Agency Name	Department of Safety
Audit Name	Statewide Radio Interoperability
Audit Period	November 2014
Status Report Date	January 2, 2020

Summary of Audit Observations/Findings					
Number	Observation Title	Status [place X in status column]			
		Unresolved	Partially Resolved	Substantially Resolved	Fully Resolved
1	Improve Statewide Interoperability Governance				*X*
2	Establish A Statewide Interoperable Communications Strategic Plan				X
3	Improve Standard Operating Procedures			X	
4	Develop A Statewide Interoperable Radio Network		X		
5	Consolidate State Agency Radio Network Operations		X		
6	Regularly Conduct Training		X		
7	Regularly Plan, Execute, And Evaluate Interoperability Exercises				X
8	Improve Use Of Existing Interoperable Communications Resources			X	
9	Improve Management Control		X		
10	Formalize Organizational Structure, Responsibility, And Authority			X	
11	Consolidate Department Radio Networks, Maintenance, And Dispatch			X	
12	Adopt Incident Command System Administrative Rules And Institutionalize Related Policy And Procedure		X		
13	Improve Channel Matrix Management			X	
14	Improve Radio Network Information Technology Controls		X		

15	Improve Physical Security Controls		X		
16	Improve Maintenance Management			X	
17	Improve Continuity Of Operations Planning			X	
18	Improve Performance Measurement And Evaluation		X		
19	Improve Management Of Communications Hardware			X	
20	Improve Oversight Of Interoperability-Related Committees And Their Compliance With State Laws				X

EXAMPLE Observation 1: No Formal Risk Assessment over XYZ program

Summary of Finding: Agency has not performed a formal risk assessment. An effective assessment is the foundation for developing and implementing effective internal controls to eliminate, mitigate or otherwise manage identified risks.

Current Status: Substantially Resolved. Agency in connections with DAS, utilized the Internal Control Toolkit and performed a formal risk assessment. The next step is to implement new processes and controls to minimize the identified risks. Completion Date estimated: August 2019

Observation 1: **Improve Statewide Interoperability Governance**

Summary of Finding: **The State did not have a formal inter-agency governance structure responsible for establishing coordinated, efficient, and effective interoperable radio communications.**

Current Status: The Statewide Interoperability Executive Committee (SIEC) was signed into law by Governor Hassan in 2015. RSA 21P:48 outlines the authority of the SIEC as its membership is representative of State, County, and local; Police, Fire, and EMS; non-governmental organizations; the private sector; and the New Hampshire National Guard. HB 1545 increased the SIEC membership and was signed into law by Governor Sununu on June 18th, 2018. The SIEC is governed by an adopted and approved Charter that describes the membership and its responsibilities.

Observation 2: **Establish A Statewide Interoperable Communications Strategic Plan**

Summary of Finding: **During the audit period, the State lacked a functional strategic plan guiding statewide interoperable communications decisions and investments.**

Current Status: The Statewide Interoperability Executive Committee through the efforts of the US Department of Homeland Security, Cyber Infrastructure and Security Agency (CISA), Emergency Communications Division (ECD), Technical Assistance (TA) Program conducted workshops in both 2014 and 2018 that created and updated the New Hampshire Statewide Communications Interoperability Plan (SCIP). The plan establishes Goals and Objectives, with expressed Due Dates, assigned to the SIEC's Working Groups to address statewide communications interoperability.

Observation 3: **Improve Standard Operating Procedures**

Summary of Finding: **The DOS lacked effective policies and procedures governing DOS-controlled interoperability resource use, management, and deployment.**

Current Status: The DESC has developed a series of policies that include the following: Asset Management, Site Maintenance, Help Tickets, Deployable Assets, Site Security, Password Management, Financial Disclosure Statements and Interoperability Exercises. Other policies are in the pipeline.

A formal process relative to the development of an Asset Control system has begun. This includes obtaining a current inventory of al assets including but not limited to Trailers, Radios, Command Vehicles, interoperability radio systems (CradlePoints and trailers) as well as the process for requesting and vetting requests for Communications deployable assets.

Observation 4: **Develop A Statewide Interoperable Radio Network**

Summary of Finding: **The State lacked a statewide interoperable radio network or a unified system of local and regional radio networks to achieve seamless interoperable communications statewide.**

Current Status: The DESC is in process of installing new equipment and updating the LMR Network. It is estimated that the entire state has the current capability to be interoperable. However, training and practice will be needed to make it totally functional. The system will be robust and redundant once fully operational. The process to update all of the non-DOS stakeholders will take time to complete.

The installation of the new P25 equipment on the LMR Network is nearing completion. Some new vulnerabilites have surfaced particularly in those areas where there are shared resources with DNCR. Those issues have been identified and are being mitigated. A meeting with DNCR to discuss those specific issues is scheduled for January.

Observation 5: **Consolidate State Agency Radio Network Operations**

Summary of Finding: **State agencies lacked a cohesive, strategic approach to radio network operations. This has led to the proliferation of radio networks in State government, and resulted in duplicative networks, functions, and, potentially, costs.**

Current Status: The DESC has been working with other State Agencies that share infrastructure in the LMR arena to better coordinate functionality, reduce duplication and improve coordination. The primary agencies include DNCR and DOT along with DOS. We have identified areas of mutual concern to identify

where cost savings are possible but more importantly to where we can "piggy back" and improve service and operational efficiency. Additionally, the DESC has started an LMR Advisory Group of all State LMR users. That includes Fish & Game, Liquor Enforcement, DOC, DOT, DNCR, Fire Safety, State Police, HSEM and DESC. The goal is to improve the quality of service, identify areas of improvement and to share resources where possible. The group has already identified two areas: security and training that need immediate attention.

During the past year DESC has met with representatives of DNCR and DOT to discuss consolidation of LMR functions under the one authority DOS. The concept is embraced, however the next step is to make a presentation to all of the participating Commissioners and to establish a framework to move forward. That is planned for Spring of 2020.

Observation 6: **Regularly Conduct Training**

Summary of Finding: **The DOS lacked comprehensive, ongoing communications and radio training for responders statewide.**

Current Status: The Statewide Interoperability Coordinator, along with representatives from the SIEC have negotiated with both the Police Standards Training Council and the New Hampshire Fire Academy by establishing a four-hour training curriculum on Interoperability Communications at the recruit level. Developed in concert with the recruit level training is a one-hour online Interoperability Communications training curriculum for In-service personnel specifically designed for Police, Fire, EMS, and Dispatchers.

Our personnel in the Bureau of Interoperability have begun coordinating with FSTEMS and PSTC to update the on-line training available. This training is MANDATORY for any agency who has signed on to receive funding for radio reprograming of their radios to include the "H" Zone, Interoperability Matrix.

Observation 7: **Regularly Plan, Execute, And Evaluate Interoperability Exercises**

Summary of Finding: **The DOS lacked a cohesive, systematic approach to planning, conducting, and evaluating communications interoperability exercises.**

Current Status: In February of 2018 DOS adopted a policy for Interoperability Exercises, DOS Policy: 18-001. The policy mandates the SWIC and the Director of the HSEM to conduct a minimum of two multi-disciplinary exercises with statewide or regional partners in addition to including all DOS users of the LMR system.

Additionally, the policy requires each DOS Director, whose Division utilizes the LMR system, to conduct 2 reviews of actual incidents or events that involved communications interoperability and to identify successes, failures and lessons learned.

In 2019, we have conducted AAR's on the NASCAR race preparation and execution well as the response to the BOW Power Plant / Coal protests where not only our assets but our personnel (CommL and CommT) were deployed to assist in communications support. We also conducted an exercise facilitated by the CISA through DHS to indoctrinate Directors at the Department of Safety as to their roles regarding Communications and Interoperability during major incidents.

Observation 8: **Improve Use Of Existing Interoperable Communications Resources**

Summary of Finding: **Use of DOS-controlled interoperability resources was limited during SFY 2014.**

Current Status: The position of the SWIC has created the necessary groups within the SIEC to increase awareness and use of interoperability assets. The underlying need is for training at all levels and exercises that increase proficiency. They have made substantial progress. The use of Zone "H" (Interoperability zone) has also been a priority but progress has been slow. Zone "H" requires both training and the addition of available repeaters to ensure it can be used over a larger area. DESC is making strides for these improvements.

DESC maintains 2 caches of portable radios, one for Lawnet and the other for FireEMSnet. The caches roll out with the Command Vehicles so that they are always available at an incident. Although they are available, most public safety users have their own P25 radio that has the required capabilities.

The Embassy switch has been replaced with what is called the MCORE switch. It has dual capabilities and is redundant. Currently it is only used by DOS, in Phase II of the P25 project the system will be available to all public safety dispatch centers. Training will accompany that implementation. It is an IP based system that will allow for easy deployment.

In June 2020, the H Bank radio frequencies will be available to all public safety agencies and their dispatch centers. There is a lack of training and awareness about the H Bank although the Fire service uses and trains regularly with it. Law enforcement does not rely on it as much, in part because many police related incidents are short term in nature and don't utilize an ICS system. However education and training is on the SIEC agenda for 2020.

Observation 9: **Improve Management Control**

Summary of Finding: **The Department of Safety (DOS) lacked management controls sufficient to ensure effective and efficient radio network operations and related to interoperability functions for which it was responsible.**

Current Status: The existing management controls are not perfect but progress has been made. For instance, the consolidation of the communication maintenance function has significantly improved controls over asset management. It has allowed for better training of technicians, documentation of maintenance, monitoring of lifecycle and improved security at all sites. The introduction of the CAM (Communications Asset Manager) system puts needed information into the hands of those who need it. Once the Help Tickets are implemented it will allow better metrics to manage time and equipment.

Observation 10: **Formalize Organizational Structure, Responsibility, And Authority**

Summary of Finding: **The DOS lacked a formal organizational structure, responsibilities, and delegations of authority to centrally manage and control internal radio operations and statewide interoperability functions.**

Current Status:

This year there were more adjustments to the organizational structure at DESC in order to better manage the internal network operations. A full time Admin IV has been added to the Communications Maintenance Unit to better coordinate immediate and strategic operational goals. One of their roles is to coordinate more efficiently with the SWIC and the SIEC.

Observation 11: **Consolidate Department Radio Networks, Maintenance, And Dispatch**

Summary of Finding: **The DOS operated at least three radio networks, two supporting maintenance functions, two full-time and six part-time or intermittent dispatch functions, and retained infrastructure for two additional dispatch facilities as of June 2014. Consolidating networks and dispatch functions can increase efficiency, improve emergency communications, standardize procedures, and simplify maintenance and training.**

Current Status:

The LMR Advisory group, which consists of all state law enforcement, is developing policies to have improved management and accountability to the users of the state's LMR. Participants include Liquor Enforcement, Fire Safety, Fish and Game, Corrections and State Police. The group meets at least semi-annually and has made progress in improving collaboration.

Observation 12: **Adopt Incident Command System Administrative Rules and Institutionalize Related Policy and Procedure**

Summary of Finding: **The DOS has not established a statewide Incident Command System (ICS) and the DSP has not operationalized ICS.**

Current Status: The Department of Safety has developed a policy whereby exercises that involve Department of Safety personnel, equipment, or coordination, will, wherever practical, use the NIMS (National Incident Based Management System) during planning, executing and evaluating exercises relating to interoperability of the Land Mobile Radio (LMR) system. This will further reinforce the use of and familiarization of ICS/NIMS within our Department.

Rule Saf-C 3900 provides for response to "release of hazardous substances" and needs to be expanded for all related responses to threats / disasters, generally. Work will commence to address this in rulemaking. NIMS / ICS training for First Responders occurs as a function of recruit training for Police Officers and Firefighters, and will be part of joint DOS –involved exercises pursuant to our SOP

Work is currently underway between the Department of Safety Legal Division as well as the Division of Homeland Security / Emergency Management & Fire Standards and Training regarding the revision of the rules relative to implementation of ICS for HazMat response – we are monitoring progress.

Observation 13: **Improve Channel Matrix Management**

Summary of Finding: **The DOS did not establish controls over, or provide guidance to, stakeholders on managing statewide channel matrices. Additionally, the DOS did not ensure federal guidance or local input were considered when creating and updating statewide channel matrices.**

Current Status: The Statewide Interoperability Executive Committee (SIEC) through its Radio Frequency Working Group has developed a standardized Matrix of Code Plugs approved by the SIEC. The New Hampshire Department of Safety through its Grant Managements Office and in collaboration with the SWIC's Office has established grant opportunities for every public safety agency in New Hampshire to have their radios reprogrammed (approximately 14,000 radios) to the statewide approved Radio Matrix. The reprogramming effort will take place over a two-year period beginning in October 2019.

Observation 14: **Improve Radio Network Information Technology Controls**

Summary of Finding: **The DSP's mission-critical radio network lacked formalized information technology (IT) controls to help deter, prevent, and detect intrusion. A robust IT control system helps ensure a network is safe and secure; weaknesses and risks are identified and mitigated; intrusions are detected and resolved in a timely manner; and the data contained therein are reliable.**

Current Status: More progress has been made in this area including enhancing physical security at our controlled sites. Additionally, we are identifying what equipment should require password protection and have an administrator oversee that. Of the 50 sites that the LMR utilize, DOS is only in control of 20% of those sites and as a result any changes in security has to be negotiated.

Observation 15: **Improve Physical Security Controls**

Summary of Finding: **The DOS lacked a formal approach to physical security of radio network assets.**

Current Status: DOS received a Homeland grant to move toward digital locks at radio sites we control. The goal is to tie the system into the existing IPOC and PSAP locations as well as the Radio Maintenance facility.

Observation 16: **Improve Maintenance Management**

Summary of Finding: **DOS controls over radio network maintenance lacked the necessary oversight, policies, procedures, and agreements to ensure its maintenance program was cohesive and efficient.**

Current Status: DOS has developed a comprehensive web application, CAM (Communications Asset Manager) to track all aspects of the communications infrastructure and maintenance. The database architecture provides specific data storage related to Property, Tower, Antennas, Buildings, Electronic Radio Equipment, Generators and fuel status to include many date driven elements such as component installation, warranty expiration, other end of support/end of life dates as well as regular maintenance tracking with an automated mobile device inspection application. DOS personnel are currently migrating existing paper based information into the system as well as inputting new site visit and maintenance activities as they occur. The application has also been extended to other statewide communications stakeholders for improved statewide visibility of communication resource.

Observation 17: **Improve Continuity Of Operations Planning**

Summary of Finding: **The DSP lacked operational continuity of operations plans (COOP) at the end of June 2014.**

Current Status: The New Hampshire Department of Safety, through the Division of Emergency Services and Communications is currently in the process of rolling out it's updated P25 Radio system. This system is replacing an aged, end-of-life radio system that had, by design, no redundancy, and relied upon existing maintenance to remain operational. The new Motorola system is designed to have quadruple fail-over built into its core, meaning, that 4 separate internal systems would have to fail in the core before radio communications ceased on the DOS network. This system is designed around two (2) geo-diverse cores. One located in Concord at the IPOC and one located in Laconia at the DESC PSAP. Radio Communications for NHSP are being established at the Dispatch center at the IPOC as well as at the Laconia PSAP. This design provides redundant backup of both the critical radio infrastructure (2 quadruple-redundant cores) and two separate locations where critical communications can be maintained for NHSP and other entities utilizing the radio system. Once the system is tested and accepted, specific training of Dispatch personnel on the new consoles will be undertaken. Motorola-specific training for the radio technicians charged with maintaining the system is currently on-going. These training sessions are/will be conducted by Motorola trained technicians on the new system. Failover plans for COOP purposes will be developed once the system is completely tested and accepted.

Observation 18: **Improve Performance Measurement And Evaluation**

Summary of Finding: **The DOS lacked agency-wide and subdivision-specific strategic and operational plans related to radio operations or interoperability. The DSP lacked performance metrics related to its radio network, such as up time and user satisfaction. The DSP network contained known problems and coverage issues for extended periods, despite a series of external evaluations detailing the extent of the problems and an assessment of interoperability issues.**

Current Status: Loss of primary electrical power is the most frequent cause of communication outages, DOS has implemented semi-annual professional generator service maintenance and inspection for all 9 sites with backup generator ownership. Date tracking of expiring components such as batteries and database flags of components requiring repairs or follow up are being tracked through the CAM application described in item 16. A generator site refueling plan is under implementation with two sites actively monitored with remote fuel monitors and automatic delivery, four sites are slated to be monitored remotely this fiscal year with automatic delivery, and the remaining three where physical access is difficult, will be undergoing site evaluations through an RFI/RFP process to implement a more reliable refueling and monitoring system. Additional data transmission and network monitoring systems are being reviewed to further improvements in this area.

Two of the nine sites, in addition to the two configured for monitoring and automatic delivery have been up fitted with new gas piping and failover switch valves which has increased the available gas supply. Reserve propane tanks for remote access sites have been purchased and are filled in a ready reserve status. Proactive winter fuel maintenance has been coordinated on behalf our landlords to improve generator reliability at some of our most critical mountain top sites. Additional fuel supply stabilization and monitoring is planned for the spring/summer of 2020 under a new statewide refueling contract.

Observation 19: **Improve Management Of Communications Hardware**

Summary of Finding: **The DOS spent federal grant money on at least 97 radio communications-related devices valued at almost $682,000, with no defined purpose or plan, and they remained unused for between seven and 16 years.**

Current Status: The Department of Safety, through the Division of Emergency Services and Communications has conducted a comprehensive up-to-date inventory of related Communications equipment, owned by the Department of Safety. The purpose was to determine what equipment we could deploy to enhance communications and what equipment is no longer useful, given the roll out of the upgraded P25 radio project. As a result, we have undergone a complete assessment of our interoperable equipment including our IMV, Command Trailer, Interoperable Communications Deployable trailers, and Cradelpoint solutions. Much of the older, outdated equipment following the inventory has been removed from the inventory according to the recommendation and marked as surplus. A radio cache of reserve radios has also been created for ease of deployment if needed for an emergency. Much of the reserve equipment is stored in locked storage containers or in the radio shop. Some supplies that are used for maintenance purposes are stored locally for replacement to maintain emergency communications, while larger expenditures are bought per a plan outlining the need for long-term replacement.

Progress related to deployable assets and communications equipment, including, but not limited to inventory assessment and control; policy development; and determining future needs, is in progress through the Division's Bureau of Interoperability which involves both the SWIC and members of the Radio Communications Team. This is a high priority for the Division as we identify what capabilities we have as well as what the needs are for our public safety partners within and outside of State Government. The reserve radios have been fully serviced and updated with the latest radio channels for an increased level of interoperability readiness.   Additional up fitting and servicing of existing equipment is underway validating the grant funded purchases.   This equipment has been deployed in the last six months for training, exercises and actual events bridging communications between state, regional and local public safety agencies.

This observation will be on-going.

Observation 20: **Improve Oversight Of Interoperability-Related Committees And Their Compliance With State Laws**

Summary of Finding: **During the audit period, the State lacked a formal committee sufficiently empowered to effect statewide interoperability. The DOS formed several variously-named committees to address aspects of decision-making related to interoperability. Their creation was neither legislatively mandated nor chartered or sanctioned by executive action, until 2011 when legislation obligated the Governor to recognize three of them formally to continue their existence.**

Current Status: It was widely recognized that New Hampshire benefitted for years from an assortment of committees that were engaged on issues surrounding interoperability communications. In 2015 when the Statewide Interoperability Executive Committee (SIEC) was created, it brought all these various committees into a single committee with a single direction. Established by RSA 21P:48 and under the direction of the Commissioner of Safety and coordinated by the Statewide Interoperability Coordinator (SWIC), who acts as an officio member of the SIEC, the SIEC addresses statewide issues as they relate to interoperable communications. In compliance with RSA 21P:48, the SIEC has oversight responsibility to statewide interoperability, maintaining three Working Groups i.e. the Data Communications Working Group that has oversight on FirstNet activities statewide; the Operations Working Group which creates policy and procedure as it pertains to SIEC activities; and the Radio Frequency Working Group which has oversight and created the Statewide Radio Frequency Matrix. Each of these Working Groups have sub-committees assigned based on the subject matter being explored.