



TO: All Nebraska PSAPs

FROM: Nebraska Public Service Commission

RE: County to County GIS Cooperative Agreement Template

DATE:

The migration in Nebraska from the existing, legacy 911 system to Next Generation 911 (NG911) requires cooperative geographic information systems (GIS) data development within and between PSAPs in the state. GIS data will be used to validate location information and route 911 calls in the NG911 environment. As such, seamless GIS data, developed and maintained to NG911 standards must exist within each public safety answering point (PSAP) in Nebraska. This same data also must be coordinated with neighboring counties in Nebraska as well as in bordering states.

The Nebraska Public Service Commission (PSC) is responsible for overseeing the Statewide 911 Program, including management of the 911 Emergency Services Internet Protocol (IP) Network (ESInet). To ensure cooperative GIS data development resulting in seamless GIS data to support the next generation core services (NGCS), the PSC is providing this cooperative agreement template for use by each PSAP to solidify the agreements for coordination across jurisdictional boundaries.

# GIS Cooperative Agreement

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*Between:*

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**Cheyenne County Emergency Communications Center  
and  
Garden County Communications Center**

**Effective Date: 012021**

| <b>Version</b> | <b>Date</b> | <b>Description</b>        |
|----------------|-------------|---------------------------|
| 1.0            | 012021      | GIS Cooperative Agreement |

## **1. Agreement Overview**

This document represents a cooperative agreement between [PSAP] and [PSAP] for defining and formalizing standard operating procedures (SOPs) and individual data development roles under the GIS data-preparation model.

This agreement outlines all established responsibilities regarding the NG911 implementation effort between the two parties. This agreement remains valid until superseded by a revised agreement mutually agreed to by both parties.

The purpose of this agreement is to establish the proper procedures necessary to ensure cooperative GIS data development for use in the NGCS for call routing (emergency call routing function, or ECRF) and address validation (location validation function, or LVF). Both parties enter into this agreement to define the roles each will fulfill in the development and maintenance of GIS data in support of NG911.

## **2. GIS Cooperative Agreement**

The following detailed parameters are the responsibility each PSAP in the ongoing support of this agreement.

As NG911 service in Nebraska evolves, additional requirements for GIS data stewards will become necessary. This document specifically outlines the roles and responsibilities of each PSAP in maintaining GIS data across jurisdictional boundaries.

Routing both calls to the appropriate public safety answering point (PSAP) and emergency responders to the proper location continue to depend on the availability of highly accurate, fully attributed, and continually updated GIS data. PSAPs should work collaboratively with each other and with the PSC to realize seamless integration across borders between neighboring jurisdictions statewide and across state lines.

Data from local stakeholders will be used to construct and maintain the ECRF, LVF and location database (LDB), and to address the computer aided dispatch (CAD)-related mapping needs of Nebraska's PSAPs. For GIS data to be implemented in these components, GIS data must be seamless across jurisdictional boundaries. The gaps and overlaps in polygon features representing the PSAP, emergency service zones (ESZs), and provisioning boundaries must be eliminated. Road centerlines must be broken at intersections with these polygon features and snap to the endpoints of the road centerline features of neighboring PSAPs. Finally, the address attributes for road centerlines and address points must exist, be fully populated, and not overlap with attribution from other jurisdictions.



Included with this agreement:

- PSAPs identified on the signature page of this cooperative agreement will maintain dedicated GIS staff or a contracted GIS vendor to develop and maintain the GIS data necessary for NG911
  - All updates to GIS data shall be coordinated with affected neighboring jurisdictions to ensure against data overlap or gaps in line and polygon data.
  - PSAP, ESZ, and provisioning boundaries shall be reviewed, cooperatively by both PSAPs, on an annual basis
  - Boundary data maintenance shall follow the procedures outlined in the Nebraska NG911 GIS Boundary Resolution Workflow
  - Both PSAPs shall notify the PSC of data updates
- All data, once validated, shall be provided to the PSC by both PSAPs
- Each PSAP agrees to identify and include in the broader PSAP plan a local GIS data authority for each PSAP

Where GIS services are provided under contract by a vendor, contracts should contain language supporting this agreement.

### **3. Service Scope**

Pursuant to the deliverable regarding collaborative data development and maintenance, both PSAPs agree to:

- Aggregate GIS data from all sources within the PSAP operating area
- Coordinate data updates with neighboring PSAPs prior to attempting to upload new data into the ESInet
- Work with neighboring PSAPs to resolve, in the interest of reduced call transfers, the PSAP boundary
- Notify all neighboring PSAPs and the PSC of upcoming or proposed changes to the PSAP boundary
- Validate, through the PSC, all changes to the GIS boundary datasets prior to submission to the ESInet to warrant against introducing errors and delaying further data updates

### **4. Merger Clause**

This cooperative agreement shall remain in effect in the event of consolidation and/or division of PSAPs.

### **5. Periodic Review**


This agreement is valid from the effective date outlined herein and is valid until further notice. This agreement should be reviewed annually at a minimum; however, in lieu of a review during any period specified, the current agreement will remain in effect.

**Signatures**

The undersigned parties agree to adhere to the terms of this Cooperative Agreement.

PSAP Name: Cheyenne County Emergency Communications Center


PSAP Representative: Heidi Gillespie

Signature: 

Date: 012021

PSAP Name: GARDEN County Sheriff's office

PSAP Representative: Sheriff Michelle L. Quinn

Signature: 

Date: 01-21-2021



## Glossary of Terms

| 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   |
| ANI     | Automatic Number Identification     | Telephone number (TN) associated with the access line from which a call originates  |
| BCF     | Border Control Function             | Provides a secure entry into the ESInet for emergency calls presented to the network  |
| CAD     | Computer-Aided Dispatch             | A computer-based system that aids PSAP telecommunicators by automating selected dispatching and record-keeping activities   |
| CLDXF   | Civic Layer Data eXchange Format    | A set of data elements that describe detailed street address information. All components are spelled out – no abbreviations   |
| DHCP    | Dynamic Host Configuration Protocol | A widely used configuration protocol that allows a host to acquire configuration information from a visited network and, in particular, an IP address   |
| DNS     | Domain Name System                  | A globally distributed database for the resolution of host names to numeric IP addresses  |
| 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   |
| 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  |
| ESN     | Emergency Service Number            | A 3- to 5-digit number that represents one or more ESZs   |
| ESRP    | Emergency Service Routing Proxy     | An i3 <sup>1</sup> functional element that is a SIP proxy server; that the ESRP selects the next-hop routing within the ESInet based on location and policy. There is an ESRP on the edge of the ESInet. There is usually an ESRP at the entrance to an NG911 PSAP. There may be one or more intermediate ESRPs between them. Originating ESRP: The first routing element within the NGCS. It receives calls from the BCF at the edge of the ESInet. Terminating ESRP: The last ESRP for a call in NGCS |

<sup>1</sup> [https://cdn.ymaws.com/www.nena.org/resource/resmgr/standards/NENA\\_STA\\_010.2\\_i3\\_Architectu.pdf](https://cdn.ymaws.com/www.nena.org/resource/resmgr/standards/NENA_STA_010.2_i3_Architectu.pdf)



| Acronym | Term                                  | Definition  |
|---------|---------------------------------------|---|
| 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   |
| GIO     | Geographic Information Office         | The State level division of DoIT tasked with supporting existing and future efforts to improve the quality of GIS in Maryland through coordination and collaboration with the larger GIS community  |
| GIS     | Geographic Information System         | A system for capturing, storing, displaying, analyzing and managing data and associated attributes which are spatially referenced   |
| i3 PSAP |                                       | NENA i3 introduces the concept of an ESInet, which is designed as an IP-based internetwork (network of networks) shared by all agencies that may be involved in any emergency. A PSAP that is capable of receiving IP-based signaling for delivery of emergency calls and for originating calls and is conformant to NENA-STA-010 and other specifications for such PSAPs |
| IP      | Internet Protocol                     | The method by which data is sent from one computer to another on the ESInet, Internet or other networks   |
| LDB     | Location Database                     | The server that retains all of the current information, functionality, and interfaces of today's ALI and can utilize the new protocols required in an NG911 deployment  |
| LIS     | Location Information Server           | A functional element in an IP-capable originating network that provides locations of endpoints (i.e., calling device)   |
| 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   |
| MSAG    | Master Street Address Guide           | Tabular reference for address validation in the current 911 system. Defines all possible addresses within a jurisdiction  |
| NENA    | National Emergency Number Association | Standards body for 911 and NG911  |
| 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.  |
| PRF     | Policy Routing Function               | That functional component of an Emergency Services Routing Proxy that determines the next hop in the SIP signaling path using a policy  |

| 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   |
| PSC     | Public Service Commission  | Nebraska state agency responsible for regulating 911   |
| SI      | Spatial Interface  | A standardized interface between the GIS and the functional elements that consume GIS data, such as the ECRF and/or LVF  |
| SIP     | Session Initiation Protocol                                      | A protocol specified by the Internet Engineering Task Force (IETF) (RFC3261) that defines a method for establishing multimedia sessions over the internet. Used as the call-signaling protocol in VoIP, NENA i2 and NENA i3  |
| SOP     | Standard Operating Procedure                                     | A written directive that provides a guideline for carrying out an activity.  |
| 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 |
| VoIP    | Voice Over Internet Protocol                                     | Telephone service provided through the internet rather than traditional telephone lines. This includes FIOS™, cable service such as Comcast and Time Warner, and purchased devices like Ooma, Google Voice, or Magic Jack  |