Minnesota Geospatial Advisory Council

Emergency Service Zone Data Standard

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About the GAC

The mission of the Minnesota Geospatial Advisory Council (GAC) is to act as a coordinating body for the Minnesota geospatial community. The GAC is authorized by legislation passed in 2009 and reauthorized in 2014 Minnesota Statutes (16E.30, subd. 8). It represents a cross-section of organizations that include city, county, regional, state, federal and tribal governments as well as education, business and nonprofit sectors.

As part of this mission, the GAC works with the Minnesota geospatial community to define and adopt standards needed by the community. GAC standards are developed and proposed by geospatial community subject matter experts. The GAC's Standards Committee administers a process to ensure community-wide public review and input for any proposed standards.

The GAC does not mandate or enforce standards. It offers the standards as a resource to the community. Organizations may choose to adopt the standards and require their use internally.

Introduction

Emergency service zone polygon boundaries are an important element of 9-1-1 and other public safety GIS datasets. The polygons referenced in this document are used to depict and manage emergency service zone areas used in legacy and transitional 9-1-1 systems. In addition, some dispatch mapping systems utilize emergency service zones. The polygons referenced in this standard relate to Law Enforcement, Fire and Medical response agency and Public Safety Answering Point (PSAP) service areas. This standard specifically pertains to emergency service zone boundaries as reflected by an Emergency Service Number (ESN) in the E9-1-1 Master Street Address Guide (MSAG).

The polygon data is maintained in a single dataset to facilitate preservation of shared boundaries and topological relationships between the different service areas. This polygon standard and the data it contains permit extraction of distinct data layers by filtering on the desired attribute contained within the dataset. Some of the attributes within this standard are intended to support the ability to derive other Next Generation 9-1-1 (NG9-1-1) required datasets, such as National Emergency Number Association (NENA) service boundary layers (e.g., PSAP boundaries, Law Enforcement Response Boundaries, etc.).

The intent of the standard is to allow data authorities such as PSAPs or county GIS departments to create and maintain the data independently for their individual jurisdictional area while also permitting a data aggregator to collect and merge the data into a master dataset. This supports filtered extractions to create individual data layers. The use of standardized agency name domains facilitates this process.

Purpose of this Standard

The purpose of this standard is to provide a single, commonly accepted set of attribute specifications (field name, type, length, and order) for transferring and aggregating emergency service zone boundary data in Minnesota, primarily for 9-1-1 and NG9-1-1 purposes. It is intended to be used when data are being transferred between organizations. Use of the standard will improve the ability to share data resources by reducing incompatibilities when acquiring, processing, and disseminating emergency service zone boundary data.

This standard is not intended to capture all possible nuances of dispatching such as specialized public safety response nor is it intended to replicate the NENA NG9-1-1 geospatial data model; however, it presents a standardized format that could be transformed into such a model using appropriate look-up tables. For the NG9-1-1 purpose of a NENA service boundary layer, an agency name populated in attributes of this standard could be used to populate the NENA Display Name (DsplayName) field. For the NG9-1-1 purpose of a NENA discrepancy agency ID, the GIS Point of Contact (911GISPOC) attribute in this standard could be used to populate the NENA Discrepancy Agency ID (DiscrpAgID) field.

Applicability

Data producers may have unique methods, definitions, and criteria for capture along with the storage of emergency service zone boundary data that satisfy their own business requirements. This standard seeks to establish attribute specifications for data exchange purposes. It does not attempt to define internal data capture or storage specifications for data producers, though some may find benefit in storing data in this format. Organizations within Minnesota are encouraged to adopt this standard for purposes of data exchange.

Sources of this Standard

The data specifications for this standard were produced by the Minnesota Statewide Emergency Communications Board (SECB), NG9-1-1 Committee GIS Workgroup. The standard draws from the National Emergency Number Association (NENA) geospatial data standards and other sources. Some data elements have been added to the Minnesota standard to satisfy the data needs of the Minnesota geospatial and public safety communities.

Compliance Notes

Organizations in Minnesota are encouraged to adopt and comply with this standard for purposes of data exchange. An emergency service zone boundary dataset that fully complies with this standard will consist of geospatial polygons with all attribute fields as specified in the schema contained in this standard. It will also comply with the inclusion, mixed case, abbreviation, and domain specifications of this standard. Some data producing organizations that choose to comply with this standard do not collect all data included in the standard. Such organizations may choose to work toward full compliance over time.

Inclusion

Inclusion is a term used to explain the requirement for a field to be populated in a dataset to comply with the standard. Three types of inclusion are possible: Mandatory, Conditional, and Optional.

Mandatory

Field must be populated to be fully compliant with the standard. Null values are not allowed. If information is not known, then that should be noted in the field.

Example: Law Enforcement Agency Name is a Mandatory field in this standard. If a Law Enforcement Agency Name for a polygon is not provided, it does not comply with this standard.

Conditional

The field must be populated for each record where the field is applicable to the dataset or for which a specified condition exists.

Example: Effective Date is a conditional field in this standard. This field must be populated when the date of a change is known, for example, the date an annexation takes effect. This field is not required to be populated for changes prior to the date the production database was first implemented.

Optional

Field is not required to be populated.

Mixed Case

Unless specifically noted, all text data elements in this standard will use a Mixed Case format. Some end users may desire an ALL CAPS format for a specific purpose. Data may be converted to ALL CAPS by end users if desired. It is more difficult to automatically convert ALL CAPS to Mixed Case than to convert Mixed Case to ALL CAPS. Note: The National Emergency Numbering Association (NENA) standard also uses Mixed Case for most of its data registries.

Data Abbreviations

All field values in this standard must be spelled out unless specifically defined otherwise in the field description. This is done to remove ambiguity. Note: The NENA standard does not use abbreviations for most of its data registries.

Domains

Several domain tables accompany this standard in a spreadsheet available at this link. To comply with this standard, an emergency service zone boundary dataset must use the codes from specified domains but does not need to include the domain tables with the data. The Standardized Agency and PSAP Names are maintained by the Statewide Emergency Services Board (SECB). If a local value exists that is not included in a domain (e.g., a fire response agency name), it may be submitted to the Minnesota Geospatial Advisory Council's Standards Committee to be included in the domain. Domains will be updated on a periodic basis, as needed. The date of the most recent change to each domain table is included in the spreadsheet.

Field Types

Text

Printable ASCII characters (decimal codes 32 to 126). See the "Mixed Case" section of this standard for specifications regarding case usage.

Date

Date and time may be stored in the local database date/time format with the proviso that local time zone MUST be recorded, and time MUST be recorded to a precision of at least 1 second and MAY be recorded to a precision of 0.1 second. If the local database date/time format does not meet these specifications, the database SHOULD record the local date/time format in a string conforming to W3C dateTime format as described in XML Schema Part 2: Datatypes Second Edition.

Abbreviations and Acronyms

PSAP

Public Safety Answering Point. An entity responsible for receiving 9-1-1 calls and processing those calls according to a specific operational policy.

ESN

Emergency Service Number. A numerical code that represents a single ESZ. An ESN is defined as one of two types: Administrative ESN and Routing ESN. For purposes of this standard, the acronym "ESN" refers only to an Administrative ESN.

ESZ

Emergency Service Zones. A geographical area that represents a unique combination of emergency service agencies (e.g., Law Enforcement, Fire and Emergency Medical Service) that is within a specified 9-1-1 governing authority's jurisdiction. An ESZ can be represented by an Emergency Service Number (ESN) to identify the ESZ.

MSAG

Master Street Address Guide. A database of street names and house number ranges within their associated communities defining Emergency Service Zones (ESZs) and their associated Emergency Service Numbers (ESNs) to enable proper routing of 9-1-1 calls.

Data Element Details

Appendix A: MN GAC Emergency Service Zone Data Standard Schema Spreadsheet

Appendix A is a spreadsheet available at this link showing the schema for this standard. It includes all the data elements in the standard, with field name, type, width and other important information about each data element.

1. Identification Elements

1.1 ESZ Feature Unique Identifier

Database Name	ESZ_ID		
Data Type	Text	**Inclusion**	Mandatory
Width	36	**Domain**	
Examples	**feaa6fd8-ee0f-4735-83c5-f2690ba2bcf6, RCL12085303@county.mn.us**		
Description	A unique identifier assigned to an Emergency Service Zone (ESZ) polygon by a data authority.		

2. Wireline Elements

2.1 Wireline PSAP Full Name

Database Name	WRLN_PSAP		
Data Type	Text	**Inclusion**	Mandatory
Width	60	**Domain**	PSAPName
Examples	**Douglas County PSAP**, **Winona County PSAP, Dakota Communications Center Zone 2**		
Description	The name of the Public Safety Answering Point (PSAP) responsible for receiving wireline (landline) 9-1-1 calls. PSAP names should be consistent with the FCC registry.		

2.2 Emergency Service Number

Database Name	ESN		
Data Type	Text	**Inclusion**	Mandatory
Width	5	**Domain**	
Examples	**233**, **1046, 0288**		
Description	A code, as it appears in the MSAG for a given PSAP, that identifies an Emergency Service Zone (ESZ). ESNs represent the unique combinations of individual fire, law, emergency medical response, and other emergency agencies as needed.		

3. Law Elements

3.1 Law Enforcement Agency Name

Database Name	LAW_NAME		
Data Type	Text	**Inclusion**	Mandatory
Width	60	**Domain**	LawName
Examples	**Aitkin County Sheriff, Blaine Police**		
Description	The law enforcement agency for the given ESZ. Note: in the cases where there is no law enforcement agency specified, use “Dispatcher Determined” along with an appropriate geographic descriptor.		

4. Fire Elements

4.1 Fire Response Agency Name

Database Name	FIRE_NAME		
Data Type	Text	**Inclusion**	Mandatory
Width	60	**Domain**	FireName
Examples	**Albany Fire, Eden Prairie Fire**		
Description	The fire response agency for the given ESZ. Note: In cases where there is no fire response agency specified, use “Dispatcher Determined” along with an appropriate geographic descriptor.		

5. EMS Elements

5.1 Emergency Medical Service Name

Database Name	EMS_NAME		
Data Type	Text	**Inclusion**	Mandatory
Width	60	**Domain**	EMSName
Examples	**Allina Health EMS, Benson Ambulance**		
Description	The Emergency Medical Service (EMS) provider for the given ESZ. This agency provides out-of-hospital acute care and transport to definitive care for patients with illnesses and injuries which the patient believes constitute a medical emergency. Note: In cases where there is no EMS provider specified, use “Dispatcher Determined” along with an appropriate geographic descriptor.		

5.2 Medical First Responder Name

Database Name	MFR_NAME		
Data Type	Text	**Inclusion**	Optional
Width	60	**Domain**	
Examples	**Amiret Medical First Responder**		
Description	An agency or organization authorized by the serving PSAP that may be dispatched in addition to an EMS agency to provide basic first aid, such as CPR, until the arrival of the EMS agency. Note: Use of this optional attribute is at the discretion of the PSAP. When used, it is recommended that the medical first responder agency name spell out all words, use mixed (title) case, and omit punctuation.		

6. Wireless Elements

6.1 Wireless PSAP Full Name

Database Name	WRLS_PSAP		
Data Type	Text	**Inclusion**	Mandatory
Width	60	**Domain**	PSAPName
Examples	**Douglas County PSAP, Winona County PSAP**		
Description	The name of the Public Safety Answering Point (PSAP) responsible for receiving wireless 9-1-1 calls originating from the ESZ and processing those calls according to a specific operational policy. PSAP names should be consistent with the FCC registry.		

7. VoIP Elements

7.1 VoIP PSAP Full Name

Database Name	VOIP_PSAP		
Data Type	Text	**Inclusion**	Mandatory
Width	60	**Domain**	PSAPName
Examples	**Douglas County PSAP, Winona County PSAP**		
Description	The name of the Public Safety Answering Point (PSAP) responsible for receiving Voice Over IP 9-1-1 calls originating from the ESZ and processing those calls according to a specific operational policy. PSAP names should be consistent with the FCC registry.		

8. Text Elements

8.1 Text PSAP Full Name

Database Name	TEXT_PSAP		
Data Type	Text	**Inclusion**	Mandatory
Width	60	**Domain**	PSAPName
Examples	**Douglas County PSAP, Winona County PSAP**		
Description	The name of the Public Safety Answering Point (PSAP) responsible for receiving 9-1-1 text messages originating from the ESZ and processing those messages according to a specific operational policy. PSAP names should be consistent with the FCC registry.		

9. Administrative Elements

9.1 State Code

Database Name	STATE_CODE		
Data Type	Text	**Inclusion**	Mandatory
Width	2	**Domain**	StateCode
Examples	**MN, ND, IA**		
Description	The two-character code of the state in which the ESZ is physically located. This will always be “MN” for Minnesota and in compliance with the Minnesota State ID Standard.		

9.2 County Name

Database Name	CO_NAME		
Data Type	Text	**Inclusion**	Mandatory
Width	40	**Domain**	CountyName
Examples	**Saint Louis, Lake of the Woods, Hennepin**		
Description	The name of a County where the ESZ is physically located		

9.3 911 GIS Point-of-Contact

Database Name	GIS911POC		
Data Type	Text	**Inclusion**	Mandatory
Width	75	**Domain**	GIS911POC
Examples	**Aitkin, Goodhue, Lake of the Woods, Red Lake Nation**		
Description	The entity responsible for submitting Geographic Information System (GIS) data to the State of Minnesota to be used for NG9-1-1 service for a specified area. This is typically a county GIS department or Public Safety Answering Point (PSAP). In its County 9-1-1 Plan, which is submitted to the Minnesota Department of Public Safety, a county must specify the 9-1-1 GIS Authority/Authorities for each of the required NG9-1-1 datasets that encompass the county’s geographic area.		

10. Maintenance Elements

10.1 Effective Date

Database Name	EFF_DATE		
Data Type	Date	**Inclusion**	Conditional
Width	Default	**Domain**	
Examples	**06/01/2012, 09/28/2020**		
Description	The date that the record is scheduled to take effect. Note: This field must be populated when the date of a change is known, for example, the date an annexation takes effect. This field is not required to be populated for changes prior to the date the production database was first implemented.		

10.2 Retired Date

Database Name	RET_DATE		
Data Type	Date	**Inclusion**	Conditional
Width	Default	**Domain**	
Examples	**06/01/2012, 09/28/2020**		
Description	The date when the information in the record is no longer considered valid. Note: This field must be populated when the date of a change is known, for example, the date an annexation takes effect, and the previous boundary is retired. This field is not required to be populated for changes prior to the date the production database was first implemented.		

10.3 Edited Date

Database Name	EDIT_DATE		
Data Type	Date	**Inclusion**	Mandatory
Width	Default	**Domain**	
Examples	**06/01/2012, 09/28/2020**		
Description	The date the record was created or last modified. This value MUST be populated upon modifications to attributes, geometry, or both.		

10.4 Editing Organization

Database Name	EDIT_ORG		
Data Type	Text	**Inclusion**	Optional
Width	40	**Domain**	
Examples	**Carver County GIS, ProWest & Associates, Stearns County GIS**		
Description	The agency, organization, business or individual responsible for maintenance of the data within the geographic area portrayed.		

10.5 Comments

Database Name	COMMENTS		
Data Type	Text	**Inclusion**	Optional
Width	254	**Domain**	
Examples	“**polygon boundary follows east side of river shore**”		
Description	User-determined additional information necessary for accurate data interpretation.		

Appendix A: MN GAC Emergency Service Zone Data Standard Schema Spreadsheet

Appendix A is a spreadsheet available at this link showing the schema for this standard. It includes all the data elements in the standard, with field name, type, width and other important information about each data element.

Appendix B: MN GAC Standards Domains

Appendix B is a spreadsheet available at this link showing all the domain tables used in Minnesota Geospatial Advisory Council standards. It includes a tab showing when each domain table was last updated.

Appendix C: MN GAC Standards Lookup Tables

Appendix C is a spreadsheet available at this link showing all the lookup tables used in Minnesota Geospatial Advisory Council standards. It includes a tab showing when each table was last updated.

Reference A: NENA Standard for NG9-1-1 GIS Data Model

Reference document A is available at this link and provides further explanation of the NENA NG9-1-1 GIS data model including field names, types and explanations.