

# NEW YORK STATE STATEWIDE 911 PLAN



**Homeland Security and Emergency Services**  
Office of Interoperable and Emergency Communications

## **In Appreciation:**

I am pleased to present the New York State Statewide 911 Plan, a dynamic strategy that recognizes New York State's need to embrace and implement new technologies in delivering 911 services. This plan will ensure New York State's position as an innovative and strategic leader and will provide the very best emergency response system for our residents and visitors in New York State.

New York State has actively worked to provide enhanced 911 services to New Yorkers' for over thirty years. Our residents and visitors continue to benefit from the foundational aspects of that technology, however, the technology that is in place today is becoming antiquated and has the inability to take on the technological advances that have become evident in today's posture. It is now time to incorporate new technologies that have been developed to help implement a new state-of-the-art 911 network for the State of New York. This network will enable advanced location information and routing, ensuring that telecommunicators and first responders have precise location information to respond to and help protect life and property. The network will enable innovative ways of delivering information to emergency responders, including text, pictures, and videos, as well as future technological advancements. It is critical that New York State has a clear direction and continuity of purpose in our State's 911 systems.

Now is an incredible, exciting, and challenging time in New York, and I am delighted to acknowledge the accomplishments and hard work that our State's 911 professionals support every day. The New York State Division of Homeland Security and Emergency Services wishes to express our gratitude for the hours spent on the development of this plan. This plan was created with the assistance of the Next Generation 911 Working Group and the Geographic Information System (GIS) Working Group, both which collaborate under the 911 Advisory Committee and are empowered by the State Interoperable and Emergency Communication (SIEC) Board. These working groups consist of dedicated professionals that represent Public Safety Answering Points (PSAP) across the State, members of various State agencies, and the New York State 911 Coordinator's Association. These meetings had invaluable collaboration and information sharing that gave direction to the development of this plan.

I would be remiss if acknowledgment did not go to the staff of the Office of Interoperable and Emergency Communications (OIEC), direct support from the New York State Technology Enterprise Corporation (NYSTEC) and Mission Critical Partners (MCP), Executive Leadership at the Division of Homeland Security and Emergency Services, and the support of our Federal partners at the Department of Homeland Security (DHS), Cybersecurity and Infrastructure Security Agency (CISA), Emergency Communications Division (ECD). Their work has been extremely valuable and appreciated throughout this entire plan.

Now is the time to continue to make New York a proud leader in supporting its residents and visitors to the State with the very best emergency communications available anywhere for years to come.



Mark J Balistreri Director,  
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# 1 OVERVIEW

Serving as a vital component of New York’s emergency response and disaster preparedness capabilities, 911 is the foundation for delivering emergency help as quickly and effectively as possible. Without a shared vision for the future, and specific goals for achieving that vision, New York risks losing ground in the mission to provide its residents with effective and efficient 911 technologies and services.

The safety of the State’s citizens relies on the ability of State and local agencies, government leaders, and emergency response/public safety partners to work together to design and execute a plan for upgrading the State’s 911 capabilities and reliability. Legacy systems that are deployed in Public Safety Answering Points (PSAPs) around the state are at risk of not being supported by the vendors as technology progresses. Many PSAPs also lack interoperability with neighboring jurisdictions and their counterparts across New York and bordering states.

To address the ever-expanding technology that influences how 911 services can be managed and deployed, the New York State Division of Homeland Security and Emergency Services (DHSES) Office of Interoperable and Emergency Communications (OIEC) engaged with NYSTEC and the Federal Technical Assistance Program, via the U.S. Department of Homeland Security, to work with stakeholders to renew the State’s perspective on the future of 911. To guide NYS agencies and authorities, and assist PSAPs in accomplishing this mission, NYS DHSES OIEC has developed this Statewide 911 Plan (“the plan”). The plan will help stakeholders set the path for future improvements to 911 functionality across New York during times of rapid technology advancement.

The plan was developed to provide the foundational elements required to progress the State of New York toward Next Generation 911 (NG911). The key components that comprise this plan are organized into the following sections: NG911 Roadmap, Program and Operations, Technical Systems, Data Development/Maintenance Support, and Analysis/Planning. It is important to note that the New York State Division of Homeland Security and Emergency Services Office of Interoperable and Emergency Communications (NYS DHSES OIEC) team partnered with many key stakeholders to develop this comprehensive plan. Input for this plan, and the associated content throughout, were garnered from extensive research, discussion with key partners, and collaboration with 911 working groups and consultants. Key stakeholders include, but are not limited to, the Association of Public-Safety Communications Officials (APCO), the U.S. Department of Homeland Security’s Cybersecurity and Infrastructure Security Agency (CISA), the National Emergency Number Association (NENA), the National Fire Protection Association (NFPA), the Federal Emergency Management Agency (FEMA), the National 911 Program (911.gov), and the NYS 911 Coordinators Association.

The plan is:

- A decision-making tool.
- A forward looking, holistic and iterative plan that will help communicate a vision and goals for New York’s 911 system.
- Setting an agenda for progress and developing broad guidelines for 911.

- A tool that provides context and understanding for stakeholders and allows them to share their thoughts/ideas back to the State.

The plan is not:

- A static document.
- A “quick fix” or “silver bullet.”
- An endpoint in the planning process.
- A feasibility study, operational, or tactical plan.

This plan focuses on outlining a dynamic platform that will provide citizen centered emergency services that leverage transformational technologies. In the introduction section below, you will be provided a background on the history of 911, summarizing 911 services that were put into place more than 50 years ago and current 911 systems that are a patchwork of disparate systems struggling to keep pace.

The Next Generation 911 (NG911) Internet-Protocol (IP)-based platform will address the major shift in call behaviors from legacy telephone users to the mobile environment, the growth in user demand for mobile technology, and technological advancements. NG911 emergency services must be able to address these concerns. The ability to respond and provide critical services as expeditiously and efficiently as possible will be on technological platforms that can ingest, process, and dispatch the information presented. This information could potentially come from multiple sources, such as text messages, gunshot sensors, smart watches, and video feeds. The NG911 platform must be flexible, resilient, and redundant to accommodate the size and types of information that will be required in this architecture.

The plan articulates the State’s 911 vision and goals describing the Next Generation for 911 and will act as a guide to influence statewide decisions for 911. It also aligns with the guiding principles, themes, and several existing resources. The intent is to guide operational, technical, resource, funding, and planning decisions based on identified needs for advancing 911 capabilities and services. The plan also provides stakeholders the ability to measure progress and stay informed about actions being taken to achieve the goals, including initiatives, action plans, and tasks.

## 2 INTRODUCTION

The vision of New York State is to enhance and expand 911 service in NYS by developing a collaborative framework necessary to facilitate the funding, creation, and sustainable operation of an IP-based NG911 System to protect life and property, and to maintain public safety.

NYS DHSES OIEC's mission is to provide statewide leadership and coordination in supporting and promoting optimal 911 services. Its success will require NYS DHSES OIEC and Public Safety Answering Points (PSAPs) to meet the challenges and changes necessary to embrace new technologies, leverage resources, remain fiscally accountable, and achieve industry accepted standards throughout the State.

To guide NYS agencies and authorities, and assist PSAPs in accomplishing this mission, NYS DHSES OIEC is developing the NG911 Strategic Plan. The purpose of the strategic plan is to guide the efforts of NYS as it works with local and state public safety stakeholders to implement a statewide NG911 system. In drafting this plan, NYS DHSES OIEC relied upon the experience and expertise of national organizations such as APCO, the U.S. Department of Homeland Security's Cybersecurity and Infrastructure Security Agency (CISA), National Emergency Number Association (NENA), the National Fire Protection Association (NFPA), the Federal Emergency Management Agency (FEMA), and the NYS 911 Coordinators Association.

### 2.1 Overview of the History and Background of 911

911 is nationally recognized as the lifeline to public safety, and the 911 system is one of the most essential elements of public safety services in the United States.

During the second half of the 1960s, it was recognized that a universal number to summon aid from local law enforcement, fire, and emergency medical services was needed. In NYS, many cities, towns, and villages used a combination of municipally owned and operated call boxes with a distinct telephone number for each service. The establishment and benefit of the 911 system was that it was universal, easy to remember, and eliminated the need for people to look up diverse emergency numbers for police, fire, and emergency medical services.

Early 911 technology had limited capability. Advancement in 911 technology occurred with the introduction of enhanced services in the early 1980s, by increasing the accuracy of call routing and dispatch services. Databases were established, providing PSAPs with the caller's name and address, as well as an indication of which agencies should respond to the emergency call for service automatically. Computer aided dispatch (CAD) systems were developed to provide more in-depth information, such as previous call history at locations. During the 1990s, the use of cellular technology increased dramatically. This consumer-driven change posed serious challenges for public safety, as automated caller location was not available for wireless calls to 911. In response, the Federal Communications Commission (FCC) has mandated wireless carriers to transmit data to 911 for better location accuracy.

Calls to 911 have been transitioning from predominantly landline to wireless. CTIA, (formerly known as the Cellular Telecommunications and Internet Association), which represents the U.S. wireless communications industry, reported in 2024 on their Annual Survey that "Today, nearly 40% of all wireless devices – from phones to smartwatches, IoT devices, and more – have a 5G connection, a 34% increase over 2022. This growth helped propel the total number of wireless



connections to 558 million, more than 1.6 wireless connections for every American.” According to data received on the 2024 PSAP Grant cycle, New York State agencies received.

- Wireline 911 calls: 4,005,573
- Wireless 911 calls: 11,378,962
- VoIP 911 calls: 1,354,220

To provide services to consumers, the growth in communications technology is causing 911 authorities at all levels of government to change the way they operate. Although the current 911 system has served the public safety industry well for the past 50 years, consumer demand for improved technology, such as faster data transfers, is raising an expectation that the 911 network has the same capabilities as the available consumer market products. To provide the speed and data capacity to deliver call and location data to the appropriate PSAP, properly and in the fastest manner possible, a digital network is needed to accommodate the data demands of wireless and Voice over Internet Protocol (VoIP) 911. Advancements in technology have enabled the use of technology beyond telephones to communicate, referred to as the Internet of Things (IoT); utilization of these new methods necessitates adoption of new standards and technology for modern PSAPs to provide quality services to the public.

There is a need to migrate to a modern IP-based network meeting public expectations, or the State will face the prospect of the current 911 system falling further behind technologically and could have catastrophic consequences for the callers in need if they are unable to connect to the 911 network.

### 3 PLAN MAINTENANCE

The plan is to guide the efforts of NYS as it works with local and state public safety stakeholders to implement a statewide NG911 system. The plan is a dynamic, living document that is intended to be used and updated on a continual basis.

The plan will provide directives with high-level goals and concise, specific, and measurable objectives as the program matures. Once goals and objectives are achieved, their completion will be documented annually in this plan, per the revision schedule.

NYS DHSES OIEC will monitor components of this plan to ensure that the goals are met. This will happen through an established monitoring and tracking process to achieve the end state of the NG911 network. Updates to this plan will occur annually and/or at the direction of the NYS 911 Coordinator. Stakeholders may propose changes to the New York State Interoperable and Emergency Communication Board (SIEC Board) and NYS DHSES OIEC for consideration.

Version	Publication Date	Description of Change
1	April 2025	NY State Statewide 911 Plan published.

*Table 1 – Document Change History*



## 4 NG911 ROADMAP SECTION

### 4.1 Current 911 Environment

A vital part of New York's emergency response and disaster preparedness system is 911 service.

In NYS, local governments, including counties, cities, towns, and villages, are responsible for their own 911 network and services and currently maintains enhanced 911 (E911) services for landline, wireless, and VoIP callers.

For landline calls to 911, the dispatcher receives the caller's telephone number, which is known as Automatic Number Identification (ANI). In addition, E911 services provide the dispatcher with a caller's location through Automatic Location Identification (ALI). This information is gathered by mapping the calling phone number to an address in a database. This database is generally maintained by the local telephone company, under a contract with the entity using the information. Each telephone company has its own standards for formatting the database. Most databases have a companion database, known as the Master Street Address Guide (MSAG). The MSAG describes address elements, including the exact spellings of street names and street number ranges.

In the case of mobile phones, locating the caller is more complicated, and there is a different set of legal and technical requirements. To locate a mobile phone geographically, there are two general approaches use some form of radiolocation from the cellular network or use a Global Positioning System (GPS) receiver built into the phone itself. Depending on the phone's hardware, one of two types of location information can be provided to the operator. The first is Wireless Phase One (WPH1), which is the tower location and the direction the call came from; the second is Wireless Phase Two (WPH2), which provides a more precise location utilizing one of the two methods above.

As VoIP technology has matured, service providers have begun to interconnect VoIP with the public switched telephone network and marketed the VoIP service as a more fiscally responsible replacement phone service, offering an inexpensive solution to a multiline telephone system.

In response to the E911 challenges inherent to VoIP systems, specialized technology has been developed to locate callers in the event of an emergency. Due to the way the IP works within VoIP, the initial caller location information may present to a campus environment, or general area. Additional add-on technologies allow the caller to be located down to the specific office on a floor of a building or a pre-registered address. These solutions support a wide range of organizations with VoIP telephony networks. The solutions are generally available from service providers offering hosted IP Private Branch Exchange (IP-PBX) and residential VoIP services. This increasingly important segment in VoIP technology includes E911 call routing services and automated phone tracking appliances.

Today, consumers and businesses are dependent on communications technology and devices that enable the transfer of data such as pictures, videos, and messaging. Consumers are using devices that utilize high-speed data networks to access the internet and to manage their lives. Although the current 911 network in NYS is reliable, most calls made throughout the counties in

New York travel along legacy analog circuits. These legacy circuits were designed to accommodate low bandwidth applications and are not fast enough to support current technological demands. In addition, the current E911 system has limited messaging capabilities and data content. The system is further constrained by the capabilities of disparate 911 networks throughout the State. This disparity affects the ability of data to be transferred or shared to neighboring first responders.

The growth in technology is allowing consumers to use a variety of devices to access emergency services, forcing 911 authorities and PSAPs to change the way they operate to provide necessary services to consumers. To support these trends, the 911 platform must enable new communication devices, **such as those enabled to automatically transmit a request for emergency services (known as a 911 call)**, to access the 911 system. Delivering additional data on a 911 call requires a digital network to provide the speed and data capacity (i.e., bandwidth), to deliver the 911 call and location data to the appropriate PSAP. The current analog system needs to be replaced with a solution that will provision all 911 calls directly to an IP-based network.

#### 4.1.1 Funding

New York's 911 systems are currently funded predominately by local government, with additional grant funding. Counties (and New York City as a whole) can implement two surcharges for the purpose of funding 911 systems. The Enhanced Emergency Telephone System Surcharge (also referred to as the E911 Surcharge) places a per-line surcharge on landline and VoIP services within a county. This surcharge can generally only be used for costs associated with operating an E911 system. The Wireless Communications Surcharge (also referred to as the Local Public Safety Communications Surcharge) places a per-line surcharge on wireless telephone services and prepaid wireless devices sold within the county<sup>1</sup>. This surcharge can generally be used for costs associated with 911 services and public safety communications networks (i.e. Land Mobile Radio [LMR]). Both surcharges need to be implemented via a local ordinance or resolution, and the size of the surcharges can vary by county.

State assistance comes from the PSAP Operations Grant, which distributes \$10 million, Statewide Interoperable Communications Grant - Formula which distributes \$45 million and the Statewide Interoperable Communications Grant – Targeted which distributes \$20 million across eligible applicants.<sup>2</sup> These funds can generally be used for costs related to providing 911 services. Any additional 911 funding comes from the government entity responsible for the PSAP.

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<sup>1</sup> Tax Law §186-g.

<sup>2</sup> This grant program is among the allocated purposes of the Public Safety Communications Surcharge (also referred to as the State Public Safety Communications Surcharge), a statewide surcharge placed on wireless communications service and prepaid wireless communications devices. See Tax Law §186-f.

- Some costs are incurred by entities other than PSAPs. The costs for certain E911 elements are funded through the NYS Targeted Accessibility Fund (TAF), adopted by the Public Service Commission (PSC) on June 2, 1998, via Order and Opinion 98-10, to help fund public benefit services like LifeLine, Telecommunications Relay Service (for the hearing-impaired) and 911. All 911 costs recovered by TAF are distributed among the certified telecommunications service providers in the state, and thus, are not passed on to PSAPs. E911 costs recovered by TAF include: ALI Database Trunking Trunk Connections and Port Charges Selective Routing Expense New York State's 911 Coordination Function

#### 4.1.2 New York State's 911 Coordination Function

Coordination of 911 in NYS is facilitated by NYS DHSES OIEC and the SIEC Board. The Director of OIEC, by his authority, has designated the Assistant Director as the NYS 911 Coordinator. OIEC works in conjunction with the SIEC Board, its committees, working groups, and other stakeholders, including other state agencies and county 911 coordinators. Regulatory authority statutorily given to DHSES and the SIEC Board allows the establishment of minimum standards for wireless PSAPs and other guidelines. In addition, OIEC program staff work in conjunction with DHSES grant staff to facilitate and manage the Statewide Interoperable Communications Grant and Public Safety Answering Point Grant Programs, which provides funding to counties to sustain and improve emergency communications and 911 PSAPs throughout the State.

## 4.2 The Future 911 Environment: Next Generation 911 Vision, Mission, Goals, and Measures

The **vision** of NYS is to enhance and expand 911 service in the state by developing a collaborative framework necessary to facilitate the funding, creation, and sustainable operation of an IP-based Next Generation 911 (NG911) System to protect life and property, and to maintain public safety.

NYS DHSES OIEC's **mission** is to provide statewide leadership and coordination in supporting and promoting optimal 911 services.

The transition from a legacy 911 network to a modern NG911 network will be a complex process and require extensive support at the State and local levels. Ensuring continuity of operation of the 911 system will require a phased implementation of new technologies, alongside existing systems, with a well-designed transition to ensure reliable operation of all critical systems. This transitional period will take several years and require the support of both legacy and modern systems until legacy systems can be phased out.



Figure 1 – Implementation Continuum

Implementation of NG911 will require the establishment of a collaborative governance framework, that will enable a shared, interconnected, and interoperable system. NYS DHSES OIEC recognizes the importance of this plan and the continued development of it: coordinating and integrating a foundation for a Statewide NG911 System. This will enable the State to maintain focus and prioritize support for 911 emergency service on initiatives such as:

- Oversight, management, and funding for the creation and operation of the Emergency Services Internet Protocol Network (ESInet) and Next Generation Core Services (NGCS) for State and county PSAP connectivity.
- Developing the requirements and standards for the NG911 System at the State and local levels.
- Creating, maintaining, and updating a NG911 Strategic Plan for state and local agencies.
- Being responsible for public education informing and educating the public about the transition to NG911 and what to expect.
- Updating and establishing new policies with the implementation of the ESInet and NGCS and standards/guidelines for PSAPs in the NG911 environment.
- Review of governance to facilitate continued availability, quality, and sustainability of 911 service throughout the state.

To set the stage for success in this multiyear endeavor, NYS DHSES OIEC, along with stakeholders, has identified the following **goals** and associated initiatives that, when achieved, will form the foundation of the NG911 framework. The foundation will consist of, at a minimum, an ESInet (providing interconnectivity) and Next Generation Core Services (NGCS) (GIS based call routing, location validation, border control functions, etc.).

As part of the core framework of a strategy (Mission and Vision), it is important to identify goals that are foundational in achieving the mission and vision. NYS DHSES OIEC, working with their stakeholders, has set forth the following three key goals that will help us achieve the Vision and Mission.

### **Goal #1**

Advance 911 Service in NYS by coordinating and planning the development of a Next Generation (IP-based) solution.

#### **Objectives:**

- Create, maintain, and update the Strategic Plan for State and local agencies. Ensure that the proper focus is placed on enhancing 911 services to the public.
- Be responsible for public education; inform and educate stakeholders and the public about the transition to NG911 and what to expect.

### **Goal #2**

Develop partnerships with key stakeholders, federal, and other State entities to architect a governance and framework that provide a solid foundation for NG911.

#### **Objectives:**

- Establish the NG911 Working Group, and sub-committees.
- Coordinate with the 911 Advisory Committee.
- Advise the SIEC Board.

### **Goal #3**

Based on results from the RFI issued in 2024 and with assistance of a hired consultant, NYS DHSES OIEC will assess options for what procurement method(s) would be most beneficial for the development of an RFP(s) for the ESInet and NCGS providers.

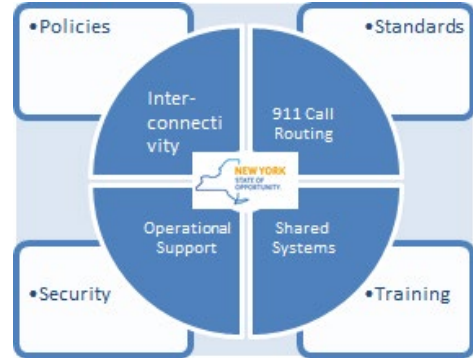
#### **Objectives:**

- Adopt technical standards governing a network design capable of regional and/or Statewide ESInet connectivity.
- Develop the requirements and standards for the ESInet and NCGS associated to this NG911 System, establish standards for connectivity to the ESInet, and ensure adequate funding for the NG911 System at the state and local levels.

OIEC understands that the requirements of an RFP must not only address currently available technology and standards but also consider future components and emerging technology that may be utilized to enhance public safety.

NYS DHSES OIEC recognizes that operational support requires a governance model, security structure, and standards that provide a foundational framework to support and enhance 911. This foundation will ensure a viable system for the future. Supporting initiatives may include:

- Ensuring minimum operating standards/guidelines for PSAPs while in transition to NG911.
- Conducting an interconnectivity assessment on PSAPs and regions.
- Implementing Statewide managed sections of the network, including interconnectivity to regional networks on the ESInet.
- Providing reciprocal interoperability and fail over between PSAPs in NYS, bordering states, and bordering provinces in Canada to protect life and property and maintain public safety.



New York State’s plan will be implemented in multiple phases, taking into consideration the goals above. NYSDHSES OIEC recognizes that there have been great strides taken in various regions across the State, particularly in establishing fiber or microwave connectivity between counties. The potential to leverage those networks may provide an opportunity for immediate efficiencies and expedite the interconnecting of other counties and regions moving forward. It is the goal of NYS DHSES OIEC to strive for technological balance across all regions in the State and provide the PSAPs dependable and redundant interconnections to the Statewide ESInet.

The Regional Interoperable Communications Consortiums are an important resource in the process of evaluating the potential in utilizing existing networks to create a Statewide NG911 system in New York.

### 4.3 Implementation and Sustainable Funding

#### 4.3.1 Next Generation 911 Considerations

NYS DHSES OIEC will work with both State leadership and stakeholders to ascertain potential costs of the initial statewide NG911 deployment, in addition to the associated ongoing costs.

## 5 PROGRAM AND OPERATIONS

### 5.1 Governance and Organization

NYS DHSES OIEC, the New York State Interoperable and Emergency Communication Board (SIEC Board), and other appropriate state agencies will collaboratively drive the governance of NG911 in NYS.

### **5.1.1 Powers and Duties of NYS DHSES OIEC**

NYS DHSES OIEC will be the primary agency responsible for the development and implementation of a statewide NG911 system in NYS.

NYS DHSES OIEC is currently the principal State agency for interoperable and emergency communications matters in the state.<sup>3</sup> It is authorized to oversee and direct the development, coordination, and implementation of policies, plans, standards, programs, and services related to interoperable and emergency communications. The Office's Director serves as the Statewide Interoperable and Emergency Communications coordinator, ensuring appropriate coordination and consultation with relevant entities. The office coordinates with federal, state, local, tribal, nongovernmental, and other appropriate entities and is responsible for coordinating relevant grant programs and other funding sources to enhance interoperable and emergency communications. NYS DHSES OIEC has the authority to promulgate rules and regulations to carry out the duties of the office.<sup>4</sup>

NYS DHSES OIEC works in conjunction with the SIEC Board and other stakeholders, including other State agencies and County 911 Coordinators, to provide state-level 911 coordination and drive 911 initiatives in NYS. The State 911 Coordinator<sup>5</sup> will continue to oversee these efforts, as well as directing NG911 efforts.

### **5.1.2 Powers and Duties of the SIEC Board**

The SIEC Board is expected to be an essential forum for coordination and consultation through the implementation of NG911, and the Board remains responsible for wireless PSAP minimum standards.

The SIEC Board is charged with assisting local governments, service suppliers, wireless telephone service suppliers, and appropriate state agencies by facilitating the most efficient and effective routing of 911 emergency calls; developing minimum standards for public safety answering points; promoting the exchange of information, including emerging technologies; and encouraging the use of best practice standards among the PSAP community.<sup>6</sup> The Board serves as a resource center for the gathering and dissemination of information and provides other assistance relating to 911 services and technologies. The Board monitors and periodically reviews the provision of 911 services throughout the state, which includes, but is not limited to, conformance with applicable standards.

The Board is currently responsible for the promulgation of minimum standards for the operation of wireless public safety answering points, including but not limited to minimum staffing requirements, minimum educational qualifications for 911 call-takers and dispatchers, and minimum training requirements for 911 call-takers and dispatchers.<sup>7</sup> It will be the Board's responsibility to update these standards as applicable to NG911 technologies.

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<sup>3</sup> Executive Law §717.

<sup>4</sup> Executive Law §709(5).

<sup>5</sup> The Director of NYS DHSES OIEC has designated the NYS DHSES OIEC Assistant Director as the State 911 Coordinator.

<sup>6</sup> County Law Article 6-A.

<sup>7</sup> County Law § 328.



### 5.1.3 Public Services Commission

The PSC maintains a regulatory and oversight role with what we now consider the legacy components of today's E911 System. Its oversight is currently limited to regulated wireline service providers, including 911 incumbent local exchange carriers (ILECS), competitive local exchange carrier (CLECS) and the selective routers that manage 911 call delivery today through tabular databases, which include the ANI, ALI, and MSAG information. Most 911 calls today originate from wireless devices through providers that are not regulated by the PSC, except after the call reaches the selective router and enters the legacy system for delivery to today's PSAPs. As we move to NG911 and the legacy E911 system is eventually transitioned out, there will not be the existing State oversight that happens today, as wireless and VoIP service providers do not currently fall under PSC jurisdiction. FCC regulation will afford federal oversight of non-legacy NG911 systems and has oversight of wireless and VoIP providers who are deemed to be Covered 911 Service Providers.<sup>8</sup> Working with the Department of Public Service (DPS), NYS DHSES OIEC will research and explore what options are available to states to ensure that any emergency request for service from a person or device gets to the appropriate PSAP and that there is accountability for quality 911 service, including immediate notification of PSAPs and the State when outages occur affecting 911 service delivery. PSC and DPS will use any tools at its disposal to ensure that service providers remain responsible for emergency request for service deliveries throughout the transition from legacy to NG911.

### 5.1.4 Grant Funding Program

Currently, NYS DHSES administers the PSAP, Statewide Interoperable Communications Grant Formula and Targeted grant programs. Distribution is based on specific factors, including verifiable and auditable information provided by the counties in their application. The Commissioner makes final determinations regarding the distribution of grants, in consultation with the SIEC Board.

Elements included in the formula:

- County population.
- Land area of the county.
- County crime index.
- PSAP call volume.

It is the intention of NYS DHSES OIEC to produce an estimated cost model(s) for NYS to migrate to NG911. Decisions will be made based on the cost model(s) and identification of both short-term and long-term funding streams. As the funding model(s) are reviewed, DHSES will be able to identify potential gaps. This will establish the budgetary requirements for procurement and sustainment of NG911 in NYS.

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<sup>8</sup> See 47 C.F.R. § 9.19 Reliability of covered 911 service providers.

## 5.2 Potential Statutory Gaps

Based on the goals stated in the plan and existing agency authorities, DHSES assesses that the following aspects of legal authorizations may need to be addressed:

- Direct or additional authorization for NYS DHSES OIEC to engage in 911 system management, including: Authority over 911 call routing within the demarcation of the ESInet.
- Ongoing support for DHSES OIEC role with the interconnection of NG911 Systems.

Additional SIEC Board's authority with respect to:

- PSAP minimum standards for all types of requests for emergency assistance (e.g., video, calls, texts, IoT)
- Revised authority to engage in targeted PSAP standards compliance.
- Updated duties to include additional aspects of NG911.

## 5.3 Communications Plan

Communications throughout this process have occurred through multiple avenues. By creating the NG911 Working Group under the 911 Advisory Committee, the SIEC Board authorized a mechanism by which good collaboration has occurred in this planning process. All counties were invited to participate in the working group, along with New York City and state agencies. Many counties have been active throughout the process, and New York City has been represented by the New York City Office of Technology and Innovation (OTI) office. Participating state agencies include DHSES, Department of Public Service (DPS), New York State Police (NYSP), and New York State Information Technology Services (ITS). The working group regularly holds conference calls and has met in person as needed. In-person meetings have also been held with specific stakeholders, when indicated to facilitate the process. The State 911 Coordinator has presented and will continue to present status updates to the SIEC Board, New York State 911 Coordinators Association and the Consortium Chair group, at their regular scheduled meetings. These ongoing forums for collaboration allow for a strong two-way dialog where comments, suggestions, and feedback are heavily solicited.

The intent of the plan is to communicate the NG911 concept and State plan throughout the stakeholder community, including to all PSAP managers throughout the State, and to receive further feedback toward the plan itself, and the project moving forward. The Communications Plan will include components to ensure that this open line of communication exists in a productive way throughout all phases of the NG911 implementation process.

## 5.4 Operational Standards and Best Practices

NYS DHSES OIEC continues to work with stakeholders developing operational standards and best practices. Additional resources are drawn from National Emergency Number Association (NENA), Association of Public-Safety Communications Officials (APCO), the Commission for

Accreditation of Law Enforcement Services (CALEA), the NYS Sheriff's Association, and the National 911 Program Office.

NYS DHSES OIEC recommends that 911 service standards be developed, maintained, and adhered to through a Quality Assurance/Quality Control (QA/QC) program. These standards will include staffing levels, Standard Operating Procedures/Guidelines (SOP/Gs), and governance (roles and responsibilities), as well as processes in coordination with public safety response agencies, data integrity, and maintenance with respect to GIS, as well as other applicable data sets.

## **5.5 State Call Delivery and Response Process Overview**

NYS DHSES OIEC will work with stakeholders regarding PSAP operations and how calls will be routed, both within NYS and out to bordering states and Canada. It is the intention of NYS DHSES OIEC to establish processing protocols and to identify roles and responsibilities when planning for the implementation of the NG911 system. This will aid in the transition path from legacy call routing to NG911 call routing. Additionally, this will assist in the development of overflow routing plans, as well as identifying reporting requirements and performance measures for the PSAPs.

## **5.6 Minimum Training Standards**

Currently, under NYS County Law Article 6A, the SIEC Board is responsible for establishing minimum training standards for 911 telecommunicators throughout the State. However, the law is limited to PSAPs that receive wireless 911 calls for service directly. Therefore PSAPs, whether primary or secondary, that only receive landline, VoIP, or other calls for emergency services, are not required to adhere to such standards.

NYS DHSES OIEC will continue to work with the SIEC Board and the 911 Advisory Committee to develop and maintain minimum training standards for the PSAPs who answer the various types of calls. Communications Training Officers, Communications supervisory staff, and administrative staff who are directly involved in 911. The Board may modify the standards to include NG911 technologies at the level necessary for each role related to NG911 administration, oversight, and authority.

NYS DHSES OIEC will continue to work with stakeholders in providing all necessary operational support to the PSAP community, to ensure a stable transition to an NG911 environment. This will include training and technical standards, governance models and tools, message crafting for stakeholder groups, and quality assurance programs focused on quality improvement.

# **6 TECHNICAL SYSTEMS**

## **6.1 Existing Technology Assessment**

As the planning process moves forward, NYS DHSES OIEC will continue to assess the existing technology and determine if any of the networks, equipment, or other assets can be leveraged

in the NG911 environment. Part of this analysis shall include the expected life span, security of the system, and economic feasibility of using it. This process will allow for a reduction in duplication of resources, take advantage of economies of scale where possible, and make for a more prudent process allowing available funding to be utilized in the most effective manner.

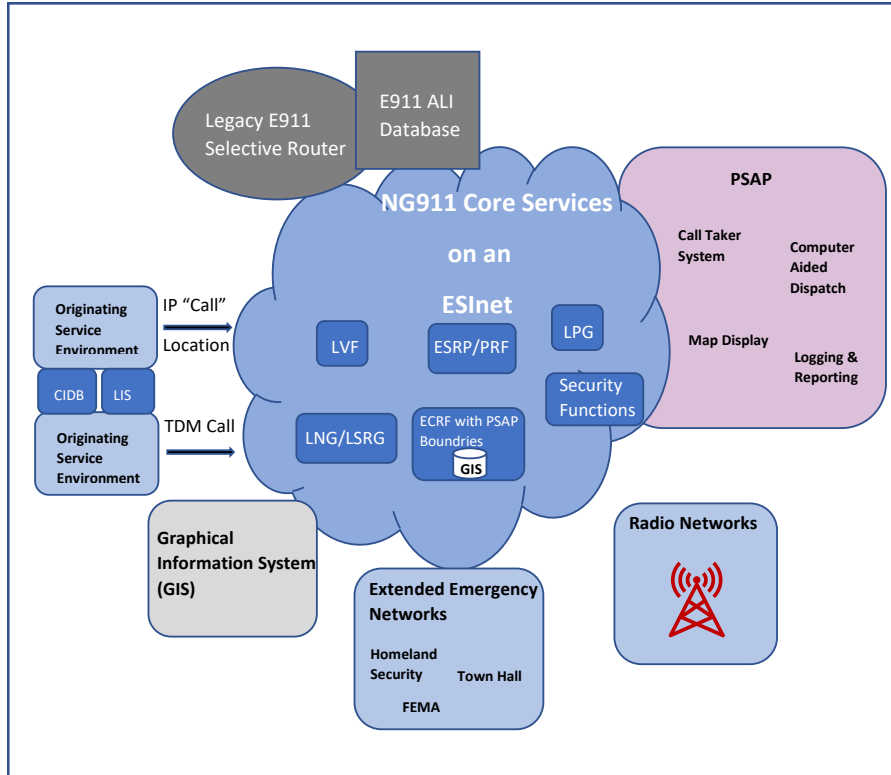


Figure 2 – Fully Deployed NG911 end state

## 6.2 NG911 Open Standards-Based and Compliant ESI-net and Next Generation Core Services (NGCS)

NYS DHSES OIEC will provide policies, guidelines, governance and management of a NG911 environment that will serve the PSAPs. The system will consist of open standards based and compliant ESI-net and NGCS. The NG911 network will have clear demarcation points with the PSAPs, approved OSPs, or other ESI-nets. Beyond these demarcations, 911 call and routing responsibility shall be with the local agencies PSAP, or OSP. Connectivity requirements will be developed to meet future established minimum technical standards as they are defined, outlined, and documented.

The performance-based specifications for a NG911 system shall include the capability of connected PSAPs to receive IP-based signaling and media for delivery of emergency calls made to 911. This capability will allow the system to provide the intended functionality. This is in addition to the ability to continue to receive calls through legacy gateway connections.

NYS DHSES OIEC recognizes that the City of New York is in the process of deploying an NG911 system, including ESI-net and NGCS. NYS DHSES OIEC recognizes the need for the

Statewide system to interface to the New York City NG911 ESInet and NGCS for the purposes of data sharing and facilitating the transfer of 911 calls to and from the City of New York, and to other PSAPs in the State or in neighboring jurisdictions, if needed.

Should any other NG911 Standards compliant regional ESInet be implemented in NYS before the Statewide NG911 System is operational, that ESInet may be taken into consideration for connection to the Statewide ESInet as part of the system architecture for call flow and routing, as well as any agreed upon redundant services.

There are 133 Primary PSAPs, 34 Secondary PSAPs and 25 ancillary PSAPs in NYS that are in consideration to be connected to the statewide NG911 ESInet and NGCS effort. In moving forward with NG911, NYS DHSES OIEC will consider how to evaluate the PSAPs for primary connectivity and migration from the legacy environment. NYS DHSES OIEC will evaluate other PSAPs that answer, and dispatch emergency calls for service, such as those located on educational campuses when applicable through the process.

Collaboration with the regional consortiums has been an immense help with developing a plan for NG911 deployment. To note, many of these consortiums already have intermunicipal agreements in place to work together on public safety matters, including 911 related matters such as failover and CAD. NYS hopes to take advantage of these agreements to move NG911 forward.

### **6.3 Call Handling Equipment (CHE)/Customer Premise Equipment (CPE)**

Most of the Customer Premise Equipment/Call Handling Equipment (CPE/CHE) at the PSAPs in NYS have been upgraded to IP-based technology over the past 10 years. This equipment, although in many cases specified as “next-generation 911 ready,” must be evaluated on an individual basis to determine its compatibility with the NG911 system.

NYS DHSES OIEC will establish a process to review and determine PSAP CPE/CHE readiness for NG911 call processing. This will include the ability to handle multimedia and texts from callers and devices, along with the ability to transfer from PSAP-to-PSAP or other designated recipients for processing.

Many of the PSAPs in NYS have individually (or on a countywide basis) implemented text-to-911 services. Many PSAPs have invested in an integrated approach by leveraging the capabilities within their NG911 CPE/CHE platforms and OSP networks to deliver text messages. Some local authorities having jurisdiction over PSAPs have proactively procured these upgrades, individually leveraged local funding or utilized the State’s PSAP Grant. Some other PSAPs are utilizing third-party software and services to deliver these messages, sometimes referred to as “over-the-top” (OTT) solutions. These solutions require the telecommunicator to manage a separate application to process text messaging.

Prior to the transition to NG911, it will be critical that implemented solutions meet the NG911 standards, including legacy systems, thus requiring backward compatibility.

NYS DHSES OIEC will establish a process to assist with the coordination and procurement at the State level to allow PSAPs to get approved equipment and solutions.

## 6.4 Computer Aided Dispatch

Computer Aided Dispatch (CAD) systems are used to capture, track, and record calls for service, in addition to providing the dispatcher with options for dispatching appropriate emergency services. CAD systems are procured at the local and agency level throughout NYS.

NYS DHSES OIEC and the NYS ITS Geospatial Services have surveyed the counties to keep an inventory of CAD system utilized by each county PSAP. The map below shows the number of different CAD providers utilized throughout the State. It should be noted that, even though two counties may use the same CAD vendor, they may be on different platforms, release levels, or have different levels of customization, which creates potential compatibility issues.

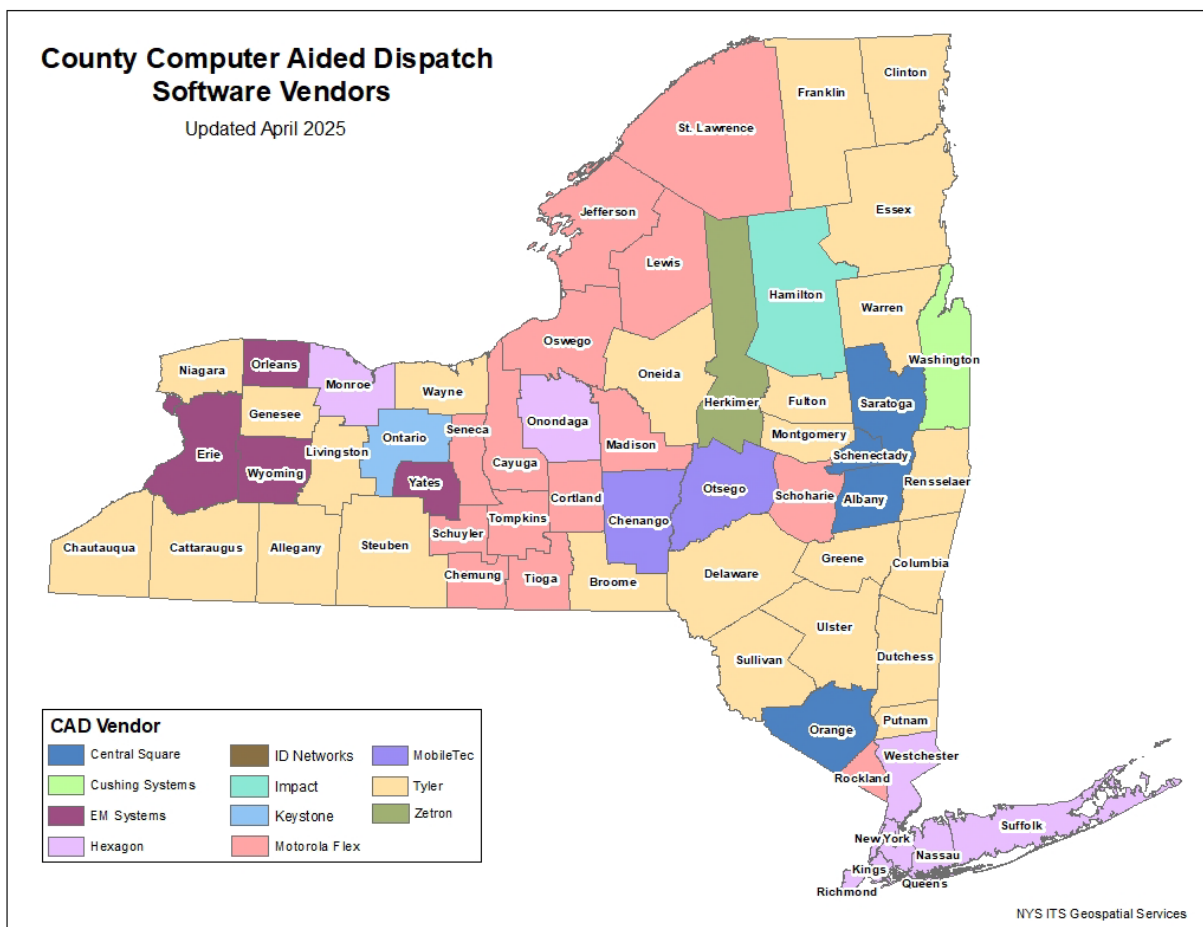


Figure 3 – NYS CAD Vendors

The NG911 environment will enable PSAPs to transfer 911 calls to other PSAPs. This will include automated transfer calls, should the primary PSAP become overwhelmed with a high call volume, or a system failure takes place. However, the actual processing of the dispatching of emergency services takes place within the CAD system environment. There is various CAD systems deployed in NYS that are incompatible and unable to transfer data. This issue is being addressed at a national level, through the efforts of NENA, APCO, and solution providers.



Currently the only solution is to procure interfaces to transfer CAD information; however, each interface design is unique to the two disparate CAD systems.

While it is recognized that CAD-to-CAD interface functionality and interoperability is not required to go live with an NG911 solution in NYS on day one, such capabilities will enable improved functionality for 911 call processing and situational awareness to emergency responders.

## **6.5 Voice/Data Logging/Recording**

Currently, all voice/data recording and logging is conducted locally under the authority having jurisdiction over the PSAP. The introduction of new forms of IP-based media into the 911 system, such as video, will most certainly result in the need for a review and update of retention requirements and media storage needs.

## **6.6 Radio Systems**

NYS DHSES OIEC is responsible for interoperability planning as it relates to land mobile radio (LMR) and other forms of communications in the public safety arena. During operational planning aspects, it is important when considering 911 call handling by adjoining or distant PSAPs to also consider the ability for that PSAP answering a call to: 1) dispatch the call, thus having access to LMR systems of the county from which the call is originating; or 2) be able to send the call receipt CAD information back to the original PSAP to dispatch. It is important to create a plan for the dispatch handling of a 911 call that has been routed to another PSAP. This can include mechanisms such as radio system interconnectivity or non-radio dispatch technologies such as app-based dispatch.

NYS DHSES OIEC in collaboration with the consortiums may consider examining these issues and provide subject matter experts to address the required planning.

## **6.7 Citizen Notification Systems**

Citizen alerting in NYS is a function of the authority having jurisdiction and is carried out by villages, towns, cities, counties and State government, along with federally originated alerts (National Weather Service, FEMA).

A Citizen Alerting Committee under the SIEC Board is a vehicle to interface with many aspects of the emergency alerting process in NYS and can be an asset in this analysis.

While alerts and warnings are not specifically a 911 capability, they do have an impact on the 911 system. It is recommended that the PSAP be involved in the decision to issue a public alert, as it may result in calls via 911. Additionally, as alerts can cause activations beyond the area of a single PSAP, neighboring PSAPs should also be advised of the decision to transmit a public alert.



## **6.8 Mobile Broadband Networks**

Most PSAPs in New York rely on the capabilities of broadband for their current operations. Mobile broadband networks can interface with NG911 systems within the PSAP in several ways. For example, on the incoming side, mobile broadband can bring in mixed multimedia from the caller (or public safety responder) to the PSAP. On the outgoing side, mobile broadband can be used to push content from the PSAP to the field responder, either content from a reporting party or from public safety databases. The ESInet and NGCS design will include flexibility for multiple types of outside connectivity. All mobile broadband networks will be treated as an outside IP network for security and demarcation purposes.

## **6.9 Clock Synchronization/System Clocks**

NYS requires all wireless PSAPs to use some type of clock synchronization/system clocks system. This is crucial in providing accurate times, including hour, minute, and seconds, for call processing times, dispatch times, transfer times between PSAPs, and much more. Upon further evaluation, NYS will work with the appropriate key stakeholders to ascertain what device(s) will provide clock synchronization, in addition to where within the NG911 environment is most appropriate for these devices to reside.

## **6.10 Security**

Security is paramount in any IP system, especially in an emergency call handling system. Providing the proper controls and safeguards to protect the confidentiality, integrity, and availability of information throughout the entire security life cycle (Identify, Protect, Detect, Respond, and Recover) will be part of the core fabric of NG911 in NYS. The State will follow industry best practices and guidelines from NENA, NIST, SANS, and others to protect this mission critical environment from both a physical and logical perspective.

# **7 DATA DEVELOPMENT, MAINTENANCE AND SUPPORT**

Technical system support for ongoing data development, maintenance, and support will be paramount in ensuring that the NG911 system functions as architected. NYS DHSES OIEC will partner with the appropriate key stakeholders to facilitate the development of data standards. It will be important for stakeholders involved in NG911 to understand their role in handling, maintaining, and supporting the data that traverses their system. Workflows, data structures, and security protections must be put in place to ensure that data integrity is maintained throughout the NG911 system. When crossing other ESInets, either another State or a regional ESInet, it will be important to agree upon aggregation and validation of this data to achieve proper data exchange. The NG911 technical architecture will be designed by following industry best practices associated to redundancy and security.

## 7.1 Geographic Information System (GIS)

Geographic Information Systems (GIS) are fundamentally important in a fully realized NG911 system. GIS refers to both the set of specialized data management software and to the spatial data that is created and managed by that software. GIS is already integrated into our current 911 systems and are maintained in a variety of formats to support local 911 systems including PSAP and response agency mapping applications. Data layers typically used to support E911 include, but are not limited to, road centerlines, site/structure address points, emergency service zone boundaries with reference layers (if applicable) containing cell site locations and sectors, hydrology, railroads, mile markers, communities (incorporated, unincorporated, MSAG). E911 uses tabular, non-spatial MSAG to validate civic addresses for wireline service and an ALI database to store the validated civic addresses. The location of the caller for E911 is delivered to the PSAP through a civic address (such as from a wireline device) and/or geographic coordinates (such as from a wireless device), depending on the call delivery mechanism.

In NYS, some of the GIS data needed for geospatial call routing already exists and is being used for 911, CAD, and other purposes. Workflow is in place between some counties and the NYS ITS Geospatial Services to maintain road centerline and site/structure address point data layers. However, because this process is voluntary, participation and frequency necessary to maintain GIS data for geospatial 911 call routing will require Statewide adherence and participation.

GIS data to support NG911 systems may be maintained in the NENA NG911 GIS Data Model or locally in a multi-use format that supports multiple GIS data uses. When maintained in a local format, the data will need to be extracted, translated, and loaded (ETL) into the NENA NG911 GIS Data Model to support NG911 components for call routing and location validation, as well as other data systems, including PSAP and response agency mapping applications. Data layers that are required for NG911 are, road centerline layer, site structure address point layer, service boundary layers (to include PSAP polygon, Police polygon, Fire polygon, EMS polygon) and the Provisioning Polygon layer. Additional data layers are either strongly recommended or recommended. The full list of data layers, and descriptions of each, can be found in the NENA NG911 GIS Data Model. Statewide commitment at both the county and State level to support the development and maintenance of NG911 geospatial datasets is crucial to the success of New York's NG911 system.

For an NG911 implementation to support its spatial functions, it requires the data layers listed in the following table. As NG911 requires accurate response coordination and call handling, both Statewide and nationwide, these layers should be edge-matched to neighboring jurisdictions.

Table 2 – Data Layers

GIS Data Layer	GIS Data Type	Why Necessary?
RoadCenterLine	Polyline	Allows dispatch to approximate addressing, if addresses are not included in the address point data
SiteStructureAddress Point	Point	Allows for more accurate dispatch to an exact spatial coordinate reference location
PSAPPolygon	Polygon	For coordination of response
PolicePolygon	Polygon	For coordination of response
FirePolygon	Polygon	For coordination of response
EMSPolygon	Polygon	For coordination of response
ProvisioningPolygon	Polygon	Identifies geographic extents off data provisioning entities (counties, states, etc.)

NYS DHSES OIEC will work with the NYS ITS Geospatial Services and the GIS Working Group to establish a standards-based GIS database that maintains the appropriate point file, line, and polygon layers necessary for public safety-grade call routing. Establishing a baseline for GIS data accuracy and detailing an ongoing maintenance process will sustain a level of accuracy for call routing and other core service systems in an NG911 architecture. It will be imperative to not only continue this work into future years but also to establish an ongoing process for maintaining the accuracy and currency of the data.

## 7.2 Call Routing and Delivery

Call routing and delivery are key elements within an NG911 system architecture. The key components that comprise call routing functions within an NG911 system include:

- Selective Emergency Service Number (ESN) routing.
- IP-selective ESN routing.
- Geospatial routing (using best available location).
- ALI database management system (DBMS).
- Location Information Server (LIS).

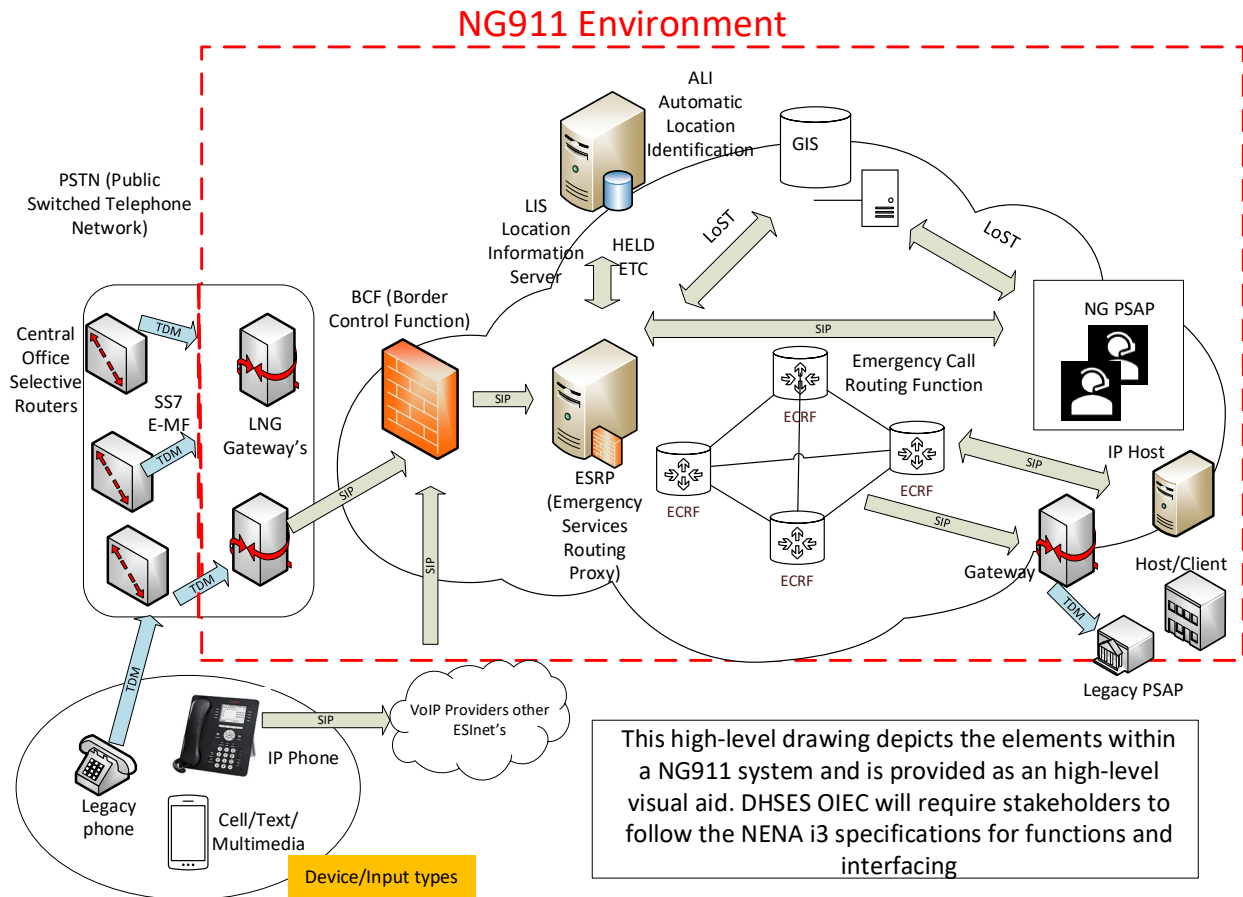


Figure 4 □ NG911 Call Routing

NYS DHSES OIEC will ensure that the appropriate NG911 call routing elements are defined and specified with the appropriate level of redundancy/resiliency to best ensure continuity of operations.

## 8 ANALYSIS AND PLANNING

### 8.1 911 Data Analytics

Annually, NYS DHSES OIEC collects data from each county for all PSAPs that exist in their respective county in terms of call volumes (separated by type of service, i.e., landline, wireless, VoIP), staffing, call taker and dispatch positions, budget, CAD and CPE/CHE vendor, and other analytics identified to help NYS DHSES OIEC determine the ecosystem and status of 911 statewide. This data is also compiled to reply to the FCC's Annual Collection of Data, as well as for reporting to the National 911 Program.

NYS DHSES OIEC analyzes this data, along with its programmatic objectives and goals, to determine any amendments or additions to the inquiry for that year. Between annual data collection cycles, should a programmatic need occur that requires additional data from the PSAPs, a survey can be developed and distributed to collect the data necessary.

## **8.2 Disaster Recovery and Continuity of Operations Plan**

Continuity of operations (COOP) and Disaster Recovery (DR) are strategic business imperatives that will need to be woven into the fabric of the NG911 architecture. Regardless of the entity providing the NG911 platform/services (Cloud, On-Premises, Hybrid), COOP and DR planning will be essential components. New York State will work with the appropriate stakeholders and working groups to ensure that industry best practices, such as NENA, NIST, and FEMA are leveraged to enable the high-quality services that NY residents and visitors will require. Regardless of the platform for NG911 delivery, the responsible parties must follow industry best practices for COOP and Business Continuity/Disaster Recovery (BCDR). This includes ongoing exercises and audits to ensure that the system is performing as specified.

### **8.2.1 ESInet and Core Services**

NYS DHSES OIEC will develop a plan, working with stakeholders, including PSAPs, vendors, and OSPs, to identify potential hazards and determine disaster recovery plans for potential interruptions or failures that may occur to these systems, along with reporting requirements and notification escalation lists for outages that do, or could potentially, affect 911 services.

### **8.2.2 PSAPs**

The PSAP Minimum Standards for wireless PSAPs require that a PSAP shall maintain a written continuity of operations plan for the PSAP that provides policy, guidance, and procedures for maintaining mission critical call-taking and dispatch operations, ensures the safety of personnel, protects equipment and facilities during natural and man-made disasters or PSAP system failures, and addresses the evacuation of the original PSAP and transfer of operations to the backup site.

Guidance is available to PSAPs from the Federal National Emergency Communications Plan and the FEMA Continuity Plan Template and Instructions for Non-Federal Governments. Also, NENA offers several courses to assist PSAPs in disaster planning, including COOP plans for PSAPs, Disaster Planning for PSAPs, and Advanced Disaster Planning for PSAPs

## APPENDIX 1: 911 TERMS & DEFINITIONS

TERM	DEFINITION
<b>911</b>	A three-digit telephone number to facilitate the reporting of an emergency requiring a response by a public safety agency.
<b>911 authority</b>	A state, county, regional, or other governmental entity responsible for 911 service operations.
<b>911 service area</b>	The geographic area that has been granted authority by a state or local governmental body to provide 911 services.
<b>911 system</b>	Is the set of network(s), software applications, databases, components and operations and management procedures required to provide 911 service. This may include commercial, governmental, and human resources.
<b>Additional data</b>	Information that further describes the nature of how a call was placed, the person(s) associated with the device placing the call, or the location from which the call was placed. There are three types of additional data: 1) additional data for the call; 2) additional data for the caller; and 3) additional data for the location.
<b>Agency</b>	Is an entity with a valid public safety purpose under a single discrete recognized administration. In 911 and public safety operations, an Agency is a governmental entity, or non-governmental entity under the direction of a governmental entity, responsible for all or some part of 911 system provisioning, call processing, and field response. In NG911, a governmental Agency is recognized through validating and enabling statute, ordinance, municipal incorporation, joint powers agreement, or similar. A private entity is recognized through validating articles of incorporation, business registration or similar. A validated Agency will have a unique Agency identifier and will be issued an Agency Certificate. The Agency Certificate can validate Agents that are members of that Agency. The Agency provisioned in the NG911 environment that holds an Agency Certificate may not necessarily be the same Agency recognized in 911 and public safety operations, depending on how the NG911 system is designed and configured.
<b>Automatic location Identification (ALI)</b>	The automatic display at the PSAP of the caller's telephone number, the address/location of the telephone used, and supplementary emergency services information of the location from which a call originates.
<b>Automatic number identification (ANI)</b>	Is the telephone number associated with the call origination, originally associated with the access line of the caller.
<b>Call-taker</b>	A telecommunicator who answers emergency voice, text and multi-media calls from the public and performs other critical duties that include, but are not limited to: determining accurate locations for emergency responders, assigning incident type codes for dispatch (e.g., accident, assault, fire, domestic violence, burglary), directing callers with critical life-saving pre-arrival instructions in support of field responders (CPR, Childbirth, etc.), gathering all necessary scene safety information for use by dispatchers to ensure safety for field responders.

TERM	DEFINITION
<b>Call handling</b>	Functional element concerned with the details of the management of calls. It handles all communication from the caller. It includes the interfaces, devices, and applications utilized by agents to handle the call.
<b>Call routing</b>	The function of delivering the 911 call to the appropriate PSAP.
<b>Carrier</b>	In the context of 911 database vernacular, is a business entity that provides a communications service to a customer base, typically for a fee. Examples of carriers and associated services are public switched telephone network (PSTN) service by a local exchange carrier, VoIP service by a VoIP provider, and email service provided by an internet service provider.
<b>Commercial mobile radio service (CMRS)</b>	An FCC designation for any carrier or licensee whose wireless network is connected to the PTSN, for practical purposes, this is the same as a “cellular network”.
<b>Computer-aided dispatch (CAD)</b>	A computer-based system which aids PSAP telecommunicators by automating selected dispatching and record-keeping activities.
<b>Continuity of operations (COOP)</b>	Is a plan to ensure that Primary Mission Essential Functions continue to be performed during a wide range of emergencies, including localized acts of nature, accidents, and technological or attack-related emergencies.
<b>Customer premises equipment (CPE)</b>	Communications or terminal equipment located in the customer’s facilities; terminal equipment at a PSAP.
<b>Database</b>	An organized collection of information, typically stored in computer systems, comprised of fields, records (data), and indexes. In 911, such databases include Master Street Address Guide (MSAG), telephone number/emergency service number (ESN), and telephone customer records.
<b>Data exchange</b>	The process of exchanging 911 data between service providers and the database management system provider.
<b>Dispatch system</b>	The functional element used to assign appropriate resources (emergency responders) to an incident, monitor the response, and relay relevant information. It tracks and logs all transactions associated with the emergency response.
<b>Enhanced 911 (E911)</b>	A telephone system that includes network switching, database(s) and PSAP-premise elements capable of providing ALI data, selective routing, selective transfer, fixed transfer, and a call-back number.
<b>Emergency medical services</b>	A service ranging from out-of-hospital acute care and transport to definitive care, to patients with illnesses and injuries that the patient believes constitute a medical emergency.
<b>Emergency services IP network (ESInet)</b>	A managed IP network that is used for emergency services communications, and which can be shared by all public safety agencies. It provides the IP transport infrastructure upon which independent application platforms and core services can be deployed, including but not restricted to those necessary for providing NG911 services. ESInets may be constructed from a mix of dedicated and shared facilities. ESInets may be interconnected at local, regional, state, federal, national, and international levels to form an IP-based inter-network (network of networks). The term ESInet designates the network, not the services that ride on the network.



TERM	DEFINITION
<b>First Responder Network Authority (FirstNet)</b>	Is a nationwide wireless broadband network for first responders built and developed through a first of its kind public-safety partnership between the federal government and AT&T. FirstNet offers public safety a communications network built and customized to meet their needs. The First Responder Network Authority is a federal entity charged with overseeing the creation and delivery of the FirstNet network. Housed within the Department of Commerce, National Telecommunications and Information Administration, the agency's role is to ensure AT&T delivers on the terms of its contract and creates a network that meets the needs of public safety now and into the future.
<b>Geographic information systems (GIS)</b>	A system for capturing, storing, displaying, analyzing, and managing data and associated attributes that are spatially referenced. Related terms, GIS Attribute, GIS Data Layer, GIS Data Provider, GIS Feature.
<b>i3 solution</b>	Refers to the NG911 system architecture defined by the National Emergency Number Association (NENA), which standardizes the structure and design of Functional Elements making up the set of software services, databases, network elements and interfaces needed to process multi-media emergency calls and data for NG911.
<b>Interoperability</b>	Is the capability for disparate systems to communicate with one another.
<b>Landline</b>	Colloquial term for Public Switched Telephone Network (PSTN) access via an actual copper or fiber-optic transmission line that travels underground or on telephone poles. Used to differentiate the “wireless” connectivity of a cellular or personal communications system.
<b>Legacy network gateway (LNG)</b>	An NG911 functional element that provides an interface between a non-IP originating network and a Next Generation Core Services (NGCS)-enabled network.
<b>Legacy PSAP gateway (LPG)</b>	A signaling and media interconnection point between an ESInet and a legacy PSAP. It plays a role in the delivery of emergency calls that traverse an i3 ESInet to get to a legacy PSAP, as well as in the transfer and alternate-routing of emergency calls between legacy PSAPs and NG911 PSAPs. The LPG supports an IP (i.e., SIP) interface toward the ESInet on one side, and a traditional multifunction (MF) or enhanced MF interface (comparable to the interface between a traditional selective router and a legacy PSAP) on the other.
<b>Local exchange carrier</b>	A telecommunications carrier under the state/local public utilities act that provides local exchange telecommunications services. Also known as incumbent local exchange carriers, alternate local exchange carriers, competitive local exchange carriers, competitive access providers, certified local exchange carriers, and local service providers.
<b>Location information server (LIS)</b>	A functional element in an IP-capable originating network that provides locations of endpoints (i.e., calling devices). A LIS can provide location by-reference, or location-by-value, and, if the latter, in geographic or civic forms. A LIS can be queried by an endpoint for its own location or by another entity for the location of an endpoint. In either case, the LIS receives a unique identifier that represents the endpoint (e.g., an IP address, circuit identification, or media access control [MAC] address) and returns the location (value or reference) associated with that identifier. The LIS is also the entity that provides the dereferencing service, exchanging a location reference for a location value.

TERM	DEFINITION
<b>Master Street Address Guide (MSAG)</b>	A database of street names and house number ranges within their associated communities defining emergency service zones (ESZs) and their associated emergency service numbers (ESNs) to enable proper routing of 911 calls. Related terms, MSAG Address, MSAG Baseline, MSAG Consumer, MSAG Coordinator/MSAG Administrator, MSAG Delta, MSAG Discrepancy, MSAG Error, MSAG Local Operational, MSAG Operator, MSAG Source, MSAG Standard.
<b>Memorandum of understanding (MOU)</b>	Is a document written between parties to cooperatively work together on an agreed-upon project or meet an agreed-up objective. Also known as, Cooperative Agreement, Memorandum of Agreement (MOA).
<b>National Incident Management System (NIMS)</b>	Guides all levels of government, nongovernmental organizations (NGO), and private sector to work together to prevent, protect against, mitigate, respond to, and recover from incidents. NIMS provides stakeholders across the whole community with the shared vocabulary, systems, and processes to successfully deliver the capabilities described in the National Preparedness System.
<b>Next Generation 911 (NG911) services</b>	<p>An IP-based system comprised of hardware, software, data, and operational policies and procedures that:</p> <ul style="list-style-type: none"> <li>• Provides standardized interfaces from emergency call and message services to support emergency communications.</li> <li>• Processes all types of emergency calls, including voice, text, data, and multimedia information.</li> <li>• Acquires and integrates additional emergency call data useful to call routing and handling.</li> </ul> <p>Delivers the emergency calls, messages, and data to the appropriate public safety answering point (PSAP) and other appropriate emergency entities</p> <ul style="list-style-type: none"> <li>• Supports data, video, and other communications needs for coordinated incident response and management.</li> </ul>
<b>Prepaid wireless telephone service</b>	Telephone service authorized by the purchase of CMRS, either exclusively or in conjunction with other services. This service must be paid for in advance and is sold in units or dollars whose number or dollar value declines with use and is known on a continual basis.
<b>Private 911 emergency answering point</b>	An answering point operated by non-public safety entities with functional alternative and adequate means of signaling and directing response to emergencies. Includes training to individuals intercepting calls for assistance that aligns with applicable local emergency telecommunications requirements. Private 911 emergency answering points are an adjunct to public safety response and, as such, must provide incident reporting to the public safety emergency response centers per local requirements.
<b>Public safety agency</b>	Is a functional division of a public agency, county, or the state that provides firefighting, law enforcement, ambulance, medical or other emergency services. Public safety agencies include any federal, state or political subdivision entity that provides emergency and public safety services, including state agencies employing peace officers, fire management services, correctional services, homeland security, emergency and disaster relief services, and law enforcement agencies.

TERM	DEFINITION
<b>Public safety answering point (PSAP)</b>	<p>Is a physical or virtual entity where 911 calls are delivered by the 911 Service Provider. <b>Primary PSAP:</b> A PSAP to which 911 calls are routed directly from the 911 control office.</p> <p><b>Secondary PSAP:</b> A PSAP to which 911 calls are transferred from a primary PSAP.</p> <p><b>Alternate PSAP:</b> A PSAP designated to receive calls when the primary PSAP is unable to do so.</p> <p><b>Consolidated PSAP:</b> A facility where multiple public safety agencies choose to operate as a single 911 entity.</p> <p><b>Legacy PSAP:</b> A PSAP that cannot process calls received via i3-defined call interfaces (IP-based calls) and still requires the use of Centralized Automatic Message Accounting (CAMA) or Integrated Services Digital Network (ISDN) trunk technology for delivery of 911 emergency calls.</p> <p><b>Serving PSAP:</b> The PSAP to which a call normally would be routed.</p> <p><b>NG911 PSAP:</b> This term is used to denote a PSAP capable of processing calls and accessing data services as defined in NENA's i3 specification, <a href="#">NENA-STA-010</a>, and referred to therein as an "i3 PSAP."</p> <p>Virtual PSAP: An operational model directly enabled through NG911 features and/or network hosted PSAP equipment in which telecommunicators are geographically dispersed, rather than working from the same physical location. Remote access to the PSAP applications by the dispersed telecommunicators requires the appropriate network connections, security, and workstation equipment at the remote location. The virtual workplace may be a logical combination of physical PSAPs, or an alternate work environment such as a satellite facility, or any combination of the above. Workers are connected and interoperate via IP connectivity.</p>
<b>Service provider</b>	<p>An entity providing one or more of the following 911 elements: 911 SSP (911 System Service Provider, Covered 911 Service Providers, CSP (Communications Service Provider, ISP (Internet Service Provider), Legacy 911 System Service Provider, LSP (Local Service Provider), NSP (Network Service Provider), OSP (Originating Service Provider), PSP (Provisioning Service Provider), Third Party Emergency Medical Dispatch Service Provider, TSP (Telecommunications Service Provider), TSP (Telematics Service Provider), VSP (VoIP Service Provider), WSP (Wireless Service Provider). For full description of each, reference: <a href="https://kb.nena.org/wiki/Service_Provider">https://kb.nena.org/wiki/Service_Provider</a></p>
<b>Telecommunication</b>	<p>The transmission between and among points specified by the user (or information of the user's choosing) without change in the form of content of the information sent and received, regardless of the facilities, equipment, or technology used.</p>
<b>Telecommunicator</b>	<p>Is an emergency response coordination professional trained to receive, assess, and prioritize emergency requests for assistance, including, but not limited to, determining the location of the emergency being reported, determining the appropriate law enforcement, fire, emergency medical, or combination of those emergency services to respond to the emergency, coordinating the implementation of that emergency response to the location of the emergency, processing requests for assistance from emergency responders. Related terms, Call-taker, and Dispatcher.</p>
<b>Voice over Internet Protocol (VoIP)</b>	<p>Technology that permits delivery of voice calls and other real-time multimedia sessions over IP networks.</p>

TERM	DEFINITION
<b>Wireless E911 Phase 1</b>	Through FCC regulation, the delivery of a wireless 911 call with callback number and identification of the cell tower from which the call originated. Call routing is usually determined by cell sector.
<b>Wireless E911 Phase 2</b>	Through FCC regulation, the delivery of a wireless 911 call with Phase I requirements plus location of the caller within 125 meters 67% of the time and Selective Routing based upon those coordinates.