

Next Generation 9-1-1

 *Working Smarter Together*

Solutions for a New Economy

Deploying Next Generation 9-1-1 in this fiscal climate presents many challenges, but also offers opportunities for collaborating to enhance public safety nationwide. When budgets are tight, government agencies must learn to trust one another and work effectively together to accomplish their missions. The National Emergency Number Association (NENA), National Alliance for Public Safety GIS Foundation (NAPSG) and National States Geographic Information Council (NSGIC) have joined forces to help 9-1-1 authorities and public safety agencies at all levels of government to begin “working smarter together” to improve systems and data while reducing costs. Working smarter together will free up money for other mission-critical activities and help to equip first responders with the information they need to prevent, prepare for and respond to emergencies of any scale. You can help enhance public safety through coordinated work on GIS systems and data.

“In recent years, Maryland’s Emergency Number Systems Board has experienced significant cost savings when acquiring aerial imagery on a statewide basis as opposed to the county-by-county method. The savings is estimated to be approximately 25-30%. This statewide approach also provides the benefits of common flight and processing specifications, consistent quality, seamless coverage and one single project to manage which ultimately improves public safety.”

Kenny Miller

Deputy State GIO

Maryland 9-1-1 Board Member

What’s Changing

Successful deployment of NG 9-1-1 will require close cooperation between those responsible for wide-area networks, local public safety officials and GIS professionals at all levels of government. NG 9-1-1 systems use GIS data to pre-validate caller locations by address and geographic coordinates, and to route calls based on caller location. This moves GIS to the front end of the process, eventually supplanting Automatic Number Identification, Automatic Location Identification and Master Street Addressing Guides.

To effectively implement NG 9-1-1, many local governments need to develop or expand GIS capabilities and create or modify GIS data. Data will need to be kept current to reflect annexations, new developments and road closures. This level of data maintenance is essential to public safety and first responders, because it directly impacts response time. GIS professionals must understand the needs of NG 9-1-1 in order to support the Common Operating Pictures that provide situational awareness to firefighters, police officers and emergency managers.

Improved Outcomes and Lower Costs

Today’s 9-1-1 systems were designed in the 1960’s and enhanced to meet growing requirements. Many systems were deployed before interoperability was a widespread consideration. As a result, many Public Safety Answering Points (PSAPs or 9-1-1 Call Centers) cannot communicate efficiently with one another or share critical data.

More than ever, response agencies rely on mutual aid from neighboring jurisdictions to support emergency operations in daily incidents and major disasters alike. Geospatial data like orthoimagery, addresses and road centerlines provide first responders with mission critical information for improved decision-making and situational awareness. These data provide firefighters, police officers and paramedics with basic capabilities required to serve and protect. The cost of producing these data in each individual jurisdiction is large when compared to the cost of producing it for larger regions or states.

Next Generation 9-1-1 offers new opportunities to work smarter in the future. Producing data products to consistent national standards and taking advantage of the efficiencies offered by large area contracting techniques can help to ensure interoperability. Throughout the IT and GIS communities there are many examples of partnerships that reduce data costs and improve product quality for each of the partners. As a result, first responders are better equipped with the mission critical information they need to prepare for and respond to emergencies in our communities.

Collaboration, planning and effective coordination are essential activities that can build trust among agencies. Those most involved with the operation of the PSAPs are spending many thousands of hours planning for improvements that will usher in Next Generation 9-1-1 services and they are doing an outstanding job. The concepts introduced in this document compliment these efforts. None of the organizations involved in this effort have plans to try and force new behaviors on the 9-1-1 community. We owe a great debt of gratitude for their service and we simply want to inform them about significant cost savings that can be realized as Next Generation 9-1-1 is implemented.

NENA - The 9-1-1 Association serves its members and the greater public safety community as the only professional organization solely focused on 9-1-1 policy, technology, operations, and education issues. With more than 7,000 members in 48 chapters across the United States and around the globe, NENA promotes the implementation and awareness of 9-1-1, as well as international three-digit emergency communications systems.

NAPSG - The National Alliance for Public Safety GIS Foundation is a 501(c)(3) not-for-profit organization that was formed in 2005 to overcome the challenges faced by Federal, tribal, state, and local public safety agencies in advancing the use of geospatial technologies. It does this through education and research about information sharing and data interoperability associated with GIS and advanced technologies used by the public safety and homeland security communities. NAPSG Foundation relies on a broad base of support from public safety and homeland security professionals across all levels of government. It also works with private sector industries that are dedicated to achieving a higher level community resilience.

NSGIC - The National States Geographic Information Council (NSGIC) is a nonpartisan 501(c)(6) organization committed to efficient and effective government through the prudent adoption of geospatial technologies. NSGIC voting members include senior state geographic information officers, coordinators, managers and statewide GIS Councils.



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Common GIS Data

Producing certain GIS data layers over larger areas to national standards can result in significant cost savings, increase interoperability and support mission critical capabilities for first responders. Collaboration reduces costs in three ways: First, instead of every individual state, county and municipality contracting with separate firms to develop data for its own use, they can all collaborate on aggregated contracts with the buy-up options that each member needs. This reduces the labor required in the contracting phase. Second, having fewer contracts reduces overhead costs for the professional services firms that create the data. Third, each contract covers fewer set-up costs by reducing the total number of task orders. These factors can combine to create cost savings of 30% or more in the production of mission critical data assets that are central to NG 9-1-1. We can also work together to maintain, standardize and improve access to locally produced data like address points.

Common Map Grid

Implementing a uniform national map grid reference system will reduce confusion about locations and improve interoperability between all levels of government. One choice is the U.S. National Grid (USNG), endorsed by the Department of Homeland Security.

The objective of the USNG standard is to create a more interoperable environment for location-based services and to increase the interoperability of GPS enabled equipment with printed map products by establishing a nationally consistent grid reference system as the preferred grid for national applications. The USNG has proven to be a critical tool for first responders during major incidents. For example, USNG is used during response to most hurricanes when roads and street signs have been washed away. Without the use of USNG, there would be no other way for first responders from different states, all providing mutual aid, to have a common location reference.

GIS Interoperability & NG 9-1-1

Some new features of NG 9-1-1 are:

- Conducting real-time two-way voice, text and video emergency calls via IP-based networks;
- Accessing personal sensor notifications including collision detection systems and medical alert systems;
- Transferring emergency calls and associated data to other PSAPs;
- Issuing area-specific multimedia emergency alerts to wireline and wireless devices.

To use these features PSAPs will need to use standardized, interoperable geographic information, including:

- Location-specific data that is received and integrated, in real time, into a common operating picture;
- Common data standards & models that allow for interoperability between PSAP locations and first responders in the field;
- Building address/entry point files for structures and properties.

The logo for "Working Smarter Together" features a stylized orange and yellow circular graphic on the left, followed by the text "Working Smarter Together" in a black, serif font.