater system (DVRS) in select public safety vehicles to evaluate improved coverage.
2. Continue to review broadband practices/processes for use in public safety communications	2.1 Conduct an Information Technology Service Unit Leader (ITSL) course.
	2.2 Utilize FirstNet for field units to receive 911 data on an as-needed basis and ensure technology is available for fire service at a price point they can afford.
	2.3 Establish a working group to assess the changing environment of broadband and cybersecurity and recommend statewide standards.
3. Promote and enhance all training and exercises at all levels of government and develop a statewide	3.1 Identify participants to send to COMU courses.
	3.2 Participate in a technical assistance (TA) workshop and continue support for the train-the-trainer program.
	3.3 Establish the tracking of number of classes and participants for task book completion.

Goals	Objectives
Communication Unit (COMU) training program	3.4 Participate in exercises to complete the task book.
	3.5 Continue to include communications capabilities as a requirement of the Local Emergency Management Performance Grant (LEMPG) exercise program and collect After Action Reports (AARs).

TECHNOLOGY AND CYBERSECURITY

Land Mobile Radio

In 2003, South Dakota established the statewide radio system, now called the South Dakota State Radio System. Since then, the statewide system has expanded coverage and provides capabilities to over 90% of South Dakota's first responders and 95% of statewide land mass. The statewide radio system was updated to a P25 Phase II compliant system in 2023; however, it is still used in Phase I mode for interoperability. It is a unique P25 trunked system operating on a very high frequency (VHF) range. It uses frequencies from state and federal partners as well as some South Dakota nonpublic safety paging channels. Use of nonpublic safety licenses presents some challenges in meeting Federal Communications Commission (FCC) requirements for radio deployment.

The P25 VHF Digital Trunked radio system can be monitored by any scanner that is an APCO P25 Phase II capable scanner. The state is still seeking funding to enhance the system. At this time, the system does not use over the air rekeying (OTAR) or over the air programming (OTAP), so each radio must be touched by a technician each time. Because they cannot program radios or send out key changes electronically, there is an impediment to deploy encryption.

There are three simulcast systems connected to the statewide P25 system: Sioux Falls. Rapid City, and Black Hill multi-agency, totaling 67 additional towers. There is another multi-agency simulcast with five sites (Minnehaha) being planned north of Sioux Falls.

Currently, select agencies conduct LMR exercises with Emergency Management Planning Grant funds and submit After Action Reports (AARs) for documentation of best practices and lessons learned. The BIT oversees the State Radio System.[4]

During the SCIP process, it was identified that even though the P25 trunked system provides 98-99% statewide mobile coverage and 30% portable coverage, troopers face challenges with ultra-high frequency (UHF) repeaters when out of their cars. Once they are out of contact with their vehicles, their portable radios are unable to directly connect to the State Radio System. Coverage enhancements are needed for underserved areas based on SDPSCC criteria. The cost of multi-band/multi-technology radios is a concern, and many locals have purchased incompatible radios, necessitating an update of an SDPSCC-approved radio list. Users at the state and local levels lack time to train on new radios. Complex coverage issues arise from the inability to locate new tower site locations as there are many land-sensitive areas across South Dakota and its terrain can introduce interference. A central repository for information on the new P25 system and clarity on use of Critical Connect operations is needed, which can potentially be located on the SDPSCC website. There is also a lack of local radio vendor support due to vendor retirements and going out

[4] South Dakota Bureau of Information and Telecommunications

of business. Sustainable funding must be identified for building and maintaining additional radio towers. Coverage Enhancements are needed, and are in use or testing now, via Critical Connect and Smart Connect devices, with HP and many other users.

Emerging issues include attrition and retirement of state technical staff, introducing risks over the next 5-7 years. Risks and threats include portable coverage, VHF frequency availability, and coordination issues due to federal use of the same VHF channels, necessitating the need to look outside the public safety pool for solutions. This frequency issue is complicated by the need to reuse frequencies within a very limited space, so tower heights are limited to around 100 feet limiting coverage. Efforts to add sites off Rapid City simulcast and Sturgis, the purchase of FCC part 22 block frequencies, and compliance with FCC rapid deployment and loading requirements increase labor costs and consulting fees, present additional challenges.

The desired states include expanding the statewide system simulcast footprint to improve portable coverage in urban areas and implementing more ongoing cross-training between new and senior technicians to eliminate silos of expertise and mitigate loss through attrition or retirement. South Dakota's master contract awards should be updated at least annually to reflect changes in radio system functionality and to offer compatible subscriber units. Additionally, greater frequency re-use within the state may be enhanced by maximizing frequency utilization, along with the addition of deployable mobile or fixed communication assets.

911

According to its 2022 Annual Report, the 911 Coordination Board primarily focused on the next phase of the NG911 project by implementing the National Emergency Number Association's (NENA) i3 standard for geospatial call routing to provide more accurate call routing and location information. Migration continues as each of South Dakota's counties meet the data accuracy criteria required for geospatial call routing. Additionally, the Board focused on funding projects benefiting local county and city PSAPs, which has been in place since late 2020. Just under $1.85 million has been paid through the State 911 fund to these local entities for projects to enhance 911 operations and services. An additional $1.9 million has been authorized for projects not yet completed. The Board is also looking into additional funding for incentivizing PSAPs to participate.

South Dakota has 33 PSAPs, which include 17 county centers, 10 city centers, one independently run center, four tribal/Department of Interior (DOI) centers, and one military base that is run by the United States Air Force. Twenty-eight PSAPs participating in the statewide hosted i3 system migrated to Lumen's Emergency Services Internet Protocol Network (ESInet); this excludes the four tribal PSAPs. Text-to-911 service was launched in March 2021 statewide for 28 PSAP coverage areas, excluding the tribal/DOI PSAPs. South Dakota text volume continues to align with the nationwide statistics of text calls being less than one percent of voice calls made to 911. The ability for the PSAPs to initiate a text from 911 was implemented in 2022, giving call takers enhanced abilities to communicate with hang-up or accidental 911 callers. All 911 call-handling is consistent across the state utilizing the VIPER system.

An agreement signed between North Dakota and South Dakota now allows for seamless transfer and sharing of 911 calls with caller and location information across their borders. Agreements are in process for two additional bordering states.

There is a signed agreement with North Dakota, Iowa, and Minnesota that allows for seamless transfer and sharing of 911 calls with the caller's information and location. The state is working on including full call-handling transfers as well as additional agreements with Wyoming and Nebraska.

Challenges identified during the SCIP process include the use of different CAD systems by statewide dispatch centers and getting personnel comfortable with the new digital network's features and functions, which differ from legacy systems. Emerging issues involve the integration of the statewide radio system with consolidated PSAPs, some of which use control stations for dispatch, and the difficulties of interfacing new technologies with legacy systems without a complete overhaul. Risks and threats include the limited talk groups and tower access for PSAPs using statewide radio control stations for dispatch and the diverse levels of cybersecurity across all 28 local 911 centers, potentially introducing exposed cybersecurity attack surfaces.

Broadband

In 2017, South Dakota opted into FirstNet.[5] FirstNet and AT&T designed South Dakota's network solution with direct input from the state and its public safety community. This helped to address the state's unique communications needs, including:

- Expanding rural and tribal coverage beyond what is currently available from commercial carriers, including pipeline routes.
- Offering affordable services to public safety across the state.
- Delivering a network for public safety with increased geographical coverage, redundancy, and resiliency.

State officials with the BIT have been working with FirstNet to ensure they design a network that will work for the state.[6] The SDPSCC governs these activities.

Challenges identified during the SCIP process include local public safety agencies face difficulty in adopting state standards and tools due to existing legacy systems, leading to interoperability gaps. Public safety is not a primary focus in state broadband plans, potentially limiting gains despite geographic broadband expansion. Continuous evaluation is necessary for public safety's broadband use, given ongoing technological advancements and cybersecurity risks. There is a growing trend in South Dakota of using broadband technologies to improve radio frequency coverage gaps, reducing state infrastructure costs by focusing on buying WI-FI-enabled subscriber units rather than building new towers. Additionally, advancements in broadband and cellular technologies are introducing new tools and capabilities for public safety operations. There is a vision to utilize FirstNet to ensure that field responders receive 911 data as needed and that public safety technology is provided by public safety broadband networks at an affordable price point.

Alerts and Warnings

South Dakota utilizes national, state, and local-level emergency alerting systems. The South Dakota Emergency Alerting System (EAS) is activated when requested by officials from the State's EAS State Primary.[7] Activation of the state-level EAS will be from the following: Governor, Duty Officer, South Dakota Office of Emergency Management (SDOEM) upon consultation with the SDOEM

[5] First Responder Network Authority, South Dakota
[6] South Dakota Public Safety Broadband Network
[7] South Dakota State Plan for the Emergency Alert System, 2018

Director or Assistant Director, and NWS offices with county warning responsibility in South Dakota. There are currently 13 Integrated Public Alerts and Warning System (IPAWS) alerting authorities in South Dakota.

The South Dakota Health Alert Network (SDHAN) is a secure, web-based communication system.[8] The SDHAN uses email, phone, text, pagers, fax, and other messaging formats to provide timely alert messages to authorized individuals. The system is available on a 24/7/365 basis for the distribution of health alerts, notifications, preparedness information, and other initiatives that strengthen state and local preparedness, response, and safety. The main target groups for the SDHAN are first responders, healthcare professionals, and other related personnel who support emergency preparedness and disaster response in healthcare and communities across South Dakota. To be eligible for an account on the SDHAN, an applicant must be considered a key point of contact during an emergency. Organizations that are part of SDHAN include hospitals, clinics, ambulance services, home health providers, health organizations/systems, public health, public safety county and municipal officials, NWS, PSAPs, School Superintendents, Emergency Managers, and tribal contacts.

During the SCIP process it was identified that there is underutilization of IPAWS, which could be more effectively deployed alongside subscription-based systems. There is also an opportunity to increase understanding regarding IPAWS capabilities and potential applications. Currently, email distribution provides notifications for radio system maintenance and outage alerts, indicating an opportunity for more effective and timelier communication methods. State Radio Engineering is working to provide notifications in addition to emails, such as using Bridge4PS.

Cybersecurity

BIT is responsible for South Dakota executive branch cybersecurity.[9] They provide training and education, election security, incident reporting, and government and private cybersecurity websites. The Department of Public Safety (DPS) Fusion Center and BIT work in conjunction with the federal government to evaluate threats affecting the state's citizens and businesses, ensuring that appropriate information is disseminated.

The South Dakota Statewide Radio System uses a fiber-centric backhaul with two towers connected via microwave links. Selected talk groups have P25 AES 256 end-to-end encryption.

There is a desire to have enhanced system patching and greater security across the network, which would be based on quarterly notices from State Radio.

Technology and cybersecurity goals and objectives include the following:

Technology and Cybersecurity	
Goals	**Objectives**
4. Complete update to and expand coverage of the statewide Project 25 (P25) system	4.1 Update the state's master contract awards annually to reflect changes in radio system functionality with subscriber units with various options compatible with the statewide P25 system,

[8] South Dakota Health Alert Network
[9] South Dakota Cyber Security

Goals	Objectives
	ensuring radios are long-term evolution (LTE) and/or Wi-Fi capable.
	4.2 Promote a wider use of the Bureau of Information and Telecommunications (BIT) enterprise system to support all aspects of the P25 system and assess adding South Dakota school districts to the network.
	4.3 Utilize a dynamic system resilience (DSR) redundant master site.
	4.4 Expand the use of Critical Connect and Smart Connect.
	4.5 Add an additional tower site, subsequent to South Dakota Public Safety Communications Council (SDPSCC) approval, to expand the statewide system.
	4.6 Complete the SDPSCC-authorized study for coverage gaps in Rapid City to Sturgis along the I-90 corridor.
5. Complete current Next Generation 911 (NG911) upgrade phases	5.1 Complete migration to i3 geospatial call-based routing.
	5.2 Complete ESInet-to-ESInet connectivity with Nebraska.
	5.3 Make current Computer-Aided Dispatch (CAD) system interoperable between 911 call centers.
6. Improve lifecycle management of the systems and standards-based equipment that enable emergency responders to share information efficiently and securely	6.1 Increase site security using cameras and sensors to monitor all remote radio sites and government facilities that reports to a centralized location and is available remotely for senior leaders using existing BIT tower site links.
	6.2 Enhance LTE to land mobile radio (LMR) convergence across state that is vendor agnostic and at a price point local agencies can budget for.
	6.3 Engage with healthcare providers and K-12 schools to expand Wi-Fi interoperable networks to increase coverage in buildings in under-served areas.
7. Promote statewide use of IPAWS in collaboration with surrounding states	7.1 Continue to update the list of jurisdictions currently authorized to use IPAWS.
	7.2 Include education and outreach in marketing plan for South Dakota agencies.
8. Strengthen the cybersecurity posture of South Dakota's emergency communications ecosystem	8.1 Permanently adhere P25 encryption on the statewide system to a talk group to eliminate user confusion.
	a. Modify the P25 master template.
	b. Update the SDPSCC encryption best practices document.
	c. Create additional talk groups.
	8.2 Assess the SDPSCC desire for link layering encryption of the P25 system control channel for cybersecurity.

FUNDING

The state is currently seeking a funding system to sustain the South Dakota P25 State Radio System. The State Radio staff is finding ways to keep costs down and maintenance up. Select agencies currently conduct LMR exercises using the Emergency Management Planning Grant fund.

There is a monthly 911 surcharge that is centralized at the state level under the Department of Revenue. The funds are allocated 70% for 911 system upgrades. The 911 Coordination Board has

been using the state 911 fund to enhance 911 operations and services, benefitting local, county, and city PSAPs.

During the SCIP process, the primary challenges identified were insufficient funding available for mobile and portable radios, particularly for smaller or volunteer agencies, and difficulties in acquiring cost-effective radios through grants. Additionally, there is a lack of local funding for proper LMR equipment and transitioning to P25 digital systems. Many PSAPs face funding issues for LMR enhancements, resulting in the use of control station radios on South Dakota's Statewide Radio System with limited utility as those radios have limited channels and functionality.

Emerging issues include exploring Software as a Service (SAAS) models to reduce capital expenses and using remote radio management via South Dakota Enterprise Wi-Fi to eliminate the need for additional channels to maintain radios. The main risks and threats Hare funding limitations for acquiring equipment compatible with South Dakota's new P25 trunked VHF public safety radio system, which offers expanded features and interoperability capabilities. Additionally, staff attrition and retirement as well as vendors closing pose a risk.

The desired state is to achieve full funding for LMR Subject Matter Experts (SMEs) to support the new P25 VHF Trunked system across all communities. This involves developing a sustainable funding plan with multiple revenue streams to lower fees over time. The objective is for the South Dakota public safety community to recognize the value of a common interoperable LMR system, supported by qualified technicians, and utilizing remote radio management across South Dakota Enterprise Wi-Fi for enhanced reliability and coverage. Additionally, a comprehensive assessment of public safety agencies will be conducted to prioritize and integrate agencies into the statewide system with full vendor support.

Funding goals and objectives include the following:

Funding	
Goals	**Objectives**
9. Identify funding streams to sustain the public safety communications ecosystem	9.1 Identify resources to complete vetting and training process of volunteers programming on P25 system to meet the accepted SDPSCC master advanced system key approval process.
	9.2 Identify funding to allow increase to 50% of the SWIC's time dedicated to SWIC duties.
	9.3 Assess disaster and crisis recovery capabilities for PSAPs and dispatch centers

TRIBAL

There are eight federally recognized tribes in South Dakota and one more recognized by the state:[10]

- Crow Creek Sioux Tribe of the Crow Creek Reservation, South Dakota
- Yankton Sioux Tribe of South Dakota
- Rosebud Sioux Tribe of the Rosebud Indian Reservation, South Dakota
- Sisseton-Wahpeton Oyate of the Lake Traverse Reservation, South Dakota
- Oglala Sioux Tribe
- Lower Brule Sioux Tribe of the Lower Brule Reservation, South Dakota

[10] United States Bureau of Indian Affairs

- Flandreau Santee Sioux Tribe of South Dakota
- Cheyenne River Sioux Tribe of the Cheyenne River Reservation, South Dakota

South Dakota has four tribal PSAPs, though none of them are involved in the state's NG911 project but can opt in at any time.[11] The four tribal PSAPs are the Bureau of Indian Affairs Law Enforcement Center - Crow Creek, the Cheyenne River Tribe 911 Corporation, the Oglala Sioux Tribe Department of Public Safety, and the Rosebud Tribal Police Department.

The Tribes operate primarily on P25 VHF trunking system, but they have analog systems as well. They received a Tribal Homeland Security Grant to set up P25 repeaters in Sisseton-Wahpeton Oyate of the Lake Traverse Reservations. This effort started in 2020, but due to supply chain delays has been extended.

The primary challenges identified during the SCIP process include inadequate coverage across three counties, particularly in Yellow Bear, with towers often overshooting Tribal districts and storms causing total coverage loss except for radio-to-radio communication. Interoperability issues arise when other departments are involved, aggravating communications with South Dakota's Statewide Radio System. There are also significant gaps in 911 and cell services, especially in Yellow Bear. Additionally, the Tribal council has restricted new fiber installations, limiting improvements to existing infrastructure and hampering new tower placements.

Emerging issues involve the installation of Tribal P25 repeaters on existing towers, including those on tribal lands but not owned by Tribal Nations. There is also an increase in rescues in areas on tribal lands with no coverage. The main risk and threat are the delay in initiating projects due to governmental bureaucracy related to tower placements and earth disturbances in tower or fiber approvals.

The desired states include assessing the viability of Digital Vehicular Repeater Systems (DVRS) options for select locations on tribal land. Additionally, the state and tribal nations aim to collaborate in seeking funding to expand the statewide network into areas with challenged coverage, exploring unique funding opportunities.

Tribal goals and objectives include the following:

Tribal	
Goals	**Objectives**
10. Increase LMR coverage on tribal lands within South Dakota by an additional 5%	10.1 Collaborate with SDPSCC and Tribal Nations to test/assess the viability of using 100-watt mobile radios (versus 30 or 50 watt) to overcome coverage deficiencies.
	10.2 Identify funding to allow increase to 50% of the SWIC's time dedicated to SWIC duties.

[11] FCC Annual Collection of Information Report for South Dakota, 2020

IMPLEMENTATION PLAN

Each goal and its associated objectives have a timeline with a target completion date, and one or multiple owners that will be responsible for overseeing and coordinating its completion. Accomplishing goals and objectives will require the support and cooperation from numerous individuals, groups, or agencies, and will be added as formal agenda items for review during regular governance body meetings. The Cybersecurity and Infrastructure Security Agency's (CISA) Interoperable Communications Technical Assistance Program (ICTAP) has a catalog[12] of technical assistance (TA) available to assist with the implementation of the SCIP. TA requests are to be coordinated through the SWIC.

South Dakota's implementation plan is shown in the table below.

Goals	Objectives	Owners	Completion Dates
1. Ensure statewide redundant communications pathways	1.1 Review and modify Standard Operating Procedures (SOPs) at the state and regional level.	SWIC SDPSCC Board	December 2025
	1.2 Examine the use of digital vehicle repeater system (DVRS) in select public safety vehicles to evaluate improved coverage.		
2. Continue to review broadband practices/processes for use in public safety communications	2.1 Conduct an Information Technology Service Unit Leader (ITSL) course.	2.1 SWIC/ECC	2.1 July 2025
	2.1 Utilize FirstNet for field units to receive 911 data on an as-needed basis and ensure technology is available for fire service at a price point they can afford.	2.2 SWIC/State Radio Staff	2.2 December 2026
	2.2 Establish a working group to assess the changing environment of broadband and cybersecurity and recommend statewide standards.	2.3 SDPSCC/BIT	2.3 December 2025
3. Promote and enhance all training and exercises at all levels of government and develop a statewide Communication Unit (COMU) training program	3.1 Identify participants to send to COMU courses.	3.1 SWIC	3.1 December 2024
	3.2 Participate in a technical assistance (TA) workshop and continue support for the train-the-trainer program.	3.2 SWIC/ECC	3.2 July 2025
	3.3 Establish the tracking of number of classes and participants for task book completion.	3.3 SWIC/State Radio Staff	3.3 July 2025
	3.4 Participate in exercises to complete the task book.	3.4 SWIC/SDPSCC/OEM	3.4 July 2026
	3.5 Continue to include communications capabilities as a requirement of the Local Emergency Management Performance Grant (LEMPG) exercise program and collect After Action Reports (AARs).	3.5 OEM	3.5 December 2025

[12] Emergency Communications Technical Assistance Planning Guide

Goals	Objectives	Owners	Completion Dates
4. Complete update to and expand coverage of the statewide Project 25 (P25) system	4.1 Update the state's master contract awards annually to reflect changes in radio system functionality with subscriber units with various options compatible with the statewide P25 system, ensuring radios are long-term evolution (LTE) and/or Wi-Fi capable.	4.1 State Radio Staff	4.1 Ongoing
	4.2 Promote a wider use of the Bureau of Information and Telecommunications (BIT) enterprise system to support all aspects of the P25 system and assess adding South Dakota school districts to the network.	4.2 BIT/SWIC	4.2 December 2025
	4.3 Utilize a dynamic system resilience (DSR) redundant master site.	4.3 State Radio Staff/Vendor	4.3 December 2027
	4.4 Expand the use of Critical Connect and Smart Connect.	4.4 State Radio Staff/Vendor	4.4 December 2027
	4.5 Add an additional tower site, subsequent to South Dakota Public Safety Communications Council (SDPSCC) approval, to expand the statewide system.	4.5 SDPSCC Board/State Radio Staff/Vendor	4.5 December 2027
	4.6 Complete the SDPSCC-authorized study for coverage gaps in Rapid City to Sturgis along the I-90 corridor.	4.6 State Radio/Vendor	4.6 December 2025
5. Complete current Next Generation 911 (NG911) upgrade phases	5.1 Complete migration to i3 geospatial call-based routing.	911 Coordinator	5.1 December 2025
	5.2 Complete ESInet-to-ESInet connectivity with Nebraska.		5.2 2027
	5.3 Make current Computer-Aided Dispatch (CAD) system interoperable between 911 call centers.		5.3 December 2026
6. Improve lifecycle management of the systems and standards-based equipment that enable emergency responders to share information efficiently and securely	6.1 Increase site security using cameras and sensors to monitor all remote radio sites and government facilities that reports to a centralized location and is available remotely for senior leaders using existing BIT tower site links.	6.1 State Radio/BIT	6.1 2027
	6.2 Enhance LTE to land mobile radio (LMR) convergence across state that is vendor agnostic and at a price point local agencies can budget for.	6.2 BIT/Vendor	6.2 2027
	6.3 Engage with healthcare providers and K-12 schools to expand Wi-Fi interoperable networks to increase coverage in buildings in under-served areas.	6.3 BIT/State Radio Staff	6.3 2026
7. Promote statewide use of IPAWS in collaboration with surrounding states	7.1 Continue to update the list of jurisdictions currently authorized to use IPAWS.	OEM	7.1 Ongoing
	7.2 Include education and outreach in marketing plan for South Dakota agencies.		7.2 December 2026

Goals	Objectives	Owners	Completion Dates
8. Strengthen the cybersecurity posture of South Dakota's emergency communications ecosystem	8.1 Permanently adhere P25 encryption on the statewide system to a talk group to eliminate user confusion.	8.1 SWIC/State Radio Staff/SDPSCC	8.1 December 2026
	a. Modify the P25 master template.		a. December 2026
	b. Update the SDPSCC encryption best practices document.		b. July 2027
	c. Create additional talk groups.		c. July 2027
	8.2 Assess the SDPSCC desire for link layering encryption of the P25 system control channel for cybersecurity.	8.2 SWIC/SDPSCC	8.2 December 2027
9. Identify funding streams to sustain the public safety communications ecosystem	9.1 Identify resources to complete vetting and training process of volunteers programming on P25 system to meet the accepted SDPSCC master advanced system key approval process.	9.1 State Radio Staff/SDPSCC	9.1 December 2026
	9.2 Identify funding to allow increase to 50% of the SWIC's time dedicated to SWIC duties.	9.2 SWIC/SDPSCC	9.2 December 2027
	9.3 Assess disaster and crisis recovery capabilities for PSAPs and dispatch centers	9.3 911 Coordinator/911 Coordination Board	9.3 Ongoing
10. Increase LMR coverage on tribal lands within South Dakota by an additional 5%	10.1 Collaborate with SDPSCC and Tribal Nations to test/assess the viability of using 100-watt mobile radios (versus 30 or 50 watt) to overcome coverage deficiencies.	10.1 BIT/Tribal Representatives	10.1 December 2025
	10.2 Identify funding to allow increase to 50% of the SWIC's time dedicated to SWIC duties.	10.2 SWIC/State Radio Staff/Tribal Representatives	10.2 December 2026

APPENDIX A: STATE MARKERS

In 2019, CISA supported States and Territories in establishing an initial picture of interoperability nationwide by measuring progress against 25 markers. These markers describe a State or Territory's level of interoperability maturity. Below is South Dakota's assessment of their progress against the markers as of July 1, 2024.

Marker	Best Practices / Performance Markers	Initial	Defined	Optimized
1	**State-level governing body established (e.g., SIEC, SIGB).** Governance framework is in place to sustain all emergency communications	Governing body does not exist, or exists and role has not been formalized by legislative or executive actions	Governing body role established through an executive order	Governing body role established through a state law
2	**SIGB/SIEC participation.** Statewide governance body is comprised of members who represent all components of the emergency communications ecosystem.	Initial (1-2) Governance body participation includes: ☐ Communications Champion/SWIC ☐ LMR ☐ Broadband/LTE ☐ 911 ☐ Alerts, Warnings and Notifications	Defined (3-4) Governance body participation includes: ☒ Communications Champion/SWIC ☒ LMR ☒ Broadband/LTE ☒ 911 ☐ Alerts, Warnings and Notifications	Optimized (5) Governance body participation includes: ☐ Communications Champion/SWIC ☐ LMR ☐ Broadband/LTE ☐ 911 ☐ Alerts, Warnings and Notifications
3	**SWIC established.** Full-time SWIC is in place to promote broad and sustained participation in emergency communications.	SWIC does not exist	Full-time SWIC with collateral duties	Full-time SWIC established through executive order or state law
4	**SWIC Duty Percentage.** SWIC spends 100% of time on SWIC-focused job duties	SWIC spends >1, <50% of time on SWIC-focused job duties	SWIC spends >50, <90% of time on SWIC-focused job duties	SWIC spends >90% of time on SWIC-focused job duties
5	**SCIP refresh.** SCIP is a living document that continues to be executed in a timely manner. Updated SCIPs are reviewed and approved by SIGB/SIEC.	No SCIP OR SCIP older than 3 years	SCIP updated within last 2 years	SCIP updated in last 2 years and progress made on >50% of goals
6	**SCIP strategic goal percentage.** SCIP goals are primarily strategic to improve long term emergency communications ecosystem (LMR, LTE, 911, A&W) and future technology transitions (5G, IoT, UAS, etc.). (Strategic and non-strategic goals are completely different; strategy -- path from here to the destination; it is unlike tactics which you can "touch"; cannot "touch" strategy)	<50% are strategic goals in SCIP	>50%<90% are strategic goals in SCIP	>90% are strategic goals in SCIP
7	**Integrated emergency communication grant coordination.** Designed to ensure state / territory is tracking and optimizing grant proposals, and there is strategic visibility how grant money is being spent.	No explicit approach or only informal emergency communications grant coordination between localities, agencies, SAA and/or the SWIC within a state / territory	SWIC and/or SIGB provides guidance to agencies and localities for emergency communications grant funding but does not review proposals or make recommendations	SWIC and/or SIGB provides guidance to agencies and localities for emergency communications grant funding and reviews grant proposals for alignment with the SCIP. SWIC and/or SIGB provides recommendations to the SAA

Marker	Best Practices / Performance Markers	Initial	Defined	Optimized
8	**Communications Unit process.** Communications Unit process present in state/territory to facilitate emergency communications capabilities. Check the boxes of which Communications positions are currently covered within your process: ☒ COML ☒ COMT ☒ ITSL ☒ RADO ☒ INCM ☒ INTD ☒ AUXCOM ☒ TERT	No Communications Unit process at present	Communications Unit process planned or designed (but not implemented)	Communications Unit process implemented and active
9	**Interagency communication.** Established and applied interagency communications policies, procedures and guidelines.	Some interoperable communications SOPs/SOGs exist within the area and steps have been taken to institute these interoperability procedures among some agencies	Interoperable communications SOPs/SOGs are formalized and in use by agencies within the area. Despite minor issues, SOPs/SOGs are successfully used during responses and/or exercises	Interoperable communications SOPs/SOGs within the area are formalized and regularly reviewed. Additionally, NIMS procedures are well established among agencies and disciplines. All needed procedures are effectively utilized during responses and/or exercises.
10	**TICP (or equivalent) developed.** Tactical Interoperable Communications Plans (TICPs) established and periodically updated to include all public safety communications systems available	Regional or statewide TICP in place	Statewide or Regional TICP(s) updated within past 2-5 years	Statewide or Regional TICP(s) updated within past 2 years
11	**Field Operations Guides (FOGs) developed.** FOGs established for a state or territory and periodically updated to include all public safety communications systems available	Regional or statewide FOG in place	Statewide or Regional FOG(s) updated within past 2-5 years	Statewide or Regional FOG(s) updated within past 2 years
12	**Alerts & Warnings.** State or Territory has Implemented an effective A&W program to include Policy, Procedures and Protocol measured through the following characteristics: (1) Effective documentation process to inform and control message origination and distribution (2) Coordination of alerting plans and procedures with neighboring jurisdictions (3) Operators and alert originators receive periodic training (4) Message origination, distribution, and correction procedures in place	<49% of originating authorities have all of the four A&W characteristics	>50%<74% of originating authorities have all of the four A&W characteristics	>75%<100% of originating authorities have all of the four A&W characteristics
13	**Radio programming.** Radios programmed for National/Federal, SLTT interoperability channels and	<49% of radios are programed for interoperability and consistency	>50%<74% of radios are programed for interoperability and consistency	>75%<100% of radios are programed for interoperability and consistency

Marker	Best Practices / Performance Markers	Initial	Defined	Optimized
	channel nomenclature consistency across a state / territory.			
14	**Cybersecurity Assessment Awareness.** Cybersecurity assessment awareness. (Public safety communications networks are defined as covering: LMR, LTE, 911, and A&W)	Public safety communications network owners are aware of cybersecurity assessment availability and value (check yes or no for each option) ☒ LMR ☒ LTE ☒ 911/CAD ☒ A&W	Initial plus, conducted assessment, conducted risk assessment. (Check yes or no for each option) ☐ LMR ☐ LTE ☐ 911/CAD ☐ A&W	Defined plus, Availability of Cyber Incident Response Plan (check yes or no for each option) ☐ LMR ☐ LTE ☐ 911/CAD ☐ A&W
15	**NG911 implementation.** NG911 implementation underway to serve state / territory population.	Working to establish NG911 governance through state/territorial plan. • Developing GIS to be able to support NG911 call routing. • Planning or implementing ESInet and Next Generation Core Services (NGCS). • Planning to or have updated PSAP equipment to handle basic NG911 service offerings.	More than 75% of PSAPs and Population Served have: • NG911 governance established through state/territorial plan. • GIS developed and able to support NG911 call routing. • Planning or implementing ESInet and Next Generation Core Services (NGCS). • PSAP equipment updated to handle basic NG911 service offerings.	More than 90% of PSAPs and Population Served have: • NG911 governance established through state/territorial plan. • GIS developed and supporting NG911 call routing. • Operational Emergency Services IP Network (ESInet)/Next Generation Core Services (NGCS). • PSAP equipment updated and handling basic NG911 service offerings.
16	**Data operability / interoperability.** Ability of agencies within a region to exchange data on demand, and needed, and as authorized. Examples of systems would be: CAD to CAD, Chat, GIS, Critical Incident Management Tool, Web EOC	Agencies are able to share data only by email. Systems are not touching or talking.	Systems are able to touch but with limited capabilities. One-way information sharing.	Full system to system integration. Able to fully consume and manipulate data.
18	**Communications Exercise objectives.** Specific emergency communications objectives are incorporated into applicable exercises Federal/state/territory-wide	Regular engagement with State Training and Exercise coordinators	Promote addition of emergency communications objectives in state/county/regional level exercises (target Emergency Management community). Including providing tools, templates, etc.	Initial and defined plus mechanism in place to incorporate and measure communications objectives into state/county/regional level exercises
19	**Trained Communications Unit responders.** Communications Unit personnel are listed in a tracking database (e.g., NQS One Responder, CASM, etc.) and available for assignment/response.	<49% of public safety agencies within a state/territory have access to Communications Unit personnel who are listed in a tracking database and available for assignment/response	>50%<74% of public safety agencies within a state/territory have access to Communications Unit personnel who are listed in a tracking database and available for assignment/response	>75%<100% of public safety agencies within a state/territory have access to Communications Unit personnel who are listed in a tracking database and available for assignment/response
20	**Communications Usage Best Practices/Lessons Learned.** Capability exists within jurisdiction to share best practices/lessons learned (positive and/or negative) across all lanes of the Interoperability	Best practices/lessons learned intake mechanism established. Create Communications AAR template to collect best practices	Initial plus review mechanism established	Defined plus distribution mechanism established

Marker	Best Practices / Performance Markers	Initial	Defined	Optimized
	Continuum related to all components of the emergency communications ecosystem			
21	**Wireless Priority Service (WPS) subscription.** WPS penetration across state/territory compared to maximum potential	<9% subscription rate of potentially eligible participants who signed up WPS across a state/territory	>10%<49% subscription rate of potentially eligible participants who signed up for WPS a state/territory	>50%<100% subscription rate of potentially eligible participants who signed up for WPS across a state/territory
22	**Outreach.** Outreach mechanisms in place to share information across state	SWIC electronic communication (e.g., SWIC email, newsletter, social media, etc.) distributed to relevant stakeholders on regular basis	Initial plus web presence containing information about emergency communications interoperability, SCIP, trainings, etc.	Defined plus in-person/webinar conference/meeting attendance strategy and resources to execute
23	**Sustainment assessment.** Identify interoperable component system sustainment needs;(e.g., communications infrastructure, equipment, programs, management) that need sustainment funding. (Component systems are emergency communications elements that are necessary to enable communications, whether owned or leased - state systems only)	< 49% of component systems assessed to identify sustainment needs	>50%<74% of component systems assessed to identify sustainment needs	>75%<100% of component systems assessed to identify sustainment needs
24	**Risk identification.** Identify risks for emergency communications components. (Component systems are emergency communications elements that are necessary to enable communications, whether owned or leased. Risk Identification and planning is in line with having a communications COOP Plan)	< 49% of component systems have risks assessed through a standard template for all technology components	>50%<74% of component systems have risks assessed through a standard template for all technology components	>75%<100% of component systems have risks assessed through a standard template for all technology components
25	**Cross Border/Interstate (State to State) Emergency Communications.** Established capabilities to enable emergency communications across all components of the ecosystem.	Initial: Little to no established: ☐ Governance ☐ SOPs/MOUs ☐ Technology ☐ Training/Exercises ☐ Usage	Defined: Documented/established across some lanes of the Continuum: ☒ Governance ☒ SOPs/MOUs ☒ Technology ☒ Training/Exercises ☒ Usage	Optimized: Documented/established across all lanes of the Continuum: ☐ Governance ☐ SOPs/MOUs ☐ Technology ☐ Training/Exercises ☐ Usage

APPENDIX B: ACRONYMS

Acronym	Definition
AAR	After-Action Report
AUXCOMM/AUXC	Auxiliary Emergency Communications
A&W	Alerts and Warnings
BIT	Bureau of Information and Telecommunications
CAD	Computer-Aided Dispatch
CASM	Communication Assets Survey and Mapping
CISA	Cybersecurity and Infrastructure Security Agency
COML	Communications Unit Leader
COMT	Communications Unit Technician
COMU	Communications Unit Program
COOP	Continuity of Operations Plan
DHS	Department of Homeland Security
DOI	Department of Interior
DPS	Department of Public Safety
DSR	Dynamic System Resilience
DVRS	Digital Vehicle Repeater System
EAS	Emergency Alerting System
ESInet	Emergency Services Internal Protocol Network
FCC	Federal Communications Commission
FOG	Field Operations Guide
GIS	Geospatial Information System
ICTAP	Interoperable Communications Technical Assistance Program
INCM	Incident Communications Center Manager
INTD	Incident Tactical Dispatcher
IP	Internet Protocol
IPAWS	Integrated Public Alerts and Warning System
ITSL	Information Technology Service Unit Leader
LEMPG	Local Emergency Management Performance Grant
LMR	Land Mobile Radio
LTE	Long-Term Evolution
MHz	Megahertz
MOU	Memorandum of Understanding
NECP	National Emergency Communications Plan
NENA	National Emergency Number Association
NG911	Next Generation 911
OTAP	Over the Air Programming

Acronym	Definition
OTAR	Over the Air Rekeying
P25	Project 25
PSAP	Public Safety Answering Point
RADO	Radio Operator
SAAS	Software as a Service
SCIP	Statewide Communication Interoperability Plan
SDEOM	South Dakota Office of Emergency Management
SDHAN	South Dakota Health Alert Network
SDICS	South Dakota Interoperable Communications System
SDPSCC	South Dakota Public Safety Communications Council
SME	Subject Matter Expert
SOG	Standard Operating Guidelines
SOP	Standard Operating Procedure
SWIC	Statewide Interoperability Coordinator
TA	Technical Assistance
TERT	Telecommunications Emergency Response Team
TICP	Tactical Interoperable Communications Plan
UHF	Ultra-High Frequency
VHF	Very High Frequency
WPS	Wireless Priority Service