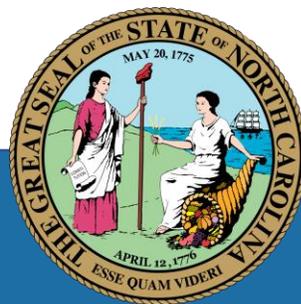




NORTH CAROLINA STRATEGIC COMMUNICATIONS AND INTEROPERABILITY PLAN



February 2021

Developed by the Statewide Interoperability Executive Committee
with support from the
U.S. Department of Homeland Security Cybersecurity and Infrastructure Security Agency

STRATEGIC PLAN AUTHORIZATION LETTER FROM THE SERC

The State Emergency Response Commission (SERC) has enjoyed an excellent reputation in North Carolina and throughout the nation for providing outstanding guidance and improving public safety and emergency response. As a sub-committee to the SERC, the State Interoperability Executive Committee's (SIEC) leadership, dedication, and hard work has been instrumental to North Carolina's interoperability successes and we are extremely proud of the progress we have made.

One of the greatest challenges we face when responding to an emergency is streamlined communication interoperability with local, State, and federal agencies. The 2021 North Carolina Strategic Communications and Interoperability Plan (SCIP) provides renewed direction for North Carolina to proactively maintain and build upon interoperability successes with the emerging public safety communication technologies. The greater level of interoperability among public safety agencies during preparedness, response, and recovery across the State demonstrates the positive impact of the SIEC's work.

The SERC eagerly authorizes and endorses the 2021 SCIP.

Erik A. Hooks - Secretary
North Carolina Department of Public Safety
Chairman, SERC

Michael A. Sprayberry - Executive Director
North Carolina Emergency Management
Vice-Chairman, SERC



EXECUTIVE SUMMARY

As a recognized leader in public safety communications interoperability, North Carolina has achieved a greater level of interoperability by continuing to identify best practices and lessons learned and implement them in North Carolina. Emergency personnel in North Carolina must have and sustain the ability to coordinate over mission critical communication technologies during a large-scale hurricane incident response, a multi-agency and multi-jurisdiction public safety task force, wildfire evacuations, winter storms or daily traffic accidents.

Emergency communications has changed dramatically in the last 30 years from simple voice communications to a demanding operating environment. This new environment now requires the sustainment of robust Land Mobile Radio (LMR) communications, the integration of cellular data communications over a public safety broadband network, the delivery of 9-1-1 services using a Next Generation 9-1-1 (NG9-1-1) digital network, and the statewide integration of modern Emergency Alert and Warnings Systems (AWS).

The North Carolina 2021 Statewide Communications Interoperability Plan provides the State with strategic direction and actionable goals for public safety communications interoperability for the next three to five years. A series of collaborative stakeholder engagements between the Statewide Interoperability Executive Committee (SIEC) and the Department of Homeland Security (DHS) Cybersecurity and Infrastructure Security Agency (CISA) Emergency Communications Division (ECD) led to the development of a stakeholder-driven strategic plan. These collaborative engagements allowed for the direct input from both local and State government representatives and stakeholder organizations.

The SIEC is a multi-agency, multi-jurisdictional, and multi-discipline sub-committee of the State Emergency Response Commission (SERC) that enabled the development of this strategic plan, one that encompasses the needs of stakeholders and identified known communications gaps across the State. The 2021 North Carolina Strategic Communications and Interoperability Plan (SCIP) contains strategic goals and actionable objectives across three core areas: governance, technology, and sustainable funding.

The SCIP will provide strategic direction and promote alignment of those responsible for interoperable and emergency communications at the state, regional, local, and tribal levels. Furthermore, the SCIP can explain to executive and elected leadership the vision for interoperable and emergency communications and demonstrate the need for funding.

The 2021 North Carolina SCIP is a strategic plan to guide committees and working groups in the accomplishment of plans. The utilization of the SCIP and the concurrent execution of initiatives from all four areas above will enable the sustainment of and improvement upon North Carolina's current communications interoperability success. Ultimately, the SCIP will prepare North Carolina for future disasters, regardless of scope where, public safety communications and interoperability will be essential for the preservation of life and the protection of property.

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LETTER FROM THE STATEWIDE INTEROPERABILITY COORDINATOR

Greetings,

As the Statewide Interoperability Coordinator (SWIC) for North Carolina, I am pleased to present to you the 2021 North Carolina Strategic Communications and Interoperability Plan (SCIP). The SCIP represents our continued commitment to improving emergency communications operability, interoperability and supporting public safety practitioners statewide. In addition, this update meets the requirement of the current U.S. Department of Homeland Security grant guidelines.

On January 12, 2021, representatives from the North Carolina State Interoperability Executive Committee (SIEC) participated in a virtual workshop to update the SCIP with actionable and measurable goals and objectives that have champions identified to ensure completion. They are designed to prepare our State for future challenges, new technologies and navigating the ever-changing emergency communications landscape.

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

Sincerely,



Greg Hauser
Statewide Interoperability Coordinator
North Carolina Department of Public Safety, Emergency Management

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 North Carolina’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 North Carolina 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** – Outlines public safety technology and operations needed to maintain and enhance interoperability across the emergency communications ecosystem.
- **Sustainable Funding** – Describes the funding sources and allocations that support interoperable communications capabilities within North Carolina along with methods and strategies for funding sustainment and enhancement to meet long-term goals.
- **Implementation Plan** – Describes North Carolina’s plan to implement, maintain, and update the SCIP to enable continued evolution of and progress toward the State’s interoperability goals.

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.¹

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.² It is designed to assist public safety agencies and policy makers with planning and implementing interoperability solutions for communications across technologies.

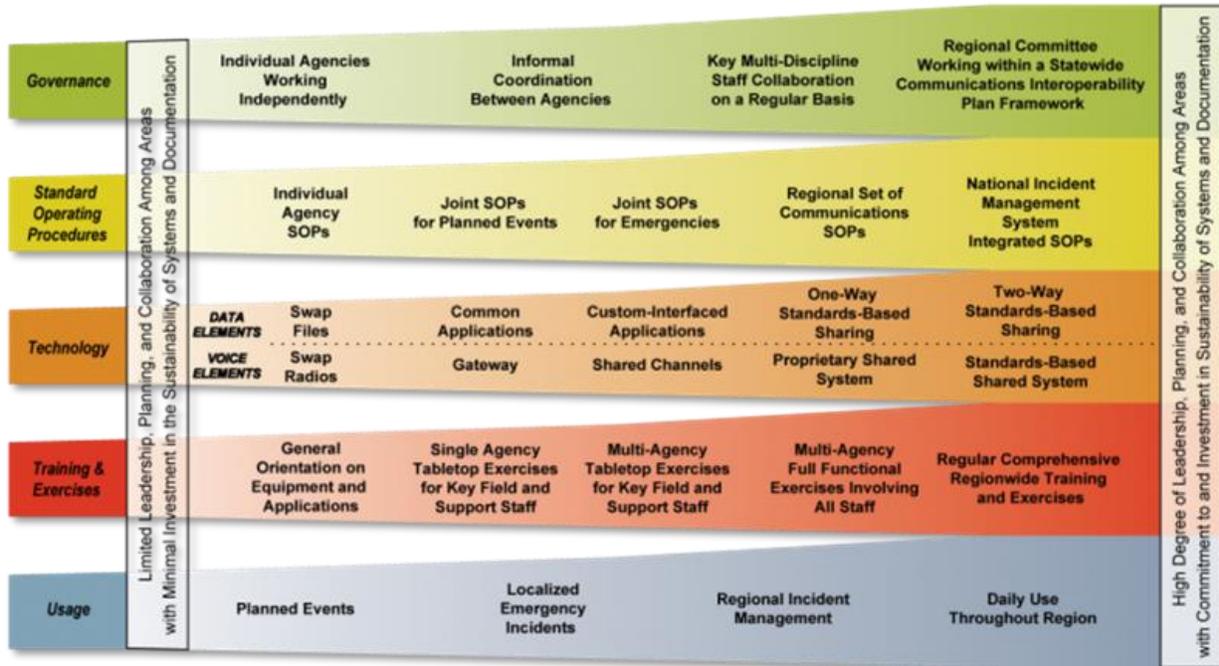


Figure 1: Interoperability Continuum

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.

Traditional voice capabilities, such as land mobile radio (LMR) and landline 9-1-1 service 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. New technologies increase the need for coordination across public safety disciplines,

¹ [2019 National Emergency Communications Plan](#)

² [Interoperability Continuum Brochure](#)

communications functions, and levels of government to ensure emergency communications capabilities are operable, interoperable, reliable, and secure.

An example of this evolution is the transition of public-safety answering points (PSAPs) to Next Generation 9-1-1 (NG9-1-1) 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. North Carolina is progressing with its transition to an Emergency Services IP Network (ESInet). The anticipated completion date to have all 128 PSAPs online is in early 2022. The SCIPs focus on standard operating guidelines, training, and cybersecurity is an example of the partnerships forged in the SIEC.

SCIP VISION AND MISSION

This section describes North Carolina’s vision and mission for improving emergency and public safety communications interoperability:

Vision

To promote the most efficient, effective, and secure means of operable and interoperable communications between all entities involved in public safety in North Carolina.

Mission

Provide strategic guidance to the whole response community to mitigate loss of life and property through public safety communications operability and interoperability planning and coordination.

GOVERNANCE

The State Emergency Response Commission (SERC) is a representative body appointed by the Governor to make public safety recommendations and provide guidance to stakeholders. Under the SERC, the SIEC is a formal subcommittee, responsible for the development of the SCIP and providing subject matter expertise relating to interoperable communications impacting all relevant stakeholders (e.g., Fire, EMS, 9-1-1). North Carolina has made significant progress over the past few years to establish the SIEC through stakeholder outreach and approving an initial SIEC charter in 2015. This charter was amended and approved in 2020. Current governance challenges and emerging issues include the following:

SIEC Vision

The North Carolina SIEC will serve as a conduit for the multi-directional flow of planning best practices and policy recommendations between local regional and State communities with regard to public safety communications.

SIEC Mission

To facilitate interagency cooperation and education for efficient and effective use of resources to achieve operable and interoperable public safety communications.

- Management and sharing of information across agencies
- Communications Unit (COMU) management and succession planning
- Education and outreach to voice and data users
- Management and ownership of data

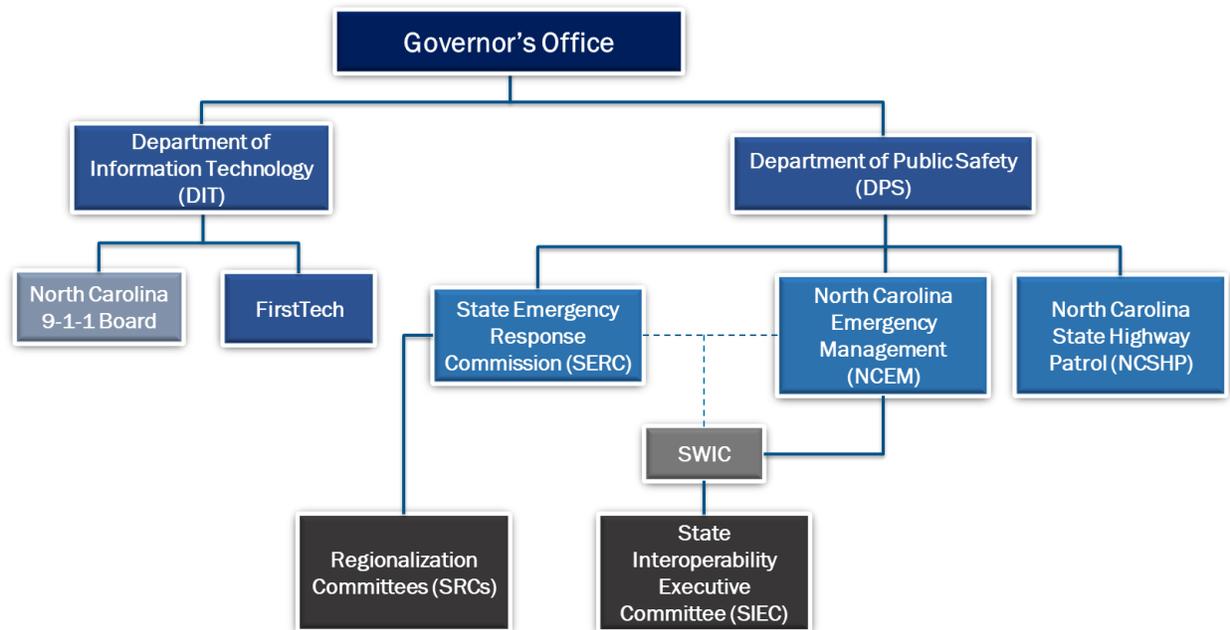


Figure 2: North Carolina Emergency Communications Governance Structure

The SIEC has and will continue to establish collaborative partnerships to integrate current and emerging communication technologies. Figure 2 depicts the current North Carolina Emergency Communications governance structure. This governance structure is supported by several partnerships including but not limited to the following:

SERC Regionalization Committees (SRCs): North Carolina has organized jurisdictions into Homeland Security planning regions titled Domestic Preparedness Regions (DPR), which provide a structure for identifying gaps and capabilities. SRCs are within the DPRs and are responsible for handling homeland security grant project processing. There are three SRC members represented on the SIEC, one for Eastern North Carolina (DPRs 1, 2, 3), one for Central North Carolina (DPRs 4, 5, 6), and one for Western North Carolina (DPRs 7, 8, 9).

North Carolina Voice Interoperability Plan for Emergency Responders (VIPER) Administrator (and Local LMR Administrators): The North Carolina State Highway Patrol (NCSHP) is responsible for the administration of the North Carolina VIPER System. The North Carolina VIPER System has over 143,000+ users with 64 counties utilizing the mission critical voice system on a daily basis. There is one representative from the Technical Services Unit on the SIEC and one representative for local LMR administrators on the SIEC.

Broadband Infrastructure Office: The North Carolina Department of Information Technology: Broadband Infrastructure Office houses the State's Single Point of Contact (SPOC) for the federal FirstNet project and for public safety broadband coordination. The SPOC acts as the primary agent

bringing the concerns of North Carolina’s responders to the forefront of the effort. There is one representative from the Broadband Infrastructure Office on the SIEC and one representative from FirstTech on the SIEC.

North Carolina 9-1-1 Board: The North Carolina 9-1-1 Board, created by the North Carolina General Statute 62A Article 2, is responsible for both wireline and wireless 9-1-1 communications in the State, as well as related policies and procedures, and it administers the State’s 9-1-1 Fund. There is one representative from the 9-1-1 Board on the SIEC.

Local Government Stakeholders: The SIEC includes a representative balance between both local and State communication stakeholders. Figure 2 below, depicts the local and State represented agencies, organizations, and associations that are SIEC voting members.

LOCAL REPRESENTATION	<p style="text-align: center;"> Eastern Domestic Preparedness Regions Central Domestic Preparedness Regions Western Domestic Preparedness Regions Urban Area Security Initiative NC Association of Rescue and EMS NC Emergency Management Association NC Association of County Commissioners NC League of Municipalities NC Association of Professional Communications Officers NC National Emergency Number Association NC Sheriff's Association NC Association of Chiefs of Police NC Fire Chief's Association Auxiliary Communications Tribal Rep: Eastern Band of Cherokee Indians </p>	STATE REPRESENTATION	<p style="text-align: center;"> NC Office of the Governor NC Emergency Management Voice Interoperability Plan for Emergency Responders NC 911 Board NCDIT - Broadband Infrastructure Office NCDIT - NC FirstTech Program PBS North Carolina NC Department of Transportation NC Office of Emergency Medical Services NC Department of Health and Human Services NC Forest Service North Carolina National Guard North Carolina Highway Patrol State Bureau of Investigation NGO-Public Utilities (Commercial Telecom) </p>
SIEC Representation - 2021			

The following table outlines goals and objectives related to Governance:

Governance	
Goal	Objectives
1. Formally recognize the SIEC as the operational policy advisor to VIPER, unless there is a technical reason to change it	1.1 Support VIPER technology sustainment, advancement, and funding efforts
2. Provide public safety communications education and outreach	2.1 Request and participate in Cybersecurity and Infrastructure Security Agency (CISA) provided Technical Assistance (TA)
	2.2 Encourage stakeholder engagement with the SWIC and SIEC to share feedback and situational awareness
	2.3 Establish SIEC sub-committee to develop and implement virtual stakeholder engagement opportunities (panels, presentations, etc.)
	2.4 Collaborate with State and local institutions to promote academic, hiring, and professional development opportunities
	2.5 Expand training beyond COMU courses

TECHNOLOGY

Land Mobile Radio

Managed by the NCSHP, VIPER is North Carolina's statewide 800 megahertz (MHz) Project 25 (P25) mission critical radio system that all federal, State and local agencies have access to and utilize when needed. As of February 2021, the network consists of 234 tower sites, over 143,000 subscriber IDs and more than 350 agencies using and relying on VIPER daily. There are also 18 standalone (P25) LMR neighboring systems and 18 standalone legacy (Non-P25) LMR systems at the local level in the State. The 18-standalone local legacy (Non-P25) LMR systems create interoperability barriers with the North Carolina VIPER system and the other 18 standalone (P25) neighboring systems. Implementing public safety communication technologies that overcome these interoperability barriers will be necessary to enhance statewide interoperability. An emerging issue for the VIPER system as of 2020 is that many radios are not programmed to a recently released VIPER template, required for all users, and about 80% of radios are not able to be encrypted or operate on P25 Phase II. Technology goals in this SCIP have been developed to drive progress in the following LMR areas:

- All public safety radios are programmed with the new VIPER template
- All public safety radios are capable of encryption as outlined in the State's encryption plan
- All public safety radios are capable of operating in a Time Division Multiple Access (TDMA) environment
- Roaming capabilities are available between neighboring systems to ensure there is both inter and intra State interoperability
- VIPER is linked to neighboring State systems

Cellular Data

North Carolina FirstTech is the State entity responsible for supporting the federal broadband effort and providing education and outreach on the FirstNet project to first responder agencies statewide at all government levels. Currently, agencies choose their cellular carrier and have various coverage footprints, and there is a lack of full cellular coverage in sparsely populated areas. Technology goals in this SCIP have been developed to drive progress in the following cellular data areas:

- Expanded coverage across the State
- Investigation of apps and services applicable to first responders
- Effectively define and document critical infrastructure vulnerabilities to properly plan for potential outages
- Increase collaboration with carriers to improve public and private Emergency Support Function #2 (ESF #2) information sharing

9-1-1/Next Generation 9-1-1

The State is currently in the process of implementing NG9-1-1. The North Carolina 9-1-1 board has contracted with AT&T for the implementation of a statewide ESInet and a hosted call handling solution. As of May 2021, 80 of the 126 PSAPs in the State have migrated to ESInet. The targeted

completion date of migrating all PSAPs is December 31, 2021. In addition to ESInet migration efforts, the North Carolina 9-1-1 board is working on the following initiatives:

- Ensure that the Network Monitoring and Assistance Center (NMAC) is integrated into the existing daily information sharing processes
- Creation of geospatial service for entities providing Geographic Information System (GIS) data to support call routing
- Delivery of outreach and public education programs to keep the public, stakeholders, and industry partners informed about NG9-1-1 efforts
- Military interconnection to the statewide ESInet
- Offering of a hosted computer aided dispatch (CAD) solution
- Identify processes and areas indicative of single points of failure

Alerts and Warnings

Current alerting disseminators in the State are through the Integrated Public Alert Warning System (IPAWS), internet services and social media, State and local unique alerting systems, and non-IPAWS opt-in alerting software. IPAWS includes the Emergency Alert System (EAS), Wireless Emergency Alerts (WEA), and National Oceanic and Atmospheric Administration (NOAA) Weather Radio. State and local alerting plans specify what alerting authorities and what type of alerts can transmit on any particular alerting disseminator. North Carolina is moving towards integrating alert disseminator plans and policies to establish alerting plans that have clear roles, responsibilities, and usage expectations for both local and state levels of government and that incorporate old and new alerting technologies. This will maximize emergency alerting effectiveness and overcome demographic factors, such as age, income, language, culture, and disabilities, which can affect both the likelihood of owning an alerting device and the ability to understand the alert message.

Technology goals and objectives include the following:

Technology	
Goal	Objectives
3. Support the implementation of statewide technology available for local access to IPAWS	3.1 Establish minimum standards for alert, warning, and notification capabilities
	3.2 Sustain statewide abilities to activate IPAWS
	3.3 Investigate statewide funding for IPAWS implementation
4. Continue enhancement of interoperable LMR capabilities statewide	4.1 Explore technologies to allow inter and intra State roaming/connectivity between disparate voice systems (to include non LMR systems)
	4.2 Encourage the adoption and use of the VIPER template
5. Promote the adoption of non-LMR technologies to expand emergency response capabilities	5.1 Strengthen and maintain relationships with vendors
	5.2 Promote discussion at SIEC meetings regarding emerging technology
6. Collaborate with the North Carolina 9-1-1 Board to support their statewide NG9-1-1 implementation efforts, and any other functions or processes related to call processing and dispatching	6.1 Support research with Public Broadcasting Service (PBS) North Carolina on utilizing digital television to serve public safety paging/dispatching

Technology	
Goal	Objectives
7. Prioritize physical and cybersecurity for communications ecosystem processes, pathways, and networks	7.1 Recommend adherence to security standards consistent with established national best practices and guidance

FUNDING

North Carolina’s primary focus is on sustaining existing capabilities and systems. Currently, all funding for the VIPER system comes from the State legislature and as previously mentioned, SRCs are responsible for handling homeland security grant funding. The State will continue to support efforts to ensure there is recurring funding to statewide network and infrastructure maintenance. Additionally, the SIEC and State agencies will explore options to increase funding availability at the local level for the following:

- Equipment replacement
 - End of life radio equipment (console, consolette, mobile and/or portable)
 - End of life computer equipment (desktop, laptop)
- Equipment upgrades
 - Addition of TDMA capabilities
- Encryption upgrades
 - Addition of Advanced Encryption Standard-256 (AES-256) encryption capabilities to existing radios
- Emerging technology
- Maintenance and sustainment of capabilities

The SIEC’s primary focus for targeting awarded funding includes:

- Alignment with federal grant requirements
- Alignment with State grant requirements
- Ensuring that equipment is capable of being interoperable

Funding goals and objectives include the following:

Funding and Sustainability	
Goal	Objectives
8. Develop and maintain sustainable funding for public safety interoperable communications	8.1 Develop an infrastructure sustainment business plan
	8.2 Identify and share funding opportunities for encryption and lifecycle planning
	8.3 Identify capability gaps and opportunities to determine resources at the regional and local levels (caches, threat detection, etc.)
9. Continue to leverage TA provided by federal partners	9.1 Request support from CISA
	9.2 Request support from the Federal Emergency Management Agency (FEMA)

10. Assist local agencies to identify and request funding	10.1 Support NCSHP VIPER to identify county and local government users that can assist in requests to the General Assembly
	10.2 Work with local agencies to find and pursue federal, State and private sector funding in accordance with accepted processes and policies

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 catalog³ of technical assistance available to assist with the implementation of the SCIP. Technical assistance requests are to be coordinated through the SWIC.

Goal	Objective(s)	Timeline(s)	Owner(s)
1. Formally recognize the SIEC as the operational policy advisor to VIPER, unless there is a technical reason to change it	1.1 Support VIPER technology sustainment, advancement, and funding efforts	Q3 2021	<ul style="list-style-type: none"> SWIC NCSHP Technical Services Unit (TSU)
2. Provide public safety communications education and outreach	2.1 Request and participate in CISA provided TA	Ongoing, quarterly	<ul style="list-style-type: none"> SWIC SIEC Chair & Vice Chair
	2.2 Encourage stakeholder engagement with the SWIC and SIEC to share feedback and situational awareness		
	2.3 Establish SIEC sub-committee to develop and implement virtual stakeholder engagement opportunities (panels, presentations, etc.)		
	2.4 Collaborate with State and local institutions to promote academic, hiring, and professional development opportunities		
	2.5 Expand training beyond COMU courses		
3. Support the implementation of statewide technology available for local access to IPAWS	3.1 Establish minimum standards for alert, warning, and notification capabilities	Q4 2021	<ul style="list-style-type: none"> SIEC Alerts & Warnings Working Group
	3.2 Sustain statewide abilities to activate IPAWS		
4. Continue enhancement of interoperable LMR capabilities statewide	4.1 Explore technologies to allow inter and intra State roaming/connectivity between disparate voice systems (to include non LMR systems)	Ongoing	<ul style="list-style-type: none"> VIPER North Carolina Motorola Trunked Users Group (NCMTUG) SIEC Technology Working Group

³ [Emergency Communications Technical Assistance Planning Guide](#)

Goal	Objective(s)	Timeline(s)	Owner(s)
	4.2 Encourage the adoption and use of the VIPER template	Greater than 50% of users adopt VIPER template by Q2 2022 (prioritize support to high-risk users)	<ul style="list-style-type: none"> • SIEC
5. Promote the adoption of non-LMR technologies to expand emergency response capabilities	5.1 Strengthen and maintain relationships with vendors	Ongoing	<ul style="list-style-type: none"> • FirstTech Program
	5.2 Promote discussion at SIEC meetings regarding emerging technology		
6. Collaborate with the North Carolina 9-1-1 Board to support their statewide NG9-1-1 implementation efforts, and any other functions or processes related to call processing and dispatching	6.1 Support research with UNC-TV on utilizing digital television to serve public safety paging/dispatching	Ongoing	<ul style="list-style-type: none"> • North Carolina 9-1-1 Board • FirstTech Program
7. Prioritize physical and cybersecurity for communications ecosystem processes, pathways, and networks	7.1 Recommend adherence to security standards consistent with established national best practices and guidance	Ongoing	<ul style="list-style-type: none"> • North Carolina Joint Cybersecurity Task Force • SIEC
8. Develop and maintain sustainable funding for public safety interoperable communications	8.1 Develop an infrastructure sustainment business plan	Ongoing	<ul style="list-style-type: none"> • SIEC – TBD
	8.2 Identify and share funding opportunities for encryption and lifecycle planning		
	8.3 Identify capability gaps and opportunities to determine resources at the regional and local levels (caches, threat detection, etc.)		
9. Continue to leverage TA provided by federal partners	9.1 Request support from CISA	Ongoing	<ul style="list-style-type: none"> • SWIC • SIEC
	9.2 Request support from FEMA		
10. Assist local agencies to identify and request funding	10.1 Support NCSHP VIPER to identify county and local government users that can assist in requests to the General Assembly	Ongoing	<ul style="list-style-type: none"> • SIEC

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 North Carolina's assessment of their progress against the markers.

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: <input type="checkbox"/> Communications Champion/SWIC <input type="checkbox"/> LMR <input type="checkbox"/> Broadband/LTE <input type="checkbox"/> 9-1-1 <input type="checkbox"/> Alerts, Warnings and Notifications	Defined (3-4) Governance body participation includes: <input type="checkbox"/> Communications Champion/SWIC <input type="checkbox"/> LMR <input type="checkbox"/> Broadband/LTE <input type="checkbox"/> 9-1-1 <input type="checkbox"/> Alerts, Warnings and Notifications	Optimized (5) Governance body participation includes: <input checked="" type="checkbox"/> Communications Champion/SWIC <input checked="" type="checkbox"/> LMR <input checked="" type="checkbox"/> Broadband/LTE <input checked="" type="checkbox"/> 9-1-1 <input checked="" type="checkbox"/> 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

Marker #	Best Practices / Performance Markers	Initial	Defined	Optimized
6	<p>SCIP strategic goal percentage. SCIP goals are primarily strategic to improve long term emergency communications ecosystem (LMR, LTE, 9-1-1, 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)</p>	<50% are strategic goals in SCIP	>50%<90% are strategic goals in SCIP	>90% are strategic goals in SCIP
7	<p>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.</p>	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
8	<p>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:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> COML <input checked="" type="checkbox"/> COMT <input checked="" type="checkbox"/> ITSL <input checked="" type="checkbox"/> RADO <input type="checkbox"/> INCM <input checked="" type="checkbox"/> INTD <input checked="" type="checkbox"/> AUXCOM <input checked="" type="checkbox"/> TERT 	No Communications Unit process at present	Communications Unit process planned or designed (but not implemented)	Communications Unit process implemented and active

Marker #	Best Practices / Performance Markers	Initial	Defined	Optimized
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 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

Marker #	Best Practices / Performance Markers	Initial	Defined	Optimized
13	Radio programming. Radios programmed for National/Federal, SLTT interoperability channels and channel nomenclature consistency across a State / territory.	<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
14	Cybersecurity Assessment Awareness. Cybersecurity assessment awareness. (Public safety communications networks are defined as covering: LMR, LTE, 9-1-1, and A&W)	Public safety communications network owners are aware of cybersecurity assessment availability and value (check yes or no for each option) <input type="checkbox"/> LMR <input type="checkbox"/> LTE <input type="checkbox"/> 9-1-1/CAD <input type="checkbox"/> A&W	Initial plus, conducted assessment, conducted risk assessment. (check yes or no for each option) <input type="checkbox"/> LMR <input type="checkbox"/> LTE <input type="checkbox"/> 9-1-1/CAD <input type="checkbox"/> A&W	Defined plus, Availability of Cyber Incident Response Plan (check yes or no for each option) <input type="checkbox"/> LMR <input type="checkbox"/> LTE <input type="checkbox"/> 9-1-1/CAD <input type="checkbox"/> A&W
15	NG9-1-1 implementation. NG9-1-1 implementation underway to serve State / territory population.	Working to establish NG9-1-1 governance through State/territorial plan. <ul style="list-style-type: none"> • Developing GIS to be able to support NG9-1-1 call routing. • Planning or implementing ESInet and Next Generation Core Services (NGCS). • Planning to or have updated PSAP equipment to handle basic NG9-1-1 service offerings. 	More than 75% of PSAPs and Population Served have: <ul style="list-style-type: none"> • NG9-1-1 governance established through State/territorial plan. • GIS developed and able to support NG9-1-1 call routing. • Planning or implementing ESInet and Next Generation Core Services (NGCS). • PSAP equipment updated to handle basic NG9-1-1 service offerings. 	More than 90% of PSAPs and Population Served have: <ul style="list-style-type: none"> • NG9-1-1 governance established through State/territorial plan. • GIS developed and supporting NG9-1-1 call routing. • Operational Emergency Services IP Network (ESInet)/Next Generation Core Services (NGCS). • PSAP equipment updated and handling basic NG9-1-1 service offerings.

Marker #	Best Practices / Performance Markers	Initial	Defined	Optimized
16	<p>Data operability / interoperability. Ability of agencies within a region to exchange data on demand, and needed, and as authorized. Examples of systems would be:</p> <ul style="list-style-type: none"> - 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.
17	<p>Future Technology/Organizational Learning. SIEC/SIGB is tracking, evaluating, implementing future technology (checklist)</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> LMR to LTE Integration <input checked="" type="checkbox"/> 5G <input checked="" type="checkbox"/> IoT (cameras) <input type="checkbox"/> UAV (Smart Vehicles) <input checked="" type="checkbox"/> UAS (Drones) <input type="checkbox"/> Body Cameras <input checked="" type="checkbox"/> Public Alerting Software <input type="checkbox"/> Sensors 	<ul style="list-style-type: none"> <input type="checkbox"/> Wearables <input type="checkbox"/> Machine Learning/Artificial Intelligence/Analytics <input type="checkbox"/> Geolocation <input checked="" type="checkbox"/> GIS <input checked="" type="checkbox"/> Situational Awareness Apps-common operating picture applications <input type="checkbox"/> Autonomous Vehicles 	<ul style="list-style-type: none"> <input type="checkbox"/> HetNets/Mesh Networks/Software Defined Networks <input type="checkbox"/> Acoustic Signaling (Shot Spotter) <input checked="" type="checkbox"/> ESInet <input type="checkbox"/> 'The Next Narrowbanding' <input type="checkbox"/> Smart Cities <input checked="" type="checkbox"/> MCPTT Apps
18	<p>Communications Exercise objectives. Specific emergency communications objectives are incorporated into applicable exercises Federal / State / territory-wide</p>	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	<p>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.</p>	<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

Marker #	Best Practices / Performance Markers	Initial	Defined	Optimized
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 Continuum related to all components of the emergency communications ecosystem	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
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.	< 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.	< 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.	Little to no established: <input type="checkbox"/> Governance <input type="checkbox"/> SOPs/MOUs <input type="checkbox"/> Technology <input type="checkbox"/> Training/Exercises <input type="checkbox"/> Usage	Documented/established across some lanes of the Continuum: <input checked="" type="checkbox"/> Governance <input checked="" type="checkbox"/> SOPs/MOUs <input type="checkbox"/> Technology <input checked="" type="checkbox"/> Training/Exercises <input checked="" type="checkbox"/> Usage	Documented/established across all lanes of the Continuum: <input type="checkbox"/> Governance <input type="checkbox"/> SOPs/MOUs <input type="checkbox"/> Technology <input type="checkbox"/> Training/Exercises <input type="checkbox"/> Usage

APPENDIX B: ACRONYMS

Acronym	Definition
AAR	After-Action Report
AES-256	Advanced Encryption Standard-256
AUXCOMM/AUXC	Auxiliary Emergency Communications
AWS	Alert and Warning System
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
DHS	Department of Homeland Security
DPR	Domestic Preparedness Region
E9-1-1	Enhanced 9-1-1
EAS	Emergency Alert System
ECD	Emergency Communications Division
EOC	Emergency Operations Center
ESF #2	Emergency Support Function #2: Communications
ESInet	Emergency Services Internet Protocol Network
FEMA	Federal Emergency Management Agency
FirstNet	First Responder Network Authority
FOG	Field Operations Guide
GETS	Government Emergency Telecommunications Service
GIS	Geospatial Information System
HSGP	Homeland Security Grant Program
ICTAP	Interoperable Communications Technical Assistance Program
INCM	Incident Communications Center Manager
INTD	Incident Tactical Dispatcher
IP	Internet Protocol
IPAWS	Integrated Public Alerts and Warnings System
ISSI	Inter-RF Subsystem Interface
IT	Information Technology
ITSL	Information Technology Service Unit Leader
LMR	Land Mobile Radio
LTE	Long Term Evolution
MCPTT	Mission Critical Push-to-Talk
MHz	Megahertz

Acronym	Definition
NCDHHS	North Carolina Department of Health and Human Services
NCMTUG	North Carolina Motorola Trunked Users Group
NCSHP	North Carolina State Highway Patrol
NECP	National Emergency Communications Plan
NG9-1-1	Next Generation 9-1-1
NIMS	National Incident Management System
NMAC	Network Monitoring and Assistance Center
NOAA	National Oceanic and Atmospheric Administration
OEMS	North Carolina Office of Emergency Medical Services
PBS	Public Broadcasting Service
PSAP	Public Safety Answering Point
PTS	Priority Telecommunication Services
P25	Project 25
RADO	Radio Operator
SAA	State Administering Agency
SCIP	Strategic Communications and Interoperability Plan
SERC	State Emergency Response Commission
SIEC	Statewide Interoperability Executive Committee
SIGB	Statewide Interoperability Governing Board
SOP	Standard Operating Procedure
SPOC	Single Point of Contact
SRC	State Emergency Response Commission Regionalization Committee
SWIC	Statewide Interoperability Coordinator
TA	Technical Assistance
TDMA	Time Division Multiple Access
TERT	Telecommunications Emergency Response Team
TICP	Tactical Interoperable Communications Plan
TSU	Technical Services Unit
UAS	Unmanned Aircraft Systems
UASI	Urban Area Security Initiative
UAV	Unmanned Aerial Vehicle
VIPER	Voice Interoperability Plan for Emergency Responders
WEA	Wireless Emergency Alerts
WPS	Wireless Priority Service