

# STATEWIDE EMERGENCY COMMUNICATIONS BOARD

## NG911 Committee

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Wednesday, August 24, 2016 1:00 p.m.  
HSEM State EOC, 445 Minnesota Street  
Suite223, St. Paul

Conference Call\*  
Dial-in: 1-888-742-5095  
Code: 4898249110#

Chair: Darlene Pankonie  
Video Conference Available –email Chair Pankonie

## AGENDA

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**Call to Order**  
**Approval of Agenda**  
**Approval of Previous Meeting's Minutes**

### **Action Items**

### **ECN Reports**

- NG911 GIS Project Report (Adam Iten)
- NG911 Network/Features (Dana Wahlberg)
- StatusBoard (Cathy Anderson)

### **New Business**

### **Old Business**

### **Regional Reports**

- Northwest (Shafer/Wernberg)
- Northeast (Olson/Erickson)
- Central (Diehl/McPherson)
- South Central (Wallace/Reimers)
- Southeast (Betcher/Evers)
- Southwest (Westfield/Ebert)
- Metro (McPherson/Bowler)

### **Standing Committee Reports**

- NG911 Best Practices Subcommittee (Tina McPherson)
- GIS Subcommittee (Iten)

### **Adjourn**

# STATEWIDE EMERGENCY COMMUNICATIONS BOARD NG911 COMMITTEE

June 15, 2016

## MEETING MINUTES

### Attendance

#### Member/Alternate

Darlene Pankonie, Chair/ Capt. Kathy Hughes, MN SHERIFFS ASSN  
Nancy Shafer/ Beryl Wernberg, NORTHWEST MINNESOTA  
Steve Olson/ Patrice Erickson, NORTHEAST MINNESOTA  
Judy Diehl/ Tina McPherson, Vice Chair, CENTRAL MINNESOTA  
Wayne Betcher/ Faith Evers, SOUTHEAST MINNESOTA  
Pat Wallace/ Peggy Reimers, SOUTH CENTRAL MINNESOTA  
Joe Reith/ Bonnie Westfield, SOUTHWEST MINNESOTA  
Mary Borst/Marion Larson, MAA  
Ross Tiesg/Vacant, MN CHIEFS OF POLICE  
Tim Boyer/vacant, STATE PATROL  
Matt Goodman/vacant, GIS  
Dana Wahlberg/Adam Iten, ECN  
Deb Harmon/ Vacant, TRIBAL PSAP  
Christine McPherson /Susan Bowler, METRO MINNESOTA  
Vacant/Vacant, MN FIRE CHIEFS

\*Members attending are marked with yellow highlight.

### Guests reporting:

Joel McCamley, Federal Engineering  
Rick Juth, ECN  
Cathy Anderson, ECN  
Jackie Mines, ECN  
Dustin Leslie, ECN  
Carol-Linnea Salmon, ECN  
Judy Siggerud, Ottertail County  
Pete Eggimann, MESB  
Caitlin Prodoehl, Stevens County  
Mary Terway, Stearns County  
Joe Zunker, Douglas County  
Carrie Oster, Motorola

### CALL TO ORDER

Chair Pankonie calls the meeting to order at 1:04 p.m.

### APPROVAL OF AGENDA

Kathy Hughes makes a motion to approve the agenda.

Beryl Wernberg seconds the motion.

Motion carries.

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## APPROVAL OF PREVIOUS MEETING'S MINUTES

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**Bonnie Westfield makes a motion to approve the May minutes.**  
**Judy Diehl seconds the motion.**  
**Motion carries.**

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### PSAP Survey – Federal Engineering Report

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On behalf of ECN, Dana Wahlberg thanks committee members and PSAP representatives for reporting to their regions and responding in a short timeframe and also Federal Engineering for pulling the information together in a short timeframe.

She notes a few corrections that were submitted from the airport, Otter Tail and Pope Counties and from the RICs. Those recommendations for change were submitted to Federal Engineering and were agreed upon and will be reflected in the final version of the report. Wahlberg found a minor error on the 2015 call volume count which was in error on the CenturyLink report and that has been corrected.

Joel McCamley from Federal Engineering also thanks everyone for their time and the information submitted. The survey and the annual audits were utilized in the development of the report, which was submitted in the meeting materials.

Chair Pankonie asks for any further input from each region.

Pete Eggimann responds that the Metro region has shared all of its input already. Kathy Hughes agrees.

Beryl Wernberg reports that the Northwest region has no further input.

Judy Diel believes that the Central region's concerns about Otter Tail and Pope Counties have been addressed.

Faith Evers from the Southeast region says she was on vacation and does not know if the report was sent out for review. She has no concerns with the report.

Pat Wallace reports that she sent an email to everyone in the South Central region and said to respond by 1:00 today. She received responses from four counties which approved the report and no responses with any concerns. One minor thing from Blue Earth County is that in Table 59 where it talks about probable CPE replacements it says that Blue Earth County has seven positions. There are five phone positions and seven radio positions. Should the report say seven positions or five?

Chair Pankonie responds that throughout the survey there was some disparity between the number of phones versus the number of radios.

Wahlberg says that may have already been rectified. She asked Dustin Leslie to contact every PSAP to clarify how many phone positions they have on the communications center floor. That information can be used if needed to differentiate between the number of CPE positions versus the total number of console positions on the floor. Wahlberg clarifies that on Table 59 on page 71 it should reflect five CPE positions in Blue Earth County.

Bonnie Westfield from the Southwest region did not get any feedback and has no concerns.

Tim Boyer from the State Patrol has no concerns.

Steve Olson from the Northeast says the feedback he received was generally positive. There was one question from

St. Louis County about the requirement for the additional GIS and IT staffing needs and whether or not that will be funded. Olson has not had a chance to talk with the person who raised the question. Olson believes that GIS and IT support can be funded from the 9-1-1 fund depending on the opinion of the county auditor.

Wahlberg says that is correct and it is really a replacement for the line item in the E9-1-1 fund reporting for MSAG support because GIS is now being reconciled with the MSAG and ultimately will replace the MSAG. She thinks one of the primary identifiers for that was for PSAPs who are currently not doing anything with GIS today and have no GIS support. Those PSAPs will need assistance to get up to speed with the rest of the state. She notes that St. Louis County is quite a ways ahead of most of the state and already have a GIS person.

McCamley says the basic premise behind Federal Engineering's findings for both GIS and IT support follow the notion that as PSAPs transition to or finish transitioning to the NextGen operating environment, the requirement to have support for GIS and IT will increase. It will happen naturally because more of those activities will be involved as PSAPs operate in the NextGen environment. The intent was to inform that the demand for that kind of support will increase as PSAPs go through the transition. What it will be for each individual PSAP will vary. GIS costs will be related to recording GIS data and layers and maintaining that data and feeding it into a larger NextGen system so that calls can be routed properly or if a particular jurisdiction is offline a neighboring jurisdiction could potentially utilize the GIS data to route the calls. IT support will have a lot to do with cyber security. The most vulnerable point of the state's ESInet will be at each PSAP. Procedures and systems such as firewalls, virus protection, and password administration will need to be put in place to safeguard PSAPs and also the larger system. Security requirements will increase because PSAPs will be using a lot more applications that may be served out of the NextGen core or out of the ESInet. The intent was to put this on everyone's radar because it may be a future staffing or funding issue. Some PSAPs may cost share GIS or IT people and may need more of a percent of the IT or GIS person in the future. It is something to think about as the NextGen transition moves forward. Ultimately, elected officials will read this report and the hope is that it will help support the case for PSAPs who may need to hire a GIS or IT person.

Jackie Mines adds that the goal of this study was to get a sense of what the future costs of PSAPs will be. The next steps after the committee approves the report and the findings are shared with the SECB will be to sit down with the Minnesota Sheriffs Association to make sure sheriffs are aware of what the report says and also with the Association of Minnesota Counties. PSAPs might want to look at how they can work together to share technology on a regional basis or share resources like IT support. Mines thinks more of this will need to take place as counties adjust to the technology changes. She says the report is intended to help decisions makers who are responsible for funding in counties to understand why equipment upgrades are needed. The report is also important because it documents the need and desire for more training. There is documentation at the national level that supports training and there are new recommended training guidelines from NENA and this all helps send the message that this is a growing trend across the country. The report supports things that are intuitively known and documents needs in a way that can be presented at the legislative level or county commissioner level. Sheriffs can use it to support requests for additional funding. If there are any questions or concerns about the report, please pass those along to Mines or Wahlberg.

Chair Pankonie agrees that the report does a good job of laying out what is intuitively known about Minnesota 9-1-1 and the PSAPs. She asks if people think it does a sufficient job of highlighting the gaps specifically in the area of GIS and IT support and training.

McCamley responds that to get to a more detailed or in-depth level, the survey would have needed to have asked a lot of questions around staffing and labor costs. Those can vary widely at the local level. The survey looked at what was spent in the past and identified trends and looked at where the cost drivers are going related to NG9-1-1. The fact that there has been a commitment to training is an excellent thing. The requirement for new systems and training on those new systems is only going to increase. It will stand to reason that the costs will increase. To get to

an exact dollar amount will depend somewhat on where people are in the transition. It can be difficult to explain to legislators the differences in spending in different areas, for example the difference in labor costs, and then the big picture can become lost in the weeds. More spending will be needed for IT and GIS and training but there will also be decreases in other areas.

Wahlberg recommends looking at this report as a baseline identifying the trends of where things have been in the legacy environment and how they will increase in the NextGen environment. The report can be used in collaboration with other assessments that are being done. For example, Adam Item and his team are in the process of compiling a comprehensive GIS study examining more than 90 different attributes from every county. They will study the data and report back to every county how much work needs to be done. That information combined with the Federal Engineering report will be used to identify what the more immediate needs are for GIS. Also, NENA has introduced its minimum training standards for PSAPs this week. Wahlberg will send those to everyone within the next few days. The national standards can be used as a comparison to build a state model and also as a comparison for training needs going forward.

Pete Eggimann reports that the PSAP Roundtable, which is a workgroup of the Technical and Operations Committee of Metropolitan Emergency Services Board, has been working on drafting minimum training standards for telecommunicators. The group is going back through its work now to make sure it has addressed all of the issues that NENA identified. That is expected to be available at the July Metro TOC meeting and if accepted it will be available to this committee.

Chair Pankonie raised a question about whether the gap between present and future funding is sufficiently addressed in the report. Discussion about the need to look more in-depth at the specific and varied needs. This report is the first step. There is a need for more detailed reporting on expenditures to get better information and a need for further in-depth research and/or discussion in areas such as GIS or training. Related to training, one issue is the need for backup personnel so people can attend training.

Chair Pankonie calls for a motion to present the report to the SECB saying that this identifies the trends in PSAPs for the past and the present day and shows what needs to be looked into in the future.

**Judy Diehl makes the motion to present to the SECB the Federal Engineering report which identifies past and present trends and gives a baseline of the areas that need to further consideration.**

**Wernberg seconds the motion.**

**Friendly amendment accepted that states that the corrections discussed previously are made to the report prior to it being sent to the SECB.**

**Chair calls for a roll call vote.**

**Kathy Hughes votes in favor.**

**Beryl Wernberg votes in favor.**

**Steve Olson votes in favor.**

**Judy Diehl votes in favor.**

**Faith Evers votes in favor.**

**Pat Wallace votes in favor.**

**Bonnie Westfield in favor.**

**Timothy Boyer in favor.**

**Dana Wahlberg in favor.**

**Deb Harmon in favor.**

**Chair Pankonie in favor.**

**Motion carries to approve the PSAP Survey and Federal Engineering Report with the corrections and to send it to the SECB for approval.**

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#### NEW BUSINESS

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Wahlberg reports that RapidSOS reported that it intends to make a nationwide announcement that it will enter the market live on June 27. PSAPs may expect to begin to receive RapidSOS calls. Wahlberg has a training Power Point available for anyone interested but says that is not as in-depth as the RapidSOS PSAP Power Point that was presented at the NENA conference.

A number of PSAPs have identified static issues with AT& T wireless calls. Thank you to those who have provided Dustin Leslie with specific details. He is working to get that resolved.

Mines says if there are concerns about training please call her to discuss how they can be addressed.

**Meeting adjourns at 2:03 p.m.**



# Next Generation 9-1-1 GIS Project

**Prepared for NG9-1-1 Committee and SECB  
August 18, 2016**

**Presenter:  
Adam Iten, Project Manager**



- 2016 Goals
  - GIS Data Collection and Assessment
  - GIS Data Preparation
  - MN NG9-1-1 GIS Data Standards
  - Communication Plan



- **GIS Data Collection and Assessment**

- Data Collection
  - MSAGs, ALI, ELTs
  - GIS data
- Data Readiness Profiles
  - Required 911 and GIS data
  - 80+ data checks
  - Metro and NE – Summer 2016
  - All regions – end of 2016
  - Summary reports



- **NG9-1-1 GIS Data Preparation Projects**

- Timeline
  - Metro – ongoing with MESB
  - NE – begin Summer 2016
  - Remaining regions – begin Fall/Winter 2016
- General Project Tasks
  - Kickoff, roles/responsibilities, workflows
  - Community name validations
  - Street name validations
  - Address validations
  - Centerline validations
  - Emergency boundary validations
  - Edge-matching
  - GIS-based MSAG creation



- Developing GIS data requirements for NG9-1-1 in Minnesota
- Aligning with NENA standards and validate against similar standards
  - Other states (IA, KS, ND, TN, TX) and MRCC
  - Standards Comparison spreadsheet
- Standards Workgroup working toward Version 1.0

- Stakeholder review – **started February 2016**
  - Metropolitan Emergency Services Board (MESB) – **ongoing**
  - Metro Regional Centerline Collaborative (MRCC) – **ongoing**
  - MN PSAP and GIS Managers – **started March 2016**
  - MN GAC Standards Committee – **started April 2016**
  - ECRF, LVF, and other NG9-1-1 vendors – **starting September 2016**
  - Neighboring states – **starting September 2016**

- Stakeholder approval of v1.0 – **Complete early 2017**
  - Metropolitan Emergency Services Board (MESB)
  - GIS Subcommittee
  - NG9-1-1 Committee
  - Statewide Emergency Communications Board (SECB)
  - MN Geospatial Advisory Council (MGAC)
  - MN Information Technology Agency (MNIT)

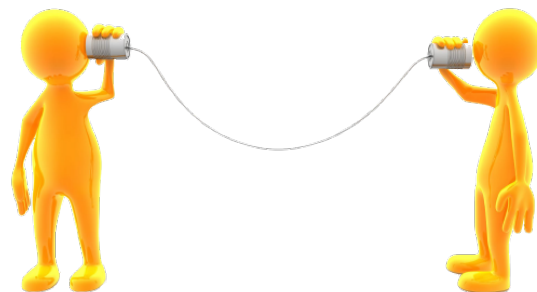


- DRAFT NENA Standards
  - NG9-1-1 GIS Data Model
  - Provisioning GIS to ECRF/LVF
  - i3 Solution
- Specific ECRF/LVF Vendor(s) is unknown
- Build once, use many times



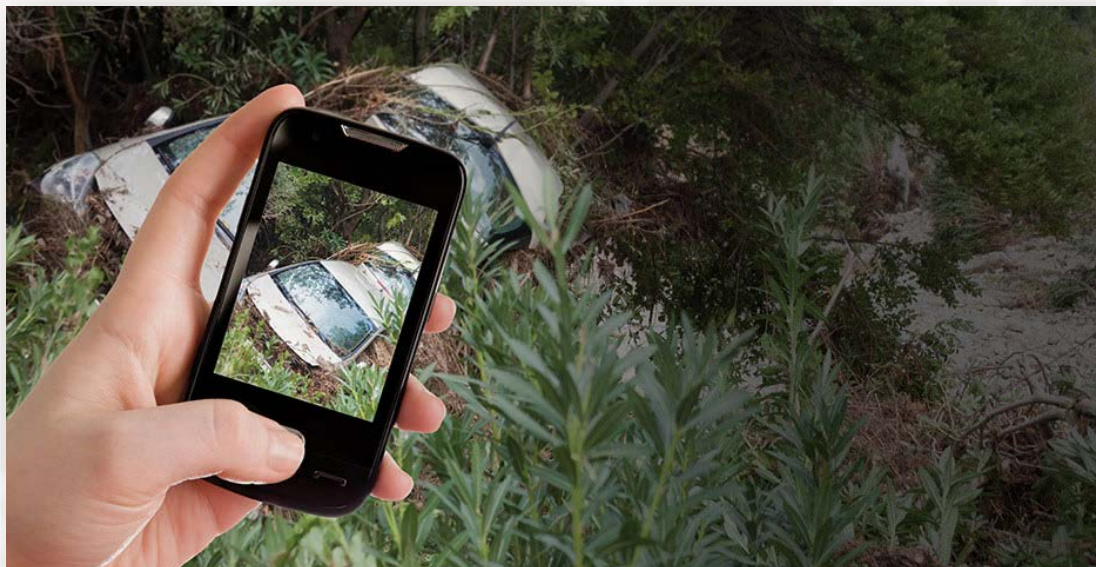
# Communication Plan

- ECN website
  - Project newsletter - **Issue #4 available soon**
- Monthly
  - GIS Subcommittee meeting
    - **Next meeting: Thursday, September 8 at 2pm**
  - NG9-1-1 Committee meeting
  - SECB meeting
- Quarterly
  - Regional PSAP/GIS meetings
  - MN Geospatial Advisory Council





# Thank You!



Adam Iten, Project Manager  
[Adam.Iten@state.mn.us](mailto:Adam.Iten@state.mn.us)  
651-201-7559



# Minnesota NG9-1-1 GIS News

July, 2016

Issue #4

## In This Issue:

- NG9-1-1: National Collaboration
- Feature Article: MESB
- NG9-1-1 GIS Standards - Update
- Data Readiness Profiles - Update
- Upcoming Events
- Neighboring States

## Useful Links:

### DPS-ECN

Minnesota Department of Public  
Safety Emergency Communication  
Networks GIS Information

### MnGeo

Minnesota Geospatial Information  
Office

### SECB

Statewide Emergency  
Communications Board

### NENA

National Emergency Number  
Association

### FirstNet

First Responder Network Authority

## Contact Us:

Adam Iten, NG9-1-1 Project  
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or 651-201-7559

## NG9-1-1: National Collaboration

The Minnesota Department of Public Safety, Emergency Communication Networks division (DPS-ECN) is responsible for oversight of public safety communications including the 9-1-1 system in the state and the migration to a Next Generation 9-1-1 (NG9-1-1) system. Minnesota is not alone in this journey, many states are beginning to plan for or are actively engaged in the process of creating their NG9-1-1 systems (see [status map](#)). Numerous federal, state, professional and academic organizations are also working together to define the processes and standards that will help guide the development and integration of NG9-1-1 geospatial data and systems nationally. Initiatives such as the [National Address Database](#) (NAD) are indicative of this multi-agency cooperation.

A recent [report](#) prepared by the [NG911 NOW Coalition](#) – a working group established by the [National Association of State 911 Administrators](#) (NASNA), [National Emergency Number Association](#) (NENA), and the [Industry Council for Emergency Response Technologies](#) (iCERT), emphasizes the need for collaboration at all levels of government and industry to help realize their goal of the nationwide deployment of NG9-1-1 by 2020. A June 13, 2016 NOW press release announcing the report, highlighted the role states play:

*"State governments play a vitally important role in facilitating the deployment of NG911. The state governance, regulatory, statutory, funding, technical and operational, and educational aspects of successful deployment must be addressed at the state level," said Evelyn Bailey, NASNA's executive director. "The states that have made the most progress are those that have addressed these matters. The combined efforts of the Coalition partners will help the remaining states to step up the pace."*

Cooperation between state and local government entities will be critical to the success of implementing NG9-1-1 in Minnesota. Within the Twin Cities metropolitan area the [Metropolitan Emergency Services Board](#) (MESB) plays a key role in building out NG9-1-1 geospatial data. I would like to thank Jill Rohret, Executive Director of MESB, for contributing this issue's guest article. Their work with PSAP managers as well as county and city GIS managers will help ensure that local data can be integrated with the statewide NG9-1-1 system while meeting local needs as well. Thank you Jill!

Jackie Mines, Director, DPS-ECN

# Metropolitan Emergency Services Board

By Jill Rohret, Executive Director



***The Metropolitan Emergency Services Board (MESB) was established by a Joint Powers Agreement for the purposes of overseeing the metropolitan 9-1-1 system, the metropolitan portion of the Allied Radio Matrix for Emergency Response (ARMER) system, and Emergency Medical Services (EMS) in the Twin Cities metropolitan area.***

Formed in June 2005 by the counties of Anoka, Carver, Chisago, Dakota, Hennepin, Isanti, Ramsey, Scott and Washington, as well as the City of Minneapolis, as a result of a merger of the former Metropolitan 9-1-1 Board and the former Metropolitan Radio Board, the MESB provides metropolitan 9-1-1 network oversight, establishes standards and guidelines for 9-1-1 services, and coordinates the 9-1-1 database to ensure accuracy and integrity of the 9-1-1 system. It also oversees and manages the metropolitan portion of the [ARMER](#) system, establishes standards and guidelines for radio system operation in the region, and encourages and facilitates participation among the region's first responder agencies. For EMS, the MESB coordinates regional EMS activities, serves as an information clearinghouse, and supports EMS providers with monetary and programmatic resources to enhance the metropolitan EMS system. The MESB provides an essential forum for problem-solving and discussion by facilitating and coordinating meetings and activities for ARMER users, Public Safety Answering Points (PSAPs), and EMS providers involved in providing public safety service and response. The MESB also represents and advocates for the needs of its member entities and the metropolitan 9-1-1, ARMER, and EMS systems.

## ***MESB Role in 9-1-1***

In 1982, seven metropolitan counties formed the Metropolitan 9-1-1 Board as a joint powers agency to govern the metropolitan 9-1-1 system and carry out the requirements of counties under Minnesota Statute Chapter 403 for the establishment, operation, and maintenance of a 9-1-1 telephone system for the metropolitan area. The Board was later expanded to include Chisago and Isanti counties, along with the City of Minneapolis. The member entities recognized economic and operational advantages to the members to jointly plan, coordinate, and administer a regional 9-1-1 system. The Board allowed for cost savings and efficiencies for the counties as each county did not have to have staff to coordinate and manage the 9-1-1 network and database. The MESB continues that role today. Minnesota Statute 403 specifies the MESB's role in 9-1-1 system governance and maintenance. MS 403.07 Subd. 2 requires the MESB to establish design standards for the metropolitan 9-1-1 system. These standards must be included in State of Minnesota 9-1-1 rules. The MESB works closely and regularly with DPS-ECN on all 9-1-1 matters, but particularly in maintaining the efficacy of the 9-1-1 network infrastructure. The MESB also assists the region's PSAPs by determining the correct routing of wireless cell sectors, a role which was added as the 9-1-1 system needs evolved. In addition, the MESB monitors metropolitan 9-1-1 system performance and coordinates extensively on behalf of its member entities with system vendors and telecommunications service providers on 9-1-1 service related matters.

## ***9-1-1 Data***

In relation to 9-1-1 data, the current metropolitan area Enhanced 9-1-1 (E9-1-1) system relies on three key datasets: the Master Street Address Guide (MSAG), Automatic Location Identification (ALI), and ESN (Emergency Service Number) data. The MSAG is a tabular database used in validating addresses and determining the correct routing of 9-1-1 calls to the appropriate PSAP. It is the official 9-1-1 record of valid street names and house number ranges within communities in the region. The MSAG associates street address ranges to the correct combination of police, fire and medical responders (designated in the 9-1-1 system as an Emergency Service Number or ESN). Telecommunications service providers submit their wireline telephone records daily to be processed against the MSAG. Once validated, the records are added to or updated in the ALI database that is used for 9-1-1 call routing and caller location display at PSAPs.

The MESB coordinated the initial creation of the MSAG for the metropolitan region prior to implementation of the current E9-1-1 system on December 2, 1982. Since that time, each metropolitan county, having statutory responsibility for operation and maintenance of their 9-1-1 system, has maintained their portion of the MSAG, which is then overseen at a regional level by the MESB. In most cases, counties have assigned day-to-day responsibility of MSAG maintenance to PSAP personnel familiar with Computer Aided Dispatch (CAD) data. Each PSAP has a designated MSAG Coordinator who then interfaces with the MESB on various 9-1-1 data related matters. In partnership with their cities and emergency agencies, counties/PSAPs keep the address, emergency response, and PSAP boundary information contained in their MSAG and ESNs current. The MESB provides standardized regional 9-1-1 data oversight and support, as well as coordinates with telecommunication service providers, database vendors, and the metro area 9-1-1 system integrator on various 9-1-1 database issues.

### ***NG9-1-1 and GIS***

Today's E9-1-1 system is based on a phone number that, when a 9-1-1 call is made, flows through the 9-1-1 network and is used by the PSAP call handling equipment to perform a query into the static ALI database to obtain location information pre-associated with the calling device's phone number. With NG9-1-1, however, the current location of the calling device becomes part of the initial call flow through the 9-1-1 network. The location of the calling device may be a civic street address or a latitude/longitude coordinate. In an NG9-1-1 environment, both location validation and call routing determination will be done using geospatial data deployed in new NG9-1-1 network elements rather than today's existing database models. The county's role of maintaining the data essential to operating its 9-1-1 system will continue as the system evolves, however, the role will be accomplished through the maintenance of geospatial datasets rather than tabular files, such as the MSAG.

Early in the planning for NG9-1-1, the MESB recognized the industry need to replace the legacy MSAG with geospatial datasets as the means for address validation and call routing determination. As a result, in 2004, the MESB hired a GIS Coordinator to begin working with county and regional agencies in the assessment and planning for how future 9-1-1 needs could be accommodated with GIS efforts contemplated or underway in the metropolitan area. The discussions focused on creation of publicly available, authoritative, centerline and address point datasets that were multi-use in nature, but would be capable of meeting the anticipated NG9-1-1 requirements under development by the NENA. Collaboration by GIS staff from the seven metropolitan counties, the MESB, the Metropolitan Council, and the State of Minnesota resulted in the Metropolitan Road Centerline Consortium (MRCC) project (see [Issue #3](#) of this newsletter) that has become the vehicle for meeting the NG9-1-1 centerline requirements for the metropolitan region. Similar collaborative efforts are anticipated to meet NG9-1-1 address point data requirements for the metropolitan region.

### ***Data Validation and Synchronization***

The MESB also recognized that the transition to NG9-1-1 would require a significant effort to validate and synchronize legacy 9-1-1 data (MSAG, ESNs, and ALI telephone record data) with the geospatial data (centerline, address points, and emergency service response polygons). Although the State of Minnesota did not officially kickoff the Minnesota NG9-1-1 GIS project until 2015, the MESB began working with its member counties and PSAPs as early as 2010 to explore what would be involved in the NG9-1-1 data validation and synchronization effort. Anticipating statewide requirements, the MESB has helped its member counties identify key markers of NG9-1-1 data synchronization, organize and report on discrepant data, and coordinate with key parties on error resolution. The MESB has identified essential phases of the 9-1-1/GIS data synchronization effort including validation of Emergency Service Zone (ESZ) and response agency boundaries with the MSAG and ESNs, validation of street names across the key datasets, geocoding of 9-1-1 addresses to centerline and address point data, geocoding of address point data to the centerline, centerline validations (e.g. parity checks), and ESN assignment comparison/validation. The metropolitan area counties and PSAPs are currently at various stages in their data synchronization, depending on



when they started, the state of their existing GIS data, timing with Computer Aided Dispatch (CAD) system upgrades, etc. Through diligence on their part, some MESB counties have even reached a current level of just .2% or less of 9-1-1 addresses that do not match either their county centerline or address points.

In working with its member entities, the MESB has also observed that, due to the data synchronization effort, metropolitan area PSAPs and county GIS departments have forged new partnerships surrounding GIS data, as well as strengthened their ties with address authorities, thereby ensuring that official addressing is consistently reflected throughout the datasets. The 9-1-1/GIS data synchronization effort in the metropolitan area is clearly benefiting existing centerline, address point, CAD, MSAG, and ALI data accuracy today. The synchronization effort is also positioning metropolitan area counties to be in a state of data readiness so that minimal adjustments will be needed to meet statewide NG9-1-1 GIS standards as they are finalized and approved.

Staff from the MESB, metro county GIS organizations, and PSAPs are working closely with Adam Iten, the State's NG9-1-1 GIS Project Manager, to share knowledge gained in the metro area over recent years and to offer input into the statewide project. The MESB is looking forward to more clarity from the DPS-ECN and MnGeo regarding NG9-1-1 system requirements as statewide planning and implementation evolves. As specifics of the State's NG9-1-1 system become clear, MESB will continue, as it has in the past, to support its member counties and PSAPs as they align their GIS data and processes to meet NG9-1-1 needs.

### ***The Future of 9-1-1***

In the future, 9-1-1 will remain a vital part of public safety. Though the future technical specifications are not entirely clear, the MESB is committed to evolving its role in the 9-1-1 system as it continues to evolve with technology and user needs. The MESB will continue to support and work with metropolitan agencies to optimize the 9-1-1 system and data, and will continue to advocate for system performance standards.

## **NG9-1-1 GIS Standards - Update**

The Minnesota NG9-1-1 GIS Standards Workgroup continues to move forward with its efforts to establish GIS data standards for NG9-1-1. The workgroup consists of GIS managers and staff representing each of [DPS-ECN's seven regions](#).

Whether you describe them as guidelines, specifications, models, benchmarks or axioms, standards are needed because NG9-1-1 GIS data will be harvested from and maintained by local authoritative sources whenever possible. Standards will help ensure that these data can be consumed efficiently and with confidence that they will meet Emergency Call Routing Function (ECRF) and Location Validation Function (LVF) requirements.

### **Road Centerlines Review:**

Working closely with the GIS Standards Workgroup, in late March DPS-ECN and MnGeo published a first draft of the document, *Minnesota Next Generation 9-1-1 GIS Data Standards*. Although the draft document focused solely on standards for road centerlines, it also included an overview of the state's proposed NG9-1-1 GIS data model, roles and responsibilities for the state and its partners, map projection requirements, and data creation and collection standards.

PSAP and GIS managers from across the state were asked to review the document and comment on standards defined in the publication by the end of April. Nearly 50% of the state's PSAPs responded, submitting more than 250 comments or questions. Examples include:

*"Are the field names, types, and widths required or will the state have a means to translate the data into the final statewide schema as long as some field is present in the dataset to cover each mandatory and conditional field?"*

*“Are we conforming to State or Nena requirements? Assume this is saying conform to State standards which conforms to NENA standards?”*

*“Our current road centerline data closely aligns with requirements here. Missing fields should not require much effort to populate. That said, ZIP CODE boundaries have posed some difficulty locally. I could benefit from an authoritative zip code boundary source to populate the ZIP\_L and ZIP\_R fields.”*

*“Our centerlines meet spatial requirements, some maintenance will be needed once schema is changed and new fields are introduced. Is there a plan or suggestions in place to assist in verification of 100% msag [MSAG] matching once msag [MSAG] entries are made into the road centerline dataset?”*

*“Can E991 [E9-1-1] funds be used to acquire outside help on the project, and will the state provide help to meet this extensive list of standards?”*

Comments have been compiled and reviewed by DPS-ECN and MnGeo and in most cases, staff responded to questions asked by the reviewers. MnGeo staff worked closely with the GIS Standards Workgroup to include revisions recommended through the vetting process in the second draft of the document. The second draft will be distributed for review in late August/early September to PSAPs, GIS managers and for the first time, NG9-1-1 vendors, ECRF and LVF vendors, and other states. This is the second of at least three revisions expected before formal approval of the completed document by the MESB, NG9-1-1 GIS Subcommittee, NG9-1-1 Committee, SECB, and [Minnesota Geospatial Advisory Council](#). Final approval will likely not occur until early 2017 (Figure 1).

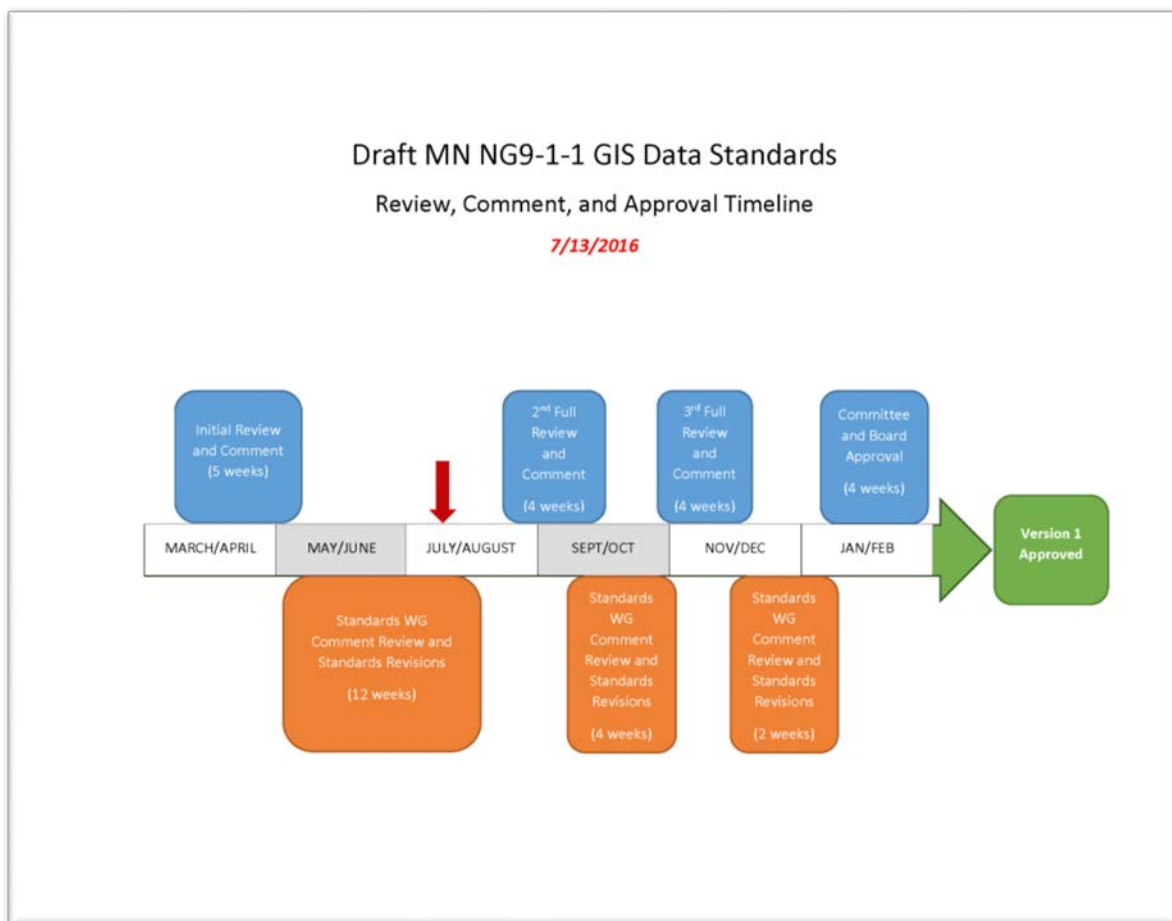


Figure 1: Data Standards Timeline

The second draft of *Minnesota Next Generation 9-1-1 GIS Data Standards* will also include preliminary specifications for address points and polygonal GIS data.

### Address Points:

A growing number of PSAPs and GIS authorities across the country are building an “address point” layer for their service areas. Address points use a distinct geographic location such as [USNG](#) or latitude/longitude to describe the position of a residence, business, grocery store, police station, etc. (Figure 2).

Information associated with an address point such as its street address, accompanying phone number, business name and contents (such as hazardous chemicals storage) can potentially be displayed on a 9-1-1 dispatcher’s screen. The ability to link address locations to photos, 3-D floor plans and much more make address points more useful than current-day MSAG and ALI data.



Figure 2: Address Points

DPS-ECN and MnGeo are recommending that PSAPs begin building their address point layer along with road centerlines and emergency service boundaries. As with road centerlines, to maximize the benefit of collecting and utilizing site/structure address points in NG9-1-1, data standards are needed. DPS-ECN and MnGeo have begun work to define those standards for Minnesota building upon draft standards prepared by NENA, MetroGIS and adjacent states. Staff from the MESB, MnGeo and DPS-ECN have methodically compared (Figure 3) each with the other - identifying commonalities and differences. Preliminary results from this analysis will be incorporated in the second draft of *Minnesota Next Generation 9-1-1 GIS Data Standards* after being vetted by the MetroGIS Address Workgroup, MESB and the GIS Standards Workgroup.

In addition to defining “structure” of the data, i.e. domains, attributes, field widths and types, etc., consideration must be given to how address points are placed. The document, [NENA Information Document for Development of Site/Structure Address Point GIS Data for 9-1-1](#), provides helpful guidelines for address point data development including point placement considerations. Many of its recommendations will be incorporated in future revisions of *Minnesota Next Generation 9-1-1 GIS Data Standards*.

MINNESOTA						NENA Site/Structure Address Points Data Model						MetroGIS				IOWA			
Descriptive Name	Field Name	M/C	Ty	Field	Responsibility	Domain	Descriptive Name	Field Name	M/C/O	Type	Field Width	Field	M/C/O	Type	Field Width	Field	M/C/O	Type	Field Width
1 Source of Data	SOURCE	M	T	75	Local	Y	Source of Data	Source	M	A	75	ADRSOURCE, AUTHORITY, EDITOR, M, D	A, A, A, A	40, 40, 40	75	SOURCE	M	A	75
2 Date Updated	EDITED_DT	M	D		Local	N	Date Updated	DateUpdate	M	D	20	UPDATEDATE	M	D	20	UPDATED	M	D	20
3 Effective Date	ACT_DATE	C	D		Local	N	Effective Date	Effective	O	D	20	n/a			20	EFF_DATE	M	D	20
4 Expiration Date	RET_DATE	C	D		Local	N	Expiration Date	Expire	O	D	20	n/a			20	EXP_DATE	O	D	20
5 Site Unique ID	UNIQUE_ID	M	T	100	Local	N	Site NENA Globally Unique ID	Site_NGUID	M	A	100	ADD_ID_NAT, ADD_ID_LOC	M, M	A	60, 50	SITE_UID	M	A	100
6 Country	COUNTRY	O	T	2	State	Y	Country	Country	M	A	2	n/a			2	COUNTRY	M	A	2
7 State	STATE	M	T	2	State	Y	State	State	M	A	2	STATE_CODE	M	A	2	STATE	M	A	2
8 County	COUNTY	M	T	40	Local	Y	County	County	M	A	40	CO_NAME	M	A	20	COUNTY	M	A	40
n/a							Additional Code	AddCode	C	A	5	n/a			5	n/a			
9 Additional Data URI	ADDDATAURI	C	T	254	Local/State	N	Additional Data URI	AddDataURI	C	A	254	n/a			254	n/a			
10 Municipality	CITY	M	T	100	Local	Y	Incorporated Municipality	Inc_Muni	M	A	100	MUNI_NAME	M	A	100	INC_MUNI	M	A	100
n/a							Unincorporated Community	Uninc_Comm	O	A	100	n/a			100	UN_COMM	C	A	100
n/a							Neighborhood Community	Nbrhd_Comm	O	A	100	n/a			100	NGHED_COMM	C	A	100
11 Address Number Prefix	ANUMBERPRE	C	T	15	Local	N	Address Number Prefix	AddNum_Pre	C	A	15	ANUMBERPRE	M	A	15	HNP	O	A	15

Figure 3: Address Points Standards Analysis



### ***Polygonal GIS Data:***

To the extent that time allows, the second draft of *Minnesota Next Generation 9-1-1 GIS Data Standards* will include preliminary standards for polygonal data such as PSAP, law, fire, first responder and ambulance service areas. Ultimately, standards for polygonal data will define the structure of the data as well as resolution, map projections, etc.

Once these standards are defined, vetted and approved, polygonal data submitted by local authorities will be carefully reviewed by DPS-ECN and MnGeo staff. They will work with PSAPs, GIS managers and emergency service providers to resolve issues like boundary overlaps or gaps that may occur between adjacent PSAPs (Figure 4). Polygonal data will be compared with road centerlines, address points and MSAG tabular data as well to ensure its completeness and accuracy.

A complete set of standards for polygonal data will appear in the third revision of the data standards document.



Figure 4: Service Area Gaps

## **Data Readiness Profiles – Update**

As noted in [Issue #3](#) of *Minnesota NG9-1-1 GIS News*, a major initiative currently underway at MnGeo is the assessment of existing geospatial data needed to support the NG9-1-1 operations. Data Readiness is one of many processes used by MnGeo to evaluate 9-1-1 and GIS data submitted by local authorities (PSAPs, GIS managers, etc.). It falls within the Data Assessment activity – the first of three major program activities. The other two are Data Preparation, and Ongoing Data Maintenance. Each activity consists of multiple processes and phases undertaken to prepare the geospatial data for on-going ECRF and LVF use.

NG9-1-1 data assessments began in late 2015 when DPS-ECN and MnGeo requested GIS and tabular 9-1-1 data: MSAG, ALI and English Language Translation (ELT), from each PSAP in the state. Beginning with the Northeast region, these data have undergone a rigorous inspection and evaluation. Results from nearly 100 data readiness checks are being captured in a Data Readiness Profile table for each PSAP. Key results will be highlighted in a comprehensive Data Readiness Report and shared with PSAP and GIS authorities to support them with the validation and ultimately correction of their data. Below are examples (Figure 5) of several pieces of a *draft* Data Readiness Report.

Once the Data Readiness Profiles are completed for a region, MnGeo will work with local PSAP and GIS managers to schedule and kick-off the next activity, Data Preparation. Like the previous activity, Data Preparation consists of multiple processes and phases used by state and local authorities to validate and correct street centerlines, address points, PSAP and ESN boundaries. Tabular information, including the MSAG, ALI, ELT data are also to be assessed for each [ECN region](#) in the state - beginning with the Northeast. The Data Preparation process involves six phases:

1. Community Name Validations
2. Street Name Validations
3. Address Validations
4. Road Centerline Validations
5. Emergency Service Zone Validations
6. Edge Matching

## Summary tables and charts:

### 2. Observation of Data Supplied to MnGeo

#### a. Comments

- i. There are blank records in all of their GIS data.

#### b. Aitkin County MSAG

Number of Entries	1855
Unique Street Names	1260
Unique Community Names	18

#### c. Centerlines

Number of Entries	4979
Unique Street Names	1247
Unique Community Names	15

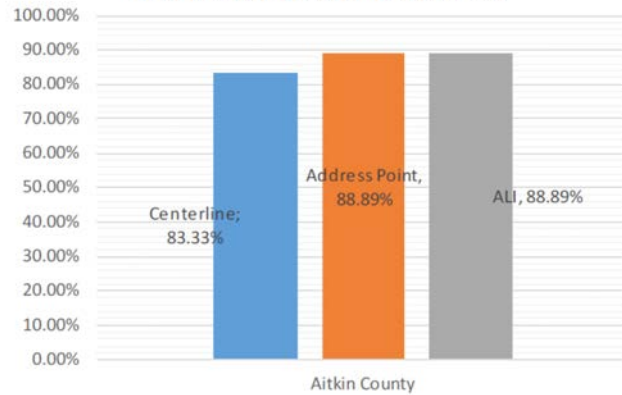
#### d. Address Point

Number of Entries	14824
Unique Street Names	1056
Unique Addresses	14802
Unique Community Names	16

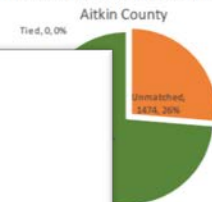
#### e. ALI

Number of Entries	7391
Unique Street Names	0
Unique Addresses	5600
Unique Community Names	0

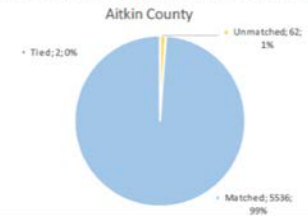
### Community Name Match Rates



#### Unique ALI Address Geocoding Errors (ALI vs Address Point)

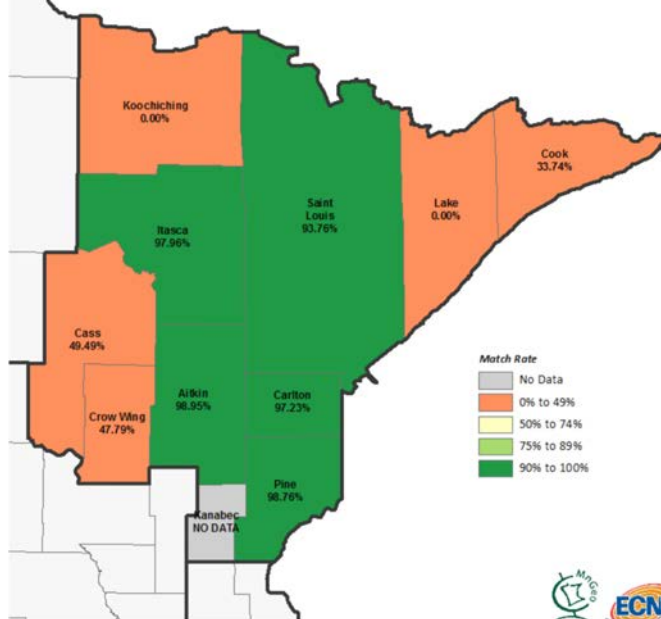


#### Unique ALI Geocoding Errors (ALI vs Centerline)



### Northeast Region Data Quality:

#### ALI to Centerline Geocode



#### Address Point Geocoding Errors (Address Point vs Centerline)

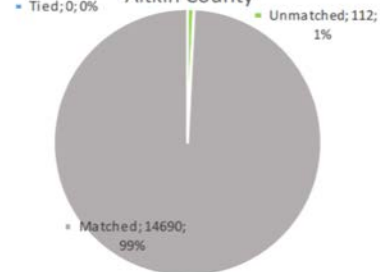


Figure 5: Data Readiness Profile Report

## Community Names Validation report:

During the Community Names Validation phase the jurisdictional community name found in three input data files will be scrutinized for accuracy, continuity and adherence to state standards. The data sets to be evaluated for each PSAP are: Road Centerlines, Address Points, and the MSAG. This process has been designed to address the following questions:

1. Is every community name in the MSAG represented in both the Street Centerline and the Address Point geospatial data files?
2. Under what conditions should a change to a Community Name in any of those input data sets be required?
3. Who should determine when a change should be made?
4. What process should the affected stakeholders take to assure a change is permanently reflected in their source data?

Consistent and accurate community names are important because they are a critical component of geocoding, location validation, and call routing tasks. Below is a sample (Figure 6) comparison of Aitkin community names from five different sources. Pale red indicates a mismatch between these sources. For example, the community name “Deerwood” appears in the MSAG but not in the street centerline file provided by the PSAP or in the [GNIS](#) database.

PREFERRED NG911 Community Name	MSAG Community Name	Centerline Community Name	Address Point Community Name	GNIS Community Name	GNIS Feature ID
AITKIN	AITKIN	AITKIN	AITKIN	City of Aitkin	2393894
	AITKIN CO SO				
	DEERWOOD		DEERWOOD		
	FINLAYSON	FINLAYSON	FINLAYSON		
	FLOODWOOD	FLOODWOOD	FLOODWOOD		
HILL CITY	HILL CITY	HILL CITY	HILL CITY	City of Hill City	664474
	ISLE	ISLE	ISLE		
	JACOBSON	JACOBSON	JACOBSON		
MCGRATH	MCGRATH	MCGRATH	MCGRATH	City of McGrath	2395067
MCGREGOR	MCGREGOR	MCGREGOR	MCGREGOR	City of McGregor	2395068
PALISADE	PALISADE	PALISADE			
	SANDSTONE	SANDSTONE			
	STURGEON LAKE	STURGEON LAKE			
	SWAN RIVER	SWAN RIVER			
	SWATARA	SWATARA			
TAMARACK	TAMARACK	TAMARACK			
	WRIGHT	WRIGHT			

**Aitkin County Street Name Validation**  
**MSAG Compared to Centerline and Address Point Datasets**

# of MSAG Community Names	18
# of Centerline Community Names	15
# of Address Point Community Names	16
# of Discrepancies between MSAG and Centerline	3
# of Discrepancies between MSAG and Address Point	2
# of Discrepancies between Address Point and Centerline	1

Figure 6: Community Names Analysis

In the coming weeks, DPS-ECN and MnGeo staff will be meeting with PSAP and GIS managers in the Northeast region to review and discuss their assessment of local data.

## Upcoming Events

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

- ❖ August 11: NG9-1-1 GIS Subcommittee Meeting
- ❖ August 24: NG9-1-1 Committee Meeting
- ❖ August 25: SECB Meeting
- ❖ September 8: NG9-1-1 GIS Subcommittee Meeting
- ❖ September 28: MN Geospatial Advisory Council Meeting
- ❖ October 26-28: [MN GIS/LIS Annual Conference](#), Duluth, MN

## Neighboring States

For more information about NG9-1-1 efforts in the states surrounding Minnesota, visit:

[Iowa Enhanced 9-1-1](#)

[North Dakota ND911](#)

[South Dakota 9-1-1](#)

Wisconsin: In planning phase. See NENA [status map](#).

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

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