State of Idaho

Enhanced/Next Generation 9-1-1 Plan Update

May 7, 2020

Final

Prepared by:

"Unleashing the Power of Technology"

Federal Engineering®

Federal Engineering, Inc.
10560 Arrowhead Dr, Suite 100
Fairfax, VA 22030
703-359-8200

Executive Summary

FE/Kimball (***FE***) respectfully submits this updated ***Next Generation 9-1-1 Plan*** to the Idaho Public Safety Communications Commission (IPSCC).

This document takes an updated strategic look at the original five-year-old plan and considers current initiatives and the progress of the migration to NG9-1-1 since its original preparation. It also identifies progress of the initial stages of Idaho's execution of the 2013 version of the ***Next Generation 9-1-1 Plan***, and the next steps required to complete the vision articulated in the 2013 Plan. It is intended to provide specific direction regarding the migration to a fully functional, statewide NG9-1-1 system.

Idaho's current E9-1-1 network is comprised of many telephone company networks designed and installed more than 40 years ago and remains largely unchanged today. Most of the State's 48 emergency communications centers (ECCs), formerly referred to as public safety answering points (PSAPs), are directly connected to a telephone company central switch that routes calls to the appropriate ECC. It was not designed to facilitate the transmission of text messages and data images such as pictures and video.

While the current 9-1-1 system has served the State well for decades, consumers and new technologies are driving Idaho's communications industries to rapidly move to an infrastructure that offers enhanced capabilities and increased capacity. The new infrastructure would utilize Emergency Services Internet Protocol networks (ESInets) to easily interface with the communication methods available today and those communications methods of the future. Next Generation 9-1-1 involves the evolution of E9-1-1 to an all-Internet Protocol (IP)-based emergency communications system.

Consumers continue to drive the telecommunications landscape. ECCs are expected to be able to meet a wider range of communication methods including social media, as well as data from a growing cadre of over-the-top (OTT) Applications being marketed as 9-1-1 capable. Today, most ECCs in Idaho do not support these applications; therefore, there is a greater need to continue the transition of Idaho's current Enhanced 9-1-1 (E9-1-1) network into the Next Generation of 9-1-1 (NG9-1-1).

A communications shift is also occurring among the hearing and speech impaired community. Because of the nearly obsolete Telecommunication Device for the Deaf/Teletype (TDD/TTY) equipment and lack of portability, these individuals have embraced new technologies in their everyday lives, such as wireless phones and smart devices that bring portability and ease of use to these individuals. Unfortunately, they are

unable to use these devices to make a text-based 9-1-1 call because Idaho's legacy analog 9-1-1 network cannot accept this kind of technology.

The transition to NG9-1-1 includes resolving the issue of locating the wireless 9-1-1 caller. It is the public's belief that the ECCs know, geographically, exactly where the 9-1-1 caller is located. Today, the location of callers and the routing of wireless 9-1-1 calls are dependent on outdated technology. This presents a problem for ECCs as often callers do not know their exact location. Another issue is the inability to transfer misrouted calls to the correct ECC. This results in longer call processing times, and delays in the dispatch of emergency services. In a NG9-1-1 system, a standardized, statewide Geographic Information Systems (GIS) database is critical for determining caller location, call routing, and the dispatch of resources.

The National Emergency Number Association (NENA), continues the development and publication of NG9-1-1/ESInet standards. The most frequently referred to standard is the NENA i3 Standard for Next Generation 9-1-1 (American National Standard Candidate NENA-STA-010.3-201x). This standard defines the ESInet model, functions, interfaces and other required services.

This new digital network will drive changes in the ECC environment. The progress of this technology requires stakeholders to address emerging technologies through public policy changes. Changes in state and federal requirements, funding methods, diverse demographics and jurisdictions will present significant challenges and unique opportunities.

Idaho's urban areas tend to have greater resources, so the State has bridged the technology gap with the implementation of the Dedicated Enhanced Emergency Communications Grant Fund Program. House Bill 80 of 2013 was passed and removes the sunset clause in Section 31-4819 that would have ended the program in 2014.

There remains an urgent need for the resources necessary to manage and aid the IPSCC with the implementation and maintenance of the NG9-1-1 network and program across Idaho. The IPSCC must continue to consider creating new staff positions to support the increased tasks and planning involved in the State's transition to NG9-1-1. The creation of a NG9-1-1 Program Manager position is complete, and it is now important that a NG9-1-1 Project Manager and an Administrative Assistant position be created.

This iteration of the State of Idaho Enhanced/Next Generation 9-1-1 Plan (Plan) identifies and details the following steps and tasks necessary to assess, plan, design, test, implement and maintain a comprehensive NG9-1-1 System in Idaho.

- Initiation
- Assessment and analysis
- Requirements, design and planning
- Proof of Concept
- Implementation
- Maintenance and management

In each phase there are studies, reports, requirements, designs and plans related to the following tasking areas:

- Regulatory, legislative and funding
- Governance
- Technology
- Operations
- Security

In 2019, there remains a need in many Idaho communities to increase the support to Public Safety communications systems. Further amendments to the Act will be required and are addressed in this report. They include, but are not limited to the following:

- Multi-Line Telephone System Legislation
- Point of Sale Legislation
- Other funding options

The IPSCC continues to promote collaboration between all ECCs regarding network governance, procurement and implementation, and is the driving force of the migration to NG9-1-1. As such, the Commission must continue to strive to fulfill its purpose and responsibilities as prescribed in Idaho Code § 31-4816.

This document makes formal recommendations to further guide the IPSCC in the execution of its vision and to further define a tactically focused plan for Statewide NG9-1-1 implementation. This Plan is intended to be a living document and enables the State to establish an ESInet(s), migrate ECCs to NG9-1-1 technology and change legislation.

Meeting these challenges and benefiting from opportunities will require comprehensive planning. This State of Idaho Plan represents the first step towards the continued excellence in 9-1-1 services today and into the future. The IPSCC, which replaced the

Idaho Emergency Communications Commission (IECC), continues to strive to facilitate a cooperative means for the migration to NG 9-1-1 services in the State. This Plan is intended to be a living document and will enable the State to qualify for future Federal Grant funds. To maintain its relevancy, the IPSCC and its Program Manager, in consultation with 9-1-1 stakeholders, will formally review and update this plan periodically.

Table of Contents

1. Introduction

1.1 Background

1.1.1 Idaho Emergency Communications Commission

The Idaho Emergency Communications Commission (IECC) was created by the Idaho Legislature in 2004 pursuant to amendments to the Idaho Emergency Communication Act, Idaho Code § 31-4801 *et seq.*

The mission of the IECC was to enhance Idaho's public health, safety, and welfare by assisting emergency communications and response professionals in the establishment, management, operations, and accountability of consolidated emergency communications systems.

The IECC worked diligently to address the needs and improve the 9-1-1 telephone systems operated by Idaho counties and cities throughout the state. It was also tasked with fostering the migration of ECC technology to accommodate wireless Phase II location technology.

1.1.2 Idaho Public Safety Communications Commission

The Idaho Public Safety Communications Commission (IPSCC) was established in 2016 by Idaho Statute Title 31, Chapter 48, Sections 15, 16, 17, 18, 19, 20 and 21 and effectively replaced the IECC.

The purpose of the IPSCC is “to assist cities, counties, ambulance districts and fire districts in the establishment, management, operations and accountability of consolidated emergency communications systems.”[1] This purpose and the responsibilities of the Commission as granted by the Idaho Legislature are centered on finding solutions for counties and cities to keep up with technological advances in the area of 9-1-1 and emergency communications for Public Safety purposes.

The IPSCC is comprised of 18 members. Many of the members represent various local Statewide governmental associations, and the public at large from all regions of the state of Idaho. All members are appointed by the Governor. Two are members by nature of

[1] Idaho Emergency Communications Act, Idaho Code § 31-4815(1).

their position: Director of the Idaho State Police or designee and the Director of the Office of Emergency Management or designee.

The following entities are currently represented on the IPSCC:

- Office of Emergency Management
- Idaho State Police
- Idaho Technology Authority
- Idaho House of Representatives/Senate
- Association of Idaho Cities
- Idaho Association of Counties
- Idaho Sheriff's Association
- Idaho Chiefs' of Police Association
- Idaho Fire Chiefs Association
- Idaho State Emergency Medical Services Communications Center
- Idaho Native American Tribes
- DIGB 1
- DIGB 2
- DIGB 3
- DIGB 4
- DIGB 5
- DIGB 6

The Mission of the IPSCC is to, "Enhance Idaho's public health, safety and welfare by assisting emergency communications and response professionals in the establishment, management, operations and accountability of consolidated emergency communications systems."[2]

[2] http://www.e911.idaho.gov/about.htm

1.1.2.1 Idaho Public Safety Communication Commission Legislative Authority

Since the original enactment of the Idaho Emergency Communications Act, there is still a need in many Idaho communities to increase the support to Public Safety communications systems. In amendments to the Act in 2004, 2007 and again in 2008, the Legislature found:

- Since the original enactment of the Emergency Communications Act in 1988, many of Idaho's communities have found that they are lacking in the resources to fully fund emergency communications systems at the local level;
- Changes in technology and the rapid growth of communications media have demonstrated that financing such systems solely by a line charge on subscribers to wire line services does not reflect utilization of emergency communications systems by subscribers to wireless and other forms of communications systems;
- There is a need to enhance funding for the initiation and enhancement of consolidated emergency communications systems throughout the state;
- Utilization of cellular telephones and voice over internet protocol (VoIP) communications to access emergency communications systems has substantially increased citizen access to emergency services while at the same time increasing demands upon the emergency response system;
- In order to protect and promote the public health and safety, and to keep pace with advances in telecommunications technology available to the public, there is a need to plan and develop a statewide coordinated policy and program to ensure that Enhanced 9-1-1 services are available to all citizens of the state and in all areas of the state.
- The need to implement planning for the migration to the Next Generation 9-1-1.[3]

With these directives from the Legislature, the Commission continues to fulfill its purpose and responsibilities as prescribed in Idaho Code § 31-4816 to:

1. Determine the status and operability of consolidated emergency communications systems Statewide

[3] Emergency Communications Act, Idaho Code § 31-4801(a).

2. Determine the needs for the upgrade of consolidated emergency communications systems

3. Determine the costs for the upgrades

4. Recommend guidelines and standards for operation of consolidated emergency communications systems

5. Recommend funding mechanisms for future implementation of upgrades

6. Serve as a conduit for the future allocation of federal grant funds to support the delivery of consolidated emergency communications systems

7. Report annually to the legislature of the State of Idaho on the planned expenditures for the next fiscal year, the collected revenues and moneys disbursed from the fund and the programs or projects in progress, completed or anticipated

8. Enter contracts with experts, agents, employees or consultants as may be necessary

9. Promulgate rules…to carry out the purposes of the Commission's duties.

1.1.2.2 The Idaho Public Safety Communications Commission as a Resource

The IPSCC uses its exclusive position as a State of Idaho governmental entity to provide a Statewide perspective on the range of issues facing the emergency communications community. This position enables the IPSCC to support and be a resource for ECCs to address issues.

1.1.2.3 Idaho Public Safety Communications Commission Program Manager

The IPSCC is currently budgeted for one employee: an E9-1-1 Program Manager. The Program Manager assists the IPSCC in accomplishing their stated mission, purpose and responsibilities. It is the responsibility of the Program Manager to manage all administrative tasks of the IPSCC including ensuring its meetings are publicized and accessible to the public in accordance with Idaho's open meeting statutes. The Program Manager administers the IPSCC Dedicated Enhanced Emergency Communications

Grant Fund with the help of one half time employee, as well as the distribution of grants and associated audits.

Additionally, the Program Manager represents the State of Idaho's interest through membership and active participation in professional organizations including the National Association of State 9-1-1 Administrators (NASNA), NENA, and the Association of Public-Safety Communications Officials International (APCO). The Program Manager serves as the primary contact point for the IPSCC to the Federal Communications Commission (FCC). In partnership with ECC Administrators, the Program Manager plays an important role in the development, implementation and evaluation of E9-1-1 services and technologies. The Program Manager serves as single point of contact for service providers and vendors of E9-1-1 equipment in the State.

With the implementation of the Dedicated Enhanced Emergency Communications Grant Fund Program, the Program Manager's responsibilities increased significantly. The position is now strained to keep up with the required administrative duties in addition to grant evaluation, awards, and increased roles of the IPSCC from the IECC and subsequent assessments. The Program Manager's responsibilities will increase substantially as the State moves toward the implementation of a statewide NG9-1-1 system. As such, there is also a recognized need for the creation of a new Program Administrative Assistant position. The Program Assistant will assist the Program Manager with the transitional needs such as supporting the central point of information for NG9-1-1 issues, including the promulgation of information, stakeholder support, as well as any education and training issues.

1.1.2.4 Idaho Public Safety Communications Commission Public Safety Answering Point Standards Committee

The IECC formed the Public Safety Answering Point (PSAP)[4] Standards & Training Committee as an advisory committee in 2007. It is comprised of thirteen members from Emergency Communications Centers (ECCs) across the state of Idaho, and members with extensive experience in law enforcement or as an Emergency Communications Officer (ECO). It is comprised of representatives from each of six districts who serve with city police departments, sheriff's offices, or the Idaho State Police.

The PSAP Standards & Training Committee has two representatives appointed to the IPSCC. The PSAP Standards & Training Committee continues collaboration with each

[4] May be renamed ECC Standards & Training Committee in the future to align with Plan and legislative content.

ECC agency in the state using surveys, regional trainings and regular meetings, and constantly strives to support and enhance the professionalism and standardization of each of Idaho's ECCs and their ECO staff.

The primary objective of the PSAP Standards & Training Committee is to define, create, and implement standardized training and education, as well as enhance the professional development of emergency dispatchers (ECOs) and dispatch centers in the state of Idaho.

After it was established, the Committee identified three objectives as follows:

- Establish entry-level training for ECOs to meet Idaho Peace Officers Standards Training (POST) for certification for use by all ECCs. This training is now available in classroom settings or as a POST hosted asynchronous online curriculum.
- Prepare conferences for ECC development for ECOs that cover a variety of topics ranging from basic dispatch skills to intermediate and advanced technologies.
- Establish a community awareness and public education campaign centered on the importance of the role of the ECO and the ECC.

In 2018, the Committee accomplished the following training milestones:

- **Quarter 1:** "AMBER Alert Training" taught by Tanea Parmenter & Trisha Marosi of the ISP
- **Quarter 2:** "Purpose Over Preference" taught by Andrea Dearden of the Ada County Sheriff's Office
- **Quarter 3:** "Suicide Prevention" taught by Kim Kane, formerly of Idaho Department of Health & Welfare
- **Quarter 4:** Training was provided at the 8th Annual PSAP Conference

2020 PSAP Standards & Training Committee Goals:

- Prepare and implement the 9th Annual PSAP Conference in Coeur d'Alene.

- Provide quarterly training opportunities for ECOs, to be presented in various areas of the state.

- Continue collaboration with POST, stakeholders, and the IPSCC in the implementation of mandatory minimum dispatch hiring and training standards, both for an online training option and for future classroom-based academies.

- The committee will continue to collaborate with the IPSCC, Department of Health and Welfare (DHW) and all other stakeholders in seeing Idaho adopt and mandate the use of emergency medical services (EMS) standardized call taking and dispatching protocols.

2. CURRENT 9-1-1 ENVIRONMENT

2.1 9-1-1 Funding

Funding of Basic 9-1-1 and wireless E9-1-1 is provided through an assessment of a fee on subscribers of local landline and wireless access in addition to interconnected VoIP service lines.

The emergency communications fee cannot exceed $1.00 per month per access or interconnected VoIP service line. The fee is limited in its use to finance the initiation, maintenance, operation, enhancement and governance of a consolidated emergency communications system and provides for the reimbursement of telecommunications providers for implementing enhanced consolidated emergency systems. All emergency communications fees collected and expended are required to be audited by an independent, third party auditor.[5]

Idaho's PSAPs[6] *are permitted to use the 9-1-1 fees to pay for the lease, purchase or maintenance of emergency communications equipment for basic and enhanced consolidated emergency systems. This includes necessary computer hardware, software, database provisioning and training. Only those salaries that are directly related to enhanced consolidated emergency systems are eligible. Also eligible are costs of establishing enhanced consolidated emergency systems, managing, maintaining and operating hardware and software applications. Agreed-to reimbursement costs of telecommunications providers related to the operation of enhanced consolidated emergency systems are also allowable.*[7]

All other expenditures necessary to operate enhanced consolidated emergency systems and all other safety or law enforcement functions are the responsibility of local governing bodies.[8]

As of 2017, the IPSCC conducted a comprehensive review of the Emergency Communications Act concerning the use of emergency communications fees.

[5] Emergency Communications Act, Idaho Code § 31-4804 (1).
[6] Referred to as emergency communications centers (ECCs) throughout this document and future legislation
[7] Emergency Communications Act, Idaho Code § 31-4804 (5).
[8] Ibid.

The Emergency Communications Act (Idaho Code § 31-4804 (5)) defines Use of Surcharge Fees as follows:

> *(5) Use of fees. The emergency communications fee provided hereunder shall be used only to pay for the lease, purchase or maintenance of emergency communications equipment for basic and enhanced consolidated emergency systems, and next generation consolidated emergency systems (NG9-1-1), including necessary computer hardware, software, database provisioning, training, salaries directly related to such systems, costs of establishing such systems, management, maintenance and operation of hardware and software applications and agreed-to reimbursement costs of telecommunications providers related to the operation of such systems. Use of the emergency communications fee should, if possible, coincide with the strategic goals as identified by the Idaho public safety communications commission in its annual report to the legislature. However, the county or 9-1-1 service area governing board has final authority on lawful expenditures. All other expenditures necessary to operate such systems and other normal and necessary safety or law enforcement functions including, but not limited to, those expenditures related to overhead, staffing, dispatching, administrative and other day-to-day operational expenditures, shall continue to be paid through the general funding of the respective governing boards; provided however, that any governing body using the emergency communications fee to pay the salaries of dispatchers[9] as of March 1, 2006, may continue to do so until the beginning of such governing body's 2007 fiscal year.*

This determined that the following items are considered part of the overall consolidated emergency communications system and therefore may be funded by the fees collected and remitted to the counties/cities:

- Telecommunications network charges related to 9-1-1 call taking—this would include 9-1-1 trunks, lines or circuits and frame relay or broadband circuits to connect to the county or city ECC for the handling of Basic, Enhanced and future Next Generation 9-1-1 technology related purposes. It also includes circuits needed for back up and redundancy.

- Telephone, mapping and voice recording system hardware—computer terminals and servers associated with each hardware system, computer monitors/screens and printers, mobile data terminals (MDTs), dispatch phones, headsets and

[9] Referred to as emergency communications officers (ECOs) throughout this report and future legislation

charging systems including uninterruptible power supply (UPS) and backup generators typically used to protect computers and telecommunication equipment in the event of a power failure.

- Computer software—software residing on the computer terminals and servers in the ECC that supports each hardware system such as mapping and call recording/logging, Emergency Medical Dispatch (EMD) software, language translation services (i.e. Language Line), TDD software/equipment, 9-1-1 telephone system software capable of handling landline and E9-1-1 wireless Phase I and Phase II calls and future NG9-1-1 technologies.

- Computer terminal and server maintenance, and licensing—all annual maintenance agreements related to the 9-1-1 call taking hardware, software and licensing.

- Information Technology Administrator, ECC Manager/Director and Mapping personnel salaries—a portion (based on the amount of time devoted to 9-1-1) of the salary of the person(s) responsible for the maintenance of the 9-1-1 related equipment and salaries associated with center management and mapping personnel. Mapping includes individual(s) responsible for maintaining the Master Street Address Guide (MSAG).

- Training—training of ECOs in the use of the equipment, as well as the training in the proper handling of 9-1-1 emergency calls for all Public Safety entities including law enforcement, fire and emergency medical services standardized protocols.

- This is a partial list and is not intended to supersede the legal advice provided to a specific county or ECC by their legal counsel on the proper use of funds.

2.1.1 Funding the Idaho Public Safety Communications Commission

The IPSCC is funded by one percent of all the emergency communications fees collected in the State. The service providers collect the fee in the amount up to $1.00 per wired and wireless line or device from their customers and then remit this to individual counties or 9-1-1 service areas. The counties are then responsible for sending one percent of the fee to the Commission.[10]

[10] Emergency Communications Act, Idaho Code § 31-4804 (3-4).

2.1.2 Enhanced Emergency Communications Grant Fee

In 2008 the Enhanced Emergency Communications Grant Fee was enacted to help fund E9-1-1, Wireless Phase I and II, and NG9-1-1 throughout Idaho. The enhanced emergency communications grant fee is $0.25 per month per access line including interconnected VoIP service lines.[11] Funds collected from the grant fee are used for grants to eligible entities that are operating consolidated emergency communications systems.[12]

In accordance with Idaho Code, each Board of Commissioners of a countywide system or by the governing board of a 9-1-1 service area must pass a resolution by majority vote to begin collecting the special grant fee.[13] Forty of Idaho's 44 counties passed the resolution and are contributing to the grant fund. Four cities with a 9-1-1 service area (Nampa, Chubbuck, Pocatello, and Moscow) are not collecting the additional fee.

Many of these counties began collecting shortly after the enactment of the grant fee in 2008. Wireless implementation was implemented throughout the State using the grant fee.

To be eligible for grant funds, a county or 9-1-1 service area must be collecting the emergency communications fee in accordance with Idaho Code section 31-4804, in the full amount authorized and must also be collecting the full amount of the enhanced emergency communications grant.[14] A county, city or consolidated emergency communications system remits the grant fee to the Idaho emergency communications fund on a quarterly basis.[15]

The IPSCC is required to prepare an annual budget that allocates the grant funds to eligible entities and the portion of the funds necessary for the continuous operation of the IPSCC.[16]

Counties or 9-1-1 service areas that opt to collect the grant fee can retain the full amount of the emergency communications fee established in section Idaho Code section 31-4803. The county or 9-1-1 service area is also exempt from remitting the one percent of emergency communications fees for operation of the IPSCC.[17]

[11] Emergency Communications Act, Idaho Code § 31-4819(1).
[12] Emergency Communications Act, Idaho Code § 31-4819(b).
[13] Emergency Communications Act, Idaho Code § 31-4819(1)(a).
[14] Emergency Communications Act, Idaho Code §31-4819(d-e).
[15] Emergency Communications Act, Idaho Code § 31-4819(b).
[16] Emergency Communications Act, Idaho Code § 31-4819(b).
[17] Emergency Communications Act, Idaho Code § 31-4819(e).

With the implementation of the Enhanced Grant Fee and 40 participating counties of 44 total, the revenue collected through this fee was $2,396,586.83 in FY 2018, with a total of $117,344.00 earned in interest.

The Commission reports that in 2018 through the 25-cent grant fund, the 48 ECCs continue to be E9-1-1, Phase I and II compliant. Sustainment and maintenance of this funding mechanism will remain the focus of the IPSCC until such time as NG9-1-1 advancements and further consolidation of emergency communications networks and technology replace, in whole or in part, the need to continue this grant program as is. The Commission will advance the principles of prioritizing equipment consolidation and sharing between ECCs to help decrease costs and duplication of equipment.

2.1.3 New Funding Model Needed

The Enhanced Emergency Communications Grant Fee has greatly improved the 9-1-1 landscape in Idaho. House Bill 80 of 2013 was passed and removes the sunset clause in Section 31-4819 that would have ended the program in 2014. The passage of that Bill allows ECCs in less populated counties to maintain their current systems or migrate to a Statewide NG 9-1-1 network.

The grant program is extremely popular throughout the State and $18.2 million has been sent to counties from inception through 2020. The State has identified counties with a population of 20,000 or less that require grant funding to continue to provide 9-1-1 service to the county as they are not financially able to sustain this service. The State is also aware that 36 of the ECCs rely on grant funding to upgrade their systems as they have limited financial ability to perform the necessary upgrades for NG9-1-1.

Public expectation drives the pace at which local governments provision public safety technology in order to deliver universal access to emergency services in urban and rural areas. To meet that expectation, ECCs must replace aging technologies and networks with a NG9-1-1 system. Other states' initiatives show this can be accomplished with a Statewide or regional network model. The current funding model should be revised to include migration plans for PSAPs to progress towards a Statewide NG9-1-1 network.

The passage of House Bill 193 of 2013 provides for the collection of 9-1-1 fees from purchasers of prepaid wireless service and requires that the 9-1-1 fee be collected by the seller at the point of sale and remitted to the Idaho Tax Commission. While this law moves Idaho forward by collecting 9-1-1 funds from a previously untapped source, the IPSCC continues to explore changes to the Emergency Communications Act that will aid future

technologies, services and devices that are capable of accessing 9-1-1 and establish a new funding model for NG9-1-1. Further discussion of this is found later in this plan.

The IPSCC continues to identify and address other issues that impact ECCs including the increased workload and fiscal impact on ECCs created by out-of-state visitors. A tourist surcharge on hospitality services is under consideration by the IPSCC to offset these increased costs.

2.2 Current 9-1-1 Network

2.2.1 Network Overview

The original 9-1-1 network was developed by the former AT&T and Bell Laboratories. In Idaho, Mountain Bell (formerly known as U S WEST, Qwest and now CenturyLink) implemented the first system based on a circuit-switched or analog technology that remains largely unchanged today. GTE Corporation (formally known as Verizon Landline and now Frontier Communications) implemented a circuit-switched 9-1-1 network in several counties north of the Salmon River.

Wireless implementation upgrades throughout the State were funded by the grant program. Wireless technology was implemented in two phases. Phase I delivered the wireless 9-1-1 call to the correct ECC with the caller's phone number. Phase II included the location via longitude and latitude (X/Y coordinates) of the caller's location with the Phase I data. In 2008, the year the grant program began, 30 of 48 ECCs were not wireless capable.

Since the implementation of the grant fund, all of Idaho's 48 ECCs upgraded to E9-1-1 or were in the process of migrating from Basic 9-1-1 to E9-1-1. After the completion of Fiscal Year 2012 Enhanced Emergency Communications Grant Fee cycle, nearly all of Idaho's ECCs were E9-1-1 Phase II wireless capable.

The maps on the following pages show the status of 9-1-1 service in the State of Idaho in the year 2013 and the status of 9-1-1 in 2019. The two maps demonstrate the progress that has been made in 9-1-1 service over the past six years since the Enhanced Emergency Communications Grant Fee program was enacted.

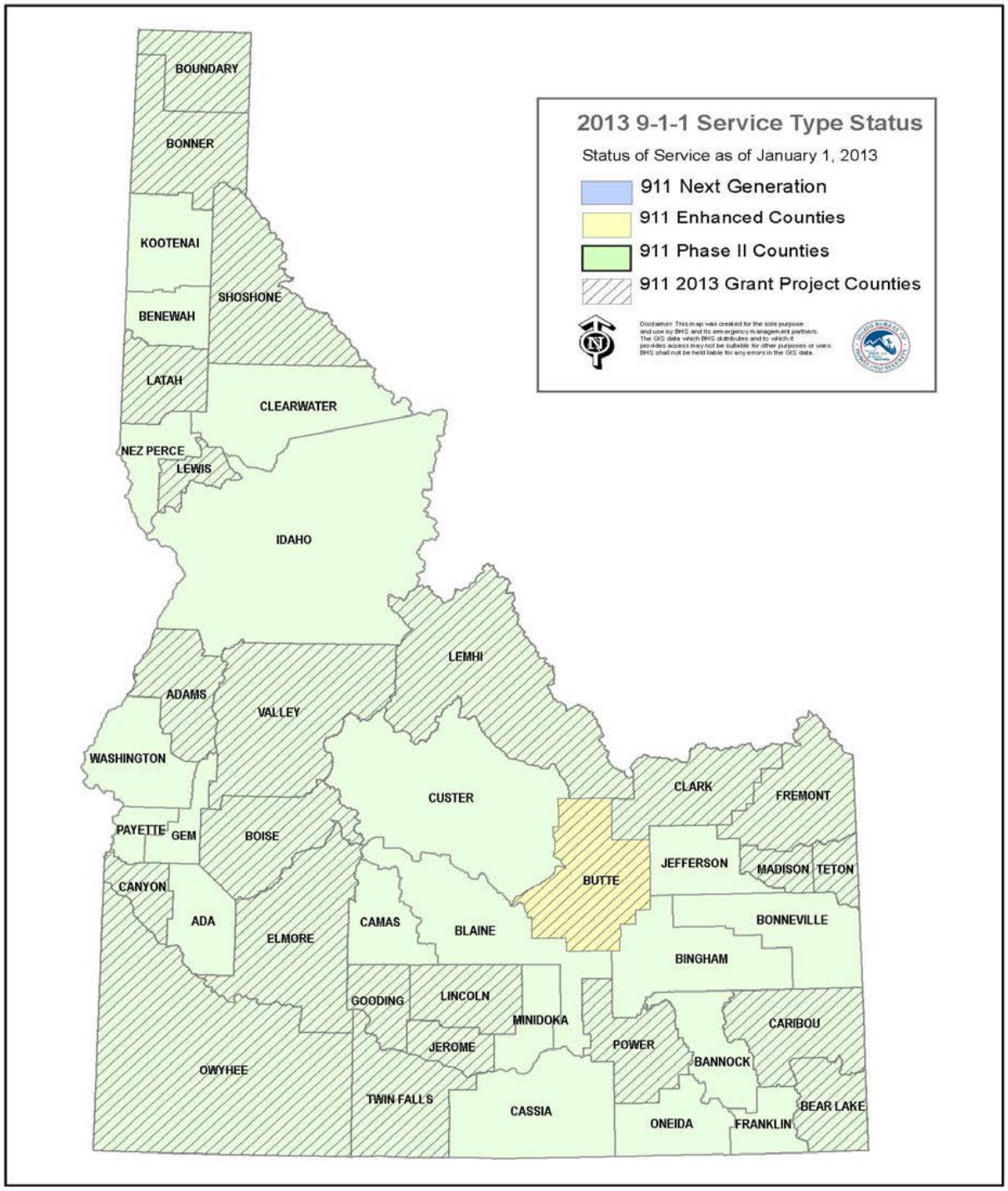


Figure 1 - 2013 Idaho 9-1-1 Services by County

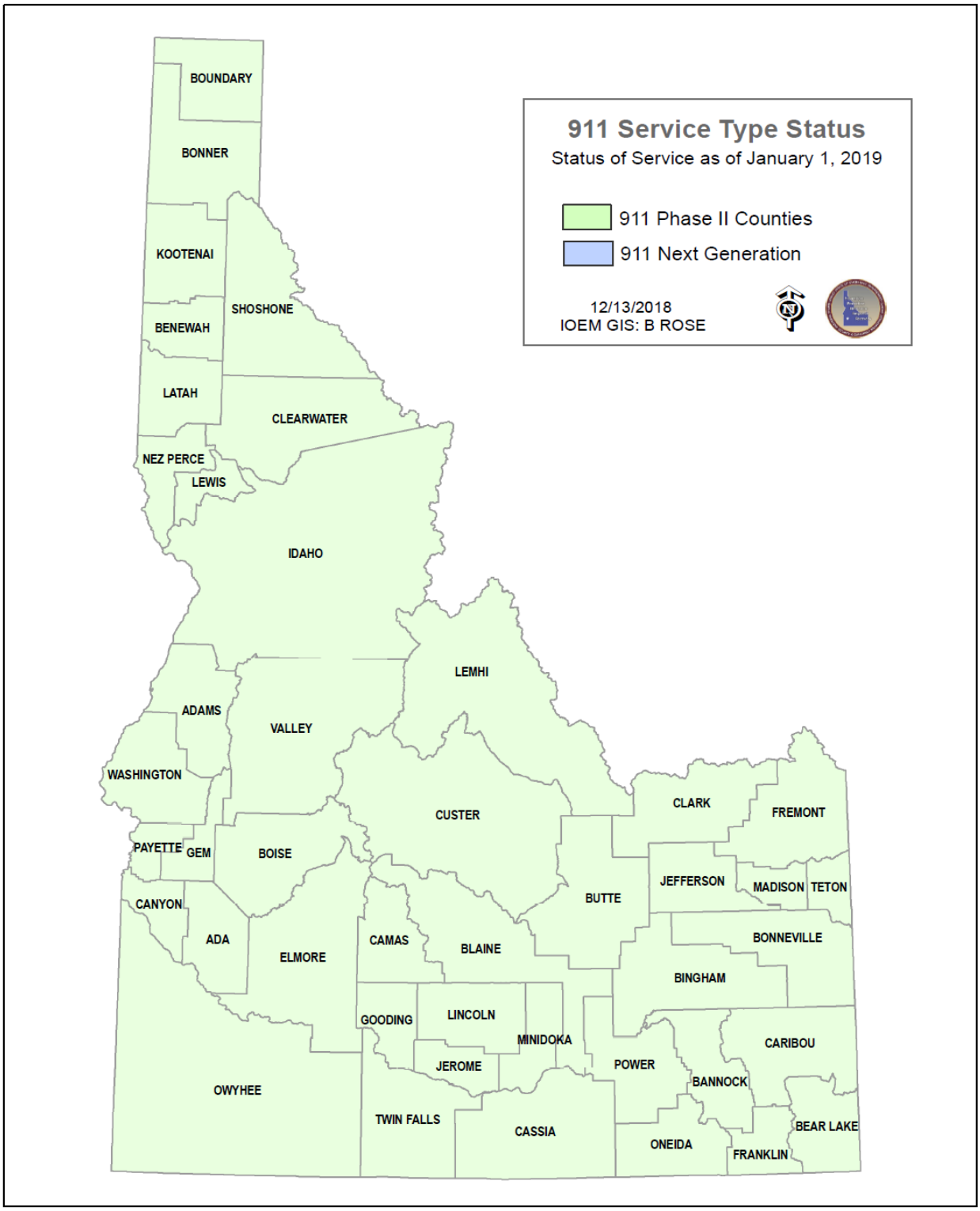


Figure 2 – 2019 Idaho 9-1-1 Services by County

The Enhanced 9-1-1 network and associated databases in Idaho are a combination of three separate systems maintained by CenturyLink, Frontier Communications and Farmers Mutual Telephone Company. CenturyLink's partner, Intrado, provides MSAG database services in its territory. Most of the State's 48 ECCs are directly connected to a telephone company central switch known as a selective router that routes calls to the appropriate ECC.

Although the network is extremely reliable, it is based on older technologies that are unable to manage emerging communication services and devices and therefore are unable to meet the expectations of the citizens of Idaho.

The ECC service areas and the companies that support them are shown in Table 1 below:

Table 1—E9-1-1 Service Areas

Enhanced 9-1-1 Service Areas/Network & Database Providers				
CenturyLink		**Farmers Mutual Telephone CO**	**Frontier Communications**	**Mud Lake**
Ada County Bonner County Elmore County Adams County Franklin County Bannock County Freemont County Bear Lake County Gem County Bingham County Idaho County Blaine County Jefferson County Boise County Kootenai County Bonneville County Lemhi County Camas County Lewis County	Canyon County Madison County Caribou County Minidoka County Cassia County Nez Perce County City of Lewiston Owyhee County City of Moscow (WHITCOM) City of Nampa Power County City of Post Falls SIRCOMM City of Twin Falls Teton County Custer County Valley County	Payette County Washington County (network provided by Midvale Telephone Exchange)	Benewah County Blaine County Bonner County Boundary County Camas County City of Post Falls Clearwater County Kootenai County Latah County Nez Perce County Shoshone County Valley County	Clark County

2.2.2 Equipment Overview

Idaho's ECCs continue to use a variety of manufacturers' Customer Premises Equipment (CPE), including VIPER (West) and Vesta (Motorola) which are currently installed in 25 locations throughout the State. Fifteen ECCs use equipment from 911 Inc. (TriTech, now Central Square), and Zetron. There are three ECCs using Emergency CallWorks (now Motorola), including three of four secondary ECCs, and one ECC using microDATA (now Comtech).

2.2.3 NG9-1-1 Readiness

In September and October 2019, the state commissioned a NG9-1-1 Readiness assessment that began with visiting each of the ECCs. This effort was intended to "Assess Readiness of the State's Current Technology" and determine which ECCs required updating of their 9-1-1 call processing equipment. A statewide inventory of all existing 9-1-1 ECC equipment was completed in November 2019. The inventory revealed that of the 48 ECCs in Idaho, 38 are operated by county sheriff's offices, two are operated by the county contracting with various cities and entities in the County (Blaine County and Bonner County), seven by cities through their police departments or by contract with another city (City of Moscow), and four counties (Twin Falls, Jerome, Lincoln and Gooding) are served by a regional ECC known as SIRCOMM. There are currently four secondary ECCs in Idaho operated by the Idaho State Police (North and South), Idaho State EMS Communications Center (StateComm) and the Idaho National Laboratory (INL). There are two federally funded ECCs in Idaho, Mountain Home Air Force Base (MHAFB) and Gowen Field Air National Guard Base (ANGB). The Idaho National Laboratory (INL) was approved as a secondary ECC for Idaho in 2018 but are federally funded and do not receive State 9-1-1 fees for operations.

This effort revealed that 26 ECCs reported to have IP-enabled/capable 9-1-1 telephone systems and eight ECCs reported that they are not ready as they do not yet have IP-enabled/capable 9-1-1 telephone systems. Ten ECCs did not report on their readiness. All ECCs will need to work with the IPSCC to identify operational impact and training needs in support of the migration to NG9-1-1. In summary, most of the Idaho ECCs are technologically ready. The IPSCC will work with the eight ECCs that are not ready to identify a timeline for readiness. The IPSCC will also work with the ten non-reporting ECCs to determine readiness.

3. EMERGENCY SERVICES IP NETWORK IN IDAHO

3.1 NG9-1-1 Overview

Idaho's E9-1-1 network was developed and implemented with landline technology more than 40 years ago and was not designed to facilitate the transmission of text messages and data images such as pictures and video. The move to integrate these emerging technologies has gained momentum as ECCs have either replaced or are in the process of replacing old technology with new equipment capable of managing present-day communications requirements. Recently replaced or upgraded ECC equipment may be capable of receiving these new data sets, however the network cannot support the transmission of the information.

The IPSCC recognizes that in many of Idaho's ECCs, the majority of 9-1-1 calls are being made from wireless devices instead of traditional landline telephones tethered to homes and businesses. Also, text messaging has become as common as voice dialing which puts additional pressure on ECCs to be able to communicate with any device. Therefore, Idaho's E9-1-1 network requires a comprehensive overhaul.

To accommodate the technology changes, ECCs will need to migrate to a NG9-1-1 system that can easily interface with the many different types of communication methods available today and the near future. NG9-1-1 is the evolution of Enhanced 9-1-1 to an all-IP-based emergency communications system. The NG9-1-1 system is designed to recognize the device and the type of message (e.g. a voice call, text, photo or video) and route the emergency call in a timely manner to the correct ECC. Voice calls (including VoIP) text messages or data images will be delivered to the appropriate ECC using an IP-based network known as an ESInet. The ESInet is a robust secure private IP network with enhanced call routing and delivery functionality that is capable of re-routing calls to other ECCs connected to the ESInet. It is much like a business enterprise or statewide IP network, such as the Idaho Education Network in place today.

As Idaho ECCs consider transitioning to a NG9-1-1 system and the associated ESInet, it's critical that the system be developed using open standards that interfaces between the ECC, ESInet and the caller's device. Components of the NENA NG9-1-1/ESInet are frequently referred to as the i3 Architecture that defines the ESInet model, functions, interfaces and required services. The i3 Architecture identifies the external interfaces between the ECC and public access networks, the Internet and legacy wireless and wireline networks. It further describes the systems and databases that intelligently deliver the 9-1-1 call to the appropriate ECC and supplies important data to assist the Emergency

Communications Officer (ECO). The principle functions of either a State-level or regional ESInet in Idaho needs to consist of the following components:

- An Emergency Services Routing Proxy (ESRP) server to properly route emergency calls using location information and the desired service uniform resource name (URN) to the appropriate local ESInet based upon prevailing ECC status.

- An Emergency Communications Routing Function (ECRF) to convert location information (either civic address or geo-coordinates) to provide a Uniform Resource Identifier (URI) that can be used to route an emergency call toward the appropriate ECC for the caller's location. In today's 9-1-1 system, location information is primarily a fixed address of a home or business stored in an Automatic Location Information (ALI) database. Emergency Communications Routing Function interacts closely with the ESRP function.

- A Policy Routing Function (PRF) that refers to the determination of the next hop to which a call is forwarded by an ESRP, which is based on the policy of the ECC that would normally receive the call.

- A Border Control Function (BCF) that provides a layer of security for all calls entering the ESInet. The BCF includes firewall applications to prevent malicious attacks on of the ECCs connected to the ESInet.

- A Location Information Server (LIS) and Geographic Information System (GIS) which enables the ECO to view locations (such as a street address) and geographic information on a map at their consoles. It is also used to display latitude and longitude coordinates from a wireless 9-1-1 call.

As Idaho's ECCs plan for NG9-1-1, it's critical that NENA's recommended i3 Network Architecture is closely followed to ensure interoperability with other ESInets. It is desirable and recognized by NENA to have a single backbone that would eventually be interconnected with a national ESInet to optimize routing of calls between states.

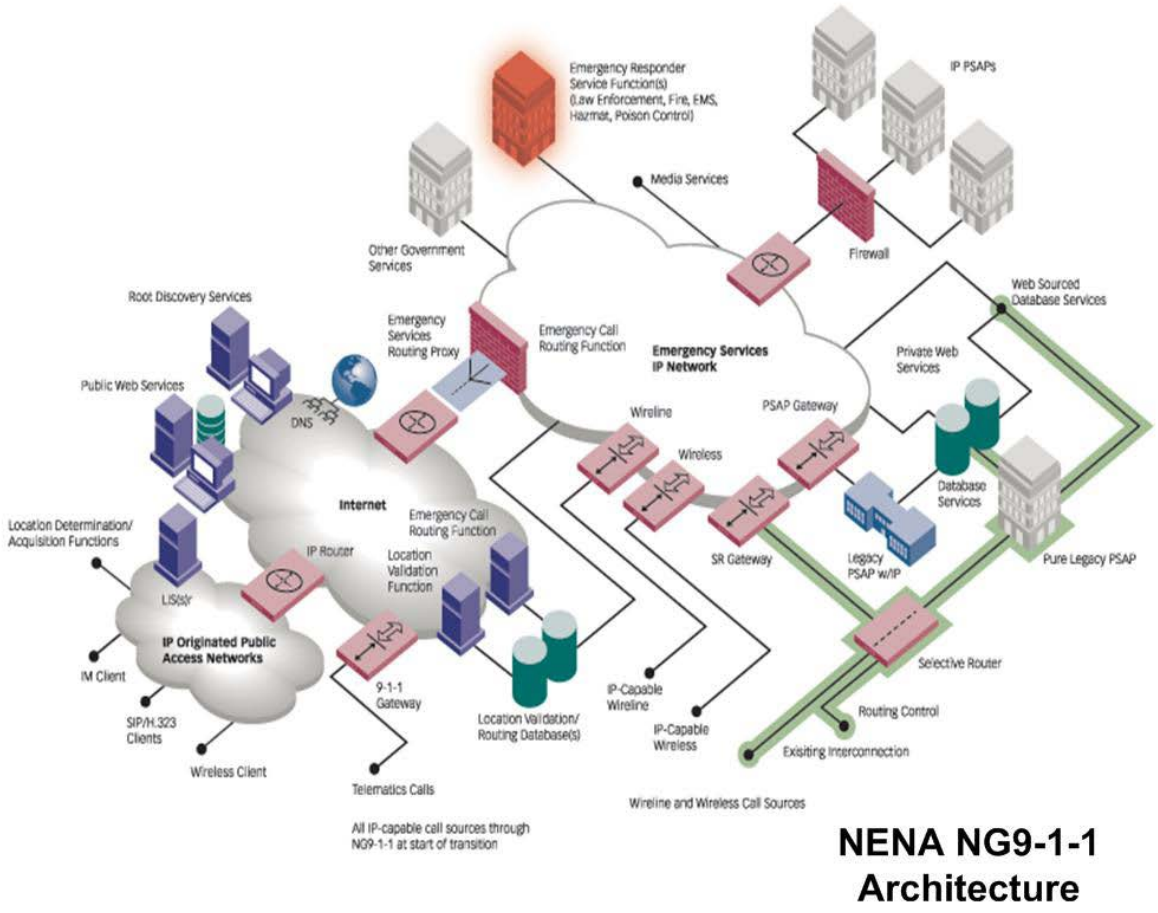


Figure 3—NENA NG9-1-1 Architecture

While a single Statewide ESInet in Idaho could serve all ECCs within the State, the IPSCC understands the complexity of governance, funding, procuring and maintaining a Statewide system. Idaho Statutes will require amendment to create a revenue stream to fund a Statewide ESInet.

The IPSCC and its Program Manager will use its positioning as a State of Idaho governmental entity to provide leadership and assistance in planning for NG9-1-1 and developing a Request for Proposal (RFP) for an ESInet. This initiative will be necessary to interconnect any regional or centralized ESInets deployed in the state. Later sections of this plan introduce tasks and work products that need to be completed from initiation to implementation of NG9-1-1.

3.1.1 State-level ESInet

A State-level ESInet would perform location-based emergency call routing using the location to service translation (LoST) protocol. All emergency calls ingress (enter) and egress (exit) the network via secured BCF. The State-level ESInet is interoperable with and interconnects to regional ESInets, Federal ESInets and ESInets belonging to other states.

The drawing below is a general concept of a state-level ESInet environment where all PSAPs in Idaho are connected to a single network.

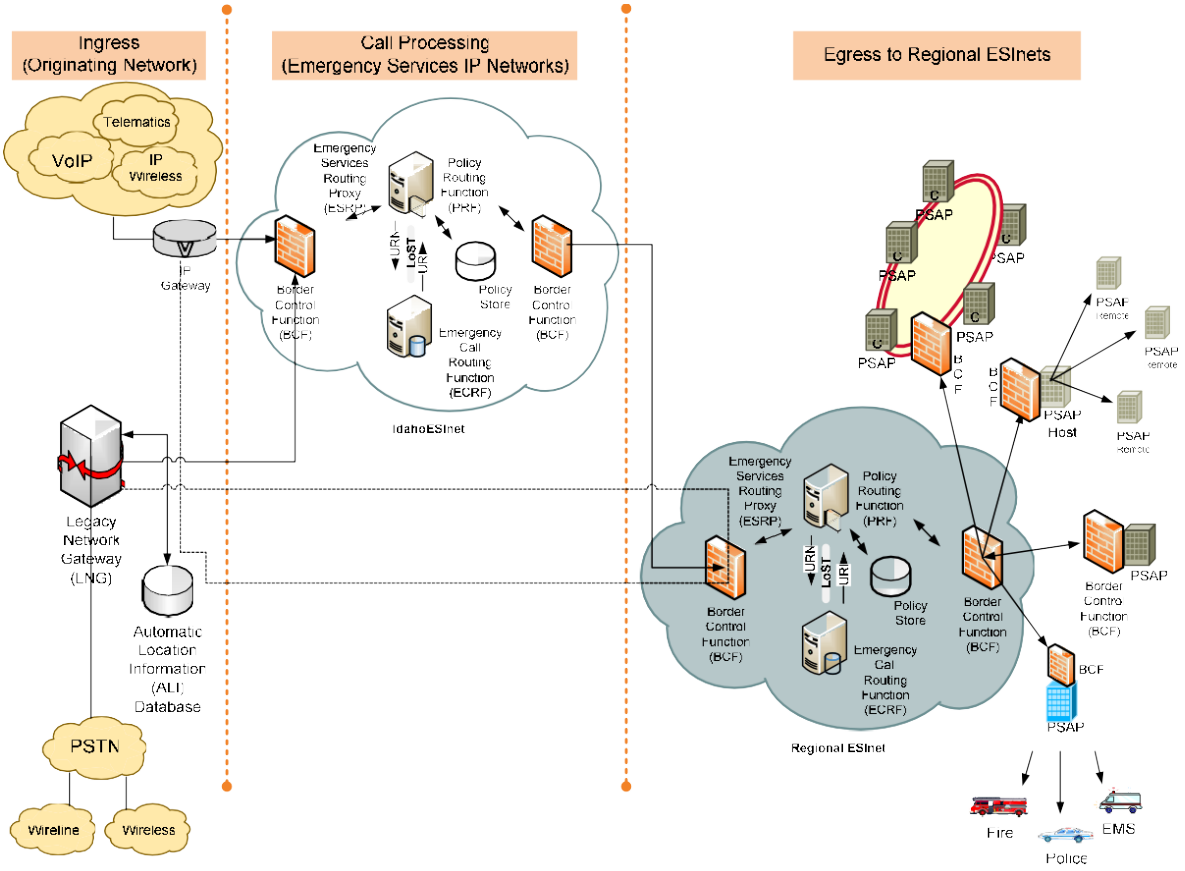


Figure 4—General Concept of a State-level ESInet

This network can be interconnected with neighboring state ESInets so that calls can be routed from border communities to the appropriate ECC.

3.1.2 Regional ESInet

Regional ESInet connectivity would be driven almost exclusively by the presence of carrier and vendor services in each geographic area. Metropolitan ECCs, ECC networks and rural ECCs will have circuit and CPE (Information Technology [IT]) differences in how they interconnect to their Regional ESInet. A robust and 'diverse' IP connectivity is ***critical*** to maintain "five-nines" reliability.

The drawing below is a general concept of a regional ESInet environment where local ECCs are interconnected to other ECCs within the region.

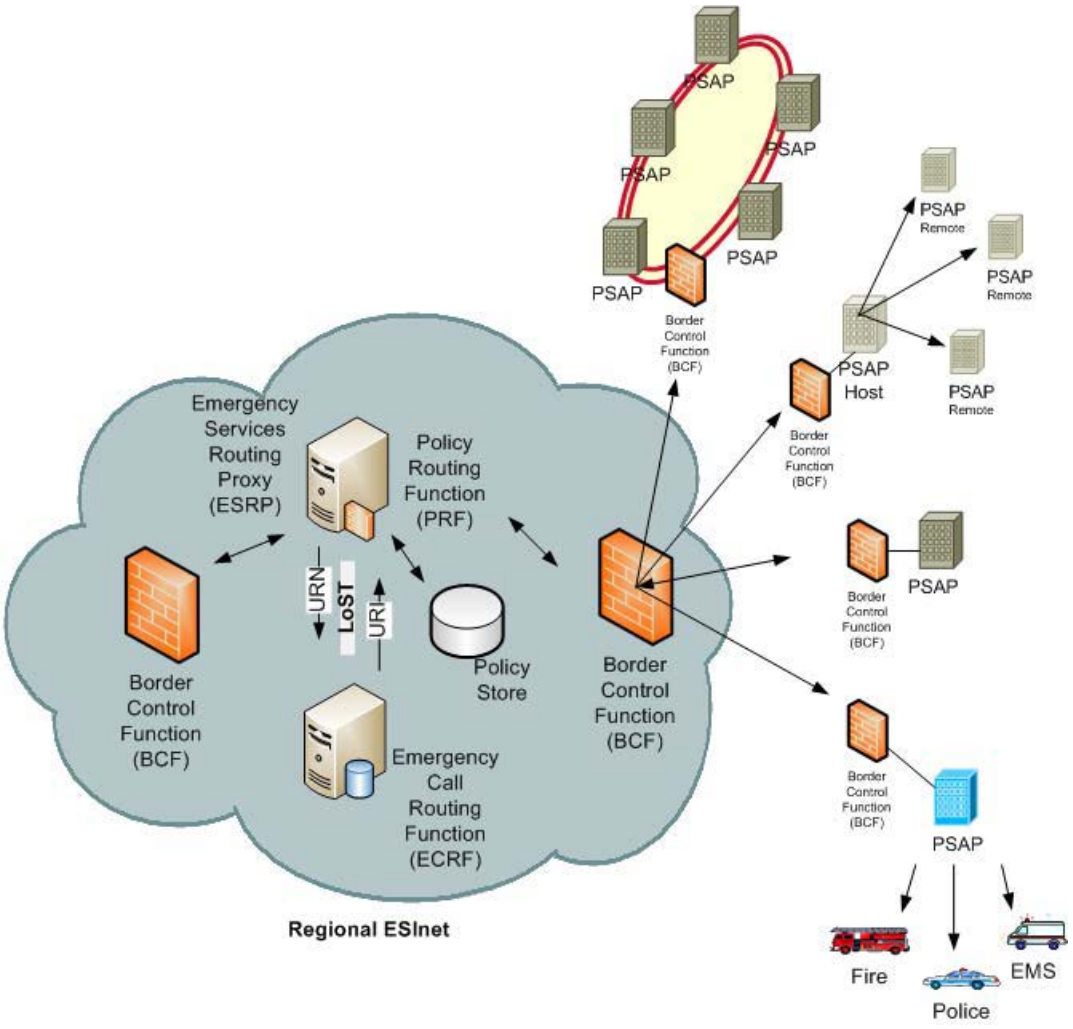


Figure 5—General Concept of a Regional ESInet Environment

3.1.3 Connecting Regional ESInets

The drawing below shows an example of an ESInet interconnected to other regional ESInets within the state.

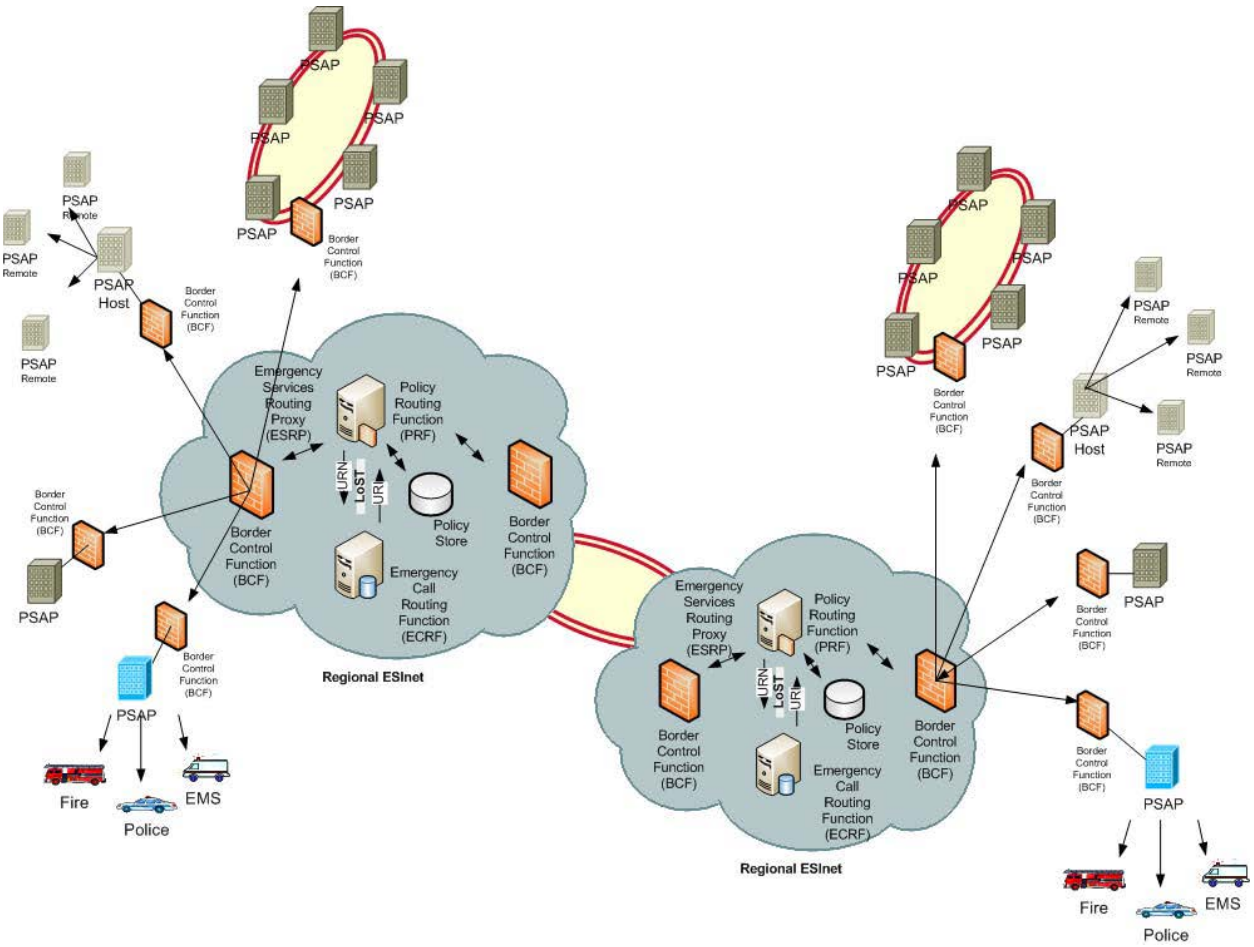


Figure 6—Example of an ESInet Interconnected to Other Regional ESInets Within the State

Both regional and statewide ESInets will allow and encourage the sharing of centralized applications and systems and will also support inter-network access for data sharing with other databases, e.g., Emergency Operations Center (EOC) Hazardous Material information.

The networks will support interoperability among Idaho's diverse geography and enable data sharing and dissemination of emergency incident information to help expand mutual aid. These benefits will create cost efficiencies among all ECCs connected to an ESInet.

3.1.4 ESInet Conceptual Design Evaluation

An ESInet provides the IP transport infrastructure upon which independent application platforms and core functional processes can be deployed including those necessary for providing NG9-1-1 services. ESInets may be constructed from a mix of dedicated and shared facilities, and may be interconnected at local, regional, state, federal, national and international levels to form an IP-based inter-network (network of networks).

Idaho has a vested interest in NG9-1-1 in the understanding and planning for the transition to NG9-1-1 and as such, there is no single best evolution strategy. This plan deals primarily with existing features and services that will be migrating to a NG9-1-1 environment, and it is acknowledged that new features and services unique to NG9-1-1 have operational consequences and require preparation.

Critical to the conceptual design are the information gathered during the initial surveys, IPSCC interviews, and ECC visits to assess current statewide NG9-1-1 network capability and status of ESInet and initiatives in Idaho.

The evaluation included the examination of the State's existing technology infrastructure and its capabilities, features, and functionality. The evaluation purpose was to ensure that the conceptual design leverages existing investments and is implementable and sustainable.

3.1.5 NG9-1-1 ESInet Conceptual Design and Cutover

Idaho's transition to NG9-1-1 is an evolutionary process, involving technological, economic, and institutional change. The path to NG9-1-1 implementation depends on the underlying infrastructure and the characteristics of the ECC and Idaho's 9-1-1 Authorities in a defined geographic area.

In other cases, the transition to NG9- 1-1 depends more on the ability of originating service networks to deliver NG9-1-1 calls via native IP-based infrastructure to jurisdictions that are prepared to receive those calls. Regardless of the specific evolutionary steps, Idaho's NG9-1-1 system implementation stems from a planned and coordinated deployment of NG9-1-1 capabilities that are governed by Idaho's 9-1-1 Authority, regional Authorities, and other mechanisms that enable a cooperative deployment.

While there is no single best approach to coordinating NG9-1-1 implementation at the local, state, or national level, stakeholders within Idaho's 9-1-1 community will need to

weigh options to meet their individual jurisdiction's specific needs and unique circumstances.

In advance of implementation, NG9-1-1 components as defined in the i3 Standard must be in place. These components include Border Control Function (BCF), Legacy Network Gateways (LNGs), Emergency Selective Router Proxy (ESRP), Emergency Call Routing Function (ECRF) and NG9-1-1 ECC Customer Premises Equipment (CPE) systems. The LNG location server/database (referred to as the Location Database (LDB) is populated with location information prior to transition. The Legacy Selective Router Gateway (LSRG) provides the interworking between the NG9-1-1 system and the legacy Emergency Services Network for call routing and bridging. It inherits much of the functionality of the LNG and LPG defined in the i3 specification. Testing of these and the overall system of systems must be successful prior to cutover to the NG9-1-1/ESInet.

It is imperative that a working ESInet conceptual design specification is developed that includes, but is not restricted to, the following elements:

- Existing network infrastructure;
- Existing technology;
- Optimized business processes;
- Software life cycle requirements related to NG9-1-1;
- Regulatory issues that are inherent to the project;
- Existing Idaho NG9-1-1 investments and initiatives that can be leveraged for the new systems; and
- Existing IP routing protocols, network layout, equipment, service levels, Quality of Service policies, maintenance policies, security policies, other services under contract with the State.
- Network policy and governance with operations and the deployment of operational tools that provide oversight of a statewide NG9-1-1 system.

3.1.6 ESInet Requirements and Comparison to National Standards

Idaho's current 9-1-1 environment will be compared to NG9-1-1 national standards, guidelines, and best practices including the NENA *NG9-1-1 Transition Plans Consideration Information Document*[18].

[18] https://www.nena.org/page/NG911_TransitionPlng

The transition to NG9-1-1 is an evolutionary process, involving technological, operational, economic, and institutional change. These referenced changes include 9-1-1 industry standards, updates and emerging technologies, centered on recognized best practices from standards groups such as NENA, NFPA, APCO, Integrated Justice Information Systems (IJIS), and Law Enforcement Information Technology Standards Council (LEITSC).

3.1.7 National 9-1-1 Grant Program

The IPSCC will explore grant funding opportunities to assist and support a statewide migration to NG9-1-1. The federally funded grant programs administered by the National 9-1-1 Program, known as the 9-1-1 Grant Program[19], provides grant funding for improving 9-1-1 services at state, local and tribal levels. Specific eligible grant use is for the "…migration to an IP-enabled emergency network and for the adoption and operation of Next Generation 9-1-1 services and applications."[20]

The IPSCC plans to participate in future cycle(s) of the 9-1-1 Grant Program understanding that there is a certification process to pre-qualify applicants, that the program requires matching funds and that the requested grant monies do not represent more than 60% of the total cost of the planned grant activities.

There are other federal grant programs that the IPSCC will consider as potential funding sources for the NG9-1-1 migration. These sources include:

- Department of Agriculture (USDA) for under-served rural areas
- Department of Commerce (DOC) 9-1-1 Grant Program backing
- Department of Health and Human Services (HHS) for planning and training
- Department of Homeland Security (DHS) for equipment and training to integrate 9-1-1 with Fire Services; and updating NG Plans and Strategies, and Cyber Security and GIS Integration
- Department of Justice (DOJ) for systems equipment for tribal governments, and local governments for integrating criminal justice systems and community policing initiatives with NG9-1-1

[19] https://www.911.gov/project_911grantprogram.html
[20] ibid

3.1.8 Geographic Information System

GIS data plays a critical role in the successful implementation and operation of an i3 NG9-1-1 geospatial routing solution. NENA i3 guidelines and processes focus on the use of GIS data to support the Location Validation Function (LVF) and ECRF critical to emergency call processing within the NG9-1-1 environment. GIS data has been traditionally maintained and utilized by local 9-1-1 authority agencies primarily as a means of reference within their 9-1-1 map display and address/master street address guide (MSAG) management applications. With the advent of NG9-1-1, GIS now represents a core function within the overall NG9-1-1 solution. Critical to this core function is the accuracy and integrity of GIS data because it is aggregated and maintained for use within the NG9-1-1 GIS routing solution.

The implementation of NG9-1-1 in Idaho will require ECCs to share resources in areas that involve cross jurisdictional boundaries (federal, state, tribal, etc.). The IPSCC will develop mutually supportive NG9-1-1 policies and procedures where sub-regions or jurisdictions maintain relationships with their stakeholders.

As Idaho implements NG9-1-1, all local jurisdictional GIS data must be uploaded to the LVF/ECRF and a method for how geospatial layers/files are uploaded to the databases will be established. The GIS data that is uploaded ultimately determines if a location is valid for 9-1-1 routing, and results in the proper routing of the call to the correct ECC for handling. Therefore, the State is required to assess the architecture, standards, and workflow requirements necessary for GIS data to be aggregated and provisioned for NG9-1-1. GIS requirements must be implemented prior to the implementation of geospatial routing throughout the State. The capabilities of GIS at the state and local level in support of the desired NG9-1-1 deployment include compliancy of the entire GIS routing solution to include the options between local and state-level routing.

3.1.9 Impact of Emerging Technology on ECCs

The industry process to determine and finalize the i3 Network Architecture Requirements definitions is under development by industry standards making organizations lead by NENA. The Idaho migration to an ESInet environment will follow the current NENA i3 network architecture requirements, Federal guidelines, and other technology requirements compliant to industry standards. These standards will be followed to make certain Idaho complies with published standards affecting functions and features of the Idaho ESInet infrastructure germane to intrastate as well as international connectivity.

The success of the migration to a NG9-1-1 environment depends on the readiness of network and ECC technology. The State of Idaho recognizes that NG9-1-1 will bring new capabilities and that there is a need to prepare and to provide next generation services and upgrade ECC CPE equipment to become NG9-1-1 capable. New technologies have changed the way people expect to communicate with ECOs and a transition to NG9-1-1 is necessary to be able to provide next generation services like text, pictures, smart notifications and video capabilities. NG9-1-1 will enhance the current 9-1-1 system by supporting new forms of multi-media and will facilitate migration to emerging technologies.

The 2019 PSAP[21] Readiness assessments considered not only each system individually, but also the integration of systems and their underlying technologies with other systems. The crux of the readiness assessments is to assist the ECCs in identifying what systems and equipment will require replacement or upgrade to accommodate NG9-1-1. Of the 44 ECCs surveyed 26 reported having IP-enabled/capable telephone systems, eight ECCs reported not having IP-enabled/capable systems. It is unknown if the remaining ten ECCs have IP-enabled/capable systems. The general finding of the PSAP[22] Readiness assessments indicates that the majority of ECCs are technically ready for NG9-1-1 and that eight require replacement or upgrade of their 9-1-1 systems. The ten ECCs that were not able to report status constitute an unknown level of preparation and support needed. Along with the IP-enabled/capable 9-1-1 systems other ECC technologies and interfaces, such as logging recorders, may require replacement or upgrade to accommodate NG9-1-1 emerging technologies.

In supporting NG9-1-1 new technology and locating callers, core services and dynamic call routing will rely heavily on GIS. See Section 3.1.10 on the state of and plan for GIS in Idaho. The addition or expansion of call routing and handling in the ECC may also include the use of Automatic Call Distribution (ACD).

As technology evolves and devices and capabilities create more diverse communication methods, ECCs must be able to receive and respond to incoming requests from any technology plan, including those already in use by the public, such as:

- Instant Messaging (IM)
- Multimedia Messaging Service (MMS)
- Short Message Service (SMS)
- Real Time Text (RTT)

[21] Referred to as emergency communications centers (ECCs) throughout this report.
[22] Ibid.

- Voice over Internet protocol (VoIP)
- Wi-Fi
- Video
- Microwave availability

3.1.9.1 Operational Impact

The changing realm of devices and applications have a significant impact on the operations of ECCs especially in the skills expansion of operational staff. Training on these new devices, applications and their impact on call taking and dispatch are critical to the success of the migration to NG9-1-1. The overall impact of emerging technologies includes the expanded responsibility of the ECCs to identify and address operational needs related to the advent of NG9-1-1 capabilities and ever-changing public expectation.

Areas that ECCs will need to prepare for include:

- service level and performance goals
- staffing
- call flow methodology
- call taking equipment
- training and skills expansion

3.1.10 Technology Integration

The State of Idaho recognizes that NG9-1-1 will bring new capabilities and that there is a need to prepare to provide next generation services and upgrade to NG9-1-1 capable CPE as the current equipment reaches the end of its lifecycle. New technologies have changed the way people expect to communicate with 9-1-1 call-takers and a transition to NG9-1-1 is necessary to be able to provide next generation services like text and video capabilities. NG9-1-1 will enhance the current 9-1-1 system by supporting new forms of multi-media and should also allow for easier migration to emerging technologies.

Through education at the IPSCC and ECC level, all stakeholders strive to maintain a current and progressive knowledge of available next generation features and applications, emerging services in next generation networking solutions, inclusive of consideration of the work completed with similar 9-1-1 programs across the nation.

The IPSCC and ECC migration will include addressing issues involved with integrating new technologies for third-party technologies and applications that must integrate or interface to the various components of ECC call taking equipment.

As the migration plan to NG9-1-1 progresses the integration of systems and their underlying technologies with other systems will require frequent review to maintain consistent and working connectivity. The planning and review include the development and availability of training for ECOs to process incoming requests from any technology plan and will describe how this technology integrates or interfaces to the various components of ECC call taking equipment.

4. INITIATING AN IMPLEMENTATION PLAN

4.1 Initiation Phase

4.1.1 Overview

This Statewide NG9-1-1 Plan continues the Planning and Initiation Phase of the Idaho's NG9-1-1 implementation project. The Initiation Phase is comprised of tasks that will be the next steps in the transition to a NG9-1-1 environment.

4.1.2 Tasks

The description of each task is a detailed explanation of the importance of the task. Expected outcomes and dependencies are identified at the end of the section.

4.1.2.1 Statutory and Regulatory Environment

4.1.2.1.1 Obtain executive sponsorship

The IPSCC will actively seek and maintain executive sponsorship and support. The Idaho NG9-1-1 Initiative will collaboratively transform Idaho's localized 9-1-1 system into a robust statewide NG9-1-1 system that is capable of effectively supporting the growing needs of Idaho residents and visitors. This effort involves the coordination and cooperation of multiple entities and stakeholders.

4.1.2.1.2 Role of the IPSCC

Aspects of NG9-1-1 will require state- local- and tribal-level planning and coordination. The need for statewide coordination was introduced and continually stressed by Congress. The Wireless Communications and Public Safety Act of 1999 encouraged states to implement seamless, end-to-end emergency communications services. The 1999 Act notes that this "requires statewide coordination of efforts of local Public Safety, fire service and law enforcement officials, emergency dispatch providers, and transportation officials; the establishment of sources of adequate funding for carrier and Public Safety, fire service, and law enforcement agency technology development and deployment; the coordination and integration of emergency communications with traffic control and management system." The Ensuring Needed Help Arrives Near Callers Employing 9-1-1 (ENHANCE 9-1-1) Act of 2004, as amended, further reinforced and

expanded on the concept of state-level leadership by making it a requirement for the receipt of grant funding.

The operations of the IPSCC will continue to be reviewed to determine if adequate budget, staffing, and training levels are in place and what changes are necessary to support migration to NG9-1-1 and beyond. It will be necessary to assess current staffing levels, capabilities, and other budgetary concerns necessary for the IPSCC to adequately and effectively fulfill its obligations in a NG9-1-1 environment. The responsibilities of the IPSCC will increase, thus requiring a budget adjustment and increased staffing, training, and support positions and functions.

As addressed in the Background section of this Plan, the IPSCC is budgeted for one E9-1-1 Program Manager. This single position office is not able to maintain the required support responsibilities and the needs of the IPSCC. Additional staff is required to support additional duties related to NG9-1-1 that, at a minimum, should include an administrative or executive assistant support position to the Program Manager. As articulated in Idaho Statute Title 31, Chapter 48, Sections 21, it may also be appropriate to create a National Public Safety Broadband Network program manager. To further identify the staffing needs of the IPSCC, a review of the tasking and support functions will be conducted every two years. During each Plan update beginning in 2022, the IPSCC will evaluate and adjust its role relative to the migration and completed transition to NG9-1-1 as it is understood at the time of review.

4.1.2.2 Governance

As a result of the way 9-1-1 and E9-1-1 evolved nationally, the 9-1-1 system is made up of independent and unconnected systems with varying levels of capability and quality of service. Governance of these isolated systems has been primarily local or regional across the country for decades. Due to this isolation, the ownership and responsibility for these systems has not been an issue. Public expectation, technological advancements, interoperability and data sharing capabilities, are driving the migration to NG9-1-1. NG9-1-1 technical and operational transition requires a broader ownership, maintenance and governance structure(s).

The 9-1-1 environment becomes more complex with the transition to NG9-1-1 and will require collaboration among all levels of government in a way that was not necessary in the past. Policy and governance issues cannot be addressed by individual ECCs or

individual 9-1-1 authorities.[23] Governance for 9-1-1 at the sub-state level is focused on three types of stakeholder groups; regional 9-1-1 authorities, ECC host local governmental agencies, and the ECCs themselves. While those stakeholder groups will continue to be central to the transition to NG9-1-1, NG9-1-1 is not intended to reflect closed systems that are unique to the delivery of 9-1-1 calls, or local sets of emergency responders. Next Generation 9-1-1 is designed around shared, interconnected systems potentially involving a wide variety of public and private stakeholders in a position to facilitate emergency response and incident management.

A NG9-1-1 system is supported by a network environment that separates data "transport" from those "applications" that ride on top of that transport. Applications are those task-specific functions that are designed to ride on top of the transport involved (e.g., the delivery of a 9-1-1 call). The transport part of NG9-1-1 is a statewide ESInet.

ESInets have the ability to connect those in need of emergency services with public safety service providers, response agencies. The ESInet provides the ability to interact and share data, resources and functions beneficial to emergency incident outcome beyond the boundaries of the current E9-1-1 systems and networks. The applications and application platforms that use the ESInet for transport are independent of the ESInet. Who owns, deploys and/or manages an ESInet may not be the same stakeholders that own, deploy and manage the applications utilizing the ESInet for transport and connectivity. The delivery of a 9-1-1 call may represent only one application of many. Other applications may include first responder communications, additional incident data providers and incident management functions. The FCC's Network Reliability and Interoperability Council VII suggested that such connectivity could extend well beyond the traditional Public Safety community, and include the following:

- Traditional Public Safety agencies: law enforcement, fire services, EMS, 9-1-1
- Citizens and businesses: connections between them and agencies (e.g., E9-1-1, truck fleet management systems)
- Business safety providers (e.g., telematics, alarm monitoring systems, hazmat service providers)
- Hospitals/Clinics

[23] Next Generation Partner Program, Next Generation 9-1-1 Transition Policy Implementation Handbook, March 2010, 2.

- Public health
- Emergency management
- Transportation departments
- Different transportation modes (e.g., railroads, ports, trucking)
- Non-governmental organizations: Red Cross, Salvation Army, Cleary Emergency Restoration Trailer
- (CERT), mountain rescue groups, etc.
- Mental health organizations
- National Guard
- United States Department of Defense (US DoD)
- Utilities, public works, recreation departments
- Media
- Schools
- Critical infrastructure companies[24]

Interconnection between these kinds of stakeholders provides an opportunity for coordination and the sharing of information and data that would ultimately benefit emergency response and incident outcome. The IPSCC understands the statewide benefits of the interconnection created by NG9-1-1 and will continue to define and evolve the system management, policy, institutional, and governance considerations.

4.1.2.2.1 Stakeholder community

The IPSCC plans to define and engage the Idaho public safety stakeholder community and collaboratively determine how they will be engaged throughout the Idaho NG9-1-1 Initiative. Stakeholders include local 9-1-1 and government authorities, legislators, vendors, telecommunications companies, special interest groups, and others. These

[24] FCC NRIC VII FG1D, 62, *available at* http://www.nric.org/fg/index.html (Last visited 2/22/13).

primary, secondary and tertiary stakeholders will be engaged during the process through direct involvement, specific support and recommendations requests, peripheral impact involvement and public education activities.

4.1.2.3 Technology

ESInets are the IP-enabled backbone networks over which NG9-1-1 services are delivered. They host numerous hardware and software application layer services that support interoperability among diverse regional/local networks and agency applications.

The IPSCC will determine whether it has the authority to manage the technology and interconnections between multiple local and regional ESInets. This may require buy-in from local governments and/or changes to Idaho statutes.

The IPSCC will work closely with the local 9-1-1 authorities to develop a mechanism for coordinating the migration from local closed 9-1-1 systems to a statewide ESInet. This collaboration and coordination will extend to addressing who may share the ESInet backbone including interconnections with ESInets in neighboring states, or federal entities. The ability and authority to coordinate the technology employed, Public Safety agencies that will use them, and manage the interconnections between multiple regional ESInets are essential State-level functions in a NG9-1-1 environment. In collaboration with local 9-1-1 authorities, the IPSCC will establish technology requirements and processes for the ECCs. Establishing technology requirements should involve prospective vendors and suppliers to validate products are available to meet the defined requirements. Once those have been identified, the IPSCC will work with the local 9-1-1 authorities to develop a list of approved technology that can provide the needed delivery of service, as well as any interoperability requirements.

4.1.2.4 Operations

The IPSCC will create an education and awareness program for the State. This plan will target ECCs; first responders; local, regional and state government/agency representatives; and citizens. This education and awareness program will begin in the Initiation Phase to help with public expectations and support through the migration. The program will include, but may not be limited to, the following:

- Targeted messaging
- Conference appearances

- Presentations
- A list of talking points for ECC leaders to use to educate stakeholders in their individual communities
- Media policies

4.1.3 Key Decision Points

The State, including the IPSCC, regional and local government entities, will continue to collaborate and develop the vision of a Statewide NG9-1-1 system through the migration and beyond. This collaborative effort will continually identify key stakeholders and make determinations of how the NG9-1-1 vision aligns with these stakeholders. Once these stakeholders are identified, a collaborative approach will be used to determine how, when and what kind of involvement stakeholders, old and new, will have over the life of the NG9-1-1 migration. The IPSCC will be the central point of information for all stakeholders regarding the educational awareness campaign to include scope, scale, and financial impact.

4.1.4 Critical Dependencies

Gaining support for the NG9-1-1 migration will depend heavily on the support of the IPSCC and support of stakeholders across the state.

Creating an education and awareness program will hinge on support from the IPSCC and stakeholders, as well as financial backing from appropriate organizations.

4.1.5 Work Products

The following work products are outputs of this phase:

- Stakeholder List
- Stakeholder Involvement Criteria
- Educational Awareness Campaign Plan

4.2 Assessment and Analysis Phase

4.2.1 Overview

An assessment is an important step in a NG9-1-1 project. The IPSCC will further assess the current 9-1-1 system to fully understand the capabilities of the system and to plan and prepare for a transition to an upgraded NG9-1-1 system. The tasks below identify important areas that will be further assessed in order to plan for a successful transition to NG9-1-1.

4.2.2 Tasks

The following sections describe each task, why they are important, and expected outcomes.

4.2.2.1 Statutory and Regulatory Environment

The IPSCC will assess and analyze current laws, regulations and tariffs that impact 9-1-1 service in Idaho to determine whether changes are necessary to support NG9-1-1. From a regulatory perspective, NG9-1-1 presents a new set of challenges and decisions. Next Generation 9-1-1 systems are typically much larger in scope and provide service to multiple jurisdictions and diverse agencies, therefore, changes in policy will be a critical part of establishing seamless, end-to-end NG9-1-1 systems. This assessment and analysis will include a review of the following areas as they relate to 9-1-1 and NG9-1-1:

- Statutes, regulations, tariffs and agreements
- Funding
- Establishing Statewide ESInets
- Confidentiality
- Liability

The following sections discuss each of these topics.

4.2.2.1.1 Review Statutes, Regulations, Tariffs and Agreements

Current Idaho 9-1-1 related laws, regulations and tariffs were written for E9-1-1; NG9-1-1 did not exist. Therefore, Idaho's laws, regulations and tariffs make specific references

to older technologies that are not necessarily compatible with NG9-1-1 and may present roadblocks to implementing NG9-1-1. In order to provide a seamless and efficient transition from E9-1-1 to NG9-1-1, it is essential that Idaho assess and analyze all current laws and regulations to assure that they have a mechanism to keep pace with advancements in telecommunications and 9-1-1. A few examples of legislative/regulatory matters that will be assessed include:

- Provisions regarding the eligible use of 9-1-1 funds.
- Provisions that reference or require specific legacy technology components of E9-1-1 service; technology neutral provisions are preferable.
- Language (including provisions in tariff) that prohibit the sharing of 9-1-1 system components and data (with appropriate safeguards for security and confidentiality).
- Existing 9-1-1 service arrangements and tariffs that inhibit new entrants from making similar competitive services available to state or local authorities responsible for procuring 9-1-1 services.[25]
- Tariffs and any applicable interconnection agreements to assure that they do not contain provisions that would impede the new interconnections and relationships that are necessary for a NG9-1-1 system.

4.2.2.1.2 Funding

Funding sources will need to be adequate to support migration to NG9-1-1 and must be consistent with emerging technologies."[26] In order to maximize funding and ensure sufficient resources are made available to implement and operate the NG9-1-1 system, Idaho will review all current funding provisions. This review will focus on making sure that there will be adequate revenues to fund services throughout the transition (when costs will be temporarily higher) and beyond. Additionally, eligible uses of funds will be reviewed to ensure unique NG9-1-1 system components are covered. A new funding model may be required in order to generate adequate funds from all kinds of telecommunications providers. Section 2.1 of this plan reviews the current funding structures in Idaho.

[25] National Emergency Number Association Next Generation Partner Program Next Generation 9-1-1 Transition Policy Implementation Handbook, March 2010, 14.
[26] FCC, Communications Security, Reliability and Interoperability Council, "Working Group 1, December 2011, 40, *available at* http://www.nric.org/fg/index.html. (Last visited 2/22/2013.

4.2.2.1.3 Data Sharing and Confidentiality

Like the rest of the nation, Idaho's 9-1-1 systems were historically and necessarily dedicated, closed, single purpose systems. They existed solely for transmitting 9-1-1 calls and associated data and nothing else. Typically, 9-1-1 call recordings and data in Idaho are stored at the ECC that received and dispatched the call. Preserving the confidentiality of this information and retaining appropriate records as required by local or state law is a straightforward process. As Idaho transitions to NG9-1-1, today's 9-1-1 voice and data will be shared, transferred, and perhaps stored in more than one location (including remote, off site locations). A NENA publication accurately observed that "Maintaining confidentiality under those circumstances is not something envisioned by current local, state, and federal confidentiality, retention and disclosure laws."[27] Therefore, Idaho will encounter a new challenge: ensuring that information delivered over NG9-1-1 systems is delivered to the appropriate ECC and can be appropriately shared with federal, state and local emergency response organizations *while* conforming to applicable federal, state, and/or local confidentiality, disclosure and information retention statutes and rules.

4.2.2.1.4 Liability

The IPSCC will remain cognizant of the impact of liability issues in formulating regulation and policy guidance for NG9-1-1. Lack of legal clarity on the issue of liability can lead to significant issues, including delays in provisioning critical NG9-1-1 services. The New and Emerging Technologies 9-1-1 Improvement Act of 2008 (Net 9-1-1 Act) expands state liability protections to ECCs, service providers and their vendors. The NG9-1-1 Advancement Act of 2012 extends immunity from liability to NG9-1-1 service providers specifically and to ECCs.

4.2.2.1.5 Governance

The IPSCC is conducting an analysis of the governance frameworks that exist in Idaho today. This analysis of State, regional, county and local decision making and authority will allow the IPSCC to memorialize how decisions are made with regard to 9-1-1 in Idaho and will include information about governance models outside of the Idaho 9-1-1 system, other states and other Idaho state level initiatives. This view will assist the IPSCC in identifying any new models that might work for the NG9-1-1 system.

[27] Ibid, 18.

Along with the assessment of governance models, an assessment of the state statutory environment and policies will be undertaken to assure that they support these potential evolving arrangements and institutional structures. NENA has observed that "[t]transitioning our nation's legacy 9-1-1 system to a modern IP-based Next Generation 9-1-1 (NG9-1-1) system must be a major policy objective at all levels of government."[28] Following is a list of state/sub-state governance related responsibilities, activities and authorities that NENA has identified as being essential to the full implementation of NG9-1-1:

- Ensure that an organization (or organizations) exists, with appropriate authority and/or capability for statewide planning, coordinating and implementing NG9-1-1 systems
- Confirm that such planning and coordination reflects effective coordination with relevant stakeholders within and beyond the state
- Ensure that appropriate state-level authority exists to adopt and enforce appropriate industry-based standards, rules, policies and procedures
- Evaluate and implement regulations and laws that facilitate (or do not inhibit) the local, regional and state interoperable environment of NG9-1-1, recognizing the intergovernmental, public/private IP-based, software and database-controlled structure of NG9-1-1
- Ensure statutory support for intergovernmental cooperation and arrangements essential to an efficient statewide system environment
- Ensure that policymakers at all levels are formally committed to the development and deployment of interoperable Statewide ESInets as a fundamental 9-1-1 and emergency communications policy objective
- Ensure that policymakers are committed to providing authority for 9-1-1 entities to work interactively through cooperative governmental arrangements to support regional and state-level NG9-1-1 systems that maximize interoperability and functional sharing of resources and costs[29]

[28] National Emergency Number Association (NENA), "Next Generation 9-1-1 Transition Policy Implementation Handbook," March 2010, 1, *available at*, http://www.nena.org/?NGPPPolicyTransHndbk.
[29] Ibid.

- Ensure changes in the state/federal regulatory environment surrounding the changing nature of competition within the telecommunications industry related to NG9-1-1 are considered and carried-out In the Next Generation Partner Program's *Next Generation Transition Policy Implementation Handbook*, NENA noted that "it is critical that state regulatory bodies and the FCC take timely and carefully scrutinized action to analyze and update existing 9-1-1, PSTN, and IP rules and regulations to ensure they optimize 9-1-1 governing authority choices for E9-1-1 and NG9-1-1 and foster competition by establishing a competitively neutral marketplace."[30]

4.2.2.2 Technology

The IPSCC is conducting a detailed assessment of current technology systems and providers to properly identify the technology requirements and steps needed to migrate from the current 9-1-1 system to a NG9-1-1 system. This assessment will identify technology and systems that may need to be replaced and upgraded. This assessment will enable the State to:

- Identify technical functions that are important to the current systems
- Identify current infrastructure components that can be used with the NG9-1-1 system
- Assist in determining the conceptual design of the system

The following technologies and systems will be assessed:

[30] NENA Next Generation Partner Program Next Generation 9-1-1 Transition Policy Implementation Handbook, March 2010, 12.

- ECC locations
- Call volumes
- Call flow
- Location of serving offices/selective routers
- ALI provider information
- Current bandwidth capacity
- Current redundancy levels
- Geographic coverage area
- Facility locations
- Current plans for interoperability
- Operational infrastructure
- Regional connectivity options
- Hardware
- Customer premise equipment (CPE) hardware (e.g., Software Private Branch Exchanges [PBXs], switches, servers, workstations, trunks)
- Software
- CPE software (e.g., call taking applications,)
- CAD systems,
- Emergency Notification Systems,
- Management Information Systems (MIS) Databases
- Data
- GIS

4.2.2.2.1 Geographic Information System (GIS)

Geographic information systems will play a far more critical role within the NG9-1-1 environment Today, GIS is primarily used within the mapping modules of CAD systems or other like-systems, but not routing. However, within NG9-1-1, all 9-1-1 calls will be routed based on location using GIS datasets. The change to GIS-enabled call routing re-

emphasizes the priorities for the way Public Safety departments manage and store location data.

The first step Idaho is taking in preparing its data for NG9-1-1 is to assess the GIS datasets across the State in preparation for a more comprehensive NG9-1-1 data readiness assessment. A data readiness assessment should include the following:

- Determine applicable Idaho Geospatial Information Office (GIO) Statewide policies and standards.
- Display existing GIS data layers used by each ECC.
- Provide a baseline assessment between GIS data and MSAG to determine current accuracy level.
- Determine if ECCs have taken steps to regionalize datasets with neighboring ECCs and reconcile any edge-matching issues with neighboring roads and/or boundaries.
- Determine if a data maintenance plan is in place and the frequency of GIS data updates
- Determine what data standards and policies exist
- Review any existing addressing policies and inter-governmental data sharing agreements to ensure long term sustainability of GIS data accuracy, maintenance and standards
- Identify, assess and determine implementation of a statewide and/or regional enterprise GIS database repository(ies)

4.2.2.3 Operations

The IPSCC will continue to be a resource and support to the local and regional ECCs. The ECCs and the agencies and jurisdictions that own and operate them, will be responsible for addressing the operational migration to NG9-1-1. To that, an ECC comprised of people and technology coming together to deliver Public Safety communications must have a knowledgeable staff, as well as clear and effective policies and procedures that include a comprehensive training program.

With the transition to NG9-1-1, ECC staff will undergo a change in roles and responsibilities. New technology will breed new forms of media that will be available to ECCs' ECOs and management staff. While this technology is implemented to improve 9-1-1 service levels, ECCs will need to learn how to handle these new forms of "calls" coming into the ECC such as text, video, and telematics. The U.S. Department of Transportation's (USDOTs) "A National Plan for Migrating to IP-enabled Systems" notes:

> *"The increased quantity of available multimedia data will enhance and expand existing call-taking functions. It may also extend the time it takes to process 9-1-1 calls, increase the workload of the call-taker, and significantly change the call-taker's experience (e.g., seeing the incident versus hearing the incident)."*[31]

Additional changes that can be expected with the NG9-1-1 transition are increased resource and data sharing across multiple ECCs. While this increases the ability to respond to emergencies, it may present a new challenge to some ECCs. Training and staffing concerns should be assessed and operational standards and policies should be created or updated to account for these changes in the ECCs' operational models. The following operational models should be assessed in Idaho ECCs to help achieve the goals of a successful NG9-1-1 transition:

- Operational management
- Policies and standards
- Staffing
- Training

4.2.2.3.1 Operational Management

Establishing a management model prior to the NG9-1-1 transition will help ECCsPSAPs determine how to handle these new types of challenges as they arise. An operation management assessment includes the following:

- Interoperability across many jurisdictions
- Change management
- Rules adoption

[31] National E9-1-1 Implementation Coordination Office: A National Plan for Migrating to IP-Enabled 9-1-1 Systems, September 2009,1-4.

- Application installation management
- Standards for interconnection

The IPSCC will continue to be a resource to ECCs to assist in determining whether and how management mechanisms may need to change and how ECCs will handle operational challenges moving forward into a NG9-1-1 environment. Resources for the ECCs include known/published benchmarks from across the country.

4.2.2.3.2 Policies and Standards

Operational policies and standards will need to be reevaluated to prepare for a transition to a NG9-1-1 environment. The IPSCC will work with ECCs as a resource for identifying and implementing changes in operational policies and standards to promote coordination, resource sharing, and confidentiality issues. The ECCs will want to assess what is in place today and determine if changes will need to be made prior to the NG9-1-1 transition.

4.2.2.3.3 Staffing

While ECC staffing is and will remain a local issue in the State of Idaho, staffing models must be assessed in preparation for the changes NG9-1-1 will cause within the ECC. The IPSCC will continue to be a resource for ECCs in developing changes to job descriptions and duties for staff positions, staffing numbers and requirements, impacted by the advent of the NG9-1-1 environment because of new technologies and applications. Staff expertise will become critical as different skills will be needed to attend to the new network and equipment, as well as call taking and dispatching.

4.2.2.3.4 Training

The IPSCC will continue to be a resource for ECCs as they transition to NG9-1-1 through supporting the development and delivery of updated training plans in preparation and operation of the new network. ECOs will need to prepare for operating new technology, new types of data, new policies and procedures, and new standards. Consistent training resources across the State will help staff work within the new environment and with each other. The IPSCC will work with stakeholders to develop new or additional training standards in order to meet NG9-1-1 requirements. This plan should include a mechanism for periodic adjustments of the training program, in cooperation and collaboration with Idaho Peace Officers Standards & Training (POST).

4.2.2.4 Security

Traditionally 9-1-1 has been a closed system thereby minimizing the risk and effectiveness of cyber-attacks. However, the IP-enabled, interconnected nature of NG9-1-1 radically alters the attack surface of the local ECC and the overall NG9-1-1 system. This exponential increase in attack vectors is magnified by the attractiveness 9-1-1 systems offer cyber attackers. Accordingly, it is critically important to ensure that cyber security controls are planned for and built into the system from the outset and over the course of the project. Cyber security will be a key design feature of the Idaho NG9-1-1 System.

The NG9-1-1 Security Standards (NG-SEC) were released by NENA in 2010 and the NG9-1-1 Security (NG-SEC) Information Document in 2016. These standards provide detailed requirements on how to secure NG9-1-1 systems. Presently, many states, cities and counties have adopted NG-SEC standards as the core foundation of their security program. Next Generation 9-1-1 Security, when coupled with any additional customization of security controls necessary for the state of Idaho can become a useful framework to build an effective security program. In addition to considering the use of NENA security standards, the IPSCC may be required or choose to comply with additional federal and/or state security requirements.

Idaho's current 9-1-1 system comprises a wide-ranging set of telecommunications companies, CPE vendors, implementations, and local policy constraints. This broad spectrum of systems has created a wide-ranging approach to mitigating security risks across the state. In order to gauge current risk levels an assessment is necessary. In order to integrate cyber security into the Idaho NG9-1-1 System it is necessary to establish a security baseline of the current system. As an alternative to assessing each individual ECC (a task that would be both cost and time prohibitive), a statistical sampling that is representative of Idaho's ECCs can be used (e.g. large/small, small, vendor A, vendor B, etc.). The security assessment will be based on the NG-SEC standards and any other applicable frameworks Idaho is required to comply with, for example Idaho technology Authority (ITA)[32] requirements, or that it intends to leverage in the Idaho NG9-1-1 System.

[32] https://ita.idaho.gov/resources/

4.3 Requirements Design and Planning Phase

4.3.1 Overview

Once all the proper assessments have been completed to fully understand the current state of the Idaho 9-1-1 system, the IPSCC will have a snapshot of what needs to be done in order to be ready for the transition to NG9-1-1. Idaho can then begin to define the requirements for its NG9-1-1 system. Along with requirements, the State will also begin to define deployment options and create governance and deployment plans that will include security and operations issues.

4.3.2 Tasks

4.3.2.1 Statutory and Regulatory Environment

4.3.2.1.1 Update Statutes, Regulations, Tariffs and Agreements

Ensuring that statutory and regulatory requirements are appropriately defined is critical. Requirements should be identified based on the results of assessment of the statutory and regulatory environment introduced in the previous section of this Plan.

Begin the process of making necessary changes to laws, regulations, tariffs and other enforcement mechanisms based on the results of the regulatory, legislative and funding assessments. These changes must be both defined and implemented at this stage so that any roadblocks are eliminated prior to the implementation of other NG9-1-1 tasks. For example, the NG9-1-1 environment is inherently competitive. Therefore, it is important that the Idaho regulatory environment, including tariffs and interconnection agreements provide competitive 9-1-1 System Security Plans (SSPs) with the same reasonable and nondiscriminatory treatment as incumbent 9-1-1 SSPs. All such requirements should be neutral about technologies, manufacturers or providers.

For Idaho to move forward with adopting a comprehensive, end-to-end NG9-1-1 system, the IPSCC will:

- Determine whether the changes identified in the assessments require statutory treatment or would be better addressed through regulations or tariffs.
- Identify all the appropriate stakeholders that will be affected by the changes and ensure their input.

- Determine whether the desired statutory and regulatory changes can be made through 9-1-1 and Public Safety leadership alone or are external experts needed?

- Develop materials to educate the state legislature, other agencies and regulatory bodies to ensure they understand how current regulations and laws promote or hinder NG9-1-1.

- Determine whether to draft a single, omnibus bill that addresses all the issues or to address issues piecemeal.

- Seek waivers of some current rules and regulation in the short term during the initial transition to NG9-1-1 before final policy changes can be made.

- Adopt an appropriate strategy with the media to gain support for the overall transition to NG9-1-1 and specific policy related efforts.[33]

4.3.2.1.2 Define Funding Model

As noted, it is imperative to ensure that enough funding will be available to cover the increased costs that will be incurred during the transition from the current E9-1-1 system to the NG9-1-1 system. The IPSCC is working with regional and local governments to determine how best to address the following areas that will maximize funding and ensure sufficient resources will be available to implement and operate the NG9-1-1 system:

- Assess reasonable and equitable fees on all end user communication technologies or services capable of accessing 9-1-1.[34]

- Define the eligible uses of 9-1-1 funds and establish compliance measures to deter misuse of funds.

- Ensure statutes, regulations and tariffs enable system components to be shared among the agencies and entities that use it and that there is a mechanism for these agencies and entities to share the costs.

[33] National Emergency Number Association Next Generation Partner Program *Next Generation 9-1-1 Transition Policy Implementation Handbook*, March 2010, 25.
[34] Idaho should view this as a relatively short-term step. At some point in the future, an entirely different funding model may be more appropriate. *See* NENA publication, "Funding 9-1-1 Into the Next Generation: An Overview of NG9-1-1 Funding Model Options for Consideration," March 2007.

- Audit service provider fee remittances annually to ensure accuracy and compliance with legislative intent.
- Audit state and local use of 9-1-1 revenues annually.[35]

4.3.2.1.3 Establish Statewide Emergency Services IP Networks

For Idaho to establish an ESInet, the IPSCC in collaboration with regional and local governments will develop requirements that consider legislating and funding State-wide ESInets (or regional, interconnected ESInets) and the NG9-1-1 services hosted on or accessed by them.[36]

Emergency service agencies will need to be encouraged to share infrastructure with other governmental entities as a matter of affordability.

4.3.2.1.4 Confidentiality

Regarding confidentiality, Idaho will consider the following when developing requirements:

- Update statutes and policies to define a broad definition of a "9-1-1 call" using the concept presented in the USDOT's NG9-1-1 Initiative publications.
- Protect the types of 9-1-1 calls and call content that will exist in a NG9-1-1 environment adequately and make any necessary modifications.
- Address clearly the responsibility of all persons who may have access to 9-1-1 call information when that information is stored in non-local or shared repositories.
- Assure that non-local agencies or local ECOs working in a virtual PSAP environment have access to 9-1-1 call data and adhere to confidentiality provisions.

[35] National Emergency Number Association Next Generation Partner Program *Next Generation 9-1-1 Transition Policy Implementation Handbook,* March 2010, 9-10.
[36] Ibid, 16-17.

- Collaborate with state and local 9-1-1 governing authorities to develop standard operating procedures (SOPs) that govern who has access to 9-1-1 call information, under what circumstances and how.[37]

4.3.2.1.5 Liability

The IPSCC will leverage the assessments that were conducted to develop requirements that assure that all entities involved in emergency response in the NG9-1-1 environment are protected. Assure all statutory and regulatory language is technology neutral, rather than applying to any specific technology (e.g. wireline, wireless, VoIP), and extend liability protection to all types of originating service providers regardless of technology.

- Extend liability protection beyond the ECC environment to all entities involved in emergency response.

- Apply liability protection to all 9-1-1 SSPs and their third-party vendors, regardless of whether that SSP is a traditional regulated local exchange carrier (LEC) or an unregulated competitive SSP.

- Apply liability protections to providers of external data sources that support or supplement the normal information sent with a 9-1-1 call.[38]

4.3.2.2 Governance

The IPSCC will leverage the results of the governance initiation and assessment to identify the requirements necessary to support a collaborative vision of NG9-1-1 in Idaho. These requirements will be comprehensive and representative of the stakeholder community and applicable regulations and/or statutes. The complexities involved in managing the interconnections between state, regional and local NG9-1-1 systems requires a defined governance model that clearly identifies the roles, responsibilities, and authority by which decisions are made.

The Idaho NG9-1-1 governance model will be based on decisions that follow the review of the Governance Report and will be the framework for the management of the NG9-1-1 system. In order to create a consensus-based governance model that can be implemented Statewide, Idaho must prepare the stakeholders that were identified in the initiation phase to contribute in an effective way to the development of the governance

[37] Ibid, 19-20
[38] Ibid, 21-23

plan. These stakeholders have expertise in their field and an understanding of what is involved and expected of them in creating a governance model. It is important to educate these stakeholders in NG9-1-1 to ensure they have a unified understanding of what NG9-1-1 is and how it presents a need for effective governance. Once these stakeholders gain an understanding of the task, they will be able to provide input and gain ownership of the governance model. Their ownership will promote an atmosphere of acceptance of the model throughout the State. A governance model that is established using the feedback and consensus of those stakeholders that are impacted by the system will avoid roadblocks during the implementation of the NG9-1-1 governance model. USDOT's NG9-1-1 System Initiative noted that the "…deployment of NG9-1-1 will require increased coordination and partnerships among government and public safety stakeholders, 9-1-1 Authorities, service and equipment providers, and PSAP Administrators in planning and implementing NG9-1-1."[39]

The State together with its governance stakeholders will create a governance framework in the form of a charter(s) or other mechanism that describes the governance structure in clear terms for use at all levels of government. An effective NG9-1-1 governance model will enable critical stakeholders to enter complex service arrangements that insure the utility and quality of the services. The governance model for a shared system defines decision making processes and policies (such as change management) that will be responsive to ECC needs and be rooted in local participation. Roles must be assigned, security maintained, and every change managed. It will set forth policies and procedures and explain why they are in place. The governance framework will address but is not limited to:

- Scope
- Authority
- Roles and responsibilities
- Membership
- Stakeholder representation
- Components
- Agreements
    - Inter-local agreements

[39] USDOT NG9-1-1 Transition Plan, February 2009, 43.

  - Interstate agreements
- Plans that need to be developed and maintained
- Reporting procedures

A tiered system of governance *may* consist of a board or council that uses standing committees with specific responsibilities such as a Technology Committee, an Operational Committee and a Training Committee. The Technology Committee may be made up of technical staff from both state and local entities with responsibilities for reviewing new applications, keeping up with security standards, and providing technical recommendations for the governance leadership.

Along with requirements definition and planning, this phase should include the active elimination of roadblocks to NG9-1-1 governance. Address those roadblocks that were identified during the assessment and analysis phase and plan for their elimination. Any changes to State statutes and regulations that were identified in the assessment and analysis phase should be initiated in order to support the new relationships and service arrangements that NG9-1-1 envisions. Any statute and regulatory changes that are required should be started as soon as possible in the planning stage because those processes have the potential to take a long time and delay the implementation of NG9-1-1.

The same new relationships and service arrangements must also be facilitated and institutionalized by formal agreements between the governmental agencies, units of Public Safety and other stakeholders involved. The necessary agreements should be identified and planned for during this phase. "Who is responsible for what," and "who owns what" at what level of system operations will need to be determined in the new NG9-1-1 environment. For example, NG9-1-1 involves network and system functions that may not be operated at the PSAP level but might be the responsibility of a regional or state level entity in this new environment. Those arrangements and institutional design functions will have to be strategically addressed during the planning phase. People and entities in current Public Safety roles may be required to take on roles and responsibilities outside of their current scope in order to facilitate NG9-1-1. The FCC's NRIC VII suggested that *"... the roles of the PSAPs[40], responders, and related entities are expected to expand beyond traditional 9-1-1 services with higher levels of interaction, managed situational intelligence, enhanced capabilities, and more comprehensive communication and coordinated response services."*[41] While the local nature of 9-1-1 is not likely to change,

[40] Referred to as emergency communications centers (ECCs) throughout this document
[41] FCC NRIC VII FG1b, *available at* http://www.nric.org/fg/index.html> (Last visited 2/19/13).

the full vision of NG9-1-1 will depend upon the development of new and more complex interrelationships and governing environments.

The technical requirements and planning for the NG9-1-1 system will impact the governance model that is implemented. Historically, the State 9-1-1 Authority is the governance group at the state level charged with planning and preparation for 9-1-1 service evolution, decision making and coordination of NG9-1-1 implementation in the State. The State 9-1-1 Authority may have operational and support responsibility for ESInet and NG9-1-1 functions if it is implemented at the state level, directly or through vendors.[42] However, NG9-1-1 systems can be built up from local and regional levels, in which case the governance model might be different. NENA's Next Generation Partner Program stated it this way: "*This is the case for three primary reasons: (1) in many states, the state-level governance structure and authority for state-level 9-1-1 entities, if such a structure exists, is largely based only on collecting and distributing 9-1-1 funds to localities, rather than administering and managing an overall state-wide 9-1-1 system; (2) many parts of the architecture and functions of NG9-1-1 systems may be more efficiently managed at a regional, state or even multistate level (while the 9-1-1 call-handling operations and response will remain primarily local), and (3) the increased information sharing capabilities of NG9-1-1 systems means that 9-1-1 and emergency* communications systems will be much more interrelated in a next generation environment, calling for more coordinated and cooperative governance of the entire emergency communications enterprise."[43]

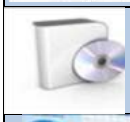
4.3.2.3 Technical and Functional Requirements

The IPSCC will create detailed technical and functional requirements based on the unique factors present in Idaho, the needs of the stakeholder community, and lessons learned from other states migrating to NG9-1-1. Requirements will address key issues of redundancy, availability, and incident response or disaster recovery as applicable.

Technical requirements will address the domains noted in Table 2, below:

Table 2—Technical Requirement

[42] The Communications Security, Reliability and Interoperability Council Working Group 1 Report Dec. 2011, 30.
[38] Next Generation Partner Program, Next Generation 9-1- Transition Policy Implementation Handbook, arch 2010, 2.

	Hardware Network: Routers, Switches, LANs: Workstations, Servers,
	Software Applications: CPE, etc. Protocols: ECRF,
	Data Analytics: Enterprise Data Gathering, R porting GIS: Mapping requirements, etc.

The IPSCC will collaborate with regional and local 9-1-1 authorities to gather information that will be used to develop the requirements. Information acquired should include known standards, best practices, and technical solutions available on the market. Once the requirements are defined, they can be prioritized.

Support for the NG9-1-1 system after deployment will be critical. The IPSCC and its stakeholders will create a comprehensive and holistic support plan that addresses and/or memorializes fault management, maintenance and monitoring. It will address desired service levels, Key Performance Indicators (KPIs) and other performance criteria. It will identify who is responsible for each aspect of support and provide detailed escalation paths. It will synchronize with change management policies across the statewide network of ECCs.

4.3.2.4 Operations

4.3.2.4.1 Define Operational Requirements

It is necessary for Idaho to define the operational requirements that need to be in place for a successful NG9-1-1 implementation. The following is a non-inclusive list of items that the IPSCC and regional and local 9-1-1 authorities will need to consider when defining their operational requirements:

- Operations Management
- Change management
- Rule adoption for new applications
- Interconnection standards
- Access management

- New users
- New technologies
- Policies and standards
- Statewide coordination
- Resource sharing
- Determine how “calls” will be handled
- Determine how new technologies and increased access will be handled
- Managing an influx of data into the ECC
- New types of data for ECOs
- Training
- Determine the training that is necessary to support the changing system environment
- Training for changing job descriptions
- Training for new job requirements and expectations
- New skill sets in the ECC
- There will be an increase in data and types of data
- New training standards and training assessments
- Staffing
- Determine new job requirements and descriptions
- Determine the staff needed to implement policies
- Analyze the need for additional positions and increased staff in the ECC
- Determine what types of staff expertise is needed to operate the new system
- Work with POST for hiring standards and training requirements of staff
- Goals from the Idaho Strategic 9-1-1 Plan
- Consensus based standards
- Vendor specifications
- NG9-1-1 standards (e.g. NG-SEC)

- Idaho preference
- Interconnectivity constraints
- Security controls and safeguards.
- Frameworks, standards, regulations, compliance issues such as NG-SEC, National Institute for Standards and technology (NIST), Health Insurance Portability and Accountability Act (HIPAA), etc.)

4.3.2.5 Security

A security plan provides the overarching strategy and vision for securing the Idaho NG9-1-1 system and is the foundation of an effective security program. Ideally, it should come before an organization starts to select or implement security technology, managed services vendors, etc. It is advisable for ECCs to create their own security plans as well.

During this phase, the IPSCC, with involvement of key stakeholders, will begin to define its security requirements. The definition process may incorporate the following activities or items:

- Security industry best practices
- Stakeholder surveys / focus groups

A security plan is the starting point for securing a NG9-1-1 system and formally documents the goals and objectives regarding the security of the NG9-1-1 system. Typically, a security plan accomplishes the following:

- Documents the goals, objectives and intentions regarding cyber security within the NG9-1-1 system
- Exercises due care by managing the risk of security exposure or compromise within the NG9-1-1 system
- Promotes and increases awareness of security across the NG9-1-1 system
- Identifies the standards and frameworks applicable by legislative, regulatory, policy, or choice with which the Idaho NG9-1-1 system shall comply (e.g. NG-SEC, NIST, Criminal Justice Information Services [CJIS], Idaho law/policy, etc.)

- Identifies the security policies necessary to implement and enforce objectives and goals
- Clarifies the security aspects of the management governance structure, as it applies to the Idaho NG9-1-1 system
- Identifies order of magnitude estimates for implementation of security across the Idaho NG9-1-1 system

The security plan must find the appropriate balance between cost, the limitations and restrictions imposed by the plan, and the risks to public safety.

4.3.2.6 NG9-1-1 Detailed Planning

The following documents and plans memorialize the IPSCC collaborative approach to the NG migration:

- NG9-1-1 Master Plan
- Update legislation, regulations and funding Model(s)
- Update procurement vehicles / contracts
- Create governance model
- Create technology support plan
- Create an operations plan
- Create a GIS guide
- Create a security plan

4.3.3 Key Decision Points

For the Requirements, Design and Planning Phase, the IPSCC will collaborate with regional and local 9-1-1 authorities to decide who will contribute to determining the requirements for the Idaho NG9-1-1 System. There are also many technical decisions that need to be made at this point including what existing infrastructure will be used for the NG9-1-1 system, what elements will be included (e.g. calls, texts, video, telematics, sensors, etc.) and what transport methodologies will be used.

4.3.4 Critical Dependencies

The conceptual system design and detailed plans will depend on the successful and thorough completion of the preceding phases and tasks as well as available funding. All requirements definition tasks will depend on the cooperation and input of the 9-1-1 program staff, IPSCC and other stakeholder involvement.

4.3.5 Work Products

The following work products are outputs of this phase:

- Conceptual System Design
- Conceptual Design Document
- Regulatory, Legislative and Funding Requirements
- Governance Plan
- Technology Requirements Document (Hardware, Software, Data)
- Operations Requirements
- Security Requirements
- NG9-1-1 Master Plan
- Detailed Planning
- Updated Regulation/Legislation
- Governance Model
- Technology Support Plan
- GIS Guide
- Operations Plan
- Security Plan

4.4 Proof of Concept Phase

4.4.1 Overview

Performing a pilot or proof of concept project will test and validate the NG9-1-1 design concept on a smaller scale before being deployed statewide. A proof of concept will

encourage local ECCs to participate in and buy into the NG9-1-1 planning and implementation. The following task details a proof of concept project, why it is important, and expected outcomes.

4.4.2 Tasks

4.4.2.1 Governance

The governance model that was formed as a result of the initiation, requirements design, and planning phases should be implemented in conjunction with the other NG9-1-1 tasks for the purposes of testing the chosen governance model and related requirements. Detailed lessons learned should be documented for the governance portion of the proof of concept in order to update the master plan and develop a final system design.

4.4.2.2 Technology

Depending on the conceptual design and the selected deployment model(s) proof of concept/pilot projects can begin to be rolled out. Proof of concept/pilot projects are used to validate the NG9-1-1 Implementation Plan and to test the chosen solution. The proof of concept/pilot projects should involve a group of ECCs that are representative of several ECC types and different ECC equipment. This sampling should reflect the various systems currently deployed or expected to be used in the NG9-1-1 system.

Each proof of concept/pilot project should use the requirements defined in the implementation plan. This effort can be used to validate selected portions or all the requirements. The State of Idaho 9-1-1 Office, in conjunction with the pilot ECCs and involved vendors should develop detailed project plans for each proof of concept/pilot project to include the equipment or process being validated, expected results, and testing processes. Detailed lessons learned should be documented for each proof of concept/pilot project for use in updating the implementation plan and developing a final system design.

4.4.3 Key Decision Points

Prior to the beginning of any pilot project, the IPSCC will determine the goals and success measurements for the proof of concept/pilot projects. This will be critical in the evaluation of the project upon completion and moving forward with NG9-1-1 deployment. The results of the proof of concept will also lead to updating the planning documentation and, most

importantly, the requirements determined and documented in the design and planning phase.

4.4.4 Critical Dependencies

Proof of concept/pilot project(s) are dependent upon having a quality NG9-1-1 plan and following that plan throughout the process. The migration plan will have the conceptual designed determined in the planning phase in place with the proper technology and standards. This scenario may require some statutory and regulatory changes in order to carry out the project. This initiative will require funding in order to be carried out correctly and thoroughly.

4.4.5 Work Products

The following work products are outputs of this phase:

- Proof of concept project plans
- Proof of concept test results
- Lessons learned documentation

4.5 Implementation Phase

4.5.1 Overview

Once a pilot project is successfully completed and documented, the State of Idaho should move on towards the implementation phase of NG9-1-1. This is where the network will be deployed. A transition plan should be created in this phase to take the state as smoothly as possible from the pilot to actual implementation.

4.5.2 Tasks

4.5.2.1 Governance

Develop a transition plan for the governance model that executes the governance plan and applies the lessons learned from the proof of concept phase. Implement the transition plan in conjunction with the other NG9-1-1 tasks.

4.5.2.2 Operations

An important step in the implementation phase is creating a detailed transition plan that will take the State from the pilot phase into actual NG9-1-1 deployment. This transition plan will outline technical development, testing, implementation, and other initiatives important to the state of Idaho. This transition plan should contain specific details regarding the steps necessary to execute the NG9-1-1 Implementation Plan and deploy the ECCs and other systems to the NG9-1-1 system. The state and stakeholders will be involved in developing the transition plan based on the Master Plan and the lessons learned from the pilot project.

Because a transition plan must account for Statewide and regional deployments, it is very important to have stakeholder input when developing this plan. Local ECCs and regions should have their own transition plans that are in line with and complement the Statewide transition plan. Each ECC and provider should be tracked. The plan should account for them and provide an order and a schedule for transition activities so that all the participants are informed and ready for their individual transition to the NG-1-1 network. A transition plan should contain, at minimum, the following details:

- Roles, responsibilities, and authority of all stakeholders
- Process
- Detailed procedures and checklists
- Back out plans
- Change control plan
- Testing procedures and checklists
- Acceptance criteria
- Communications plan
- Technology
- Schedule

A transition plan at the State level will be instrumental in deploying NG9-1-1 across the State, however, this State-level plan will also help ECCs and regions to plan and carry out the transition. Working together with all stakeholders will help to create a plan that can organize and coordinate a successful transition and deploy NG9-1-1 in a consistent manner that allows for success for all stakeholders. Working together to plan the transition

will also allow the lessons learned from the pilot project to be communicated and used to improve the transition process and avoid making the same mistakes not only at the state level, but at the regional and local levels as well.

4.5.2.3 Technology

This phase also refers to the implementation of processes, policies and procedures that must be updated to migrate to NG9-1-1. The implementation phase is representative of the entire set of steps necessary to implement NG9-1-1 in Idaho.

During this phase, the Idaho NG9-1-1 System should be deployed in a phased manner per a pre-developed transition plan. This phase should include the specific processes associated with installing needed equipment, testing the equipment, any related services, interconnecting ECCs, and the call origination network to the NG9-1-1 system. At completion of the deployment, detailed as-built documentation of equipment and configurations should be created for each ECC and the complete system. These as-built documents should be maintained on an on-going basis to reflect the actual system architecture.

Clearly, full participation in NG9-1-1 requires ECC systems that can accept an IP connection and properly handle NG9-1-1 protocols in accordance with the NENA i3 standards. An open architecture will be necessary moving forward into future technologies. The NENA i3 standards reference these future technologies and the need for them to be compatible with the NG9-1-1 network. This will help to ensure compliance of new technologies that will be introduced after implementation of the network so that a network replacement will not be necessary to incorporate these technologies.

Several vendors have equipment available today that is NENA i3 compliant or that is currently in the migration process of becoming i3 compliant. Some vendors state that their IP-based equipment is “NG9-1-1 compliant” or “NG9-1-1 ready,” when, in fact, the equipment satisfies only some aspects of NG9-1-1. For example, the system may accept Session Initiation Protocol (SIP) calls, but not the ALI data in the Presence Information Data Format Location Object (PIDF-LO). While such partial compliance with NG9-1-1 may be an asset, it may also be the source of many interoperability problems with equipment from other vendors. Ideally, an ECC would replace its existing equipment with a fully NENA i3 compliant system. Such an approach would offer the maximum interoperability and achieve the goals of the State of Idaho in a timely manner.

It may be some time before the entire Idaho 9-1-1 system migrates to NG9-1-1. As such, a NG9-1-1 ECC may have to continue to accept calls on legacy trunks and use legacy ALI systems. This can be accomplished by installing Legacy Network Gateways (LNGs) at the ECC in “front” of the NG9-1-1 equipment. Some vendors are implementing this sort of solution inexpensively. Some refer to this as a “dual mode” ECC, able to receive calls from both the legacy and the NG9-1-1 networks.

Some ECCs may wish to wait until existing ECC equipment reaches the end of life cycle before incurring the cost of replacing existing equipment with NG9-1-1 equipment. When this occurs, there are several options:

- Wait until the ECC is ready before migrating. This may delay migration of call originating networks to the ESInet infrastructure.
- Install an LNG converting NG9-1-1 signaling back to traditional trunking for the existing ECC CPE. This limits ECC functionality and may cause interoperability issues. Of concern is the functionality of the NG9-1-1 to legacy gateway with respect to functions such as call transfer.
- Operate limited new and old equipment side-by-side. This presents cost and operational challenges. The initial deployments of NG9-1-1 are not expected to present serious challenges to call-takers; from their perspective the operations of the old and new systems may not be significantly different.

Infrastructure, and service and support issues may be more difficult. Some ECCs may have limited IP expertise in-house and may have to seek assistance from local outside vendors. While there are many IP vendors, many have limited SIP, IP-telephony, and, especially, limited NG9-1-1 experience. Support may not come from traditional sources, such as the local telephone company. However, IP networks enable remote support in ways not previously possible, so much less on-site support may be required, and vendors may contract with local computer vendors for hardware support while providing NG9-1-1 software support remotely. This is possible because NG9-1-1 makes use of Commercial Off-the-Shelf (COTS) hardware.

4.5.2.3.1 Key Decision Points

During the transition phase, several key decision points must be considered. The State must define a transition methodology that works for all the stakeholders. This will require communication and stakeholder feedback. Procurement methodologies must be decided

upon including the financial impact of those decisions. Another important decision that must be coordinated with local ECCs and regions is a deployment schedule. A deployment schedule must be specific and agreed upon by the stakeholders in order to plan for the appropriate steps to be taken during the transition.

4.5.2.3.2 Critical Dependencies

The creation of a transition plan is dependent upon the successful completion and documentation of the pilot project. Additionally, communication throughout the State at the state, regional, and local levels will determine the functionality of the transition plan. NG9-1-1 deployment is dependent upon available funding and on whether the statutory and regulatory environment allows for this deployment to take place in the manner that the state plans for it.

4.5.2.3.3 Work Products

The following work products are outputs of this phase:

- Transition Plan
- Project Plan(s)

4.6 Maintenance and Management Phase

4.6.1 Overview

Once the Idaho NG9-1-1 network is in place, system management activities will be important not only to maintain the system but also to help the NG9-1-1 system meet its full potential presently and into the future. As technology grows and changes, the network will need to adapt. Users of the network may also shift once it is in place. All these network maintenance issues must be planned for and managed in order to assure the network is being used to its full potential and remains secure and functional.

4.6.2 Tasks

4.6.2.1 Technology

With a fully deployed NG9-1-1 System, traditional lifecycle management activities of the system can commence. For example, these activities include:

- **Fault management (technical support, break/fix, etc.).** Detect, isolate, notify, and correct State-level and Regional ESInets' incidents and problem in the network

- **System management and maintenance.** The State-level and Regional ESInets' management and maintenance strategies must align to reduce the risk of unplanned failure in the ESInet. This strategy combines both Network Policy/Governance with Operations and the deployment of operational tools that provide oversight of the Idaho NG9-1-1 System. After coupling the IT Infrastructure Library (ITL) with the International Organization for Standardization (ISO) the State recognizes eight specific areas as a foundation of the fundamental State-level and Regional strategy for the ESInet hierarchy.

- **Configuration management (changes, Upgrades, Improvements).** Configuration Management verifies the impact of changes and the relationship to other configuration items (CI) before updating the change management database (CMDB) for the State-level and Regional ESInets.

- **KPIs/performance management.** Monitor and measure various aspects of performance so that overall performance can be maintained at an acceptable level for the State-level and Regional ESInets.

- **Managed services (monitoring).** Managed services should perform oversight functions as the State's agent. The contracted service should administer all aspects of interconnection, configuration, security, use, and maintenance of NG 9-1-1 by all service providers, by ECCs, by ECC vendors, and by any other stakeholder interconnected with the State of Idaho NG9-1-1.

- **Security management.** Once the design has been implemented monitoring must be put into place to ensure that pre-set thresholds are not exceeded for capacity of all security elements. When thresholds are close to being reached, then processes should be in place for adding additional resilient security components and services. The State-level ESInet and Regional ESInet could potentially be at risk of security breaches such as spoofing. Policies should be followed that includes testing all products and services in a lab before implementation. Policies will be followed for patch management to ensure that security patches are kept up to date.

- **Incident response/management.** There is a potential risk of ECC isolation or CPE failure in the new network. Contingency plans should be developed for the Regional ESInet re-directing calls to a predetermined ECC along with a contingency plan for recovering services to and at the ECC.

- **Dashboards/portals.** The State-level ESInet and Regional ESInets have a need to be aware of service failure or termination, independent of the service interactions they initiate. To facilitate this requirement, the State-level ESInet and the Regional ESInet will need to create a dashboard/portal for notification best practices regarding service awareness that allow service requestors and providers deal with these cases in a consistent fashion.

4.6.2.1.1 Key Decision Points

There are several decisions that need to be made in order to manage the network effectively. Many of these decisions need to be made prior to the implementation of the network. One of the big advantages of NG9-1-1 will be the ability to add new forms of technology to the network. The State of Idaho needs to determine how new forms of technologies, data, and information will be allowed to use the NG9-1-1 network. Another decision that will need to be made is regarding the policies and procedures for the network. These policies and procedures will need to be determined during the planning phase of this process but will need to be reexamined and updated as the network is maintained.

4.6.2.1.2 Critical Dependencies

System management will depend largely on the following issues:

- Monitoring
- Fault Management
- Configuration Management
- Change Management
- Incident Response/Management

4.6.2.1.3 Work Products

Work products for the maintenance and monitoring phase will be ongoing throughout the day to day activities of maintaining a network. Through network maintenance and monitoring, the plan and other network documentation should be maintained as well. Plan maintenance is further addressed in Section 5 of this document.

5. MONITORING AND UPDATING PLAN

An important aspect of planning for NG9-1-1 is keeping the plan current and relevant as the state moves through the transition. Updating the State Plan will help to keep the 9-1-1 program, IPSCC, and participating entities on track and accountable to the objectives in the plan. On an annual basis, Idaho will assess the status of progress on the objectives and update the goals and objectives within the plan. This annual review can be administered by the 9-1-1 Program Manager. However, if during an annual review there is a situation where it is appropriate to revise, add or subtract goals and objectives, these types of changes must be approved by the IPSCC. Performing these types of reviews annually will allow flexibility in NG9-1-1 planning as regulations and technology changes. The plan, in its entirety, will be reviewed and updated every three years by the 9-1-1 Program Manager and approved by the IPSCC.

6. TIMEFRAME

The timeline illustrated below is a guideline to reflect the anticipated gating steps and time(s) to complete an initial ECC implementation. Dependencies, such as funding cycles, regulatory changes, CPE readiness and facility preparedness, will impact timelines. As a result, every ECC will require a unique view of the specific dependencies and deliverables at each stage or phase.

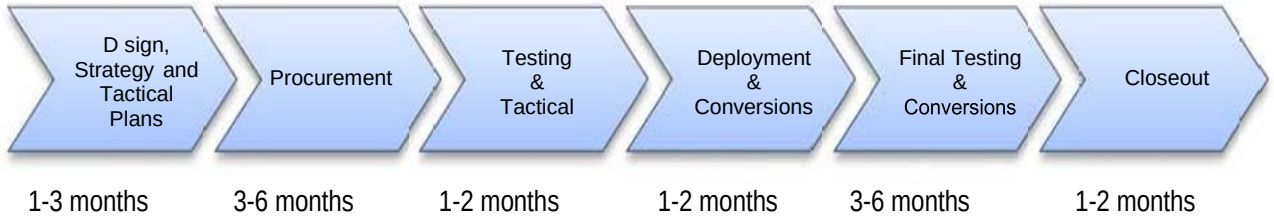


Figure 7—Timeline

Design, Strategy and Tactical Plans

Elements in the strategy and plans include:

- Modeling to determine validity of the design
- Sizing the applications according to best practices to ensure that not only the initial deployment model requirements are met, but that expected expansion and scalability needs are baked into the plans
- Reviewing reliability requirements
- Assuring that all availability requirements are evaluated, including continuity
- Developing and documenting recovery plans for additions, upgrades, and unforeseen service interruptions

Procurement

Elements in the procurement process include:

- Developing an RFP(s) for vendor response
- Selecting vendors to respond

- Analyzing responses and selecting a vendor(s) for award

Testing (Functional, Non-Functional and Adjustments) and Tactical

Elements in the testing and tactical phase include:

- Test plan development
- Validation processes
- Evaluation criteria
- Support strategy
- Controls
- Breach management

Network Deployment and Initial Conversion/Test

Elements in the network deployment and conversion include:

- Deployment management
- Configuration and release management

Final Testing (Functional and Cross-Functional) and Conversions

Elements in the final testing include:

- Knowledge gained
- Lessons learned

Project/Phase Closeout

Conversion of the successful testing of that ECC delineates phase or project closeout. Any incomplete deliverables or objectives should be measured and closed as soon as practical to allow for project closure.

7. CONCLUSION

The need for a Public Safety communications upgrade to NG9-1-1 in Idaho has been clearly established. The dramatic changes in technology and the telecommunications industry within the past 15 years have changed the public's expectations of Public Safety and emergency communications systems. Idaho has recognized the need to implement changes to keep pace. It has also been clearly recognized that the State's aging Public Safety communications systems can no longer keep pace with industry changes. National agencies and associations such as NENA and USDOT have developed their visions of the systems required to provide Public Safety in the Next Generation. Idaho shares this vision and is taking steps forward to provide a NG9-1-1 system that can facilitate the use of voice, video and data to enhance Public Safety in the State of Idaho. This updated NG9-1-1 plan further defines the steps towards the implementation of a Statewide mission critical, secure, and fail-safe NG9-1-1 system.

There are many important tasks that are in the process of being completed to assure the successful transition to a Statewide NG9-1-1 network. Idaho will continue to use this Plan as a roadmap to take the steps outlined herein and continue the transition to a NG9-1-1 network together with stakeholders across the state. Localities may also utilize this Plan to construct their own plans for their individual preparation for a NG9-1-1 system. Many of the concepts, plans and action items can be used by ECCs and/or regions to plan for regional ESInets. This will help to promote coordination and interconnectivity throughout the state.

This Plan is a dynamic document and is meant to be reviewed and updated periodically as described in Section 5 – Monitoring and Updating Plan. As steps are planned and completed, subsequent steps may need to be adjusted throughout the transition process.

8. GLOSSARY

8.1 Terms

ALI	Automatic Location Information is the address of the person placing the 9-1-1 call.
ANI	Automatic Number Identification is the telephone number of the person calling 9-1-1.
CAD	Computer Aided Dispatch
Call Access Services	All services and equipment required by carriers to send emergency data and calls to the Idaho ECCs. Circuits for these connections are also included.
Circuit	A circuit is a connection between two points that can be made through various media, such as fiber and coaxial cable.
Core Connections	The core of the next generation network, which contains the servers performing the call routing functionality as well as the data centers. NG9-1-1 services and databases are included in this section of the network. This section of the network correctly identifies where the emergency call is to be delivered and applies supplemental information to the call flow.
Emergency Communications Center (ECC)	Formerly referred to as Public Safety Answering Points (PSAPs). A facility or operation that is designated to receive and dispatch requests for emergency assistance
Emergency Communications Officer (ECO)	Formerly referred to as a telecommunicator, call-taker and/or dispatcher. An emergency response coordination professional trained to

	receive, assess, and prioritize emergency requests for assistance.[44]
Emergency Services IP Network (ESInet)	ESInet is an IP-based inter-network (network-of-networks) shared by all agencies that may be involved in any emergency.
Geographic Information System (GIS)	GIS is a computer software system that enables one to visualize geographic aspects of a body of data. It contains the ability to translate implicit geographic data (such as a street address) into an explicit map location. It can query and analyze data in order to receive the results in the form of a map. It also, can be used to graphically display coordinates on a map (i.e. latitude/longitude) from a wireless 9-1-1 call.
ILEC	Incumbent Local Exchange Carrier
Internet Protocol (IP)	IP is the method by which data is sent from one computer to another on the Internet or other networks. IP is part of the Transmission Control Protocol (TCP)/IP family of protocols describing software that tracks Internet addresses of nodes, routes outgoing messages, and recognizes incomplete messages. IP is used in gateways to connect networks to the Open Systems Interconnection (OSI) network level 3 and above.
LATA	Local Access and Transport Area is the geographical area within which a local telephone company offers service.
Master Street Address Guide (MSAG)	MSAG is a database of street names and house number ranges within their associated communities

[44] https://cdn.ymaws.com/www.nena.org/resource/resmgr/standards/NENA-ADM-000.23-2020_FINAL_2.pdf

	defining Emergency Service Zones (ESZs) and their associated Emergency Service Numbers (ESNs) to enable proper routing of 9-1-1 calls.
PSAP	Referred to as ECC throughout this document. Public Safety Answering Point receives and processes 9-1-1 calls for a defined geographic area.
PSAP Connections	Referred to as ECC Connections throughout this document. All the equipment (hardware and software), connections to the network, and firewalls needed to allow the ECC to receive NG9-1-1 traffic from the call processing section of the network. This includes workstations.
Router	A router is a device that connects like and unlike LANs.
Service Provider	SP is an entity providing one or more of the following 9-1-1 elements: network, CPE, or data base service.
Switch	A switch is a device that opens or closes circuits, completes or breaks electrical paths, or selects paths or circuits. Switches look at incoming data to determine the destination address.
T1	T1 is a digital transmission link with a signaling speed of 1.544 Mbps; it is a standard for digital transmissions in North America. T1 is part of the progressive digital transmission pipes commonly referred to as DS or Digital Signal
Voice over Internet Protocol (VoIP)	VoIP is a general term for a family of transmission technologies for delivery of voice communications over IP networks such as the Internet or other packet-switched networks. The IP address assigned to the user's telephone number may be static or dynamic

8.2 Acronyms

ALI	Automatic Location Identification
APCO	Association of Public-Safety Communications Officials
BCF	Border Control Function
CAD	Computer Aided Dispatch
CERT	Cleary Emergency Restoration Trailer
CJIS	Criminal Justice Information Services
CMDB	Change Management Database
COTS	Commercial Off-the-Shelf
CPE	Customer Premise Equipment
DoD	Department of Defense
E9-1-1	Enhanced 9-1-1
ECC	Emergency Communications Center
ECO	Emergency Communications Officer
ECRF	Emergency Call Routing Function
EMD	Emergency Medical Dispatch
ENHANCE 9-1-1	Ensuring Needed Help Arrives Near Callers Employing 9-1-1
EOC	Emergency Operations Center
ESInet	Emergency Services Internet Network
ESRP	Emergency Services Routing Proxy
ESZ	Emergency Service Zone
FCC	Federal Communications Commission
GIO	Geospatial Information Office
GIS	Geographic Information System
HIPAA	Health Insurance Portability and Accountability Act
IECC	Idaho Emergency Communications Commission
IP	Internet Protocol

ISO	International Organization for Standardization
IT	Information Technology
ITL	IT Infrastructure Library
KPI	Key Performance Indicator
LATA	Local Access and Transport Area
LIS	Location Information Server
LNG	Legacy Network Gateway
MDT	Mobile Data Terminal
MIS	Management Information System
MPLS	Multiprotocol Label Switching
MSAG	Master Street Address Guide
NASNA	National Association of State 9-1-1 Administrators
NENA	National Emergency Number Association
NG9-1-1	Next Generation 9-1-1
NG-SEC	NG9-1-1 Security
NIST	National Institute of Standards and Technology
PBX	Private Branch Exchange
PIDF-LO	Presence Information Data Format Location Object
Plan	State of Idaho Enhanced/Next Generation 9-1-1 Plan
POST	Peace Officer Standards and Training
PRF	Policy Routing Function
PSAP	Public Safety Answering Point
RFP	Request for Proposal
SIP	Session Initiation Protocol
SOP	Standard Operating Procedure
SSP	System Security Plans
State	State of Idaho
TCP	Transmission Control Protocol
TCS	TeleCommunication Systems

TDD	Telecommunication Device for the Deaf
TTY	Teletype
UPS	Uninterruptible Power Supply
URI	Uniform Resource Identifiers
URN	Universal Resource Name
US	United States
USDOT	United States Department of Transportation
VoIP	Voice over Internet Protocol