NORTH CAROLINA

2024 STATE 911 PLAN

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Prepared by:

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Executive Summary

North Carolina General Statute ("G.S.") §143B-1402(a)(1) requires the Board to publish and maintain a comprehensive plan for the provision of 911 service in the State. That statute further requires the Board in its work to develop the Plan to monitor trends in 911 and enhanced 911 technology, incorporate GIS mapping and other resources into the Plan, ensure that each Public Safety Answering Point (PSAP) in the State has a backup, and implement strategies for the efficient and effective delivery of enhanced 911 services.

The 2018 Plan started the path to implementation of a single Statewide digital network, which was the most effective and efficient way to provide enhanced 911 services, rather than on a county-by-county basis. Implementing a single Statewide digital network requires a new level of Statewide planning and coordination. Creating a three-to-five-year strategic plan was a critical tool to help the Board and staff plan for and prioritize resources, amend governance, and address all needs associated with Next Generation 911 (NG911), including but not limited to technology, funding, operations, and training. As with the 2021 State 911 Plan, the 2024 Plan will continue down the path of the NG911 journey with a new set of goals and objectives to take them to the next level.

Goals and objectives are important in strategic planning because they turn the vision of the Board for NG911 into specific measurable targets or steps. Goals build on the vision and mission by defining and prioritizing the direction of the Board in response to specific priorities. Goals describe the general accomplishments to be achieved if the vision is to be achieved. Objectives articulate specific steps that are needed to complete each goal and include the owner-agency and the planned timeline. The following ten (10) goals are not placed in order of priority. They have been implemented to continue North Carolina's current path to roll out NG911 and to ensure successful operation of the State's 911 system.

Goal 1: Run and manage the Statewide hosted Next Generation 911 system.

Goal 2: Provide centralized network management and security monitoring for the Statewide ESInet as the Network Monitoring and Assistance Center (NMAC).

Goal 3: Following State law (G.S. §143B-1400 *et seq.*), review and revise Board Administrative Code to reflect changes in 911 service, PSAP operations, and Board responsibilities in the Next Generation 911 environment.

Goal 4: Pursuant to G.S. §143B-1402, the Board will continue to administer the 911 Fund to ensure 911 service delivery, implementation of the NG911 Fund, and 911 Board operational and technical services provided to PSAPs.

Goal 5: Pursuant to Board Rule 09 NCAC 06.0216, continue to implement PSAP assessment program to facilitate understanding of Board rules and NC law,

and to provide assistance for correction of deficiencies identified during such assessments.

Goal 6: Research and explore methods for further public outreach to support the PSAP community.

Goal 7: Facilitate the consolidation or regional collaboration of Primary and Backup PSAPs.

Goal 8: Explore and investigate the interconnection of PSAP users of the ESInet with other ESInet users and other partners and networks serving public safety.

Goal 9: Identify the potential for cybersecurity threats, risks, and vulnerabilities within the NC NG911 ecosystem to establish appropriate measures to address such issues that are within the Board's authority.

Goal 10: Educate about and support the human factor elements of PSAP/911 operations and emerging technologies that are within the Board's authority.

1. Introduction

1.1. Background & Project Overview

North Carolina General Statute ("G.S.") §143B-1402(a)(1) requires the North Carolina 911 Board ("the Board") to publish and maintain a comprehensive plan for the provision of 911 service in the State. The Board is further required by G.S. §143B-1400(3) to describe the allowable uses of 911 revenue in the State 911 Fund.

G.S. §143B-1402(a)(1) requires the Board, in its development of the Plan, to monitor trends in 911 and enhanced 911 technology, incorporate GIS mapping and other resources into the Plan, ensure that each PSAP in the State has a back-up, and implement strategies for the efficient and effective delivery of enhanced 911 services.

1.2. Purpose of the 2024 North Carolina State 911 Plan

This document represents an official update to the 2021 North Carolina State 911 Plan. Initially created in 2018 to address the State's transition to NG911, the Plan is considered an evolving document and provides a roadmap for North Carolina 911. The 2018 Plan was implemented and approved in December 2018. The 2021 Plan update was adopted by the Board at its December 3, 2021, meeting.

With the intricate nature of NG911 technology, the built-in advantages of scalability, and the deployment of the Statewide NG911 ESInet, it became evident that updating the North Carolina State 911 Plan regularly was necessary. The 2024 update aims to capture the advancements achieved in the implementation of NG911 in North Carolina, track the achievements of the 2021 goals and objectives, and establish new objectives and goals to ensure the smooth progression and upkeep of the system and daily operation of 911 services.

The 2024 Plan also documents the status of NG911 in North Carolina and the continued vision for NG911 in North Carolina. The 2024 Plan sets forth the top priorities identified by the Board and its PSAP stakeholders, with the main goal of completing implementation of their NG911 system. It is vitally important to continue the path of implementing the NG911 system – a disparate collection of circuit-switched analog technology and non-integrated 911 call delivery operations – to an integrated and secure Internet Protocol (IP)-based call-routing system using GIS. North Carolina has been in the process of this implementation for several years. This began with the concept paper in 2015, the execution of a multi-year managed service contract in 2017, and the migration of the first PSAP in November 2018. The project schedule has been impacted by the COVID-19 pandemic, network construction issues, and Originating Service Providers (OSP) delays. At the end of 2023, the ESInet will serve 124 of 125 PSAPs in the State. The remaining PSAP is scheduled to join in February 2024, completing the implementation phase of the ESInet, with all PSAPs being i3 compliant. The Board and staff are currently transitioning to the "run and manage" phase of the ESInet, an operational phase that will exist indefinitely. During this "run

and manage" phase, the Board and staff will also be required to consider emerging technologies, services, and operational methodologies as additional services on the ESInet. The Board is pleased to remain an innovator in providing Statewide NG911 service and looks forward to continuing to run and manage it as "Now Gen" 911 services.

The 2024 Plan is intended to continue the vision for the Statewide implementation of NG911 services. Because the 2024 Plan serves as a strategic planning guide for the future, the Plan must remain flexible to account for unforeseen circumstances or events and should be reviewed and amended regularly to account for and adjust to any such changes. The Plan is also intended to foster collaboration and should be used on an ongoing basis. Overall, the 2024 Plan will:

- Serve as a tool to communicate the continued strategy for the migration to NG911 services Statewide while informing key decision makers where priorities exist;
- Serve as a tool to examine and explore new technologies and trends in 911 service;
- Ensure the effective and efficient use of 911 resources (e.g., revenue, Board or PSAP personnel, and equipment) by focusing resources on the key priorities;
- Provide focus for the Board, Board staff, and the 911 community by providing an opportunity for interested parties to collaborate and provide their input in a structured format, resulting in greater efficiency and effectiveness in the continued effort to provide NG911 services Statewide; and
- Demonstrate the value of having the Board coordinate and facilitate Statewide provision of enhanced 911 services.

1.3. Updating the State 911 Plan

The goals established in the 2024 Plan are high-level, general directions. The objectives for achieving the goals are concise, specific, and measurable. As goals and objectives are achieved, they should be documented. Any changes to the 2024 Plan should be documented in the following manner:

- The Plan is given a new version number following a review or following any interim update that was necessary. The number assigned at the time should be a full number, i.e., 1.0; 2.0; or 3.0.
- Any changes made to Plan on an interim cycle are given a fractional number, such as 1.1; 1.2; or 1.3.
- The date of the official change to the Plan should be documented.
- There should be a description of what changes were made to the Plan, including the page and section numbers.
- The footer of the revised Plan should be updated to indicate a new Plan number.

Appendix A – Document Change History provides the form to use to document any updates to the 2024 Plan.

1.4. Methodology

In February 2023, the Board awarded a contract from a proposal submitted by Ritter Strategic Services, LLC (RSS) to update the existing 2021 State 911 Plan, and in June 2023, the contract was executed. On July 17, 2023, RSS facilitated an onsite kickoff meeting with Board staff to review the 2021 goals and objectives in the Plan and identify the accomplishments achieved therein. The kickoff meeting also provided staff with an opportunity to brainstorm ideas for the 2024 Update. As clarification, in previous iterations of the Plan, the year had been denoted as the year in which the Plan was approved at the December 911 Board meeting, and not as the year in which the Plan was to begin. Thus, the 2024 Plan, and all subsequent Plans will begin January of the Plan title year.

RSS facilitated (3) three workshops (two onsite and one virtual) with the North Carolina 911 State Plan Study Group in August and September 2023. In collaboration with staff, RSS highlighted the accomplishments achieved in the 2021 Plan and requested participants to provide suggestions for new goals and objectives for consideration.

RSS collaborated with the Study Group (sometimes referred to as the Working Group) members to draft the 2024 State Plan update. The group identified goals and objectives that would carry forward from 2021 and then prioritized new goals and objectives for the updated Plan. Additionally, extensive review for content, formatting, and verification continued via electronic exchange until mid-November with RSS and Board staff, when the final draft was prepared for dissemination to the Board.

The legislative requirement of the Plan is to address the Board's role in the provisioning of 911 service throughout the State. However, it is noteworthy to highlight that the Plan also includes goals and objectives that fall outside the purview of the narrow confines of the definition of the Plan. These are critical areas for the overall operation of 911 call service delivery and there are ways in which the Board and staff can provide support to the efforts of those agencies and organizations with such responsibilities.

Table 1 – 2024 Staff and Study Group Workshops

Date	Location
July 17, 2023	On Site Kick-off meeting with Staff
August 16, 2023	On Site Workshop #1 with Study Group
September 8, 2023	On Site Workshop #2 with Study Group
September 27, 2023	Virtual Workshop #3 with Study Group

1.4.1. 2024 Study Group

The 2024 Plan was developed in close conjunction with the Board staff and Legal Counsel, as well as members of the 2024 Study Group. As part of the update process, the Board's Executive

Director invited professionals across the State to represent the various stakeholder groups in appointed to the 911 Board, and those individuals comprised the Study Group. The RSS team facilitated meetings and received input to incorporate stakeholder feedback into the 2024 Plan.

Table 2 contains a list of the 2024 Study Group members.

Table 2 – 2024 Study Group

NAME	TITLE/AGENCY	REPRESENTATION
Scott Alderman	Fire Chief, Town of Kernersville	North Carolina State Firefighters' Association
Chavella Bailey	Program Manager, EBCI Public Safety Communications Center	North Carolina Eastern Band of Cherokee Indians
Josh Briggs	Principal Architect/NG911 Program Manager, AT&T	North Carolina Local Exchange Carriers (LEC)
John Connet	City Manager, City of Hendersonville	North Carolina League of Municipalities
Allen Cress	Chief, Rowan County Emergency Services	North Carolina Chapter National Emergency Number Association
Grayson Gusa	Training Supervisor, Davie County 911	North Carolina Chapter Association of Public Safety Communications Officials
J. D. Hartman	Sheriff, Davie County	North Carolina Sheriff's Association
Greg Hauser	NC Statewide Interoperability Coordinator	North Carolina Statewide Interoperability Executive Committee (SIEC)
Michael James	County Manager	North Carolina Association of County Commissioners
Tim Johnson	State GIO	North Carolina Center for Geographic Information and Analysis (CGIA)
Jude O'Sullivan	Chief Customer Officer, Carolina West Wireless	North Carolina Commercial Mobile Radio Systems (CMRS)
Brian Reagan	Chief of Police, City of Mount Holly	North Carolina Association of Chiefs of Police
Jimmy Stewart	Director, Hoke County Emergency Communications	North Carolina Association of Rescue and EMS
Proxies		
Matt McLamb	Assistant Director	North Carolina Center for Geographic Information and Analysis (CGIA)
Jason Compton	Public Safety IT Architect, Wake County Sheriff's Office	North Carolina Chapter National Emergency Number Association

2. The 911 Environment in North Carolina

North Carolina is the tenth largest state in the U.S. with a population of 10,439,388 in 2020. The State's population grew 9.5 percent between 2010 and 2020, increasing the number of residents by 903,905. Since 2000, the State's population has grown over 25 percent.

With respect to the land size, North Carolina is the 28th largest in the nation. Having a relatively large population and relatively low land area means that the population per square mile in the State is 196 people, compared to 87 per square mile for the nation.[1] According to the 2020 US Census, 66 percent of the State's population lived in an urban area and 34 percent lived in a rural area.

There are one hundred counties in the State and over 500 municipalities. As of 2020, the two largest counties were Wake and Mecklenburg, with populations, respectively, of 1,129,393 and 1,115,526. The next largest county is Guilford, with a population of 541,309. The least populated county in the state is Tyrell, with 3,247 people. Table 3 below provides a breakdown of the various population ranges for 2020.[2] Appendix B – North Carolina Population by County contains the State's population by county (listed by population) for 2020 actuals with estimates for 2021 and 2022.

Table 3 – Breakdown of North Carolina Population, 2020

Population Range	Number of Counties	% of Total Population
Less than 10,000	4	4%
10,001 – 24,000	21	21%
24,001 – 50,000	22	22%
50,001 – 100,000	25	25%
100,001 – 500,000	25	25%
500,001 – 1 million	1	1%
Over 1 million	2	2%
Totals	100	100%

The ten largest cities in North Carolina, in order of population, are Charlotte, Raleigh, Greensboro, Durham, Winston-Salem, Fayetteville, Cary, Wilmington, High Point, and Greenville. North Carolina has the largest State-maintained highway system in the United States, exceeding 77,400 miles of roads. The State has over 1,500 lakes and over 37,000 miles of freshwater streams. Tourism is an important source of revenue for the State, and in 2020 visitors spend more than $1 billion in the State.

[1] US Census Bureau, American Fact Finder: Annual Estimates of the Resident Population: April 2021: North Carolina,. https://www.census.gov/data/tables/time-series/demo/popest/2020s-counties-total.html, as of November 5, 2021

[2] Ibid.

Some of the major attractions in North Carolina are year-round golfing, snow skiing at ski resorts, fresh- and salt-water fishing, hunting, the Great Smoky Mountain National Forest, the Blue Ridge Parkway, Wrightsville Beach, the Cape Hatteras and Cape Lookout National Seashores, and the Wright Brothers National Memorial in Kitty Hawk. The vast differences in geography, population, and attractions place a unique demand on the 911 systems across North Carolina and underscore the importance of a single Statewide digital network for E911 service.

Table 4 provides information on Statewide 911 call volume.

Table 4 – Statewide 911 Call Volume in 2021 and 2022

Class of Service	2021 Totals	Percentage of 2021 Call Total	2022 Totals	Percentage of 2022 Call Total
WRLS	6,042,589	79.56%	5,805,918	80.22%
WRLN	879,236	11.58%	716,276	9.90%
VoIP	658,664	8.67%	700,106	9.67%
Incoming Text-to--911	14,889	.19%	14,889	.21%
Total 911 Calls	**7,595,378**	**100%**	**7,237,189**	**100%**

2.1 Statutory Framework for 911 Service

North Carolina General Statutes Chapter 143B, Article 15, Part 10, Section §143B-1400 *et seq.,* establishes the statutory provisions and requirements for 911 service at the State and local levels. The statutory provisions for 911 service in the State include, but are not limited to, the creation of a State 911 Board, the monthly 911 service charge, and eligible uses of 911 revenue.

2.2 State-Level Governance for 911 Service – North Carolina 911 Board

North Carolina adopted 911 by legislative act in 1989, and authorized local governments to adopt ordinances to fund 911 operations. In 1998, the North Carolina General Assembly created the Wireless 911 Board, pursuant to S.L. 1989-587, which was codified in Chapter 62A of the N.C. General Statutes. The Wireless Board was originally established to provide a wireless E911 system in response to FCC Order 94-102 mandating wireless E911 service.

In 2007, the North Carolina General Assembly further amended the 911 statutes to create the 911 Board and charged the Board with responsibility for landline 911 as well as wireless 911 service. The General Assembly also consolidated the 911 service charge into a single Statewide uniform charge effective January 1, 2008, which disallows any other 911 fee or tax by local governments. The initial rate was seventy cents ($0.70) per connection for any type of voice communication service provider. This was done to consolidate the North Carolina 911 system under the Board with a uniform 911 service charge to integrate the State911 system, enhance efficiency and accountability, and create a competitive playing field among voice communication technologies. Since the establishment of the Fund, there have been several adjustments to the

911 fee. In Fiscal Year (FY) 2010, the Board lowered the rate to sixty cents ($0.60), effective July 1, 2010. Effective July 1, 2018, the service charge was set at sixty-five cents ($0.65) to fund the NG911 initiative. Most recently, on July 1, 2023, the amount decreased ten cents ($0.10) to fifty-five cents ($0.55).[3]

2.2.1 North Carolina 911 Board Composition

The Board is comprised of 17 members, as established in G.S. §143B-1401. The Secretary of the Department of Information Technology (referred to as the State Chief Information Officer) serves as Board Chair. The Governor appoints four members, and the General Assembly appoints 12 members. Of the legislative Board member appointments, six are appointed based on the recommendation of the Speaker of the House of Representatives, and six are appointed based on the recommendation of the Senate President Pro Tempore.

The four appointments by the Governor are as follows:

- One municipal representative where a primary PSAP is located, based on a recommendation from the North Carolina League of Municipalities (NCLM);
- One county representative where a primary PSAP is located, based on a recommendation from the North Carolina Association of County Commissioners (NCACC);
- One representative of a Voice over Internet Protocol (VoIP) provider; and
- One representative from the North Carolina Chapter of the National Emergency Number Association (NC NENA).

The six appointments by the General Assembly upon the recommendation of the Speaker of the House are as follows:

- One Sheriff, based on a recommendation from the North Carolina Sheriffs' Association (NCSA);
- One representative of a Commercial Mobile Radio Service (CMRS) provider operating in the State;
- One representative from the North Carolina Chapter of the Association of Public Safety Communications Officials (NC APCO);
- Two representatives from Local Exchange Carriers (LEC) operating in the State, one of whom represents a carrier with fewer than 50,000 access lines; and
- One Fire Chief with experience operating or supervising a PSAP, based on a recommendation from the North Carolina Firefighters' Association (NCFSA).

The six appointments by the General Assembly upon the recommendation of the Senate President Pro Tempore are as follow:

- One Chief of Police, based on a recommendation from the North Carolina Association of Chiefs of Police (NCACP);
- Two representatives from CMRS providers operating in the State;

[3] NC Department of Information Technology, *the 911 Board: About the NC 911 Board,* https://it.nc.gov/about/boards-commissions/911-board/about-nc-911-board, as of July 31, 2023.

- One Rescue or Emergency Medical Services (EMS) Chief with experience operating or supervising a PSAP, based on a recommendation from the North Carolina Association of Rescue and Emergency Medical Services (NCAREMS); and
- Two representatives from LECs operating in the State, one of whom represents a carrier with fewer than 200,000 access lines.

The following is a list of appointees by representation:

One State Official:

- State Chief Information Officer (CIO)/Secretary of the North Carolina Department of Information Technology, who also serves as Board Chair

Eight Local and Public Safety Officials:

- Municipality with a primary PSAP (North Carolina League of Municipalities)
- County with a primary PSAP (North Carolina Association of County Commissioners)
- Sheriff (North Carolina Sheriffs' Association)
- Chief of Police (North Carolina Association of Chiefs of Police)
- PSAP (North Carolina Chapter of Association of Public Safety Communications Officials)
- PSAP (North Carolina Chapter of National Emergency Number Association)
- Fire Chief with PSAP experience (North Carolina Firefighters' Association)
- Rescue or EMS Chief with PSAP experience (North Carolina Association of Rescue and Emergency Medical Services)

Eight Providers:

- Three CMRS representatives
- Four LEC representatives
- One VoIP representative

No local government receiving a distribution from the Fund, nor any telecommunication service provider may have more than one representative on the Board.

Board members serve terms of four years, are limited to two terms, and serve until their respective successor has been appointed. The Governor may remove any Board member, regardless of appointment, "…for misfeasance, malfeasance, or nonfeasance…" pursuant to G.S. §143B-13(d).[4] Board members serve without compensation, but receive per diem, subsistence, and travel allowance at the rate established in State law. Nine members constitute a quorum at a Board meeting, and the Board meets upon the call of the Chair as set forth in General Statute and the Board's Bylaws. Board members are considered public servants and as such, are subject to the provisions of the State Government Ethics Act.

[4] This subsection of the Executive Organization Act of 1973 concerns provisions for the appointment, qualifications, terms, and removal of members of boards or commissions.

2.2.2 Powers and Duties of the 911 Board

G.S. §143B-1402 establishes the Board's powers and duties, which include the following:

1. Develop a 911 State Plan;
2. Administer the 911 Fund;
3. Distribute revenue in the 911 Fund to CMRS providers and PSAPs pursuant to requirements established by the Board;
4. Establish cooperative purchasing agreements or other contracts for the procurement of goods and services;
5. Establish policies and procedures to fund advisory services and training for PSAPs;
6. Set operating standards for PSAPs and back-up PSAPs;
7. Investigate revenues and expenditures associated with the operation of PSAPs to ensure compliance with Board rules, regulations, requirements, and policies;
8. Make and enter into contracts and agreements as needed to fulfill its statutory obligations;
9. Use funds to pay for Statewide 911 projects;
10. Accepts gifts, grants, or other money for the 911 Fund;
11. Undertake its duties in a manner that is competitively and technologically neutral to communication service providers;
12. Design, create, or acquire printed or Web-based public education materials regarding the proper use of 911;
13. Adopt rules to implement G.S. §143B-1400 *et seq.;*
14. Take other necessary and proper action to implement the provisions of G.S. §143B-1400 *et seq.;*
15. Pay private sector vendors for provisioning a communications network for providing access to 911; and
16. Establish and operate a network management center (NMAC) for the State ESInet staffed by the Board.

G.S. §143B-1402(b) expressly prohibits the Board (or any State agency) from constructing, operating, or owning a communications network for the provision of 911 service. The Board is permitted to pay private sector firms for such networks.

2.2.3 The 911 Service Charge

G.S. §143B-1403 provides for the monthly 911 service charge that is imposed on "…each active communications service connection that provides access to the 911 system through a voice communications service…". This service charge applies to prepaid wireless accounts, as well. The rate established by statute is seventy cents ($0.70) per month per access line, which was effective July 1, 2008. As stated in 2.2 above, since the Fund's establishment, there have been several adjustments to the 911 fee. As of July 1, 2023, the amount is fifty-five cents ($0.55). Communications service providers are required to remit the service charge to the 911 Board by the end of the calendar month following the month in which the charge was collected. Providers

are entitled to retain as an administrative fee either one percent of the amount remitted or $50, whichever is greater.

The 911 service charge on prepaid wireless service was established by statute to be the same rate for each retail transaction and is assessed at the retail point of sale. Pursuant to G.S. §143B-1414, retail sellers are entitled to retain up to five percent of the amount collected as an administrative fee. Retail sellers must remit the amount collected to the North Carolina Department of Revenue either monthly or semiannually. The Secretary of Revenue may retain the costs of collection from the remittances received in the amount of $750,000 a year for the total 911 service charges for prepaid wireless telecommunications service remitted to the Department.[5]

2.2.4 The 911 Fund

G.S. §143B-1404 provides for the creation and administration of the 911 Fund, which is an interest-bearing special revenue fund within the State treasury. The Board administers the Fund, and the monies therein may only be used as provided for in §143B-1400 *et seq.* The statute allows the Board to retain up to three and one-half percent of the revenue for administrative expenses, which includes provision of Statewide projects, such as the Board's Public Service Announcement Campaign. Currently, the Board is setting aside only two percent for its administrative costs.[6] At least fifteen percent of the service charge must be allocated to the Next Generation 911 Reserve Fund. At least five percent must be set aside for the PSAP Grant and Statewide Project Account.

Through July 1, 2024, wireless/CMRS providers may receive a percentage of 911 revenue, excluding 911 revenue from wireless pre-paid retail sales, for cost recovery. PSAPs receive a percentage of all 911 revenue, including wireless pre-paid. The Board must determine the specific percentage that each group receives to ensure full cost recovery to wireless carriers; any excess funds not used for cost recovery are available for distribution to PSAPs. The statutory provision for cost recovery, found in G.S. §143B-1405, was repealed by Session Law 2023-137, effective July 1, 2024.

2.2.5 The 911 Board Staff and Committees

The Executive Director of the 911 Board is responsible for the day-to-day operations of the Board and its staff. Board staff also provide assistance to the Board's six standing committees and ad hoc committees, which are comprised of Board members and others affiliated with 911 in the State. The committees are:

[5] The amount was increased from "up to $500,000" by S.L. 2023-134, Section 34.3

[6] North Carolina Department of Information Technology, the North Carolina 911 Board, *911 Fund,* https://it.nc.gov/about/board-commissions/911-board-fund, as of November 1, 2023.

Standing Committees:

- Education Committee
- Executive Committee
- Funding Committee
- Grant Committee
- Standards Committee
- Technology Committee

Additional Groups:

- Study Group (State 911 Plan)
- Ad Hoc Groups as approved by the Board

2.2.6 Accountability

Pursuant to G.S. §143B-1404(c), in February of each odd-numbered year, the 911 Board must report to the Joint Legislative Commission on Governmental Operations and the Revenue Laws Study Committee on the receipts and expenditures of all funds received by the Board during the reporting period. The report must also contain the status of the 911 system and the results of any investigation of PSAPs by the Board during the period covered by the report.

Pursuant to G.S. §143B-1407(e), the Board is required to submit each October a report to the Joint Legislative Commission on Governmental Operations regarding the expenditures from the NG911 Fund for the prior fiscal year, as well as planned expenditures for the current fiscal year.

The State Auditor is required by G.S. §143B-1410 to audit the 911 Board at least every two years pursuant to Part 5A of Chapter 147 of the General Statutes. The audits are conducted to ensure that the 911 Fund is properly managed.

2.2.7 Local-Level Governance for 911 Service

In North Carolina, PSAPs are operated, managed, and staffed by local governments, either at the municipal or county level. These same local governments are responsible for funding PSAP operations. In the previous analog 911 environment, 911 service was typically delivered via a contract between a PSAP (or municipality or county) and the 911 system provider, which was traditionally the incumbent Local Exchange Carrier (ILEC). The 911 system service provider supplied the 911 network, network monitoring, network maintenance and repair, and static ALI database as part of the contract. The PSAP purchased or leased the 911-related equipment (e.g., CHE, CAD, mapping) and was responsible for equipment maintenance and repairs. As a result, it was not typical for counties or municipalities to coordinate the provision of 911 service on a regional basis except for backup arrangements.

NG911 created an environment where coordination among multiple counties is possible and beneficial. In North Carolina, the delivery of 911 services to the public is a local matter, although PSAPs are accountable to the Board with respect to the use of 911 funds.

2.2.8 Intergovernmental Coordination

The responsibilities of the Board and its staff require intergovernmental coordination and collaboration for the delivery of 911 service to residents and visitors to North Carolina. Historically, the primary purpose of coordination has been based on the distribution of revenue from the 911 Fund and its subsequent verification and validation. The Board's decision to provide and pay for the NG911 system has required additional coordination and collaboration with PSAPs, as well as other local government and public safety officials.

In continuing with the action plan put in place in 2018, the Board continues to enhance customer service, improve educational and outreach programs, and conduct 911 meetings across the State to obtain input from PSAPs and the public. In addition, Board staff meets with PSAP personnel in regional meetings and at the individual PSAPs to ensure that information is shared with the PSAPs.

The Board continues to use the Study Groups and hosts regional meetings for local officials and PSAP directors to assist in updating the State 911 Plan.

2.2.8.1 GIS Current Status and Near Future Plans

The 911 Board has established a cooperative agreement with the North Carolina Center for Geographic Information and Analysis (NC CGIA) to obtain robust GIS data from PSAPs that will support NG911 service. The NextGen 911 (NG911) GIS team consisting of 911 Board staff, CGIA, and GeoComm brought all PSAPs to i3 ready status with their GIS data in August 2022. North Carolina has seamless coverage for address points, street centerlines, emergency service boundaries (fire, law, and EMS), PSAP boundaries, and provisioning boundaries. These datasets have been prepared in cooperation with PSAPs and local government GIS offices. Communications have occurred across State boundaries, as well, with Georgia, South Carolina, Tennessee, and Virginia.

The challenge going forward will be sustaining each dataset as the data changes locally. Either monthly or quarterly updates of the core GIS datasets are needed. The frequency of those updates will vary across the State as growth and change in individual jurisdictions occur.
Continued outreach and communication with PSAPs and local government GIS offices is essential. Simultaneously, there should be an ongoing effort to monitor changes in the NENA standards related to GIS that could impact the future state of the datasets. For example, the NG911 team knows that a standard for unique IDs will be emerging through the NENA standards activity and that 3D requirements to capture the elevation component of the data are also on the horizon.

2.2.8.2 Coordination of 911, Enhanced 911, and NG911 Services with Native American Tribal Nations and Governments

The inclusion of Native American Tribal Nations and governments has been addressed in the Board's statutes. G.S. §143B-1406(g) defines the Eastern Band of Cherokee Indians (EBCI) as a PSAP, thereby including this tribal government in the funding and planning of all 911 service in the State, including NG911. A representative of the Tribal Council of the Eastern Band of Cherokee Indians served on the Study Group for the 2024 State 911 Plan.

2.2.9 Board Programs and Initiatives

The State of North Carolina has entered into two contracts to create a fully functional NG911 ecosystem compliant with National Emergency Numbers Association (NENA) i3 standards and best practices. The first was with AT&T to provide the State's IP-enabled NG911 system, which includes the ESInet, Next Generation 911 Core Services (NGCS), and hosted call-handling solution for primary PSAPs in North Carolina. As of November 30, 2023, 124 PSAPs have joined the ESInet, with the final PSAP expected to transition in February 2024. Upon that transition, all Board-funded PSAPs will have joined the managed service ESInet contracted by the Board for direct payment.

The second was with GeoComm, for managed geographic information system services. The Board is developing a Statewide geodatabase within the Next Generation 911 system to accurately identify a 911 caller's location and route them to the appropriate PSAP. GeoComm is aggregating and validating the required geographic information system data from all 125 PSAPs in North Carolina for the geodatabase. The GIS data is used for emergency call routing functions and location validation functions.

Along with the ESInet and GIS projects, the Board opened its Network Monitoring and Assistance Center (NMAC) in September 2019, which was and remains the first of its kind in the nation. It enables monitoring of the network and call handling equipment for seamless 911 coverage so that emergency responders can help North Carolina residents as quickly as possible. The NMAC supports an uninterrupted flow of communication between Next Generation 911 PSAPs and AT&T. The center is staffed 24/7 and equipped to monitor service and performance on the Statewide ESInet. NMAC technicians immediately troubleshoot network issues and help behind the scenes. For example, technicians monitoring the ESInet can identify increasing emergency calls and quickly reroute emergency calls to other 911 centers based on established policy routing protocol – particularly during severe weather and major events that draw many people to an area.

Another initiative by the Board is to deliver outreach and public education programs to keep the public, stakeholders, and industry partners informed about the NC 911 Board Next Generation 911 efforts. Public education and outreach include the general public, appointed/elected officials, and stakeholders. The Board makes every effort to know its target audience and identify the specific message being delivered.

The COVID Pandemic impacted staffing in the PSAPs. The Board looked for an approach to assist PSAPs in recruiting telecommunicators. As such, the Board's Education Committee, in collaboration with Spectrum Reach, produced and aired a pilot Public Service Announcement (PSA) program that was developed as a recruiting tool for PSAP telecommunicators. The PSA aired from September 6, 2021, through November 7, 2021, with 6,837 airings on 49 networks. The PSA campaign was delivered in two different television zones spanning seven counties, which included nine PSAPs. To connect applicants to their desired locality, a page was created on the Board's website with a link to all the PSAPs in the State. The PSA was also shared with the local chapters of North Carolina NENA and APCO, as well as PSAPs so it could be used locally and on social media. The PSAPs reported that the pilot project was successful, increasing the number of job applications received by up to 65%.

With the success of the pilot program, a Statewide Campaign was launched in January 2023 and ran through May 2023. During this period, nearly 60,000 television commercials were delivered to 67+ networks. The commercials were seen on a wide variety of networks and platforms, which increased the diversity of viewers. There were 3 million streaming TV impressions, 9 million online impressions, and 1.4 million social media impressions.

The North Carolina 911 Board added a recruitment webpage to its homepage, listing all Board-funded PSAPs. During the Statewide campaign, the website had over 37,000 job seekers and 32,000 of those potential candidates visited the local PSAP's website to look for jobs in their desired locality. Given the success of the campaign, the Board voted to continue with another campaign through 2024.

Additionally, the North Carolina 911 Board has coordinated recruitment training and job description workshops to provide the PSAP managers with additional tools to address the staffing shortages. The Board's partnership with Spectrum Reach has also allowed any interested PSAP to have a professional production quality video tagged with their local logo to be produced at no cost to the PSAP or the Board.

2.2.10 Monthly Distribution of 911 Revenue to PSAPs

G.S. §143B-1406 provides for the process of the monthly distribution of 911 revenue to primary and secondary PSAPs. To be eligible to receive such distributions, a PSAP must provide enhanced 911 service, comply with all provisions of State 911 law, and must have received distributions in FY 2008-09.

Subsections (a)(1) through (3) provide specific requirements the Board must follow concerning monthly distributions, such as setting a base amount for each PSAP. In addition, "The Board must determine a method for establishing distributions that is equitable and sustainable and that ensures distributions for eligible operating costs and expected increases for all funded PSAPs." The Board is further required to consider the following seven factors:

1. Population of the area served by each PSAP.
2. PSAP reports, budgets, prior distributions, and prior costs.

3. PSAP operations, technologies used by the PSAP for 911 service, compliance with operating standards established by the Board, and level of service a PSAP delivers dispatching fire, law enforcement, and EMS and providing Emergency Medical Dispatch (EMD).
4. The tier designation of the county in which the PSAP is located.[7]
5. Any current existing interlocal agreement to operate a regional PSAP or between a primary PSAP and a secondary PSAP, provided that the secondary PSAP was in existence as of June 1, 2010, receives funding from the primary PSAP under the agreement, and is within the primary PSAP's service area.
6. Any expenditure authorized by the Board for Statewide 911 projects or the NG911 system.
7. Any other information the Board deems relevant.

Standards for eligible and prohibited uses of 911 funds are provided in subsection (d). PSAPs are prohibited from using 911 funds for the following:

- The lease or purchase of real estate;
- Cosmetic remodeling PSAPs;
- Personnel costs for 911 Telecommunicators; and
- The purchase of mobile communications vehicles, ambulances, fire engines, or other emergency vehicles.

The statute provides that PSAPs may use 911 revenue only for the following:

- Costs incurred by a city or county that has an intergovernmental support agreement with a major military installation that permits the parties to serve as back-up or secondary PSAPs for each other;
- Expenditures for in-state training of 911 personnel regarding the maintenance and operation of the 911 system (within specific guidelines), as well as out-of-state training that is not available in the State or is more expensive within the State;
- Charges associated with the provision of 911 service by the 911 service supplier, not supplanted by the Board's State ESInet; and
- The lease, purchase, or maintenance of the following:
    - 911 call-taking equipment, including necessary computer hardware, software, and database provisioning.
    - Addressing (this expenditure became ineligible the earlier of July 1, 2021, or upon a PSAP's migration to the ESInet).
    - Telecommunicator furniture.
    - Dispatch equipment located exclusively within the building where the PSAP or backup PSAP is located, excluding specifically referenced dispatch equipment set forth in General Statute.
    - Emergency medical, fire, and law enforcement pre-arrival instruction software.

[7] G.S. §143B-437.08 concerns development tier designations which are based on factors such as unemployment, income, percent change in population, and per capita adjusted assessed property values.

2.2.11 Accountability

The fiscal officer of a PSAP to whom a distribution from the 911 Fund is made must deposit the funds in a special revenue fund as defined in G.S. §159-26(b)(2), designated as the Emergency Telephone System Fund (ETSF). Annually, a participating PSAP must submit to the Board an approved budget detailing the revenues and expenditures associated with the operation of the PSAP, and must identify revenues and expenditures for the eligible use of 911 funds.

In accordance with G.S. §143B-1408, the Board is empowered to provide notice to any communications service provider or PSAP found by the 911 Board to be using fees from the 911 Fund for purposes not authorized by law. The provider or PSAP must stop making any further unauthorized expenditures but may petition the Board for a hearing on the matter. If the Board determines at the hearing that the expenditure does not represent an eligible use of 911 revenue, the provider or PSAP will be required to reimburse the 911 Fund. If reimbursement is not made, the Board is authorized to suspend future distributions.

2.3 Current 911 Infrastructure

In North Carolina, all 911 calls are answered at a primary PSAP, which is defined by G.S. §143B-1400(23) as, "[t]he first point of reception of a 911 call by a public safety answering point." Primary PSAPs must be capable of receiving and processing Next Generation 911 calls from all voice communications service providers. There are currently 114 primary PSAPs in the State. There are also 11 secondary PSAPs in the State, which the Board has defined as a PSAP that is able to receive voice and data of an NG911 call that has been transferred from a Primary PSAP for dispatch of law enforcement, emergency medical services, firefighters, or other responders.

The Board provides and pays for a managed NG911 system provided from AT&T for all Board-funded PSAPs. The NG911 capable ESInet is available for all North Carolina PSAPs. PSAPs that are not Board-funded are allowed to join the ESInet under separate contracts. The ESInet provides connectivity from the ingress (OSPs) to the Next Generation Core Services (NGCS), and egress (PSAPs). AT&T has implemented the system in compliance with NENA standard functional elements. The NGCS supplies the connections to hosted call handling solution(s) that PSAPs may utilize for their call handling. All interconnections, whether to the core, the PSAPs, or to outside resources, are redundant and diverse, providing survivable features to meet the 99.999% service availability.

The NG911 system interconnects to six geographically redundant core sites for call routing and two in-State vendor managed and operated data centers for hosted call handling. Through this network design, every PSAP is connected to the six core elements to allow increased diversity and redundancy of communication between the end sites and the NG911 functional elements.

The Board established the Network Monitoring and Assistance Center (NMAC) to serve as the network and operations center. In addition to monitoring the health of the ESInet, the staff provides Tier 1 and Tier 2 PSAP support, 24 hours a day.

In collaboration with local authorities and the NC Center of Geographic Information and Analysis (NC CGIA), the Board has established a Statewide authoritative dataset for call delivery services on the ESInet. Through contracting with the Board, GeoComm serves as the aggregator of data and upon validation provides the dataset to AT&T and Intrado for production.

3. The Future Environment: Next Generation 911

The current 911 systems in place across the United States (and until recently, in North Carolina) were built in the 1970s and were based on circuit-switched technology. A circuit is a connection or line between two points, using various media such as copper, coaxial cable, fiber, or radio wave. A circuit-switched network establishes a physical circuit temporarily on demand and keeps the circuit open and reserved for the user until the user disconnects. Those current 911 systems were designed to handle only one type of communications device - analog landline telephone service.

The explosive growth in communications technology is forcing 911 Authorities at every level of government to change the way they operate to provide equivalent services to constituents. These improvements include the capability for multimedia services that will enhance public safety, reduce response times, and save lives.

Residents and businesses no longer live or operate in small, isolated communities, and telecommunications services are no longer local-only offerings. People's lives take place in widespread areas with a multitude of communication options, and communications are no longer constrained to a fixed location. Traditional communications companies are transforming their circuit-switched networks into packet switched networks to accommodate the transport of voice, data, and video. The trend is only going to accelerate in the coming months and years.

Consumers and businesses are increasingly using and depending on new communications technologies and devices, such as VoIP devices, instant messaging, text messaging, Short Message Service (SMS), and email. These new technologies and devices enable the transfer of vast amounts of data. In addition, consumers and businesses are increasingly giving up their landline phone service for wireless phone service only. The deaf and hard-of-hearing community is increasingly using text messaging to communicate. Many have given up use of TTY/TDD machines in favor of text messaging. Consumers expect that they should be able to communicate with 911 using their smartphones and smart devices, including sending photos and videos or by texting.

3.1 What is Next Generation 911?

Much work has been done in many forums to design a 911 system to meet consumer expectations and technological changes. In NG911, consumers can access 911 from any networked communication device, with location automatically provided at the beginning of the call.

Internet Protocol (IP) is the technology used for the 911 network, which is being called Next Generation 911, or NG911. According to the National Emergency Number Association (NENA), NG911 is:

> *"An Internet Protocol (IP) based replacement for E911 features and functions that supports all sources of emergency access to the appropriate PSAPs, operates on reliable, secure, managed, multi-purpose IP networks, and provides an expanded multimedia capabilities for PSAPs and other emergency responders."*

According to the Association of Public Safety Communications Officials (APCO) Project 43, NG911 is:

> *"A secure, nationwide, interoperable, standards-based, all-IP emergency communications infrastructure enabling end-to-end transmission of all types of data, including voice and multimedia communications from the public to an Emergency Communications Center."*

In other words, NG911 is:

- A secure and open architecture that uses a reliable and managed IP network to allow new communication devices such as text messaging, data, pictures, and video to access 911 service.
- A system that enables call access, transfer, and backup among and between PSAPs without geographic or technical restrictions.
- An architecture that will facilitate an interoperable system of systems for all emergency response organizations.
- A system that will contain the same functions of the legacy 911 system, such as redundancy and reliability (e.g., 99.999% uptime), while providing for greater accessibility, interoperability, functionality, and a more efficient use of 911 resources.

Next Generation 911 enables:

- Transfer of 911 calls between geographically dispersed PSAPs, and from PSAPs to remote public safety dispatch centers, if necessary;
- Increased sharing of data, resources, procedures, and standards to improve emergency response;
- Reductions in capital and operating costs for the State and PSAPs; and
- Improved coordination and partnerships within the emergency response community.

3.2 The NENA i3 Standard

The National Emergency Number Association (NENA) is an ANSI-accredited Standards Developer and is at the forefront of developing standards for emergency calling services. NENA follows the Internet Engineering Task Force (IETF) standards[8] and adds specific service-related features that apply to 911 service. In addition, NENA publishes 911 information documents that often contain recommended best practices.

The NENA i3 standard details the network, components, and interfaces required for NG911 service. Specifically, the term "i3 standard" generally refers to NENA Standard 08-003, *Detailed Functional and Interface Standard for NG9-1-1 (i3), or NENA STA 010.2-2016, Detailed Functional and Interface Standards for the NENA i3 Solution.* According to NENA, the i3 Standard:

> *"…describes the 'end state' that has been reached after a migration from legacy Time Division Multiplex (TDM) circuit-switched telephony, and the legacy E9-1-1 system built to support it, to an all IP-based communication system with a corresponding IP-based Emergency Services IP network…."*[9]

The NENA i3 Standard has the following 11 critical underlying assumptions:

1. All calls entering the Emergency Services IP Network (ESInet) are Session Initiation Protocol (SIP)-based.
2. Access network providers operate a location function for their networks.
3. All calls entering the ESInet will normally have location data in the signaling with the call.
4. The 911 authorities have converted their tabular Master Street Address Guide (MSAG) and Emergency Service Numbers (ESNs) to a GIS-based Location Validation Function (LVF) and Emergency Call Routing Function (ECRF).
5. The 911 authorities have accurate and complete GIS data, which are used to provision the LVF and ECRF. In addition, a change to the GIS system automatically updates the ECRF and LVF, which may affect routing.
6. All civic locations are validated by the access network against the LVF prior to an emergency call being placed (analogous to MSAG validation).
7. All civic locations are periodically revalidated against the LVF to ensure that the location remains valid as the GIS system changes.
8. Legacy PSAP Gateways (LPGs) are included in the i3 architecture as the interface between i3 ESInets and legacy PSAPs, and between i3 PSAPs and legacy PSAPs.
9. Legacy Network Gateways (LNGs) are included in the i3 architecture as the interface between legacy originating networks and i3 ESInets.

[8] The Internet Engineering Task Force (IETF) is the entity that creates and defines IP standards. The IETF also defines related protocols used on the public Internet and that may be adopted for use on private IP networks, including public safety IP networks.

[9] National Emergency Number Association *NENA STA 010.2-2016 Detailed Functions and Interface Standards for the NENA i3 Solution, p. 15.*

10. Federal, State, and local laws, regulations, and rules are modified to support NG911 system deployment.
11. The specific protocol mechanisms, especially interworking of legacy telecom and ESInet/NGCS protocols are North America specific and may not be applicable in other areas.

Figure 1 provides a basic diagram of the NENA i3 architecture. The green shaded areas denote areas that are considered within the i3 domain and covered by NENA STA 010.2-2016. The main purpose of the NENA STA 010.2-2016 is to define the end operating state of a new 911 delivery system that replaces the existing legacy 911 system with
the same features and capabilities of the legacy system but with modern, IP- and SIP-based components and technologies, which provide greater capabilities beyond the current legacy 911 system. While the i3 architecture encompasses many areas, much of it is devoted to the treatment of a 911 call in the SIP format, through the i3 architecture, using the functional elements defined in NENA STA 010.2-2016.

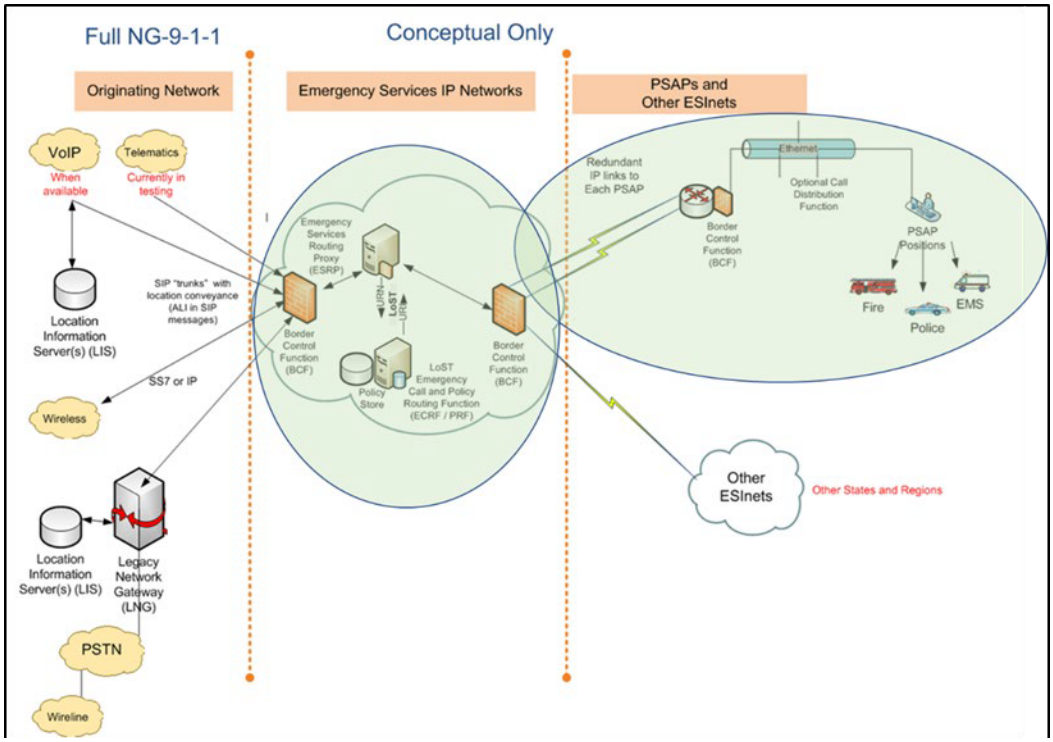

Figure 1 – Simplified NENA i3 NG911 Conceptual System Diagram

NENA STA 010.2-2016 encompasses requirements for many physical and logical elements of NG911 service, including the ESInet, the Border Control Function (BCF), the Session Border Control (SBC), the Emergency Service Routing Proxy (ESRP), the Emergency Call Routing Function (ECRF), Location Validation Function (LVF), Session Initiated Protocol (SIP), and Security.

3.2.1 i3v3 Accelerates the Drive Toward 21st Century 911 Services

In July 2021, NENA released a new version of the i3 Standard for Next Generation 911. As North America's leading 911 standards-development body, NENA approved a landmark new version of its Next Generation 911 standard to accelerate the transition to smarter, faster, and more resilient emergency response. Version 3 of NENA's *i3 Standard for Next Generation 911* includes key updates to NG911 infrastructure, paving the way for interoperability on a national and international scale.

This version will serve as the foundation of a 21st Century, broadband-based 911 ecosystem. Version 3 changes include:

- New REST/JSON architecture, following modern best practices for interface design;
- Cybersecurity improvements;
- Major updates to call bridging;
- Discrepancy Reports;
- Outgoing Call Interface Function;
- Blind transfer support;
- Updates to handle novel call types (including non-interactive calls and Advanced Automatic Crash Notifications); and
- Harmonization with European specifications.

Beyond these changes, the updated version of i3 includes many more feature improvements and updates. According to NENA, an ESInet is a managed IP network that is used for emergency services communications and that can be shared by all public safety agencies.[10] NENA addresses the ESInet through a combination of specific standard language in STA-010.2-2016 and a best practices document titled *NENA Emergency Services IP Network Design for NG9-1-1 Information Document* (released in August 2018).

The ESInet is the core of NG911 and is needed to provide NG911 services to the PSAP. The ESInet is the IP transport infrastructure upon which independent application platforms and core functional processes will be deployed. An ESInet will provide for broadband speed transmissions and allow prioritized, efficient, and prompt delivery of texts, videos, pictures, and other data that will be used by 911 Telecommunicators at the PSAP and by responding units for safer and more effective emergency responses in the field.

Following are highlights from the i3 standard related to ESInets:

- Each PSAP must be connected to an ESInet.
- Origination networks are not included as part of the ESInet.
- ESInets must be accessible from the global Internet, with calls going through the Border Control Function (BCF).

[10] National Emergency Number Association, *NENA Master Glossary of 911 Terminology, NENA-ADM-000.24-2021, June 22, 2021, p. 73.*

- Connection to the Internet is acceptable, preferably through a Virtual Private Network (VPN).
- Access to ESInets must be controlled. Only public safety agencies and their service providers may be connected directly to the ESInet.
- Elements connected to the ESInet should not be referred to by their IP address, but through a hostname using DNS.

There must be no single point of failure for any critical service or function hosted on the ESInet. Certain services designated as non-critical may be exempt from this requirement. However, the BCF, internal ECRF, ESRP, logging service, and security services should never be exempt from this requirement. Services must be deployed to survive disaster, deliberate attack, and massive failure.

3.2.2 NG911 Security Standard

Out of necessity, PSAPs are connected (indirectly through the ESInet) to the global internet to accept calls. As a result, PSAPs have experienced and likely will continue to experience deliberate attacks on their systems. The types of vulnerabilities that NG911 systems must manage and protect against will fundamentally change and will require constant vigilance to create a secure and reliable operating environment. NG911 systems must have robust detection and mitigation mechanisms to deal with such attacks.

Cyber risks are inherent in systems such as the ESInet that are open to the Internet. Safeguarding the NG911 system, including the PSAPs, from cyber attacks is yet one more reason it makes sense to have a singular Statewide system that is managed and monitored by the Board. Cyber security is costlier and more difficult to provide if done PSAP-by-PSAP.

The NENA i3 standard provides overall security requirements for NG911. There is also a separate standard, *NENA Security for Next Generation 911 Standard (NG-SEC), NENA* 75-001, which addresses security requirements.

The i3 security standard deals with authentication and authorization functions. Pursuant to this standard, all transactions must be protected with authentication, authorization, integrity protection, and privacy mechanisms specified in the i3 document. In addition, common authentication (single sign-on) and common rights management and authorization functions must be used for all elements in the network.

The NENA NG-SEC standard establishes minimum guidelines and requirements for the protection of NG911 assets and elements, and to provide a basis for auditing and assessing levels of security and risk. Certain applications may require access from external, public transport networks such as the Internet. These applications are placed on special, external network segments referred to as Demilitarized Zones (DMZs). The DMZ provides an intermediate environment for interaction with external domains without permitting access to internal domains or networks. This layering technique can improve the security posture of a system that requires an application to face the Internet without exposing the internal network. When applications require access from external,

public transport networks (i.e., Internet), they shall be placed on a DMZ, or shall employ network-based encryption and authentication mechanisms such as a VPN.

The equipment supporting virtual or logical networks can pose a unique risk. All guidelines for the use of firewalls, intrusion detection, remote access, and all other relevant security principles shall be followed when designing interaction between virtual networks. The routers and switches supporting these networks can be used as "islands" to hop between networks of different security classification. The NENA NG-SEC standard lists the various ways that these risks can be managed.

Appendix C—NENA NG911 Standards and Best Practices Reference Chart contains a spreadsheet with the various NENA Standards as they relate to NG911.

3.2.3 NG911 & Operations

According to APCO, NG911 will have its biggest impact on 911 operations because of the PSAP's role as the first layer in emergency response. NG911 allows PSAPs to leverage information sharing resources such as electronic health records, building records and floor plans, camera systems and detectors, body-worn cameras, and video from surveillance systems. As a result, PSAPs will need to amend their Standard Operating Procedures (SOPs) to account for new sources of information, increased call processing times, continuity and backup planning, and more mutual aid incidents, to name a few. The revised SOPs must ensure that the handling, disseminating, and storage of all the information received with a call meets statutory requirements.

Increased call processing times, in turn, have the potential to increase call answering times, which in turn, could require the hiring of more telecommunicators. In addition, PSAPs may need to create new positions to process and analyze all the various pieces of data that will arrive with a 911 call. Obviously, training PSAP personnel for the changes resulting from NG911 service is critical. 911 telecommunicators will need to be trained in how to process the additional information in a fast paced, stressful, and highly emotional environment.

When wireless E911 was implemented, PSAPs experienced an increase in multiple 911 calls about a given incident. This trend is expected to continue, and PSAPs will need to be prepared to handle multiple pictures, videos, texts, and calls to 911 about any given incident. Finally, the potential exists for non emergency calls to increase, due to the increased use of social media applications. PSAP staff will have to balance the need to focus on emergencies with public expectation for an immediate response to those non emergencies. In other words, in today's environment, PSAPs may get complaints about it taking longer than expected for a 911 call to be answered.

APCO emphasized that states that have established a State 911 authority have made the most progress in implementing NG911, provided there is input from PSAPs and other stakeholders. Such State authorities must remove statutory or regulatory barriers that can impede the modernization of 911 service. Examples include regulations that treat 911 service as a single-

provider system accompanied by legacy requirements, 911 system service provider (SSP) certification restrictions, references to tariffs and Local Access Transport Areas (LATAs), lack of parity among carriers regarding liability, and rules that implicitly prohibit the use of IP-routing and NG911 architecture.

One of the key lessons learned from past 911 implementation is the importance of Statewide coordination to maintain focus and priorities for funding and support of 911 emergency services. Other benefits of Statewide coordination include improved service uniformity and quality across the entire State, along with a potential reduction in costs associated with the implementation of an NG911 system. Statewide coordination and management of the NG911 system will help ensure the security and reliability of the ESInet. Statewide coordination will focus efforts, maintain priorities, ensure the timely achievement of NG911 goals, and ensure that every resident in the State will have equal access to NG911 services. Finally, the presence of State-level standards and requirements will help ensure that desired future interoperability will be achieved and will provide economic incentives for host-sharing and regional collaboration, while simultaneously ensuring local autonomy and control of emergency response. The North Carolina 911 Board is an example to many states of the value of a strong 911 governance structure for the implementation of NG911, attention to emerging technologies, and the importance of telecommunicator education and training.

3.2.4 NG911 & Training

911 telecommunicators provide the only link for the public to access or request emergency services, these essential PSAP employees are the true first responders. It is well established that training 911 telecommunicators is fundamental to the success of 911 service. The ability to maintain quality services for both the public and emergency responders is dependent upon the training provided, both at initial hire and ongoing.

According to APCO, NG911 will provide a more immersive environment for 911 call takers and dispatchers, who may see much of what responders see while on scene. While this additional information will improve or enhance emergency response, telecommunicators will be exposed to even more stress than they currently face. Both APCO and NENA have reiterated the importance of establishing a comprehensive stress management program. In 2013, NENA issued *NENA Standard on 911 Acute/Traumatic and Chronic Stress Management, NENA-STA-002.1-2013* to provide awareness of the serious risks posed by work-related stress on the mental and physical health of 911 telecommunicators in their role as the nation's first, first responders.[11] This standard also establishes best practices for PSAP comprehensive employee stress management programs. In 2022, NENA issued a revision, *NENA Standard to Protect the Wellbeing of 911 Professionals, NENA-STA-002.2-2022,* to further define the potential impacts of 911 work on the wellbeing of the emergency telecommunicator and directs PSAP leaders to build comprehensive

[11] National Emergency Number Association, NENA Standard on 911 Acute/Traumatic and Chronic Stress Management, *NENA-STA-002.1-2013,* August 5, 201, p 8.

stress resilience plans empowering their personnel for wellness by preventing, managing, and healing from these impacts.

It is essential for the long-term success of NG911 that State and local elected and appointed officials and PSAP authorities view training as a necessary and required investment to provide a consistent level of 911 service across the State. Without adequate training of PSAP personnel, even the best technical solution will fail. NG911 requires additional training of all 911 telecommunicators to learn how to process several types of requests for assistance, such as texting, videos, social media, and other applications yet to be invented. Regardless of PSAP size, training across PSAPs in the State should include minimum baseline training so that 911 telecommunicators can proficiently answer, process, and dispatch calls from other jurisdictions in the NG911 environment, as well as maintain proficiency with legacy technology. Finally, because of the nature of NG911 service itself, all PSAP personnel must receive basic cybersecurity training.

3.2.5 NG911 & the Workforce

Currently, PSAPs across the nation are faced with high turnover and burnout. Relatively low pay, limited career growth opportunities, and a fast paced, life-or-death stressful environment have limited the ability of PSAPs to recruit and retain qualified 911 telecommunicators. The critical nature of 911 service requires a special kind of employee with a unique set of knowledge, skills, and abilities. NG911 will add to those workforce challenges. PSAPs may need to modify their hiring processes, hire additional 911 telecommunicators, add new positions, such as data analyst, and may have to increase job requirements for 911 telecommunicators, as they will now have to manage and analyze all the additional data that will arrive with the request for service.

At the same time, NG911 may provide more options for career growth and enhancement for PSAP personnel, due to the role they will play in aiding, enhancing, and improving emergency response in the field. According to APCO, in addition to current knowledge, skills, and abilities, the 911 telecommunicator in an NG911 PSAP needs to have the following:

- Basic knowledge of IT systems, technology administration, cybersecurity, and GIS and related mapping tools;
- Proficiency with social media tools;
- Ability to examine diverse types of data for quality, authenticity, and reliability;
- Ability to interpret the meaning of arriving data and determining the best agency to respond and the type of response; and
- Ability to collaborate with counterparts in other PSAPs, EOCs, or jurisdictions.

3.3 NG911 Funding Considerations

North Carolina local governments receive monthly distributions (per G.S. §143B-1406) for eligible 911 expenses. Local governments must allocate funds for other expenses associated with PSAP

operations, such as personnel costs, physical facilities, and other expenses excluded from eligible expenses by G.S. §143B-1406.

Upgrading PSAP call handling equipment (CHE) and computer aided dispatch (CAD) systems is as important as building out the NG911 network. It will not serve the State's residents to have a robust, secure ESInet that can deliver a plethora of data when PSAPs and emergency responders are limited by outdated analog equipment. As part of the multi-year managed service ESInet contract, PSAPs are offered the opportunity to implement a hosted call handling solution paid for by the Board. A significant number of PSAPs have taken advantage of this hosted solution with less than 15 remaining as ESInet-only.

The following spreadsheets provide historical information on PSAP 911 revenues and expenditures between FY 21-22 (FY ending June 30, 2022) and FY 22-23 (FY ending June 30, 2023).

FY 2021 – 2022 (July 1, 2021, - June 30, 2022)

Revenue	Jul 2021	Aug 2021	Sep 2021	Oct 2021	Nov 2021	Dec 2021
NG 911 Reserve Fund	2,335,821.52	1,896,826.06	1,800,548.33	1,658,576.88	1,914,079.15	1,650,710.39
CMRS Account	0.00	103,442.00	101,584.21	91,253.04	114,643.08	96,169.43
PSAP Account	3,052,966.06	3,272,633.05	3,213,827.39	2,886,979.06	3,626,971.70	3,042,519.34
Wireline - PSAP Account	415,257.57	427,849.50	448,078.90	418,606.45	404,100.06	325,005.69
VoIP - PSAP Account	826,903.01	815,763.88	820,970.68	742,855.97	775,382.11	684,054.40
Prepaid Wireless	799,466.88	797,471.16	858,105.40	873,731.03	864,642.30	841,898.54
Admin Account	77,582.66	116,182.68	122,764.65	113,084.78	130,505.39	112,548.44
PSAP Grant/Statewide 911 Project Account	834,221.97	825,574.27	818,431.07	753,898.58	870,035.97	750,322.92
Total (no interest)	$8,342,219.67	$8,255,742.60	$8,184,310.63	$7,538,985.79	$8,700,359.76	$7,503,229.15
Interest						
NG 911 Reserve Fund	15,841.12	0.00	11,255.06	9,493.67	12,916.85	10,094.83
CMRS Account	615.32	0.00	402.44	352.94	469.78	365.88
PSAP Account	1,554.59	0.00	1,453.27	301.61	630.31	759.93
Admin Account	267.11	0.00	191.91	170.47	235.32	188.79
PSAP Grant/Statewide 911 Project Account	7,014.59	0.00	5,019.43	5,546.61	7,515.75	6,029.61
Total Interest	$25,292.73	$0.00	$18,322.11	$15,865.30	$21,768.01	$17,439.04
BD701 Revenue Total w/Interest	$8,367,512.40	$8,255,742.60	$8,202,632.74	$7,554,851.09	$8,722,127.77	$7,520,668.19
Expenditures						
NG 911 Fund	-1,184,566.79	-2,601,855.15	-4,002,279.62	-2,639,619.17	-2,765,310.21	-2,230,850.35
CMRS Account	-187,291.72	-163,701.20	-61,555.25	-194,434.08	-155,869.40	-199,501.02
PSAP Account	-4,159,451.48	-3,545,823.03	-3,545,823.03	-3,545,823.03	-3,545,823.03	-3,545,823.03
Admin Account	-82,396.09	-87,646.96	-84,651.65	-108,938.90	-106,459.35	-106,109.02
PSAP Grant/Statewide 911 Project Account	-979,968.12	-210,864.77	-457,559.33	-1,524,381.06	-101,974.59	-325,788.98
Total Expenditures	-$6,593,674.20	-$6,609,891.11	-$8,151,868.88	-$8,013,196.24	-$6,675,436.58	-$6,408,072.40
BD701 Expenditure Total	-$6,593,674.20	-$6,609,891.11	-$8,151,868.88	-$8,013,196.24	-$6,675,436.58	-$6,408,072.40
Revenue/Expenditures +/-	$1,773,838.20	$1,645,851.49	$50,763.86	-$458,345.15	$2,046,691.19	$1,112,595.79

*Cash Basis Accounting

Revenue	Jan 2022	Feb 2022	Mar 2022	Apr 2022	May 2022	Jun 2022	Totals
NG 911 Reserve Fund	2,007,327.70	1,787,682.57	1,770,057.84	1,757,896.23	1,892,485.51	1,852,890.57	22,324,902.75
CMRS Account	114,013.13	101,902.92	101,610.70	97,458.21	105,651.58	119,227.50	1,146,955.80
PSAP Account	3,607,041.94	3,223,910.46	3,214,665.32	3,083,292.64	3,342,506.95	3,772,009.64	39,339,323.55
Wireline - PSAP Account	529,189.19	393,040.05	322,225.38	440,181.29	458,821.74	398,367.99	4,980,723.81
VoIP - PSAP Account	949,241.98	741,940.32	800,953.61	848,433.95	951,093.70	824,269.17	9,781,862.78
Prepaid Wireless	868,117.94	926,613.23	910,947.04	844,274.89	862,393.56	486,908.46	9,934,570.43
Admin Account	136,863.25	134,438.46	120,685.78	119,856.55	129,033.08	126,333.44	1,439,879.16
PSAP Grant/Statewide 911 Project Account	912,421.69	810,136.42	804,571.76	799,043.75	860,220.67	842,222.99	9,881,102.06
Total (no interest)	$9,124,216.82	$8,119,664.43	$8,045,717.43	$7,990,437.51	$8,602,206.79	$8,422,229.76	$98,829,320.34
Interest							Totals
NG 911 Reserve Fund	6,330.33	9,910.43	9,582.09	13,725.97	14,496.85	23,174.47	136,821.67
CMRS Account	223.02	356.36	340.29	470.31	504.43	792.95	4,893.72
PSAP Account	584.94	1,187.10	1,384.37	2,202.82	2,642.75	4,948.61	17,650.30
Admin Account	119.74	188.04	190.43	280.05	303.78	504.07	2,639.71
PSAP Grant/Statewide 911 Project Account	3,841.16	5,999.65	5,784.84	8,166.02	8,446.58	13,673.14	77,037.38
Total Interest	$11,099.19	$17,641.58	$17,282.02	$24,845.17	$26,394.39	$43,093.24	$239,042.78
BD701 Revenue Total w/Interest	$9,135,316.01	$8,137,306.01	$8,062,999.45	$8,015,282.68	$8,628,601.18	$8,465,323.00	$99,068,363.12
Expenditures							Totals
NG 911 Fund	-480,517.06	-3,823,795.78	-2,271,233.74	-2,143,324.02	-3,844,404.82	-3,709,068.59	-31,696,825.30
CMRS Account	0.00	-211,096.22	-219,612.28	-68,196.00	-218,769.74	0.00	-1,680,026.91
PSAP Account	-3,545,823.03	-3,535,303.11	-4,036,069.21	-3,535,303.11	-3,535,303.11	-3,904,704.88	-43,981,073.08
Admin Account	-103,107.65	-100,363.95	-88,147.38	-83,640.28	-107,796.14	-89,097.72	-1,148,355.09
PSAP Grant/Statewide 911 Project Account	-101,719.30	-2,177,991.64	-1,812,000.41	-2,009,673.55	-1,421,768.20	-1,454,756.43	-12,578,446.38
Total Expenditures	-$4,231,167.04	-$9,848,550.70	-$8,427,063.02	-$7,840,136.96	-$9,128,042.01	-$9,157,627.62	-$91,084,726.76
BD701 Expenditure Total	-$4,231,167.04	-$9,848,550.70	-$8,427,063.02	-$7,840,136.96	-$9,128,042.01	-$9,157,627.62	-$91,084,726.76
Revenue/Expenditures +/-	$4,904,148.97	-$1,711,244.69	-$364,063.57	$175,145.72	-$499,440.83	-$692,304.62	$7,983,636.36

*Cash Basis Accounting

FY 2022 – 2023 (July 1, 2022, - June 30, 2023)

Revenue	Jul 2022	Aug 2022	Sep 2022	Oct 2022	Nov 2022	Dec 2022
NG 911 Reserve Fund	1,949,712.24	2,545,335.55	2,565,372.67	2,321,050.02	2,617,362.16	1,984,077.94
CMRS Account	106,860.38	0.00	0.00	0.00	0.00	0.00
PSAP Account	3,380,749.25	3,062,478.62	3,122,376.85	2,715,827.44	3,492,072.92	2,148,709.83
Wireline - PSAP Account	389,227.04	344,240.91	340,531.18	343,437.57	324,685.59	321,362.26
VoIP - PSAP Account	870,695.26	907,265.54	751,968.38	708,557.55	762,971.32	707,017.24
Prepaid Wireless	1,145,916.41	1,080,316.60	787,600.26	758,224.96	588,535.64	756,271.94
Admin Account	132,934.93	134,570.11	128,268.63	116,052.50	130,868.10	99,203.88
PSAP Grant/Statewide 911 Project Account	886,232.82	897,134.18	855,124.22	773,683.34	872,454.05	661,359.32
Total (no interest)	$8,862,328.33	$8,971,341.51	$8,551,242.19	$7,736,833.38	$8,788,949.78	$6,678,002.41
Interest						
NG 911 Reserve Fund	38,942.83	57,963.06	72,165.22	84,634.10	105,166.57	120,185.43
CMRS Account	1,425.96	1,922.51	2,317.37	2,557.13	3,089.51	3,070.88
PSAP Account	9,325.15	15,700.85	21,170.13	3,702.39	6,541.21	10,302.78
Admin Account	886.75	1,359.41	1,673.71	2,005.62	2,373.55	2,682.62
PSAP Grant/Statewide 911 Project Account	23,224.54	33,471.19	40,044.62	70,579.80	83,862.90	94,594.80
Total Interest	73,805.23	$110,417.02	137,371.05	$163,479.04	$201,033.74	230,836.51
BD701 Revenue Total w/Interest	$8,936,133.56	$9,081,758.53	$8,688,613.24	$7,900,312.42	$8,989,983.52	$6,908,838.92
Expenditures						
NG 911 Fund	-2,419,954.90	-54,507.37	-2,441,010.66	-84,880.25	-497,053.94	-4,729,117.55
CMRS Account	-385,148.64	0.00	-144,885.28	0.00	-255,228.45	203,574.86
PSAP Account	-3,520,937.37	-2,960,722.70	-2,769,152.18	-2,937,973.56	-3,019,703.27	-3,117,941.79
Admin Account	-91,968.37	-96,528.45	-85,788.95	-154,181.95	-103,646.90	-121,107.90
PSAP Grant/Statewide 911 Project Account	-2,598,651.26	-1,223,581.40	-674,649.55	-1,857,503.87	-41,016.29	-489,544.75
Total Expenditures	-$9,016,660.54	-$4,335,339.92	$6,115,486.62	$5,034,539.63	$3,916,648.85	-$8,254,137.13
BD701 Expenditure Total	-$9,016,660.54	-$4,335,339.92	$6,115,486.62	$5,034,539.63	$3,916,648.85	-$8,254,137.13
	-$80,526.98	$4,746,418.61	$2,573,126.62	$2,865,772.79	$5,073,334.67	-$1,345,298.21

*Cash Basis Accounting

Revenue	Jan 2023	Feb 2023	Mar 2023	Apr 2023	May 2023	Jun 2023	Totals
NG 911 Reserve Fund	3,145,961.05	2,504,894.53	2,222,484.75	2,801,570.56	1,824,373.07	2,573,744.12	29,055,938.66
CMRS Account	0.00	0.00	0.00	0.00	0.00	0.00	106,860.38
PSAP Account	4,325,098.93	3,139,170.61	2,646,300.77	3,986,162.76	1,990,238.47	3,252,888.79	37,262,075.24
Wireline - PSAP Account	304,581.14	314,799.23	272,386.00	304,625.12	316,042.06	303,353.72	3,879,271.82
VoIP - PSAP Account	755,975.87	698,247.07	674,641.14	684,860.00	727,456.74	705,515.98	8,955,172.09
Prepaid Wireless	748,968.12	732,327.40	740,517.33	700,988.67	523,790.23	757,042.54	9,320,500.10
Admin Account	157,298.05	125,244.73	111,124.24	140,078.53	91,218.65	128,687.20	1,495,549.55
PSAP Grant/Statewide 911 Project Account	1,048,653.69	834,964.85	740,828.26	933,856.86	608,124.34	750,544.60	9,862,960.53
Total (no interest)	$10,486,536.85	$8,349,648.42	$7,408,282.49	$9,552,142.50	$6,081,243.56	$8,471,776.95	$99,938,328.37
Interest							Totals
NG 911 Reserve Fund	142,929.80	159,254.67	157,698.09	199,192.36	194,440.66	219,650.90	1,552,223.69
CMRS Account	4,138.85	4,173.80	4,132.22	4,998.86	4,224.63	4,666.40	40,718.12
PSAP Account	14,121.35	22,342.04	25,934.46	36,624.67	42,164.86	50,042.32	257,972.21
Admin Account	3,260.32	3,804.28	3,849.74	4,897.19	4,675.03	5,186.39	36,654.61
PSAP Grant/Statewide 911 Project Account	116,644.63	133,909.38	132,591.24	169,568.53	135,114.82	186,759.14	1,220,365.59
Total Interest	$281,094.95	323,484.17	$324,205.75	415,281.61	$380,620.00	466,305.15	3,107,934.22
BD701 Revenue Total w/Interest	$10,767,631.80	$8,673,132.59	$7,732,488.24	$9,967,424.11	$6,461,863.56	$8,938,082.10	$103,046,262.59
Expenditures							Totals
NG 911 Fund	-4,338,509.39	-2,489,887.80	-3,166,924.42	-2,283,106.65	-3,043,846.94	-5,136,820.57	-30,685,620.44
CMRS Account	-252,552.20	0.00	-111,923.32	-254,508.10	-64,316.44	-73,733.74	-1,338,721.31
PSAP Account	-2,961,662.70	-2,961,662.70	-2,961,662.70	-2,961,662.70	-2,961,662.70	-2,998,552.08	-36,133,296.45
Admin Account	-99,040.67	-83,235.66	-120,556.76	-170,353.20	-154,364.53	-114,978.49	-1,395,751.83
PSAP Grant/Statewide 911 Project Account	-58,678.03	-827,031.87	-709,461.16	-659,419.80	-1,559,336.16	-2,076,116.32	-12,774,990.46
Total Expenditures	-$7,710,442.99	-$6,361,818.03	-$7,070,528.36	-$6,329,050.45	$7,783,526.77	-$10,400,201.20	-$82,328,380.49
BD701 Expenditure Total	-$7,710,442.99	-$6,361,818.03	-$7,070,528.36	-$6,329,050.45	$7,783,526.77	-$10,400,201.20	-$82,328,380.49
	$3,057,188.81	$2,311,314.56	$661,959.88	$3,638,373.66	-$1,324,663.21	-$1,462,119.10	$20,717,882.10

*Cash Basis Accounting

4. Goals and Objectives for 911 Service

At the end of 2023, the ESInet will serve 124 of 125 PSAPs in the State. The remaining PSAP is scheduled to join in February 2024, culminating in the multi-year build and implementation phase of the ESInet. The Board and staff are transitioning to the "run and manage" phase of the ESInet, an operational phase that will exist indefinitely. During the "run and manage" phase, the Board and staff will also be engaged in many facets of NG911 and call service delivery including emerging technologies and services, operational methodologies, and human element factors.

Goals and objectives are important in strategic planning because they turn the vision of the Board for NG911 into specific measurable targets or steps. Goals build on the vision and mission by defining and prioritizing the Board direction in response to specific priorities. Goals describe the general accomplishments to be achieved if the vision is to be achieved. Objectives articulate specific steps needed to complete each goal and identify ownership or responsibility for completing the objective. Objectives should be SMART - Specific, Measurable, Actionable, Realistic, and Timebound. Because of the nature of the responsibilities of Board staff and the tasks associated with each objective, using this framework or benchmarks may not always be realistic, but a successful or favorable deliverable is nonetheless achievable.

The following are the ten Goals and Objectives established for the 2024 State 911 Plan.

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GOAL 1		
Run and manage the Statewide hosted Next Generation 911 system.		
Objective	**Description**	**Ownership**
1	Continue the operation and management (run, manage, and maintain) phase for governance, maintenance, and interoperability.	911 Board 911 Board Staff
2	Explore ways to further expand the NG911 system in support of PSAPs and other public safety partners, i.e.: military installations, higher education, non-funded PSAP partners.	911 Board 911 Board Staff Technology Committee
3	Continue to facilitate expansion of the interconnection of PSAP users of the ESInet with other ESInet users, with entities and agencies not on the ESInet, and with other networks after complete acceptance of the NG911 System from the NG911 System Vendor.	911 Board 911 Board Staff Technology Committee
4	Sustain the Statewide GIS database that is used as a core service of the NG911 System, to be based on the NENA i3 Standard and other NENA NG911 Standards as they relate to GIS.	911 Board 911 Board Staff GIS Vendor Technology Committee
5	Facilitate the exploration and implementation of Statewide 911 call data interoperability between PSAPs.	911 Board 911 Board Staff Technology Committee
6	Assist legacy Originating Service Providers (OSPs) to accelerate the transition from interconnections to the legacy selective routers (LSRs) directly to the Statewide ESInet for originating 911 calls. This includes ILECS, CLECS, VoIP, and any other provider that originates 911 calls in the State that are currently connected to an LSR in accordance with FCC rulings issued.	911 Board 911 Board Staff ESInet Core Services Provider
7	Continue to evaluate responsibilities required of Board staff in providing NG911 services to PSAPs and other network partners, and the role of the Board in future NG911 development.	911 Board 911 Board Staff
8	Explore and investigate Artificial Intelligence (AI) within the NG911 ecosystem.	911 Board 911 Board Staff Technology Committee

GOAL 2		
Provide centralized network management and security monitoring for the Statewide ESInet as the Network Monitoring and Assistance Center (NMAC).		
Objective	**Description**	**Ownership**
1	Serve as the primary point of contact (POC) for the PSAPs and ESInet partners experiencing issues with 911 call service delivery across the ESInet and/or hosted call handling solutions.	911 Board 911 Board Staff
2	Utilize network monitoring along with other applicable applications and software to assist and report anomalies to AT&T and/or appropriate partner vendors to ensure 911 continuity and notify PSAPs of known issues with the ESInet affecting PSAP operations.	911 Board 911 Board Staff
3	Work closely with the AT&T Resolution Center, project managers, and principals to ensure tickets are resolved in a timely manner, as well as look for and identify commonalities between incidents and offer insight where available to the responsible parties.	911 Board 911 Board Staff

GOAL 3		
Following State law (G.S. §143B-1400 et seq.), review and revise Board Administrative Code to reflect changes in 911 service, PSAP operations, and Board responsibilities in the Next Generation 911 environment.		
Objective	**Description**	**Ownership**
1	Review all existing Board rules contained in the NC Administrative Code in accordance with the Administrative Procedure Act (APA) and the timeline set by the Rules Review Commission (RRC) to determine necessity (as defined by G.S. 150B-21.3A), taking into consideration proposed legislative changes identified during this process to further amend the rules at a later date.	911 Board 911 Board Staff Legal Counsel Standards Committee Committees as Applicable
2	After determination of necessity, revise existing rules as allowed under current law to reflect the current NG911 technologies within the State, following the requirements of the APA (G.S. 150B). The timeline for completing these revisions will be set in consultation with the RRC.	911 Board 911 Board Staff Legal Counsel Standards Committee Committees as Applicable
3	In consideration of the 911 Fee Diversion Rules (47 CFR 9.1 et seq.) set forth by the Federal Communications Commission, continue to evaluate acceptable expenses, as identified in §9.23, and evaluate whether to pursue any potential legislative initiatives related to funding.	911 Board 911 Board Staff Legal Counsel Standards Committee Committees as Applicable

GOAL 4		
Pursuant to G.S. 143B-1402, the Board will continue to administer the 911 Fund to ensure 911 service delivery, implementation of the NG911 Fund, and 911 Board operational and technical services provided to PSAPs.		
Objective	**Description**	**Ownership**
1	Manage Board staff operations, responsibilities, and expansion for provision of an efficient service delivery model to meet the requirements and outcomes as established and set forth in legislation, rules, and Board goals and objectives.	911 Board 911 Board Staff
2	Develop a spend plan as applicable for each fund and account as defined by legislation, taking into consideration implementation of new and emerging 911 technologies and the Statewide procurement process.	911 Board 911 Board Staff Funding Committee
3	Continue reviewing the funding model (five-year rolling average) to ensure the technical and operational needs of the PSAPs are met consistent with legislation and Administrative Code.	911 Board 911 Board Staff Funding Committee
4	Review, revise, and update the eligible uses of 911 funds as necessary to align with PSAP services in the NG911 environment as allowed by legislation and Administrative Code.	911 Board 911 Board Staff Funding Committee
5	Modernize, optimize, and streamline the Board's financial and fund management systems, processes, and procedures, to clarify and simplify PSAP eligibility and reporting requirements including internal review processes; stating clear, concise, consistent, and reasonable documentation requirements; and implementation of financial management applications/software.	911 Board 911 Board Staff

GOAL 5		
Pursuant to Board Rule 09 NCAC 06 .0216, continue to implement the PSAP assessment program to facilitate understanding of Board rules and NC law, and to provide assistance for correction of deficiencies identified during such assessments.		
Objective	**Description**	**Ownership**
1	Establish goals and objectives to continue the implementation of the new assessment program as it transitions from the work plan of the contractor to the oversight of the PSAP Assessment Coordinator.	911 Board 911 Board Staff Standards Committee
2	Continue the ongoing PSAP assessments review with the contracted vendor retained to complete the initial review of all primary and secondary PSAPs, with the new PSAP Assessment Coordinator taking the lead role in the oversight of this project having an anticipated completion by September 2024.	911 Board 911 Board Staff Standards Committee
3	Revise the PSAP assessment documents as the ongoing assessments provide an opportunity to evaluate the need to update and streamline them to the greatest extent possible.	911 Board 911 Board Staff Standards Committee
4	Establish a firm rotation schedule for the assessment of Board approved/funded backup PSAPs and when possible, schedule these assessments to coincide with those being conducted at the jurisdiction's primary and secondary PSAPs.	911 Board 911 Board Staff

GOAL 6		
Research and explore methods for further public outreach to support the PSAP community.		
Objective	**Description**	**Ownership**
1	Enhance and maintain communications between the Board, PSAPs, officials, local government leadership, agencies, organizations, and industry partners to ensure stakeholders are engaged in an informed and timely manner.	911 Board 911 Board Staff
2	Continue the Public Service Announcements (PSA) recruitment initiative and explore other media outlets and opportunities to assist PSAPs with combating the ongoing telecommunicator/staffing shortages.	911 Board 911 Board Staff Education Committee
3	Continue to collaborate with the Community College system regarding the training and advancement of the 911 profession by supporting Statewide training and support of the 911 Communications and Operations associate degree program in NC.	911 Board 911 Board Staff Education Committee
4	Implement a Statewide learning management system to support the education and development of all PSAP staff and to provide education regarding the Board's mission and initiatives.	911 Board 911 Board Staff Education Committee

GOAL 7		
Facilitate the consolidation or regional collaboration of Primary and Backup PSAPs.		
Objective	**Description**	**Ownership**
1	Identify consolidation alternatives available in NG911 operations, e.g., co-locations, shared or hosted systems, etc.	911 Board 911 Board Staff
2	Review costs and utilization of backup PSAPs in an effort to assist primary PSAPs in creating efficiencies with regional or tertiary collaboration, thereby leveraging the investments for ESInet, radios, CAD, and other key technological elements.	911 Board 911 Board Staff Funding Committee Technology Committee
3	Explore non-traditional PSAP connectivity to the Statewide ESInet as allowed by legislation to facilitate collaborative initiatives among PSAPs.	911 Board 911 Board Staff Technology Committee
4	Assist PSAPs with exploration of effective passage of call dispatch data to the appropriate end users.	911 Board 911 Board Staff Technology Committee

GOAL 8		
Explore and investigate the interconnection of PSAP users of the ESInet with other ESInet users and other partners and networks serving public safety.		
Objective	**Description**	**Ownership**
1	Explore ways to further expand the NG911 system in support of PSAPs, State and local agencies, public safety partners, and surrounding states through collaborative efforts ensuring ESInet integrity, security, and compliance with North Carolina legislative and regulatory standards.	911 Board 911 Board Staff Technology Committee
2	Align the State 911 Plan as applicable and practical with other agencies having plans, goals, and objectives focused on emergency communications [i.e., Statewide Communications Interoperability Plan (SCIP)], maximizing existing networks/systems and grant opportunities while minimizing duplicative efforts to continuously advance toward the same level of 911 call service delivery across the State.	911 Board 911 Board Staff Grant Committee Technology Committee

GOAL 9		
Identify the potential for cybersecurity threats, risks, and vulnerabilities within the NC NG911 ecosystem to establish appropriate measures to address such issues that are within the Board's authority.		
Objective	**Description**	**Ownership**
1	Continue cybersecurity program for the fundamental security of the ESInet, interconnected networks, software, applications, and PSAP users of the ESInet.	911 Board 911 Board Staff Technology Committee
2	Evaluate the corrective action items of the 2023 PSAP cybersecurity tabletop exercise series to identify those for which the Board can provide resolution.	911 Board 911 Board Staff Technology Committee
3	Continue to explore opportunities to increase awareness and provide assistance as applicable for PSAP cyber health and hygiene.	911 Board 911 Board Staff Technology Committee

GOAL 10		
Educate about and support the human factor elements of PSAP/911 operations and emerging technologies that are within the Board's authority.		
Objective	**Description**	**Ownership**
1	Collaborate with public safety associations (i.e., APCO, NENA) to increase awareness and place importance on the mental health and wellness of telecommunicators.	911 Board 911 Board Staff Committees as Applicable
2	Identify other potential opportunities for the Board and staff to assist with facilitation of telecommunicator mental health and wellness awareness and education.	911 Board 911 Board Staff Committees as Applicable
3	Explore options to assist and support the classification of North Carolina telecommunicators as a public safety or other service occupation, including educating decision makers about roles and responsibilities and facilitating discussions to evaluate the potential of State legislation.	911 Board 911 Board Staff Committees as Applicable
4	Support and seek out opportunities to promote the role of telecommunicator as a profession and career.	911 Board 911 Board Staff Committees as Applicable
5	Steward awareness of the human factor of end users in consideration of implementation of emerging technologies in the NG911 environment.	911 Board 911 Board Staff Committees as Applicable
6	Explore ways to assist PSAPs and local leadership with nontraditional recruitment and retention of telecommunicators.	911 Board 911 Board Staff Committees as Applicable

5. Mechanism for Managing and Coordinating North Carolina 911 System

The purpose of this section is to provide a brief description of the mechanisms that are in place to ensure that local, regional, and State level system functions are coordinated, mutually supportive, comprehensive in scope, and efficient in operation.

Board staff are responsible for executing the Plan and taking the lead in updating the Plan as progress is made on achieving the Board goals. Goals and objectives that are achieved should be documented, and any new objectives should be added.

The Board has allocated its resources to successfully implement its goals, with the focus on NG911. The Board is also held accountable for its activities and operations. The Board is required to report to the Legislature annually and is subject to audit by the State Auditor. As an agency of State government, the Board is subject to the North Carolina open meetings laws and the Public Records Act. Rulemaking takes place under the Administrative Procedure Act, which involves a public process that allows stakeholder and public input.

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Appendix

Appendix A – Document Change History

Version	Publication Date	Description of Change

Appendix B – North Carolina Population by County: 2022 Estimated

Annual Estimates of the Resident Population for Counties in North Carolina: April 1, 2020, to July 1, 2022				
Geographic Area	**April 1, 2020 (Estimates Base)**	**Population Estimate (as of July 1, 2022)**		
		2020	**2021**	**2022**
North Carolina	**10,439,414**	**10,449,445**	**10,565,885**	**10,698,973**
Alamance County, North Carolina	171,429	171,954	173,876	176,353
Alexander County, North Carolina	36,440	36,482	36,467	36,512
Alleghany County, North Carolina	10,886	10,897	11,066	11,185
Anson County, North Carolina	22,052	22,033	22,254	22,202
Ashe County, North Carolina	26,581	26,580	26,764	27,110
Avery County, North Carolina	17,812	17,848	17,502	17,571
Beaufort County, North Carolina	44,658	44,690	44,438	44,272
Bertie County, North Carolina	17,934	17,862	17,425	17,240
Bladen County, North Carolina	29,617	29,629	29,565	29,446
Brunswick County, North Carolina	136,694	138,157	144,814	153,064
Buncombe County, North Carolina	269,446	269,694	271,719	273,589
Burke County, North Carolina	87,573	87,577	87,634	87,881
Cabarrus County, North Carolina	225,807	227,214	231,726	235,797
Caldwell County, North Carolina	80,664	80,632	80,561	80,492
Camden County, North Carolina	10,357	10,407	10,816	11,088
Carteret County, North Carolina	67,686	67,724	68,718	69,380
Caswell County, North Carolina	22,738	22,699	22,701	22,614
Catawba County, North Carolina	160,609	160,892	161,821	163,462
Chatham County, North Carolina	76,270	76,670	78,111	79,864
Cherokee County, North Carolina	28,769	28,858	29,195	29,512
Chowan County, North Carolina	13,705	13,701	13,791	13,940
Clay County, North Carolina	11,085	11,142	11,350	11,614
Cleveland County, North Carolina	99,521	99,799	100,318	100,670
Columbus County, North Carolina	50,625	50,487	49,953	49,885
Craven County, North Carolina	100,718	100,646	100,277	100,874
Cumberland County, North Carolina	334,728	334,391	337,249	336,699
Currituck County, North Carolina	28,103	28,401	29,714	31,015
Dare County, North Carolina	36,910	37,032	37,889	37,956
Davidson County, North Carolina	168,933	169,196	170,794	172,586
Davie County, North Carolina	42,715	42,895	43,614	44,090
Duplin County, North Carolina	48,705	48,657	48,606	48,990
Durham County, North Carolina	324,849	325,561	329,699	332,680
Edgecombe County, North Carolina	48,897	48,777	48,370	48,301

Forsyth County, North Carolina	382,584	383,166	386,172	389,157
Franklin County, North Carolina	68,578	69,115	71,798	74,539
Gaston County, North Carolina	227,942	228,514	231,337	234,215
Gates County, North Carolina	10,475	10,448	10,403	10,383
Graham County, North Carolina	8,029	8,035	8,008	7,980
Granville County, North Carolina	61,001	61,060	61,408	61,903
Greene County, North Carolina	20,449	20,440	20,261	20,211
Guilford County, North Carolina	541,309	539,498	542,756	546,101
Halifax County, North Carolina	48,622	48,521	48,377	47,848
Harnett County, North Carolina	133,554	133,779	135,669	138,832
Haywood County, North Carolina	62,097	62,223	62,504	62,609
Henderson County, North Carolina	116,279	116,541	116,988	118,106
Hertford County, North Carolina	21,552	21,470	21,172	20,875
Hoke County, North Carolina	52,081	52,240	53,235	53,787
Hyde County, North Carolina	4,587	4,551	4,625	4,576
Iredell County, North Carolina	186,699	187,683	192,227	195,897
Jackson County, North Carolina	43,107	42,231	42,520	42,955
Johnston County, North Carolina	215,991	217,787	227,313	234,778
Jones County, North Carolina	9,173	9,147	9,217	9,233
Lee County, North Carolina	63,281	63,428	64,097	65,476
Lenoir County, North Carolina	55,124	55,050	54,693	54,633
Lincoln County, North Carolina	86,816	87,206	89,870	93,095
McDowell County, North Carolina	44,577	44,580	44,586	44,753
Macon County, North Carolina	37,016	37,092	37,488	38,065
Madison County, North Carolina	21,192	21,228	21,645	21,768
Martin County, North Carolina	22,035	21,953	21,742	21,508
Mecklenburg County, North Carolina	1,115,526	1,116,788	1,125,809	1,145,392
Mitchell County, North Carolina	14,906	14,906	14,982	15,094
Montgomery County, North Carolina	25,752	25,719	25,853	25,894
Moore County, North Carolina	99,725	100,267	102,952	105,531
Nash County, North Carolina	94,967	95,148	95,227	95,789
New Hanover County, North Carolina	225,705	226,307	229,930	234,921
Northampton County, North Carolina	17,474	17,435	17,093	16,779
Onslow County, North Carolina	204,585	204,937	204,660	207,298
Orange County, North Carolina	148,707	143,583	148,610	150,477
Pamlico County, North Carolina	12,274	12,303	12,347	12,381
Pasquotank County, North Carolina	40,568	40,577	40,746	40,938
Pender County, North Carolina	60,208	60,642	63,072	65,737
Perquimans County, North Carolina	13,006	13,016	13,126	13,210
Person County, North Carolina	39,093	39,187	39,172	39,386
Pitt County, North Carolina	170,241	170,378	172,273	173,542
Polk County, North Carolina	19,330	19,383	19,691	19,986
Randolph County, North Carolina	144,151	144,418	145,109	146,043

Richmond County, North Carolina	42,953	42,916	42,842	42,778
Robeson County, North Carolina	116,516	116,305	116,229	116,663
Rockingham County, North Carolina	91,100	91,188	91,260	91,957
Rowan County, North Carolina	146,878	147,148	148,012	149,645
Rutherford County, North Carolina	64,444	64,479	64,618	64,963
Sampson County, North Carolina	59,040	59,078	59,080	59,120
Scotland County, North Carolina	34,180	34,141	34,175	34,162
Stanly County, North Carolina	62,506	62,638	63,108	64,153
Stokes County, North Carolina	44,523	44,565	44,641	45,175
Surry County, North Carolina	71,367	71,372	71,196	71,403
Swain County, North Carolina	14,115	14,099	14,149	13,967
Transylvania County, North Carolina	32,986	33,046	33,255	33,355
Tyrrell County, North Carolina	3,247	3,239	3,377	3,365
Union County, North Carolina	238,233	239,443	244,260	249,070
Vance County, North Carolina	42,570	42,535	42,103	42,138
Wake County, North Carolina	1,129,393	1,130,685	1,152,357	1,175,021
Warren County, North Carolina	18,642	18,598	18,791	18,713
Washington County, North Carolina	11,001	10,976	10,909	10,828
Watauga County, North Carolina	54,077	54,117	54,962	55,089
Wayne County, North Carolina	117,324	117,266	116,866	117,286
Wilkes County, North Carolina	65,968	65,904	65,818	65,784
Wilson County, North Carolina	78,786	78,807	78,283	78,449
Yadkin County, North Carolina	37,211	37,246	37,258	37,463
Yancey County, North Carolina	18,470	18,490	18,776	18,811
Note: The estimates are developed from a base that incorporates the 2020 Census, Vintage 2020 estimates, and 2020 Demographic Analysis estimates. The estimates add births to, subtract deaths from, and add net migration to the April 1, 2020 estimates base. For population estimates methodology statements, see https://www.census.gov/programs-surveys/popest/technical-documentation/methodology.html. See Geographic Terms and Definitions at https://www.census.gov/programs-surveys/popest/guidance-geographies/terms-and-definitions.html for a list of the states that are included in each region. All geographic boundaries for the 2022 population estimate series are as of January 1, 2022.				
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Source: U.S. Census Bureau, Population Division				
Release Date: March 2024				

Appendix C—NENA NG911 Standards and Best Practices Reference Chart

DATA STRUCTURES DOCUMENTS (including NG911)		
NENA-STA-015.10-2018	Standard Legacy Data Formats For 9-1-1 Data Exchange GIS Mapping	2018/08/12
02-501	Wireless (Pre-XML) Static and Dynamic ALI Data Content Information Document	2006/10/16
02-503	XML Namespaces Information Document	2007/02/23
04-005	ALI Query Service Standard	2006/11/21
NENA-STA-012.2-2017	NG9-1-1 Additional Data Standard	2017/12/07
NENA-STA-004.1-2014	NENA Next Generation United States Civic Location Data Exchange Format (CLDXF)	2014/03/23
NENA-STA-008.2-2014 (orig. 70-001)	NENA Registry System (NRS) Standard	2014/10/06
NENA/APCO-INF-005	NENA/APCO Emergency Incident Data Document (EIDD) Information Document	2014/02/21
DATA MANAGEMENT DOCUMENT (including NG911)		
02-011	Data Standards for Local Exchange Carriers, ALI Service Providers & 9-1-1 Jurisdictions	2012/05/12
02-013	Data Standards for the Provisioning and Maintenance of MSAG Files to VDBs and ERDBs	2008/06/07 Reviewed 9/12/2014
02-014	GIS Data Collection and Maintenance Standards	2007/06/17
02-015	Standard for Reporting and Resolving ANI/ALI Discrepancies and No Records Found for Wireline, Wireless, and VoIP Technologies	2009/06/06
02-502	NENA Company ID Registration Service Information Document	2008/11/12
06-001	Standards for Local Service Provider Interconnection Information Sharing	2004/08/01
71-501	Synchronizing Geographic Information System Databases with MSAG & ALI Information Document	2009/09/08
71-502	An Overview of Policy Rules for Call Routing and Handling in NG9-1-1 Information Document	2010/08/24
NENA-INF-011.1-2014	NENA NG9-1-1 Policy Routing Rules Operations Guide	2014/10/06
NENA-INF-014.1-2015	NENA Information Document for Development of Site/Structure Address Point GIS Data for 9-1-1	2015/09/18
NENA-INF-011.2-2020	NENA Standard for NG9-1-1 Policy Routing Rules	2020/06/18
NENA-REQ-002.1-2016	NENA Next Generation 9-1-1 Data Management Requirements	2016/03/10
NG911 TRANSITION PLANNING DOCUMENTS		
NENA-INF-008.2-2014 (originally 77-501)	NG9-1-1 Transition Plan Considerations Information Document	2013/11/20

SECURITY DOCUMENTS		
NENA-INF-015.1-2016	Network/System Access Security Information Document	2016/12/08
75-001	Security for Next-Generation 9-1-1 Standard	2010/02/06
75-502	Next Generation 9-1-1 Security Audit Checklist Information Document	2011/12/14
VOICE OVER INTERNET PROTOCOL (VoIP) DOCUMENTS		
08-001	Interim VoIP Architecture for Enhanced 9-1-1 Services (i2) Standard	2010/08/11
08-503	VoIP Characteristics Information Document	2004/06/10
08-504	VoIP Standards Development Organization Information Document	2004/06/08
57-503	Procedures for Notification of ERDB & VPC Operators of ESN Changes by 9-1-1 Administrator Information Document	2008/01/08
58-502	VoIP Funding and Regulatory Issues Information Document	2006/06/06
NEXT GENERATION 9-1-1 (NG911) DOCUMENTS		
08-002	Functional and Interface Standards for Next Generation 9-1-1	2007/12/18
08-003	Detailed Functional and Interface Standards for the NENA i3 Solution	2011/06/14
08-501	Interface between the E9-1-1 Service Provider Network and the Internet Protocol (IP) PSAP Information Document	2004/06/15
08-505	Methods for Location Determination to Support IP-Based Emergency Services Information Document	2006/12/21
NENA-INF-016.2-2018	Emergency Services IP Network Design for NG9-1-1 Information Document	2018/04/05
NENA-STA-010.3d-2021	NENA i3 Requirements Document (i3v3) NENA i3 Standard for Next Generation 9-1-1	2021/07/12
NENA-INF-027.1-2018	NENA Information Document for Location Validation Function Consistency	2018/08/12
57-750	NG9-1-1 System and PSAP Operational Features and Capabilities Requirements	2011/06/14
NENA-INF-003.1-2013	Potential Points of Demarcation in NG9-1-1 Networks Information Document	2013/03/21
NENA-INF-006.1-2014	NG9-1-1 Planning Guidelines Information Document	2014/01/08
NENA-INF-009.1-2014	Requirements for a National Forest Guide Information Document	2014/08/14
NENA/APCO-REQ-001.1.1-2016	NENA/APCO NG9-1-1 PSAP Requirements Document	2016/01/15
WIRELESS 9-1-1 INTEGRATION DOCUMENTS		
57-001	Wireless E9-1-1 Overflow, Default, and Diverse Routing Standard & A PSAP Manager's Guide to GIS & Wireless 9-1-1	2004/11/18
57-002	E9-1-1 Wireless Maintenance Call Routing & Testing Validation Standard including Call Routing & Testing Validation Worksheet & Sample Non-Disclosure Agreement	2007/06/09
WELLNESS DOCUMENTS		
NENA-STA-002.2-2022	NENA Standard to Protect the Wellbeing of 9-1-1 Professionals	2022/03/04