



Spatial Interface

ESInet

Z-Axis

NG9-1-1

ECRF

MSAG

PSAP

ESN

GIS

ALI

CAD

Third in a Series of Four Reports
**Geographic Information
Systems Technologies
Partner Agencies and
Organizations**

March 2023

About the National 911 Program

The National Highway Traffic Safety Administration (NHTSA) National 911 Program (Program), in the Office of Emergency Medical Services (OEMS) at the United States (U.S.) Department of Transportation (DOT), provides leadership and coordination of federal efforts that support 911 across the nation. A seamless interoperable 911 system-of-systems across the U.S. advances NHTSA’s mission to eliminate fatalities, illness, and injuries from motor vehicle crashes and improve post-crash care.

The Program works with many stakeholders—including federal, state, local, tribal, and territorial (FSLTT) governments, technology vendors, public safety officials, and 911 professionals—toward a goal of advancing 911 that takes advantage of existing and emerging communications technologies, improving response times and information available to first responders prior to and during a 911 incident.

About this Document

Prepared: March 2023

Version #: 1

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Executive Summary

The emergency communications ecosystem drastically expands with the migration to Next Generation 911 (NG911)—far beyond the traditional 911 agency—into multiple agencies within federal, state, local, tribal, and territorial (FSLTT) and regional governments and the private sector. To overcome the complexities that occur with such a migration, 911 agencies must seek out and build strategic relationships.

Although geographic information system (GIS) programs have become commonplace in most jurisdictions, GIS capabilities are far from universal and less common in 911 than planning, utilities, or property tax agencies. Further, since the development and maintenance of GIS data for NG911 demand more exact standards and a working knowledge of the emergency communications ecosystem, the GIS staff in other agencies generally are not as effective at supporting the GIS data needs of NG911.

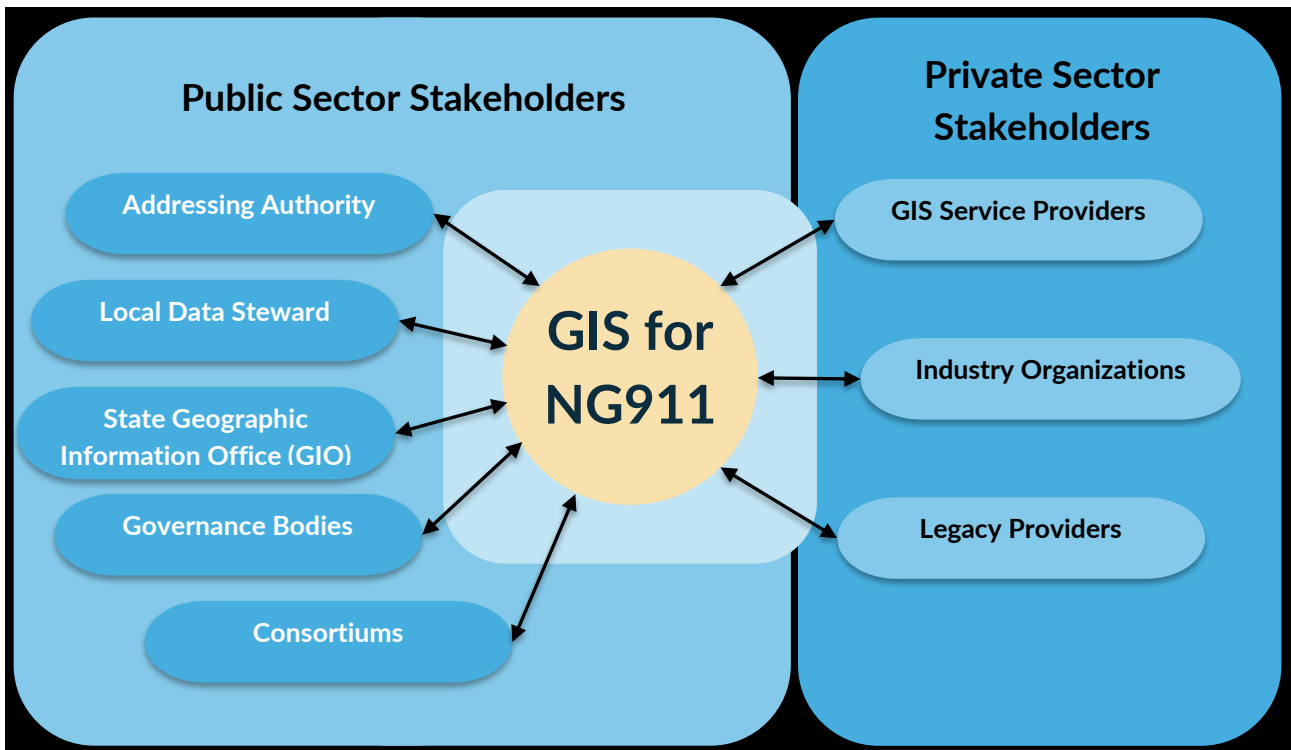
Supporting 911 and maintaining GIS data for NG911 requires a very focused skillset within a profession comprised of niche specialties. GIS concentrations are not easily traversed without advanced training and expert assistance.

The same GIS road centerline and address point data can support 911 and other government operational needs but likely will require additional attribution or improvement in accuracy and quality. In addition to the unique skillsets required of GIS professionals to support NG911, the development and maintenance of GIS data to NG911 standards is out of financial reach for many jurisdictions.

If local and state GIS programs overcome staffing shortages and financial roadblocks to developing GIS data for NG911, they still are tasked with interstate GIS data coordination; supporting the unique tribal, federal, and military populations; and educating a very broad stakeholder community beyond the emergency communications ecosystem. Education and outreach are key to successfully serving these groups. This report identifies the most common gaps in creating and maintaining GIS data to NG911 standards and offers strategic partnership ideas with organizations that offer solutions to overcome these gaps.

1 Introduction

The National 911 Program (Program), within the National Highway Traffic Safety Administration (NHTSA) at the United States (U.S.) Department of Transportation (USDOT), is sponsoring an evaluation and documentation of the current status of geographic information systems (GIS) necessary to support improving emergency response and mitigation outcomes for traffic safety and all types of emergencies through the implementation of Next Generation 911 (NG911). This effort includes a thorough review of the GIS industry and the broader stakeholder community that collectively make possible the integration of geospatial technology with 911 call delivery. GIS plays a key role in the delivery of 911 calls to the appropriate 911 emergency communications center (ECC)—also known as a public safety answering point (PSAP)—in today’s wireless environment as well as the challenges facing these centers in creating and maintaining the required GIS datasets.



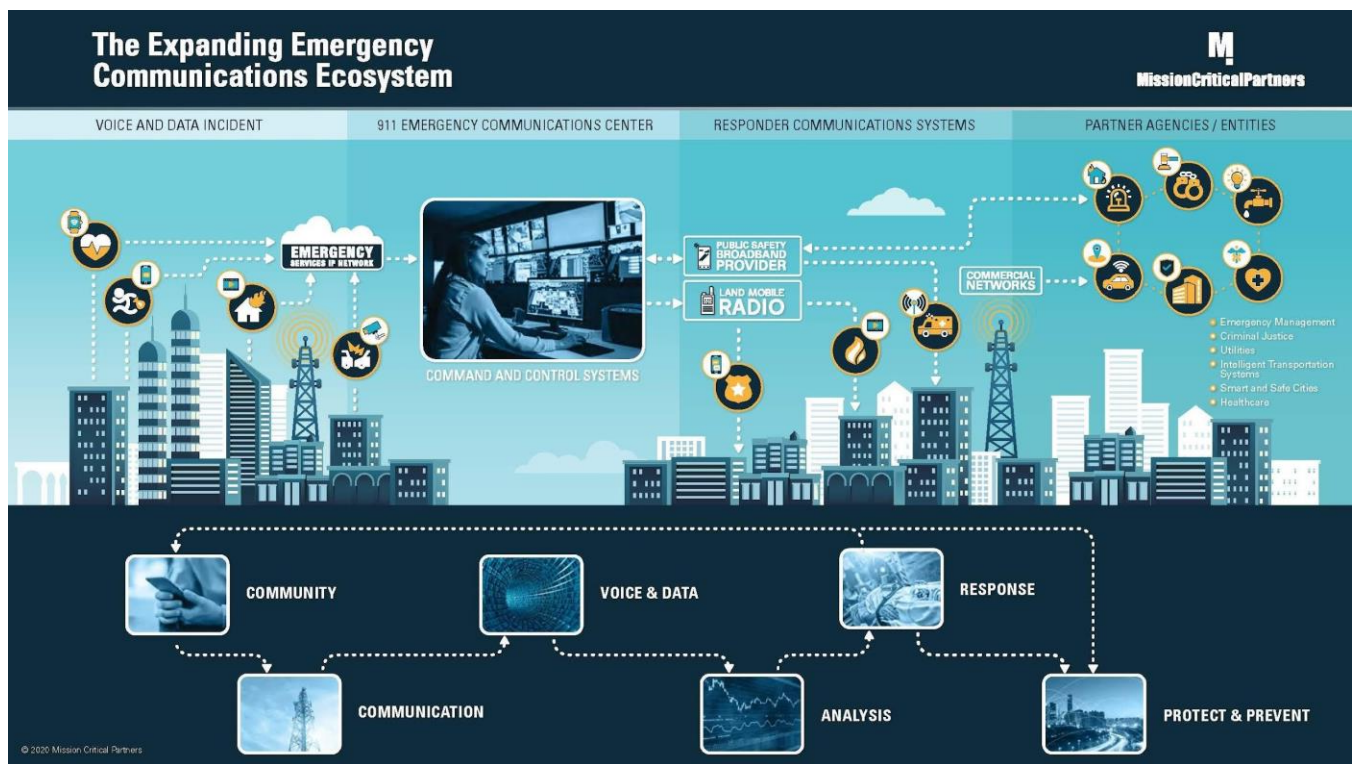
The GIS stakeholder community involved with NG911 can be far reaching depending on the jurisdiction—from local to regional government GIS groups to governance bodies and industry organizations to legacy 911 data service providers as well as GIS services providers helping jurisdictions without the GIS programs necessary to support the geospatial needs of NG911.

The Program gathered a representative group of stakeholders with intimate knowledge of the GIS requirements within NG911 operations. The Program conducted facilitated discussions around three topics: the current status of 911 GIS technologies, the current status of required entities to support the

GIS requirements of the NG911 migration, and strategic partnerships key to the success of local and state level GIS data development and maintenance to support NG911.

This report focuses on the broader public safety communications ecosystem, which includes agencies and organizations beyond the 911 industry—those identified by black text in the previous graphic. The challenges that most PSAPs face, especially rural PSAPs, in creating and maintaining the required geospatial components necessary for an NG911 system include funding, staff resources, GIS data resources, tribal partners, and proper education and outreach. Partnerships with both parallel and tertiary agencies and organizations to 911 are necessary to maintain success in the operation of the NG911 system.

The graphic below illustrates this expanding ecosystem.



2 Background

Implementing NG911 in the public safety communications ecosystem necessitates the integration of multiple complex systems with 911, such as radio and broadband communications systems and geospatial analytics. These systems and the data contained within may be managed by agencies external to 911. The development and maintenance of the systems and data are supported by federal, state, local, tribal, and territorial (FSLTT) and regional governments and regional agencies and are interconnected via government and commercial wide-area networks. These systems are governed by multiple industry and standards bodies working in tandem to implement a complete solution ahead of the impending sunset of legacy technology—hard and soft—in the very near future.

This report seeks to identify the partner agencies and organizations necessary to implement and maintain the requisite geospatial components of the NG911 system.

Although GIS data and analytics are one part of the NG911 solution, geospatial technology is found throughout the public safety communications ecosystem and is supported by a wide array of stakeholders. NG911 requires seven foundational GIS datasets within the Next Generation Core Services (NGCS) and a higher level of attribution and positional and topological accuracy for NG911 operations (defined in *NENA Standard for NG9-1-1 GIS Data Model*).

3 Methodology

The Program worked with the stakeholders from the facilitated sessions to identify the partnerships GIS authorities should seek when planning and executing the NG911 migration. The project team also consulted the FSLTT, regional, and commercial stakeholders from the focus groups for additional insight to ensure this report encompassed the broadest understanding of partnerships essential to the success of GIS supporting NG911.

The stakeholders were strategically selected from organizations and entities to ensure inclusion from the broader GIS industry. The stakeholders were required to have 911 or emergency services and GIS experience, and represent at least one industry professional or governance group.

This is not an exhaustive list, and not all partnerships apply to every jurisdiction. The Program continues to solicit feedback on successful partnerships and roadblocks to NG911 implementation through the 911.gov website, Contact Us tab.

4 Findings and Best Practices

As part of the effort to understand the benefits of and challenges to fostering GIS interoperability throughout the development, maintenance, and sharing of GIS data for NG911 across the public safety communications ecosystem, the Program sought to identify the partnerships recommended or necessary for achieving success in implementing GIS for NG911—this effort further matures the concept of assembling the right team to achieve it.

Building, maintaining, and operationalizing GIS data for NG911 only is effective when done collaboratively. The project team identified five primary challenges to success:



The vision for compiling a successful NG911 GIS team was identified in the first in a series of four reports, *Current Status of 911 Geographic Information Systems Technologies*¹ report. In addition to this

¹ [GIS Assessment Project | 911.gov](https://www.911.gov/gis-assessment-project)

NG911 GIS team, many 911 authorities will need to seek additional assistance with the building and maintaining of GIS data for NG911.

This report does not contain an exhaustive list of resources to overcome the challenges to successfully implementing GIS in support of NG911 operations, and not all resources are applicable to all jurisdictions. The Program continues to solicit feedback on successful partnerships and roadblocks to NG911 implementation through the 911.gov website, [Contact Us](#) tab.²

4.1 Tribal Nation Participation

The Program recognizes the sovereignty of Indigenous Nations across North America and is committed to partnering with tribal entities to assist with building partnerships between tribal and state 911 programs to facilitate connectivity to an Emergency Services Internet Protocol (IP) network (ESInet) and validation and sharing of GIS data in the interest of public safety. The deployment of NG911, much like existing 911 systems, is occurring at the local, regional, and state levels of government. Federal ESInet connections for military installations and government campuses are not designed to serve populations not wholly within the confines of each.

The GIS data necessary to support the migration to and ongoing operation of NG911 must meet national standards. Tribal nations can partner with a single state or multiple states or implement their own ESInet(s) to upgrade 911 service into the NG911 environment. The GIS data requirements for NG911 remain the same across any of these solutions. The necessity of collaboration with neighboring states also remains the same—the GIS data must be seamless, free of overlaps and gaps in coverage, duplication of attributes, and topological errors. The Program will assist jurisdictions seeking partnerships with neighboring Indigenous Nations in the interest of GIS data validation and error resolution. Likewise, local and state efforts to incorporate tribal GIS data for NG911 can seek assistance from the Program in making contact and facilitating agreements with tribal GIS professionals.

4.2 GIS Data Availability

GIS data is both complex and expensive to create and maintain. GIS professionals developing and maintaining GIS data should seek existing GIS data stewards and work to incorporate NG911 attributes into existing GIS data where possible. Potential GIS data exists beyond commercial mapping, global positioning system (GPS) navigation, and GIS data sources in many untapped resources such as utility billing, or property tax records (address points) and pavement management systems (road centerlines).

The most current and accurate data is available locally, but nationwide GIS data also exists and can be used as a starting point for building local, high-quality GIS data. The table below lists several free GIS data sources.

² nhtsa.national911@dot.gov

Table 1: GIS Data Sources

Source Name	Data Type	Link
Esri Open Data Hub	Road Centerlines Named Places Points Various Boundaries	https://hub.arcgis.com/search
OpenStreetMap	Address Points Buildings Public Places Road Centerlines Trails / Paths Various Boundaries	https://www.openstreetmap.org
National Address Database (NAD): USDOT	Address Points	https://www.transportation.gov/gis/national-address-database
The National Map	Road Centerlines Named Places Points Various Boundaries	https://apps.nationalmap.gov/downloader/
USGS ³ Earth Explorer	Aerial Imagery Satellite Imagery	https://earthexplorer.usgs.gov/

By sharing local and statewide GIS with the providers listed above, data stewards also ensure that their GIS data is available for other applications beyond their jurisdictional boundaries and greatly increases the return on investment of creating and maintaining these data. The national datasets are preferred by a majority of the mapping service providers such as Bing, Google, and others because the GIS data normalization that occurs at the national level is beneficial to the consistency of GIS data. Further, nationwide GIS datasets are required for the integration of NG911 services across county and state boundaries for services such as the forest guide⁴.

4.3 Conflicting GIS Data

One of the most frequent complaints heard during project team outreach and in the facilitated sessions is the lack of cooperation from commercial mapping providers such as Google, Bing, MapQuest, and others when jurisdictions attempt to correct addressing errors found on these sites. Partnering with the USDOT and adding local GIS data to the NAD populates the most frequently used site from which these providers source the GIS data used to update their maps and vehicle routing applications.

The NAD is a repository of spatial data containing address data, point location coordinates, jurisdictions, record-level metadata, and other supporting data for addressable locations across the U.S. This is a USDOT effort to help support states and jurisdictions with services such as public safety and utilities

³ U.S. Geological Survey

⁴ [Requirements for a National Forest Guide - National Emergency Number Association \(nena.org\)](https://www.nena.org/requirements-for-a-national-forest-guide)

where addressing information is a necessary component. Dispatchable location fields such as building, floor, unit, and room are part of the NAD schema.

Currently, 34 states submit addressing data to the NAD in either statewide or partial datasets. Some cities and jurisdictions voluntarily send data from states that do not have a statewide open data policy.

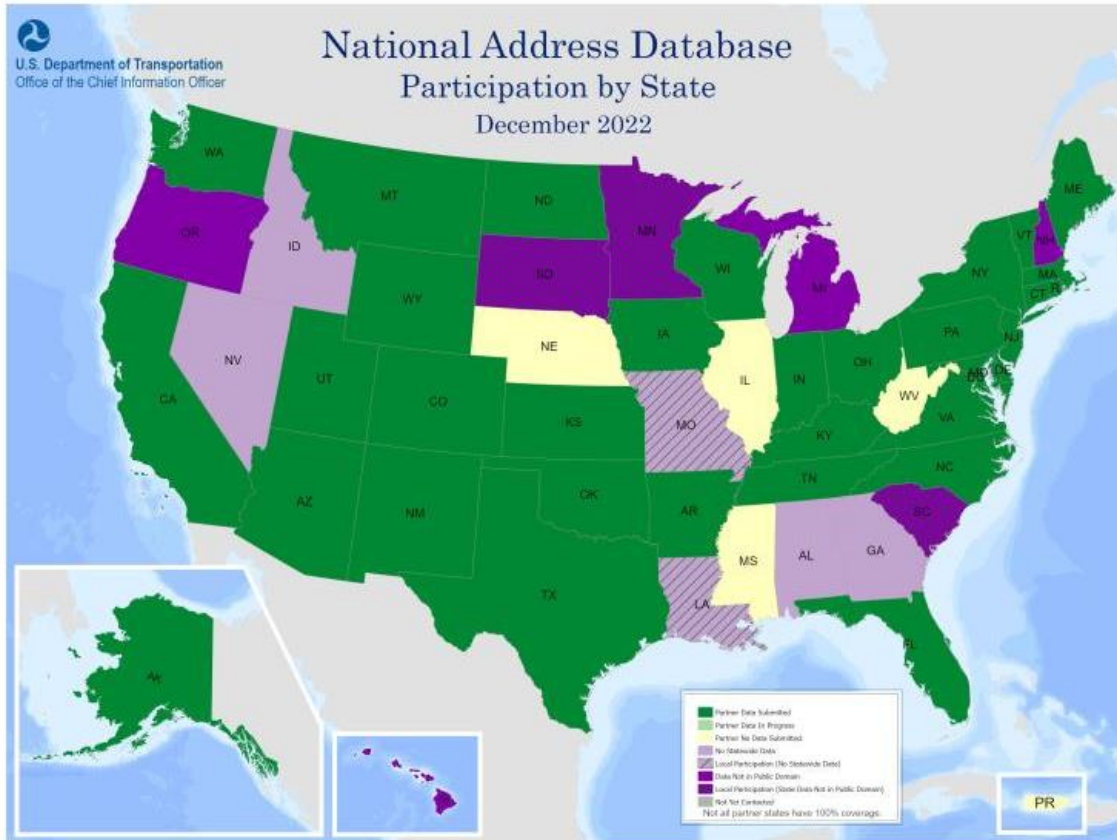


Figure 1: USDOT NAD Map, Partner Participation by State (as of December 2022)

The Program enthusiastically supports the NAD as an excellent resource for every jurisdiction and strongly recommends participation in the NAD updates. For more information on NAD, please visit: [National Address Database \(NAD\) | US Department of Transportation](https://www.transportation.gov/nad). To participate in the NAD, send an email of interest to nad@dot.gov.

4.4 Staffing

The demand for GIS professionals persists well beyond the number of skilled candidates and recent college graduates. Specialized GIS capabilities necessary for supporting NG911 are even more critically short-staffed. Small differences in pay and benefits can lure seasoned professionals away from more rural, less lucrative locations. Creative approaches to NG911 GIS staffing must be used to fulfill the

immediate needs of the NG911 migration. The stakeholders identified two promising solutions for achieving success in multiple jurisdictions across the country.

4.4.1 University GIS Programs

Universities offering GIS undergraduate and graduate programs are home to hundreds of budding GIS professionals who, with some guidance and oversight, can maintain the GIS data at a fraction of the cost of hiring and training a full-time employee, only to lose them to another jurisdiction. Several states have established cooperative programs with state university systems and even funded the effort with 911 funds. While these pseudo-staff members will work remotely, they work collaboratively with each other and under the supervision of a professor or team of professors with many years of experience in the industry. The exposure to public safety GIS also may increase the population of qualified candidates graduating from college with the requisite skills to work in the 911 field. GISGeography.com maintains a current list of GIS certificate, undergraduate, and graduate programs in the U.S.

4.4.2 Consortiums

Most small, rural jurisdictions cannot compete with the lure of what suburban and urban jurisdictions can offer—higher pay, better benefits, more cultural and entertainment options, and exposure to cutting-edge technology. The result is a revolving door of new hires who leave once they have enough experience to fill out a résumé. Many government consortiums have successfully mitigated these issues by pooling their resources and hiring a GIS team to support multiple jurisdictions as a region. These entities are able to offer competitive compensation packages and provide access to the same resources as the large jurisdictions. The jurisdictions also greatly benefit through access to multiple, highly skilled GIS professionals and specialized capabilities not generally achievable by a sole resource who is forced to learn multiple GIS roles without the time to master all of them.

4.5 Funding

The federal rules regarding the allowable expenditure of 911 funds include GIS data development and maintenance. The allocation of state and local 911 funds is at the discretion of the state 911 authority and is accessed through the 911 authority for each jurisdiction. GIS must foster a partnership with 911 leadership to secure these funds or lobby for the inclusion of the GIS data necessary for NG911 in locally allowable expenditures if not already permitted. There are many funding opportunities beyond 911 for GIS that can be used for data maintenance since these data also are used for many other applications.

Table 2: GIS Funding Opportunities

Source Name	Funding Limitations	Link
Federal Aviation Administration (FAA)	Airport-specific GIS data; GIS staff salaries; software and hardware; GIS application development	https://www.faa.gov/ Search Grants

Source Name	Funding Limitations	Link
Federal Government Grants Army Corps of Engineers (ACE) Department of Defense (DoD) Department of Homeland Security (DHS) Department of Interior (DOI) Environmental Protection Agency (EPA)	Staff training; data creation; data maintenance	https://www.grants.gov/
USDOT	Data creation; data maintenance	https://www.transportation.gov/grants
USGS	Cost-sharing for Imagery; cost-sharing for LiDAR ⁵	https://www.usgs.gov/

4.6 Education and Outreach

Multiple organizations provide broad and focused outreach and education opportunities for GIS professionals and leadership seeking a better understanding of NG911 and NG911 GIS.

Table 3: Outreach and Educational Opportunities

Organization Name	Focus Areas	Link
National 911 Program, NHTSA, USDOT	All 911	https://www.911.gov/
National Tribal Geographic Information Support Center (N.T.G.I.S.C.)	Tribal communities; GIS education; GIS partnerships	https://www.tribalgis.com/
Geospatial Information & Technology Association (GITA)	GIS training; Mentorship	https://www.gita.org/
National States Geographic Information Council (NSGIC)	State-led	https://www.nsgic.org/
Urban and Regional Information Systems Association (URISA)	GIS education; Training; Advocacy	https://www.urisa.org/
National Association of Counties (NACo)	County-led; Advocacy; Leadership Outreach; Policy; Resources	https://www.naco.org

⁵ Light detection and ranging

5 Conclusion

The challenges that most PSAPs face, especially rural PSAPs, in creating and maintaining the required geospatial components necessary for an NG911 system include funding, staff resources, GIS data resources, partnering with tribal governments, and proper education and outreach. One of the biggest obstacles for a PSAP is the capability to help FSLTT and regional stakeholders truly understand the role and necessity of GIS for NG911 call routing and response.

Outreach to and education of the entirety of the public safety communications ecosystem on the importance of developing and sharing highly accurate GIS data is paramount to the success of realizing nationwide NG911.

It is imperative that PSAPs identify and reach out to partners within their jurisdictions to coordinate and plan their GIS goals to allow for the most efficient use of limited resources. The earlier this coordination and outreach are initiated, the more prepared all key players will be in their role to support NG911. The stakeholders should be educated not only on the role GIS plays in the NG911 call-routing environment, but the resources and funding needed to develop and maintain this lifesaving data. The Program recommends FSLTT and regional governments share these data with each other and nationally through the NAD.

This document attempts to provide possible resources and partnerships to explore; however, this is a work in progress, and, as the 911 community learns more about the synergies that partnerships provide, you are encouraged to contact the Program at 911.gov to share lessons learned through your journey.

Acronym Dictionary

Some definitions provided are from the NENA's Master Glossary.⁶

Acronym	Term	Definition
ALI	Automatic Location Identification	Tabular reference for the current 911 system. Defines destination PSAP for every landline telephone number and cellular tower.
APCO	Association of Public-Safety Communications Officials	APCO (Association of Public Safety Communications Officials) is the world's oldest and largest not-for-profit professional organization dedicated to the enhancement of public safety communications.
CAD	Computer-Aided Dispatch	A computer-based system that aids PSAP telecommunicators by automating selected dispatching and record-keeping activities.
CISA	Cybersecurity and Infrastructure Security Agency	CISA (Cybersecurity and Infrastructure Security Agency) is a federal agency that is the Nation's risk advisor, working with partners to defend against today's threats and collaborating to build more secure and resilient infrastructure for the future. "CISA Central" replaces the NCCIC (National Cybersecurity and Communications Integration Center)
CLDXF	Civic Layer Data Exchange Format	A set of data elements that describe detailed street address information. All components are spelled out – no abbreviations.
COOP	Continuity of Operations Planning	A plan to implement continuity of operations 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.
E911	Enhanced 911	A telephone system that includes network switching, database, and PSAP premise elements capable of providing automatic location identification data, selective routing, selective transfer, fixed transfer, and a call back number
ECC	Emergency Communications Center	ECC is a facility designated to receive and process requests for emergency assistance, which may include 9-1-1 calls, determine the appropriate emergency response based on available resources, and coordinate the emergency response according to a specific operational policy.
ECRF	Emergency Call Routing Function	A functional element in an ESInet. The ECRF is a Location to Service Translation (LoST) protocol server where location information (either civic address or geo-coordinates) and a Service Uniform Resource Name (Service URN) serve as input to a mapping function that returns a Uniform Resource Identifier (URI) used to route an emergency call toward the appropriate PSAP for the caller's location or toward a responder agency.
EMS	Emergency Medical Services	EMS is a service providing out-of-hospital acute care and transport to definitive care, to patients with illnesses and injuries which the patient believes constitute a medical emergency.

⁶ <https://kb.nena.org/wiki/Category:Glossary>

Acronym	Term	Definition
ESInet	Emergency Services IP Network	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.
ESZ	Emergency Service Zone	A geographical area that represents a unique combination of emergency service agencies (e.g., law enforcement, fire/rescue, and emergency medical service) that is within a specified 911 governing authority's jurisdiction.
ETL	Extract, Transform, Load	Three database functions that are combined into one tool to pull data out of one database, properly map the fields to the schema of a second database, and place it into the other database.
FCC	Federal Communications Commission	An independent U.S. government agency overseen by Congress, the commission is the United States' primary authority for communications law, regulation, and technological innovation.
GIS	Geographic Information System	A system for capturing, storing, displaying, analyzing, and managing data and associated attributes which are spatially referenced.
iCERT	Industry Council for Emergency Response Technologies	iCERT-is the only industry trade association focused exclusively on emergency response technologies and related equipment, systems, and services. iCERT is dedicated to improving public safety through innovation.
ILA	Interlocal Agreement	An agreement among governmental jurisdictions or privately owned systems, or both, within a specified area to share 911 system costs, maintenance responsibilities, and other considerations.
IP	Internet Protocol	The method by which data is sent from one computer to another on the ESInet, Internet, or other networks.
IT	Information Technology	The use of any computers, storage, networking, and other physical devices, infrastructure, and processes to create, process, store, secure, and exchange all forms of electronic data.
LVF	Location Validation Function	A functional element in an NGCS that is a LoST protocol server where civic location information is validated against the authoritative GIS database information.
MLTS	Multi-Line Telephone System	Communications equipment comprised of common control unit(s), telephone sets, control hardware and software, and adjunct systems used typically in enterprise settings such as hotels, government agencies, commercial offices, and campuses.
MOA	Memorandum of Agreement	A document written between parties to cooperatively work together on an agreed upon project or meet an agreed upon objective.
MSAG	Master Street Address Guide	Tabular reference for address validation in the current 911 system. Defines all possible addresses within a jurisdiction.
NACo	National Association of Counties	The National Association of Counties is an organization that represents county governments in the United States. It is the only national organization that represents county governments in the United States.

Acronym	Term	Definition
NAD	National Address Database	The US Department of Transportation (USDOT) and its partners at all levels of government recognize the need for a national address database. Accurate, up-to-date address are a critical to transportation safety and are a vital part of NG911. They are also essential for a broad range of government services including mail delivery, permitting and school siting. To meet this need the USDOT partners with address programs from state, local and tribal government to compile their authoritative data into the NAD.
NASNA	National Association of State 911 Administrators	NASNA is the voice of the states on public policy issues impacting 911. State 911 leaders' expertise can assist industry associations, public policymakers, the private sector, and emergency communications professionals at all levels of government as they address complex issues surrounding the evolution of emergency communications. An association that represents state 911 programs in the field of emergency communications.
NCSWIC	National Council of Statewide Interoperability Coordinators	NCSWIC purpose is the promotion and coordination of activities designed to ensure the highest level of public safety communications across the nation.
NENA	National Emergency Number Association	Standards body for 911 and NG911.
NHTSA	National Highway Traffic Safety Administration	The Federal Government agency tasked with transportation-related education, research, safety standards, and enforcement. Is also the home of the National 911 Program, under it's Office of Emergency Medical Services.
NG911	Next Generation 911	NG911 refers to an initiative aimed at updating the 911 service infrastructure in the United States and Canada to improve public emergency communications services in a growingly wireless mobile society.
NGCS	Next Generation Core Services	The base set of services needed to process a 911 call on an ESInet. Includes the ESRP, ECRF, LVF, BCF, Bridge, Policy Store, Logging Services, and typical IP services such as DNS and DHCP. The term NGCS includes the services and not the network on which they operate.
NSGIC	National States Geographic Information Council	NSGIC promotes the coordinated, impactful, and cost-efficient application of GIS and other location-based information and analytics to best serve the nation, with emphasis on the power of initiatives and public policy that connect across local, state, federal, and private sector partners.
N.T.G.I.S.C.	National Tribal Geographic Information Support Center	Also known as Tribal GIS, NTGISC is a non-profit organization with an objective to provide assistance to Native American tribal governments and organizations regarding GIS technology ⁷
OEMS	Office of Emergency Medical Services	The Office of Emergency Medical Services (OEMS) is responsible for planning and coordinating an effective and efficient statewide EMS system
PBX	Private Branch Exchange	A private telephone switch that is connected to the public switched telephone network.

⁷ TribalGIS.com About Us page: <https://tribalgis.com/aboutus>

Acronym	Term	Definition
PSAP	Public Safety Answering Point	The entity responsible for receiving 911 calls and processing those calls according to a specific operational policy.
RDBMS	Relational Database Management System	Software that gives users the ability to update, query and administer a relational database.
REST	Representational State Transfer	An interface that transmits domain-specific data over HTTP without an additional messaging layer such as SOAP or session tracking via HTTP cookies.
RMS	Records Management System	Public safety RMS are often interfaced to public safety communication centers. RMSs are sometimes accessed directly through computer systems deployed within communication centers for research and analysis purposes.
SDE	Spatial Database Engine	An umbrella term that describes how virtualization and abstracting workloads from the underlying hardware can be used to make information technology (IT) infrastructures more flexible and agile.
SI	Spatial Interface	A standardized interface between the GIS and the functional elements that consume GIS data, such as the ECRF and/or LVF.
SLA	Service Level Agreement	A contract between a service provider and the end user that defines the level of service expected from the service provider.
SOP	Standard Operating Procedure	A written directive that provides a guideline for carrying out an activity.
SQL	Structured Query Language	A standardized programming language that's used to manage relational databases and perform various operations on the data in them.
TFOPA	Task Force on Optimal Public Safety Answering Point Architecture	The federal task force directed to study and report findings and recommendations on structure and architecture in order to determine whether additional consolidation of PSAP infrastructure and architecture improvements would promote greater efficiency of operations, safety of life, and cost containment while retaining needed integration with local first responder dispatch and support.
USDOT	U.S. Department of Transportation	The top priorities at DOT are to keep the traveling public safe and secure, increase their mobility, and have our transportation system contribute to the nation's economic growth.
USGS	U.S. Geological Survey	The USGS provides science for a changing world, which reflects and responds to society's continuously evolving needs. As the science arm of the Department of the Interior, the USGS brings an array of earth, water, biological, and mapping data and expertise to bear in support of decision-making on environmental, resource, and public safety issues.
VoIP	Voice Over Internet Protocol	Telephone service provided through the internet rather than traditional telephone lines. This includes fiber-optic and coaxial cable services such as Comcast and Time Warner, and purchased devices like Ooma®, Google Voice, or magicJack.