Idaho Technology Authority (ITA)

ENTERPRISE STANDARDS – S4000 – INFORMATION AND DATA

Category: S4270 – Site Structure Address Point

CONTENTS:

I. DEFINITIONS

See ITA Guideline G105 (ITA Glossary of Terms) for definitions.

II. RATIONALE

Data standards are essential for development of statewide geospatial datasets (Framework), in accordance with The Idaho Map vision and plans. More specifically, statewide Site/Structure Address Points are required to support Next Generation 911 (NG9-1-1).

The NG9-1-1 Site/Structure Address Points GIS data model provides a statewide standard and guidance in order to support NENA (National Emergency Number Association) NG9-1-1 Core Services (NGCS) of location validation and routing, both geospatial call routing or to the appropriate agency for emergency communications and public safety.

III. APPROVED STANDARD(S)

See Attachment.

IV. APPROVED PRODUCTS

All GIS software used in Idaho are capable of generating and using the specified file format.

V. JUSTIFICATION

Evolving public safety needs, among others, require statewide authoritative spatial data, this drives NG9-1-1 and public safety agency GIS needs.

VI. TECHNICAL AND IMPLEMENTATION CONSIDERATIONS

This standard is required to provide the necessary data for NG9-1-1 Site/Structure Address Point use and implementation. The data will enable emergency communication centers to provide location information and correct agency response for emergency calls for 911 service.

VII. EMERGING TRENDS AND ARCHITECTURAL DIRECTIONS

Traditional implementation of 911 capability is changing significantly from equipment intensive and telephone provider reliance to Internet-based telecommunications and spatial data. NG9-1-1 requires regional and statewide spatial data. This new approach requires accurate and current spatial data.

VIII. PROCEDURE REFERENCE

The format and content of this standard is specified in ITA P5030 – Framework Standards Development Policy.

IX. REVIEW CYCLE

Review will occur at least annually.

X. CONTACT INFORMATION

For more information, contact the ITA Staff at (208) 605-4064.

XI. REVISION HISTORY

07/24/2025 – Revised for ADA compliance

12/02/2022 – Section 3 Data Characteristics revised

09/15/2022 - Standard approved by the IGC-EC

08/24/2022 - Draft standard approved by the Idaho Public Safety Technical Working Group

Effective date: September 15, 2022

STATE OF IDAHO

Idaho NG9-1-1 Site Structure Address Point Standard

Part of the Public Safety Theme

Version 1
Effective September 15, 2022

Developed by the Public Safety Technical Working Group

Revision History
Established by Public Safety Technical Working Group

Contact
ITA Staff
Office of Information Technology Services
(208) 605-4064
contact@ita.idaho.gov

CONTENTS

1. Introduction to the Site Structure Address Point (SSAP) Standard

A statewide NG9-1-1 Site Structure Address Point Framework Dataset is a critical source of information that is used by the Location Validation Function (LVF) and Emergency Call Routing Function (ECRF) of the Next Generation 9-1-1 system (NG9-1-1) to enable the appropriate response by emergency communication centers and public safety responders

The SSAP Standard is intended to facilitate integration and sharing of up-to-date SSAP data and enhance the dissemination and use of SSAP information. This standard does not instruct on how SSAP databases should be designed for internal use.

This standard was developed by the Public Safety Technical Working Group, a subgroup of the Idaho Geospatial Council – Executive Committee (IGC-EC). This Standard will be reviewed on a regular basis and updated as needed.

This Framework data standard requires time and resources to fully develop a complete and accurate Site Structure Addresses dataset. Site Structure Addresses data can be used to locate sites that otherwise may not geocode correctly using the road centerline data. It can also be used to locate areas of unusual addressing (i.e., odd addresses on even side of the road centerlines and vice versa), and other areas where the data is available. Some addressable locations may be problematic near boundaries.

The Address Number, Street Name, and place name attributes (e.g., Incorporated Municipality, Unincorporated Community, Neighborhood Community) in the SiteStructureAddressPoint layer SHOULD be consistent with the address number range, street name, and left/right place name attribute combinations found in the RoadCenterLine layer.

1.1. Mission and Goals of the Standard

The SSAP Standard supports a statewide dataset that is consistent with applicable state and national standards. It establishes the minimum attributes and geospatial database schema for the SSAP Framework. The standard will communicate with, and may have similar attributes to, other Idaho Framework data standards. It encourages all Idaho-based agencies with geospatial SSAP data to contribute to the SSAP Framework.

The SSAP Framework will be appropriately shared in a way that is beneficial to all. The fields in the SSAP Data Exchange Standard will be general enough to incorporate basic information without requiring major changes to internal data models. This standard allows for expansion to a more complex data structure and schema.

The SSAP Standard must support the NG9-1-1 systems implementation and operation in Idaho and is therefore closely aligned with the 2020 National Emergency Number Association Standard (NENA-STA-006.2-2022).

The proposed standard:
- Provides the data for querying and geocoding of civic addresses based on dual (left/right) address ranges.
- Promotes the creation of high-quality GIS data in a consistent format for use within NG9-1-1 systems.
- Enables spatially related applications including those focused on public safety, asset management, planning, utilities and public works.

1.2. Relationship to Existing Standards

This SSAP Standard relates to existing standards as follows:

- The SSAP Standard described is based on the 2022 National Emergency Number Association Standard (NENA-STA-006.2-2022).
- The SSAP elements are related to GIS datasets describing County and City boundaries, roads and streets, and a spatial representation of the traditional 911 Master Street Addressing Guide.
- This SSAP Standard relates to the Site Structure Address Point, Emergency Service Boundary, Public Safety Answering Point (PSAP) and Provisioning Boundary standards developed by the Idaho Public Safety Technical Working Group.

1.3. Description of the Standard

This standard describes the vision and geospatial data structure of an SSAP Framework in the state of Idaho. This standard is devised to be:
- Simple, easy to understand, and logical
- Uniformly applicable, whenever possible
- Flexible and capable of accommodating future expansions
- Dynamic in terms of continuous review
- Consistent with the requirements of NG9-1-1 systems and implementation

1.4. Applicability and Intended Uses

This standard applies to the SSAP element of the Public Safety theme of The Idaho Map (TIM).

When implemented, it will enable access to geometry and attribute information about Idaho SSAPs. It will increase interoperability between automated geographic information systems and enable sharing and efficient transfer of information for aggregation. Further, it will encourage partnerships between government, the private sector, and the public in order to avoid duplication of effort and ensure effective management of information resources. It will help improve SSAP data quality as errors are identified and resolved.

This standard does not consider data sharing agreements, contracts, transactions, privacy concerns, or any other issues relating to the acquisition and dissemination of SSAP data. When needed, documents describing those issues will be developed separately.

1.5. Standard Development Process

The Public Safety Technical Workgroup (TWG), a subgroup of the Idaho Geospatial Council Executive Committee (IGC-EC), is a voluntary group of private, city, county, tribal, state, and federal representatives. In 2021, the Public Safety TWG reviewed the NENA Standard, 911 Geospatial Industry standards, and SSAP standards implemented in Kansas, Tennessee, Minnesota, Washington, and Wisconsin to begin developing the SSAP Standard described in this document. The first draft was generated using the standard development automation tools developed by the IGC-EC. This standard was then reviewed by members of the Public Safety TWG. The resulting draft was further shared with the IGC-EC for comments and approval in accordance with the review and approval process described in Idaho Technology Authority (ITA) P5030 - Framework Standards Development Policy.

The standard was presented to the IGC-EC in September 2022 and approved by the IGC-EC on September 15, 2022.

1.6. Maintenance of the Standard

This standard will be revised as needed and in accordance with the ITA P5030 - Framework Standards Development Policy.

2. Body of the Standard

2.1. Scope and Content

The scope of the SSAP Standard is to describe a statewide layer which identifies the Site/Structure Address Points (SSAPs) in Idaho required by service agencies such as, Fire, Medical Emergency, Law Enforcement that should be called upon during an NG9-1-1 call.

At a minimum the SSAP Framework Dataset should include a unique ID, site address number, street name information, and community information. The SSAP may also include other information in order to represent the information now residing in the Master Street Address Guide (MSAG) and other pertinent addressing information.

2.2. **Need**

SSAPs are a key dataset needed for emergency response in Idaho. SSAPs are used by the Location Validation Function (LVF) and Emergency Call Routing Function (ECRF) of NG9-1-1 systems to determine and validate addresses and provide location and routing information to Fire, Law Enforcement, Medical Emergency, or other service provider needed to respond to a NG9-1-1 call. The standard will help streamline emergency response, thereby benefitting public emergency responders, cities, counties, system service providers, and the public in general. This standard provides a foundation for data stewardship and aggregation of SSAP data for centralized access.

2.3. **Participation in the Standard Development**

The development of the SSAP Standard adheres to the ITA's Framework Standards Development Policy (P5030). The Public Safety TWG members tasked with developing this standard represent private, county, state, and federal organizations. As the standard is reviewed in accordance with Policy P5030 requirements, there will be opportunity for broad participation and input by stakeholders. The process will be equally broad regarding input on updates and enhancements to the standard. As with all Idaho Framework standards, public review, and comment on the SSAP Data Exchange Standard is encouraged.

2.4. **Integration with Other Standards**

The SSAP Standard follows the same format as other Idaho geospatial framework data standards as well as NENA Standards. The SSAP Standard may contain some of the same attributes as other framework standards and may adopt the field name, definition, and domain from other standards to promote consistency and strengthen interoperability.

2.5. Technical and Operation Context

2.5.1. Data Environment

The data environment is a digital vector point with a specific, standardized set of attributes pertinent to the SSAP Framework. SSAP data shared under this standard must be in a format supporting vector points.

2.5.2. Reference Systems

The Emergency Call Routing Function in a NG9-1-1 system requiring the use of the World Geodetic System of 1984 (WGS1984). The number assigned to this reference system by the European Petroleum Survey Group (EPSG) is 4326.

2.5.3. Global Positioning Systems (GPS)

Some data provided might contain geometry from GPS methods. The provided metadata should describe the geometry, if applicable. However, geometry from a GPS is not required to meet this standard.

2.5.4. Interdependence of Themes

SSAP geometry may be coincident with other framework data, such as City limits, County Boundaries, Emergency Service Zone boundaries, and Parcels. Currently, there is no enforcement of coincidence or topology relationships between SSAP Framework and other Idaho Framework elements.

2.5.5. Encoding

When data is imported into and exported from the SSAP Framework, encoding will take place to convert data formats and attributes.

2.5.6. Resolution

No specific requirements for resolution are specified in this standard. Resolution will be documented in the metadata.

2.5.7. Accuracy

The horizontal accuracy of GIS layers used for NG9-1-1 must meet the National Spatial Data Infrastructure's (NSDI) accuracy at a scale of 1:5000 which equates to ± 13.89 feet at 95% confidence.

2.5.8. Edge Matching

Site/Structure Address Points synchronization with boundary issues must be resolved using emergency service zones, civic boundaries, other related boundaries, or snap-to-point datasets. Clean SSAP points will ensure that GIS points are clearly delineated between emergency service zones boundaries and civic boundaries, and/or points will be accurately associated with road centerline address ranges. Edges and road ranges shared by adjacent agencies must be agreed upon before provisioning the SSAP data.

2.5.9. Unique Identifiers

The Discrepancy Agency is the entity responsible for resolving discrepancies in the SSAP data or topology. This entity must be defined by the 9-1-1 Authority and uniquely identified within the SSAP framework. The Site/Structure Address Points NENA Globally Unique ID is unique for all of the United States.

2.5.10. Attributes

Attributes for public and intergovernmental distribution are described in Section 3 of this standard.

2.5.11. Stewardship

Perpetual maintenance and other aspects of lifecycle management are essential to SSAP Framework. Details of stewards, their roles and responsibilities, best practices, and

processes are not included in this document and may be specified in a separate related document.

2.5.12. **Records Management and Archiving**

This dataset is managed at different levels. Data is developed and edited by GIS Data Providers of City and County governments, aggregated at the State Level and distributed via secured REST services using ArcGIS Enterprise. Tools related to REST Services, such as Open Data, will allow users to download SSAP data in a variety of formats, including a shapefile and a feature class in a file geodatabase.

2.5.13. **Metadata**

The SSAP Framework metadata will describe the methods used to update and aggregate the individual SSAP data contributions, processes or crosswalks performed, definition of attributes, and other required information. This metadata will conform to the metadata standards as set out in S4220 – GEOSPATIAL METADATA.

3. **Data Characteristics**

The "Field Name" column gives the standardized GIS data field name that MUST be used. While local entities MAY use their own field names for internal processes, utilization of GIS data within and between the NG9-1-1 system functional elements MUST conform to this standard structure.

The "Required" column specifies whether an attribute is required or conditional. Requirement terms are defined as follows (NENA 01-002):
- "Yes" means the data element is required to be present in all records. It will appear as required in the database schema.
- "No" means that the data field is optional in a record. It will not appear as required in the database schema.
- "Conditional" means that the data field is conditional. This value alerts the reader that a business rule is specified that controls the presence of a value in the data field. It will not appear as required in the database schema. The prevailing business rule for all conditional attributes is that if an attribute value exists (e.g., if a Street Name Pre Directional such as "West" is part of the valid street name), it MUST be provided. If no value exists for the attribute (e.g., there is no Street

Name Pre Directional as part of the valid street name), the data field is left unpopulated. All attributes that are governed by CLDXF PIDF-LO structure MUST follow the business rules identified in the CLDXF Standard, NENA-STA-004 [3],CLDXF . If no business rule is identified, the prevailing rule will apply.

Locally maintained GIS data layers are REQUIRED to include all data fields specified as "Yes" within this GIS Data Model but are NOT REQUIRED to include data fields that are not specified as "Yes" if no data exists to be populated within the data fields. If there are no records in the entire database for a specific non-required data field, then the data field itself is NOT REQUIRED. Local policy may dictate that all data fields be included in the structure regardless of whether data exists.

"Type" column indicates the type of data used within the data field and attributes.
- **P** – Printable ASCII characters (decimal codes 32 to 126). Case is not important, except in legacy fields which require upper case as per NENA 02-010, NENA Standard for Data Formats for 9-1-1 Data Exchange & GIS Mapping
- **E** – UTF-8 restricted to character sets designated by the 9-1-1 Authority, but not including pictographic characters.
- **U** – A Uniform Resource Identifier (URI)
- **D** – Date and Time
- **F** – Floating (numbers that have a decimal place).
- **N** – Non-negative integer

The "Field Width" column refers to the maximum number of characters a field may contain.

The "Descriptive Name" is provided to clarify the intent of the information contained in the "Field Name."
- **DOM** - Domain. Attributes with domains are noted in the "Descriptive Name" column. Domain names and their values will be identified in a Public Safety GIS best practices document.

3.1. **Minimum Graphic Data Elements**

The geometry of the features in SSAP Framework is vector point.

3.2. **Optional Graphic Data Elements**

Not applicable.

3.3. **Standard Attribute Schema**

FIELD NAME	REQUIRED	TYPE	FIELD WIDTH	DESCRIPTION
DiscrpAgID	Yes	P	100	Discrepancy Agency ID - Agency that receives discrepancy report and ensures resolution.
DateUpdate	Yes	D	-	Date Updated - The date and time that the record was created or last modified. This value MUST be populated upon modifications to attributes, geometry, or both.
DateEffective	No	D	-	Effective Date - The date and time that the record is scheduled to take effect.
DateExpire	No	D	-	Expiration Date - The date and time when the information in the record is no longer considered valid.
NGUID	Yes	Text	254	The NENA Globally Unique ID for each Site Structure Address Point. Each record in the Site Structure Address Points layer MUST have a globally unique ID. When coalescing data from other local 9-1-1 Authorities into the ECRF and LVF, this unique ID MUST continue to have only one occurrence. One way to accomplish this is to append the 9-1-1 Authority's domain to the end of the "locally unique ID"
Country	Yes	P	2	Country DOM
State	Yes	P	2	State or Equivalent (A1) DOM
County	Yes	P	100	County or Equivalent (A2) DOM
AddCode	Conditional	P	6	Additional Code – CANADA ATTRIBUTE
AddDataURI	Conditional	U	254	Additional Data URI
Inc_Muni	Yes	E	100	Incorporated Municipality (A3) DOM
Uninc_Comm	No	E	100	Unincorporated Community (A4)
Nbrhd_Comm	No	E	100	Neighborhood Community (A5)
AddNum_Pre	Conditional	P	15	Address Number Prefix DOM

Add_Number	Conditional	N	6	Address Number
AddNum_Suf	Conditional	P	15	Address Number Suffix
St_PreMod	Conditional	E	15	Street Name Pre Modifier DOM
St_PreDir	Conditional	P	9	Street Name Pre Directional DOM
St_PreTyp	Conditional	E	50	Street Name Pre Type DOM
St_PreSep	Conditional	E	20	Street Name Pre Type Separator
St_Name	Conditional	E	254	Street Name
St_PosTyp	Conditional	E	50	Street Name Post Type DOM
St_PosDir	Conditional	P	9	Street Name Post Directional DOM
St_PosMod	Conditional	E	25	Street Name Post Modifier DOM
LSt_PreDir	Conditional	P	2	Legacy Street Name Pre Directional* DOM
LSt_Name	Conditional	P	75	Legacy Street Name*
LSt_Type	Conditional	P	4	Legacy Street Name Type* DOM
LSt_PosDir	Conditional	P	2	Legacy Street Name Post Directional* DOM
ESN	Conditional	P	5	ESN* Emergency Service Number – from Emergency Service Boundary Layer
MSAGComm	Conditional	P	30	MSAG Community Name* DOM
Post_Comm	No	P	40	Postal Community Name DOM
Post_Code	No	P	7	Postal Code DOM
Post_Code4	No	P	4	ZIP Plus 4
Building	No	P	75	Building
Floor	No	P	75	Floor

Unit	No	P	75	Unit Designator 1, 2, 3, A, B, C, 101, 102, 103, etc.
Room	No	P	75	Room
Seat	No	P	75	Seat
Addtl_Loc	No	E	225	Additional Location Information
LandmkName	Conditional	E	150	Complete Landmark Name
Mile_Post	Conditional	P	150	Mile Post
Place_Type	No	P	50	Place Type DOM
Placement	No	P	25	Placement Method – building, parcel, or driveway placement, etc.
Longitude	No	F	-	Longitude
Latitude	No	F	-	Latitude
Elevation	No	N	6	Elevation

3.4 Data Schema (Supplemental Attributes)

These attributes are recommended for Idaho datasets, but are not a part of the NENA standards and are considered supplemental. The additional attributes may meet local or regional requirements for internal workflows or other 911 mapping systems.

FIELD NAME	REQUIRED	TYPE	FIELD WIDTH	DESCRIPTION
MUID	No	N	16	Statewide Regional Unique ID
LUID	No	N	8	Local Unique ID
Parcel_ID	No	P	60	Assessor Parcel ID
Full_Address	No	P	150	Full NG9-1-1 address with street name
Address_Status	No	P	20	Site Status – primary, secondary, no-structure, vacant, temporary, constructions, etc.

LSt_Label	No	P	100	Legacy Street name label
Unit_Desc	No	F	-	Unit Description / Type – Space, Unit, Trailer, Apartment, etc DOM
Unit_Range	No	P	25	Unit Range – the range of unit designators (i.e. A – E, 1 – 6, 101 – 303, etc)
Full_StName	No	P	254	Full NG9-1-1 Street Name
APA_Code	No	N	8	American Planning Association structure type code LBCS APA Standards
MUID_FIPS	No	N	16	County Fips code used to create MUID with LUID
GIS_Steward	No	P	75	GIS Steward for data set maintenance DOM
DateCreate	No	D	-	Date point was created
Comments	No	P	254	Comment field for extra information
QC_Status	No	P	60	Quality Control Status – field for designating QC issues with defined standards
QC_Notes	No	P	254	Quality Control Notes – field to add additional information about quality issue

3.5 **Data Quality**

Data quality considerations for SSAPs include:

- All Site/Structure Address Points, and NENA Global IDs need to be unique in all of Idaho.
- The Attributes listed in section 3.3 designate required attribute fields to comply with the NENA NG9-1-1 GIS Standard.) NENA-STA-006.2-2020)
- The Attributes listed in section 3.4 designate supplemental attribute fields that might be required or utilized in other 911 mapping software or add knowledge for public safety personnel.

Because GIS data provisioned for use in NG9-1-1 system is used in life-or-death situations, quality standards are typically higher than for other datasets and the data should be rigorously validated to for correct names, database integrity, topology issues and correct edge matching.

Appendix A: References

Idaho Technology Authority (ITA). *Information and Data Policy P5000, Category: P5030 Framework Standards Development Policy.* https://ita.idaho.gov/psg/p5030.pdf

Idaho Technology Authority (ITA). *Enterprise Standards S4000 Geographic Information Systems (GIS) Data, Category: S4220 Geospatial Metadata.* https://ita.idaho.gov/psg/s4220.pdf

Federal Communications Commission (FCC).*911 Master SSAP Registry.* 911 Master SSAP Registry | Federal Communications Commission (fcc.gov)

National Emergency Number Association (NENA) Data Structures Committee, NG9-1-1 GIS Data Model Working Group. *NENA standards for NG9-1-1 GIS Data Model.* NENA-STA-006.1.1-2020. NG9-1-1 GIS Data Model STA-006.1.1-2020

National Emergency Number Association. Master Glossary of 9-1-1 Terminology. NENA-ADM-000.24-2021. Arlington, VA: NENA, approved June 22, 2021.

Kansas 911 Coordinating Council. *Kansas NG9-1-1 GIS Data Model V2.0* Kansas NG9-1-1 GIS Data Model (kansas911.org)

T. Berners-Lee, R. Fielding, L. Masinter, Internet Engineering Task Force, *Uniform Resource Identifier (URI) Generic Syntax*, RFC 3986. Exhibit X.

American Planning Association. Land Based Classification Standards (LBCS) Structure Dimension with Descriptions, APA Structure Codes

Appendix B: Glossary

See ITA Guideline G105 (ITA Glossary of Terms) for definitions.

URI (Uniform Resource Identifier) - A URI is an identifier consisting of a specific sequence of characters used in NG9-1-1 systems and can only include letters of the basic Latin alphabet, digits, and a few special characters. A URI can be a locator, a name, or both. An example of a URI is sips:sos.SSAP@eoc.houston.tx.us or tel:+12025551212