



# Minnesota NG9-1-1 GIS News

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Issue #2

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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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## 2015 In Review

With the transition to a new year underway, it is fitting that we take a moment and look back at work accomplished in 2015 and examine what lies ahead for 2016.

Although work to advance Minnesota’s NG9-1-1 program has been underway for several years, 2015 saw significant strides forward beginning with the establishment of a formal partnership between the Minnesota Department of Public Safety, Emergency Communication Networks division (DPS-ECN) and Minnesota’s Information Technology Agency (MNIT), Minnesota Geospatial Information Office (MnGeo). Over the next three years MnGeo will provide GIS support – oversight, coordination and technical, for the program. Additional accomplishments in calendar year 2015 included:

### Q1 CY15

- Hiring Adam Iten as MN.IT’s NG9-1-1 Project Manager
- Completing a project Scope of Work

### Q2 CY15

- Holding eight regional project kickoff meetings across the state
- Completing a [Request for Information \(RFI\)](#) from 104 public safety answering points (PSAPs) in the state’s 87 counties, covering 86,939 square miles. The RFI sought to assess the GIS capabilities, software and data currently being used - or needed but not currently available - to support daily E9-1-1 workflows. The RFI also attempted to identify each PSAP’s GIS data issues and data sharing considerations.
- Forming a [NG9-1-1 GIS Subcommittee](#)
- Defining roles and responsibilities between DPS-ECN, MnGeo and the [Metropolitan Emergency Services Board \(MESB\)](#) to effectively support the nine-county Twin Cities metropolitan area in the application of NG9-1-1 GIS datasets/technology.

### Q3 CY15

- Completing a [RFI Summary Report](#)
- MnGeo’s hiring of two GIS Analysts for the project
- Forming a GIS Standards Workgroup
- Completing the initial, statewide NG9-1-1 GIS data collection and assessment
- Delivering geospatial statewide emergency service boundaries for the FirstNet project

## Q4 CY15

- Producing [Issue #1 of the NG9-1-1 Project Newsletter](#)
- Purchasing “development” and “repository servers” to host geospatial data created by counties and PSAPS

## 2016 Goals

The next 12 months will be both challenging and exciting for the NG9-1-1 program. We have a very ambitious set of goals we would like to meet that involve the participation of many of the state’s PSAPs, the MESB, and county GIS staff; particularly in the Twin Cities metropolitan area and northeastern Minnesota – our pilot areas. Our goals for calendar year 2016 include:

### Q1 CY16

- An expanded data collection, assessment, and preparation effort. This includes collecting and evaluating updated street centerlines, address points and PSAP boundaries as well as Master Street Address Guide (MSAG), Automatic Location Information (ALI) and English Language Translation (ELT) tabular data.

### Q2 CY16 – Q4 CY16

- Completing data readiness profiles for our pilot areas by Q2 CY16, and for the balance of the state by Q4 CY16. In addition to the information we collected through the RFI’s, the data readiness profiles will provide us with detailed information such as: How many MSAG entries existed in a county as of Q4 2015? How many MSAGs use Postal Standard Suffix Abbreviations? What is the number of unique MSAG street names that exist in the county? Who are the addressing authorities in the county?
- Continue to support the MSAG/GIS synchronization project being coordinated by the MESB in the Twin Cities metro area. This will involve a great deal of collaboration with MESB and the metro counties. We will begin synchronization work in northeastern Minnesota in Q2 CY16. For the remaining regions in the state we will begin this work in Q3 CY16. See the article [below](#) for details.
- Continue work to define NG9-1-1 GIS data workflow scope and requirements. This includes:
  - Testing data uploads and MnGeo NG9-1-1 data portal – Q2 CY16
  - Defining and testing data normalization routines – Q2 CY16
  - Defining and testing data validation processes – Q2 CY16
  - Defining and testing data aggregation processes – begin Q3 CY16
  - Test the provisioning of the Emergency Call Routing Function (ECRF)/Location Validation Function (LVF) – begin Q3/Q4 CY16
- Adding PSAPs/counties to NG9-1-1 GIS repository:
  - For the Metro region add road centerlines – Q1 CY16 with remaining GIS data beginning Q3 CY16
  - For the northeast region – begin in Q2 CY16
- Continue to develop Minnesota’s NG9-1-1 GIS standards. This effort includes:
  - Developing GIS data requirements for NG9-1-1 in Minnesota
  - Aligning with [National Emergency Number Association \(NENA\)](#) standards and validate against similar standards including those in other states (IA, KS, ND, TN, TX) and the MRCC
  - Soliciting stakeholder review of v1.0 – starting Q1 CY16. Standards will be vetted by the MESB, GIS Subcommittee and other stakeholders including the NG9-1-1 Committee and PSAP stakeholders.
  - Soliciting stakeholder approval of v1.0 – Q3 CY16. Final approval by MESB, GIS Subcommittee, NG9-1-1 Committee, Statewide Emergency Communications Board (SECB) and MN.IT’s [Minnesota Statewide Geospatial Advisory Council](#).

See the article [below](#) for a status report on the Standards Committee.

We look forward to working with the NG9-1-1 community in this busy year ahead. Thank you!

Jackie Mines, Director DPS-ECN

## FirstNet Support - Update

FirstNet's (First Responder Network Authority) responsibility is to build, operate and maintain the first high-speed, nationwide wireless broadband network dedicated solely to public safety. It will provide a single, interoperable platform for emergency and daily public safety communications.

DPS-ECN and MnGeo recently delivered important geospatial data layers to Minnesota's FirstNet contractor. Uploaded from local government (county, city and tribal) sources, these data were carefully reviewed before being merged to create a single statewide GIS dataset. Data layers included PSAP and emergency services boundaries for law, fire, and emergency medical service areas in Minnesota. First Responder and Rescue service area boundaries were also reviewed - if they existed. Only one county and tribal government did not provide the state with data.

FirstNet's contractor will link attribute information to the spatial data to document areas in the state that are the highest priority for first responders - typically highly populated areas, and areas where broadband coverage is not available today from commercial providers. This work will help guide FirstNet and state officials when building out the communications infrastructure needed to support first responders.

Although intended for the FirstNet program, the GIS data collected by DPS-ECN and MnGeo will prove useful for NG9-1-1. This was the first time that local Emergency Service Zone (ESZ) data was processed and combined into a statewide coverage. It is clear from this effort that this foundational data will require additional work before it can be incorporated in the NG9-1-1 effort. For example, ESZ boundary inconsistencies, i.e. buildings being "cut in half" (Figure 1) or gaps (yellow area) in service areas (Figure 2) must be resolved. This will require a great deal of cooperation and coordination between state, regional, county, PSAP and local officials.



Figure 1: Buildings Split by ESZ

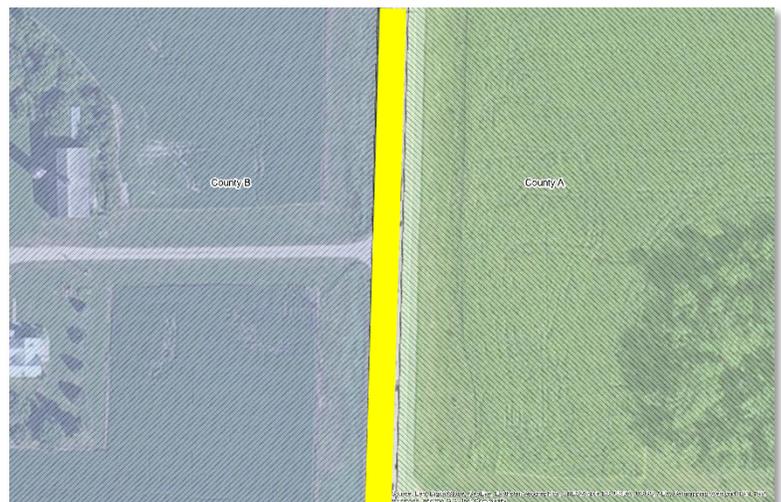


Figure 2: ESZ Gap Between Counties

## NG9-1-1 GIS Standards - Update

The Minnesota NG9-1-1 GIS Standards Workgroup has been working industriously over the past month to develop and recommend geospatial standards needed to integrate locally collected and maintained GIS data into statewide layers deemed critical for the ECRF and LVF of NG9-1-1. These layers include road centerlines, site/structure address points, PSAP boundaries, emergency service boundaries (law, fire, emergency medical service, first response, and rescue) and NG9-1-1 GIS data maintenance authority boundaries. Before local GIS data can take on these critical roles in Minnesota's NG9-1-1 system, certain criteria must first be considered. For example: What existing GIS data

can be used? Does existing GIS data meet minimum accuracy requirements for NG9-1-1? What standard schema should be followed?

Supported by DPS-ECN and MnGeo staff, the GIS Standards Workgroup has been assessing several well established but evolving set of standards, beginning with those prepared by the NENA. They have also reviewed standards proposed by the [Federal Geographic Data Committee \(FGDC\)](#), several other states including Iowa, Kansas, Texas, Tennessee and North Dakota, and those standards of the [Metropolitan Regional Centerline Collaborative \(MRCC\)](#) - a joint effort by nine counties in the Twin Cities metropolitan area to create a seamless, regional street centerline GIS dataset that will support NG9-1-1. Each set of standards are evaluated and a determination is made as to which can be used “as-is” and which may require modification to meet Minnesota’s needs. Attribute fields are also compared across all sources and their commonalities noted (Figure 3).

Figure 3: NG9-1-1 Field Comparisons

MINNESOTA			NENA Road Centerlines Data Model			MRCC Local Centerline Model			IOWA		
Descriptive Name	Field Name	Type	NENA Descriptive Name	Field Name	Type	Field	M/C/O	Type	Field	M/C/O	Type
Source of Data	SOURCE	A	Source of Data	Source	A	SOURCE	M	A	SOURCE	M	A
Date Updated	EDITED_DT	D	Date Updated	Updated	D	EDITED_DT	M	D	UPDATED	M	D
Effective Date	ACT_DATE	D	Effective Date	Effective	D	ACT_DATE	M	D	EFF_DATE	M	D
Expiration Date	RET_DATE	D	Expiration Date	Expire	D	RET_DATE	M	D	EXP_DATE	O	D
RCL_Unique_ID	UNIQUE_ID	A	Road Centerline NGUID	RCL_NGUID	A	UNIQUE_ID	M	A	RCL_LUID	M	A
Country Left	COUNTRY_L	A	Country Left	Country_L	A	n/a			COUNTRY	M	A
Country Right	COUNTRY_R	A	Country Right	Country_R	A	n/a			n/a		
State Left	STATE_L	A	State Left	State_L	A	STATE_L	M	A	STATE_L	M	A
State Right	STATE_R	A	State Right	State_R	A	STATE_R	M	A	STATE_R	M	A
County Left	COUNTY_L	A	County Left	County_L	A	COUNTY_L	M	A	COUNTY_L	M	A
County Right	COUNTY_R	A	County Right	County_R	A	COUNTY_R	M	A	COUNTY_R	M	A
ADDCODE Left	ADDCODE_L	A	Additional Code Left	AddCode_L	A	n/a			n/a		
ADDCODE Right	ADDCODE_R	A	Additional Code Right	AddCode_R	A	n/a			n/a		
Municipality Left	CITY_L	A	Incorporated Municipality Left	IncMuni_L	A	CITY_L	M	A	INC_MUNI_L	M	A
Municipality Right	CITY_R	A	Incorporated Municipality Right	IncMuni_R	A	CITY_R	M	A	INC_MUNI_R	M	A
Unincorporated Community Left		A	Unincorporated Community Left	UnincCom_L	A	n/a			UN_COMM_L	C	A
Unincorporated Community Right		A	Unincorporated Community Right	UnincCom_R	A	n/a			UN_COMM_R	C	A
Neighborhood Community Left		A	Neighborhood Community Left	NbrhdCom_L	A	n/a			NGHBD_L	O	A
Neighborhood Community Right		A	Neighborhood Community Right	NbrhdCom_R	A	n/a			NGHBD_R	O	A
Left Address Number Prefix		A	Left Address Number Prefix	AdNumPre_L	A	n/a			ADD_PFX_L	C	A
Right Address Number Prefix		A	Right Address Number Prefix	AdNumPre_R	A	n/a			ADD_PFX_R	C	A
Left FROM Address	ADR_FR_L	N	Left FROM Address	FromAddr_L	N	ADR_FR_L	M	N	L_FROM_ADD	M	N
Left TO Address	ADR_TO_L	N	Left TO Address	ToAddr_L	N	ADR_TO_L	M	N	L_TO_ADD	M	N
Right FROM Address	ADR_FR_R	N	Right FROM Address	FromAddr_R	N	ADR_FR_R	M	N	R_FROM_ADD	M	N
Right TO Address	ADR_TO_R	N	Right TO Address	ToAddr_R	N	ADR_TO_R	M	N	R_TO_ADD	M	N
Parity Left	PARITY_L	A	Parity Left	Parity_L	A	PARITY_L	M	A	PARITY_L	M	A
Parity Right	PARITY_R	A	Parity Right	Parity_R	A	PARITY_R	M	A	PARITY_R	M	A

By early March, it is anticipated that the workgroup’s *draft* recommendations will be complete and ready to be vetted by the [Metropolitan Emergency Services Board \(MESB\)](#), NG9-1-1 GIS Subcommittee, NG9-1-1 Committee and SECB. Formal approval by the [Minnesota Statewide Geospatial Advisory Council](#) may not occur until mid-2016.

## MSAG/GIS Data Synchronization

Having completed the delivery of GIS data to the Minnesota’s FirstNet contractor ([see above](#)), DPS-ECN and MnGeo staff are now focused on supporting the MESB, Twin Cities area PSAPs, and local GIS agencies in their efforts to synchronize addresses, street names and associated Emergency Service Numbers (ESN) between their GIS data (streets, address points, and polygons) and their 9-1-1 MSAG and ALI databases. This is one of many processes that must be completed before the geospatial data can be used for call routing. MESB is assisting DPS-ECN and MnGeo staff by sharing the processes and procedures they are using to achieve successful synchronization. In turn, DPS-ECN and MnGeo are documenting these processes and workflows with the intention of using them throughout the state. In collaboration with MESB, MnGeo staff are also assisting Washington County with its synchronization process, starting first with the street name validation.

DPS-ECN and MnGeo staff have also begun working with several counties and PSAPs in the northeastern part of the state. Lake, Cook and St. Louis counties have delivered to MnGeo updated road centerlines, address points and associated data which the MnGeo staff are currently assessing.

## Upcoming Events

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

- ❖ February 17, 2016: NG9-1-1 Committee Meeting
- ❖ February 25, 2016: SECB Meeting
- ❖ March 2, 2016 : Statewide Geospatial Advisory Council
- ❖ March 10, 2016: NG9-1-1 GIS Subcommittee Meeting
- ❖ March 16, 2016: NG9-1-1 Committee Meeting
- ❖ March 21-24, 2016: Minnesota Sheriff's Association/APCO/NENA Conference
- ❖ March 24, 2016: SECB Meeting
- ❖ April 25-26, 2016: Public Safety Interoperability Conference (DPS-ECN's Adam Iten will be presenting)

## 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](#)

*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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