



# Minnesota NG9-1-1 GIS News

November, 2015

Issue #1

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## Useful Links:

DPS/ECN  
*Minnesota Department of Public Safety – Emergency Communications Networks*

MnGeo  
*Minnesota Geospatial Information Office*

SECB  
*State Emergency Communications Board*

NENA  
*National Emergency Number Association*

FirstNet  
*First Responder Network Authority*

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or 651-201-7559

## Welcome

The Minnesota Department of Public Safety, Emergency Communication Networks (DPS-ECN) division is responsible for oversight of the 9-1-1 system in the state of Minnesota. This oversight is performed in partnership with Minnesota counties that have the responsibility to operate and maintain the 9-1-1 system in their respective counties per MN State Statute §403.025, Subdivision 1.

In recent years, 9-1-1 network components throughout the state have been upgraded to an Emergency Services IP Network (ESInet) to prepare for the industry's transition from Enhanced 9-1-1 (E9-1-1) to Next Generation 9-1-1 (NG9-1-1). The next step is the development and deployment of standardized, statewide geospatial datasets. In partnership with the [Minnesota Geospatial Information Office \(MnGeo\)](#), this effort began in earnest earlier this year. Through the use of geospatial data, 911 call takers will more accurately pinpoint where emergencies occur allowing for quicker responses by emergency personnel – and the potential to save more lives. This newsletter is intended to keep county and city emergency responders and Geographic Information Systems (GIS) managers, involved with NG9-1-1, informed as to the project's status, challenges to be faced, and future efforts. The staff and I look forward to working with each of you in partnership to improving the safety of Minnesota citizens across the state.

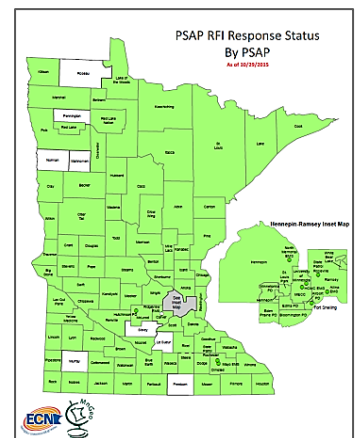
Thank you!

Jackie Mines, Director DPS-ECN

## PSAP Request for Information Summary

Advances in communications systems and technology over the past 10 years have placed a tremendous burden on legacy 9-1-1 systems. Cell and mobile IP devices with voice, text and video capabilities now serve as important communications tools that require access to emergency services. The public expects that these devices will be supported.

NG9-1-1 is a significant evolution of 9-1-1 systems and services and will support advanced communications technology through the seamless interconnectivity between citizens, Public Safety Answering Points (PSAP)



and first responders. Unlike 9-1-1 systems that were often tied to land line locations, NG9-1-1 is based on the location of the calling device. It allows voice calls, along with other types of communications media, to connect with PSAPs and first responders. With NG9-1-1 all requests for emergency assistance are associated with a location which could be a street address, a polygon (area) or coordinate pairs such as longitude/latitude or [U.S. National Grid \(USNG\)](#). **Regardless of the source, it is the location of the call device that determines which PSAP the request for emergency assistance is sent to.**

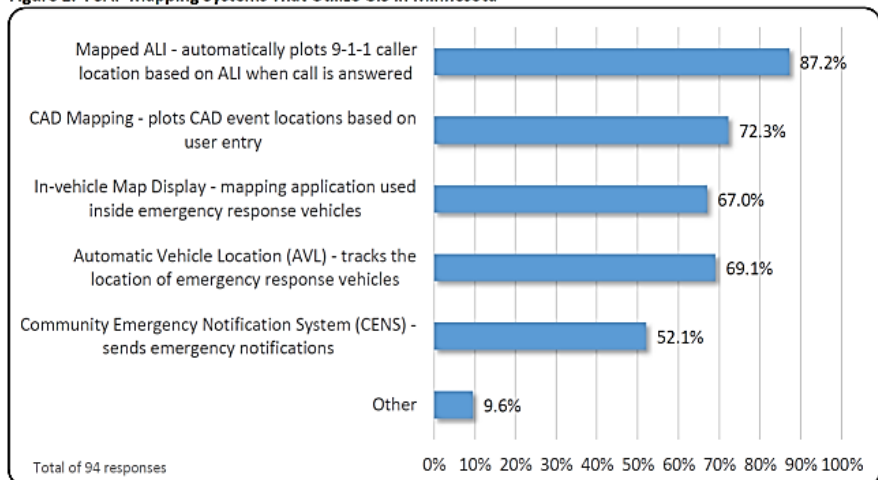
NG9-1-1 depends on current and accurate GIS data for location validation, call routing, and emergency response recommendations using non-proprietary systems of standardized data and formats operating on open systems specifications over managed multipurpose IP networks. It allows for the seamless interoperability between PSAPs and emergency responders, across the region, the state and eventually the entire country. Earlier this year an electronic “Request for Information” (RFI) was created by DPS-ECN and MnGeo. Consisting of 36 questions, the RFI was designed to assess the GIS capabilities, software, and data of every PSAP in the state. It also sought to identify potential GIS data issues; data sharing considerations; and desired methods for NG9-1-1 project communication. Each PSAP and county GIS manager was asked to work together to submit one response on behalf of their organizations. The goal was, and remains, to achieve a 100 percent response from the 105 PSAPs in the state. This information will help guide the state’s implementation of NG9-1-1. As the map above indicates, most PSAPs have already responded.

A summary document highlighting 15 questions and corresponding responses considered critical in shaping the implementation of NG9-1-1 in Minnesota was prepared earlier this summer. Among the notable responses were:

### Which public safety systems in your organization utilize GIS data? (Question #3)

The vast majority PSAPs in Minnesota have already embraced the use of GIS technology in their daily operations. Of those PSAPs in the “Other” category, several use GIS data for crime mapping. Others use it in their Emergency Management Department or Records Management System.

Figure 1: PSAP Mapping Systems That Utilize GIS in Minnesota



### Which of the following potential issues with GIS data concern you the most? (Question #16)

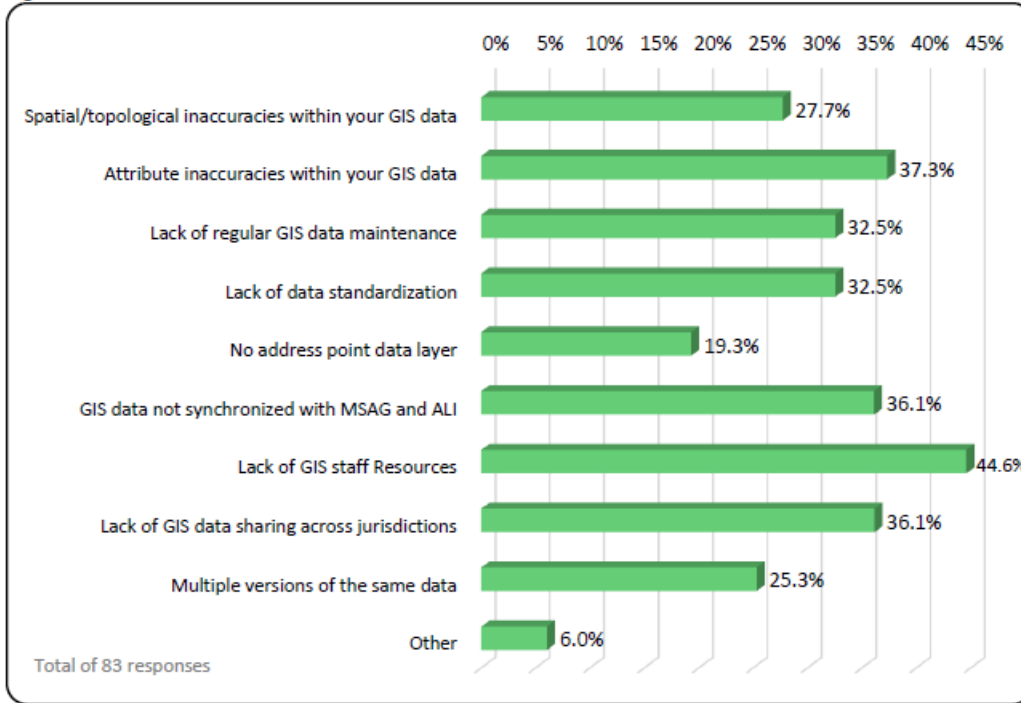
The GIS data issues that concern PSAPs the most are:

1. *The lack of GIS staff resources to create and maintain data.* Current and accurate geospatial data is an essential component. For example, if new streets are not added to the system in a timely fashion, a dispatcher may not be able to direct a responder to the correct location.
2. *Attribute inaccuracies between data layers.* For example, street name inconsistencies may exist between road centerlines and address points.
3. *Data is not synchronized with their Master Street Address Guide (MSAG) and ALI.* Improperly synchronized data results in mismatched addresses impacting the dispatcher’s ability to identify the proper location of the call.

4. *The lack of data sharing across jurisdictions.* For example, in the case of an incident that spans multiple PSAPs, other jurisdictions, some roads may appear in one system but not the other - potentially impacting response time.

5. *Spatial or topological inaccuracies exist between data layers.* For example, the left and right Emergency Service Number (ESN) of a road centerline street segment does not coincide with the ESN GIS-based boundary layer.

Figure 11: Potential Issues with Local GIS Data

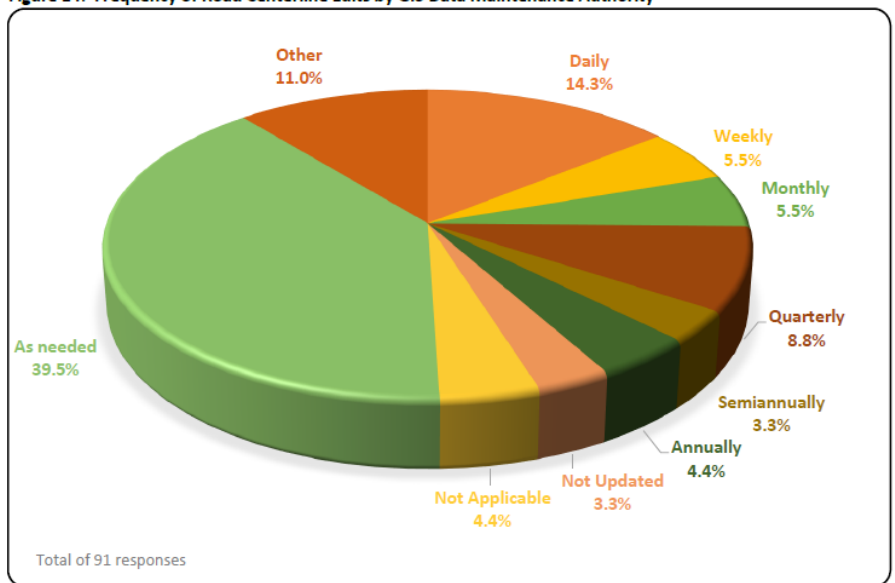


**How often does your GIS data maintenance authority make edits to the road centerline dataset? (Question #21)**

PSAP GIS data maintenance authorities make edits to the road centerlines in a wide array of time intervals with “as needed” being the most common as shown below. Some example responses occurring within the “Other” category were “Every Couple Years” and “Unknown”.

It is clear from the RFI responses we have received to date that for many of Minnesota’s PSAPs, GIS systems and geospatial data are important assets they possess and utilize. However, while these PSAPs have embraced the technology, some responses indicate that they may not be able to maintain or improve their geospatial data due to resource constraints. Finally, there

Figure 14: Frequency of Road Centerline Edits by GIS Data Maintenance Authority



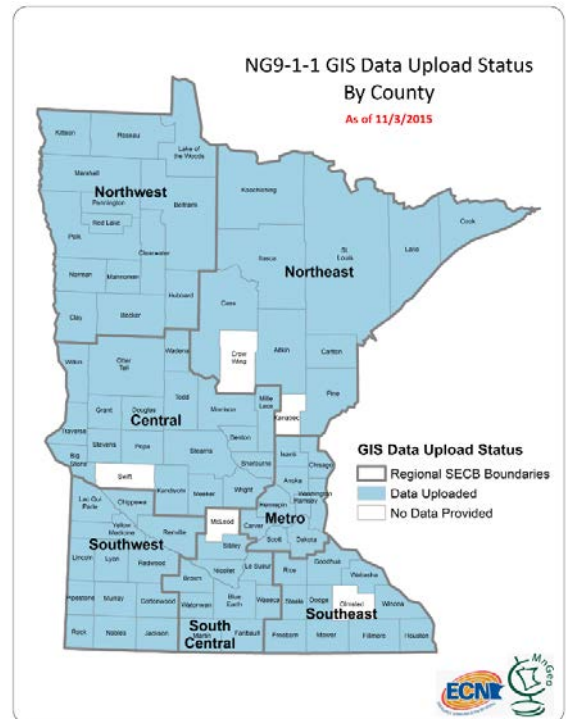
remain some PSAPs that have not yet leveraged the technology. Both cases will impact the implementation of the state's deployment of NG9-1-1 and will require careful consideration. The [RFI summary](#) can be found on the DPS-ECN web site. For a complete list of RFI responses, contact ECN's NG9-1-1 GIS Project Manager (Adam Iten, [adam.iten@state.mn.us](mailto:adam.iten@state.mn.us) or 651-201-7559).

## FirstNet Support

The **FirstNet** (First Responder Network Authority) charge is to build, operate and maintain the first high-speed, nationwide wireless broadband network dedicated solely to public safety. It is intended to provide a single interoperable platform for emergency and daily public safety communications. Once completed, FirstNet will fulfill a fundamental need of the public safety community by providing 21st century tools to millions of organizations and individuals that respond to emergencies at the local, state, tribal and federal levels. ECN is leading our State effort to define public safety stakeholder requirements, assemble information regarding the size of the network end user population, the types of devices and applications needed by public safety responders, and to develop a strategic plan to support the State's consultation regarding the rollout of a National Public Safety Broadband (NPSBN) within the State.

ECN has performed interactive coverage reviews with each county in Minnesota. The objective is to document the areas within each county of highest priority for first responders and the areas where broadband coverage is not available today from commercial providers. This information is provided to FirstNet so they can focus on providing coverage in these areas first and foremost if the state chooses to opt in.

Important layers that support this analysis include PSAP boundaries and emergency services boundaries for law, fire, and emergency medical service areas, as well as First Responder and Rescue service area boundaries if they exist. Because local governments (county, city and tribal) are often the best source for these data elements, DPS-ECN and MnGeo have asked these authorities to upload their data to MnGeo where it will be evaluated and joined with the coverage assessment data. A status map shown at the right provides a progress report of the upload. Working with FirstNet staff, DPS-ECN and MnGeo will link attribute data essential to the determination of coverage areas across the state. DPS-ECN and MnGeo's efforts to support FirstNet will be highlighted in a future issue of this newsletter!



## Minnesota NG9-1-1 GIS Standards

The Minnesota NG9-1-1 GIS Standards Workgroup was recently formed to recommend and develop geospatial standards that are required to consistently integrate locally collected GIS data into those statewide layers deemed critical to NG9-1-1. These layers include road centerlines, site/structure address points, PSAP boundaries and emergency services boundaries for law, fire, emergency medical service, as well as First Responder and Rescue if they exist. While NG9-1-1 standards have already been drafted by the National Emergency Number Association (NENA), the Federal Geographic Data Committee (FGDC), and several other states, the GIS Standards Workgroup must assess them and determine which can be used "as-is" and which may require modification to meet Minnesota's needs. The workgroup's recommendations will be vetted by the Metropolitan Emergency Services Board (MESB), NG9-1-1 GIS Subcommittee, NG9-1-1 Committee, SECB, and the Statewide Geospatial Advisory Council for formal approval. The resulting standards will be readily available so that data providers and aggregators know when their data meets standards.

## Upcoming Events

Notable upcoming DPS-ECN NG9-1-1 events:

- ❖ November 12, 2015: NG9-1-1 GIS Subcommittee Meeting
- ❖ November 18, 2015: NG9-1-1 Committee Meeting
- ❖ November 19, 2015: SECB Meeting
- ❖ December 2, 2015: Statewide Geospatial Advisory Council

## Neighboring States

Robert Frost believed that, “Good fences make good neighbors.” Not so with NG9-1-1. It promises to remove the technical barriers that have existed between PSAPs including those in adjacent states. Interoperability will help improve situational awareness for emergency responders. Currently Iowa, North and South Dakota are actively working on their NG9-1-1 systems. For more information see:

Iowa:

[http://www.iowahomelandsecurity.org/programs/E\\_911.html](http://www.iowahomelandsecurity.org/programs/E_911.html)

North Dakota:

<http://nd911.homestead.com>

South Dakota:

[https://dps.sd.gov/sd\\_911/](https://dps.sd.gov/sd_911/)

*If you have a news item pertaining to NG9-1-1 that you would like to share in future publications of this newsletter, please contact:*

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