

# **9-1-1 Service Board Meeting**

**Tuesday, June 27th**

**10:00am – 12:00pm**

**Virtual Meeting**

**Join Via Computer:**

<https://us06web.zoom.us/j/83653237412>

**Join Via Telephone:** +1 312 626 6799

**Meeting ID:** 836 5323 7412

## **AGENDA**

- I. **Action Item:** Roll Call
- II. **Action Item:** Review/Approve Agenda
- III. **Action Item:** Review/Approve May Minutes
- IV. **Update Items:** Welcome New Board Members & Thanks to Outgoing Members!
  - Chad Hartman - Police Chiefs Representative
  - Sarah Newell - APCO Representative
  - Mike Phillips - Municipalities Representative
  - J.R. Webb - NENA Representative
  - Ronald L. Hack - Governor's Council on Disability Representative
- V. **Presentation:** Presentation of Board Audit Report (Graves & Associates)
- VI. **Action Item:** Review/approve updates to Board Investment Policy based on attorney suggestions  
(Jennifer Griffin)
- VII. **Action Item:** Approval of Emergency rules
- VIII. **Presentation:** Presentation of 2022 cardiac arrest report for MO by Kayla Riel, MPH; CARES Coordinator, Certified Health Education Specialist; EMT-B, MU Health Care
- IX. **ARPA NG911/GIS Funding Projects**
  - A. **Update/Discussion Item:** State GIS Project/Funding  
State Budget Item: Additional \$1 million for GIS
    1. **Action Item:** Review/approve Missouri NG911 GIS Data Standard & Best Practices
  - B. **Update/Discussion Item:** State NG911 Project/Funding  
State Budget Item: Additional \$10 million for NG911 grants
  - C. **Update/Discussion Item:** GIS project expenditures update (Brian)

- X. **Update Item:** State Legislative Updates – Passage of SBs 24 & 186, & HB 402
- A. Reclassification of telecommunicators as first responders
  - B. EMD Rulemaking Authority
  - C. Amendments for Jefferson County, Platte County, & Regional Planning Commissions
  - D. Related budget items – Polk, Highway Patrol, St. Charles County, School Safety

XI. **Update Item:** Congressional Update - Kaycee Nail

XII. **Action Item:** Review/approve Board Timeline of Significant Action (Kaycee)

XIII. **Action Item:** Approve FY 24 Budget (Jason)

XIV. **Update Items:** Board Initiatives

- A. NG911 Implementation Update (Scott Cason & Brian)
- B. Learning management system report (Brian)
- C. Statewide AED (Brian)
- D. Grant/Loans (Kaycee)

XV. **Discussion Item:** Committee Updates - Review Committee List

- a. Finance Committee (Jason)
- b. Training Committee (Brian)
- c. TERT Committee (Brian)
- d. PSAP Assistance Advisory Committee (Lisa)
- e. EMD Working Group (Dr. Scott & Jason)

XVI. **New Business**

XVII. **Public Comment**

XVIII. **Action Item:** Adjourn

*The 911 Service Board may go into closed session for any reason pursuant to 610.021 RSMo*

**Next Meeting:**



## Minutes: 911 Service Board Meeting

Tuesday, May 30, 2023

9:00 – 11:00am

Virtual Meeting

Join Via Computer:

<https://us06web.zoom.us/j/87554289195>

Join Via Telephone: +1 312 626 6799

Meeting ID: 875 5428 9195

MOTION TO	MOTION MADE BY	SECONDED BY	APPROVED (Y/N)
Approve agenda as amended	Dr. Kenneth Scott	Chief Michael Snider	<b>Yes 7-0*</b> *Roll call attached
Approve March & April meeting minutes	Dr. Kenneth Scott	Kevin Bond	<b>Yes 7-0*</b> *Roll call attached
Approve contract amendment for federal advocacy related to NG911	Jason White	Dr. Kenneth Scott	<b>Yes 6-0*</b> *Roll call attached Herring absent
Endorse the Providing Resources and Occupational Training for Emotional Crisis and Trauma (PROTECT) 911 Act	Jason White	Dr. Kenneth Scott	<b>Yes 6-0*</b> *Roll call attached Herring absent
Continue funding and expand scope for Board's social media campaign efforts	Sheriff Stephen Korte	Dr. Kenneth Scott	<b>Yes 7-0*</b> *Roll call attached
Approve up to \$2,500 in public education efforts at the State Fair	Jason White	Dr. Kenneth Scott	<b>Yes 7-0*</b> *Roll call attached
Approve changes to the Board's investment fund pending no substantive changes from legal	Sheriff Stephen Korte	Jason White	<b>Yes 6-0*</b> *Roll call attached Herring absent

Adjourn	Dr. Kenneth Scott	Sheriff Stephen Korte	<b>Yes 7-0*</b> *Roll call attached
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\*Roll Call Attached



**911 Service Board – Roll Call  
May 31 2023**

<b>Appointee</b>	<b>Represents</b>	<b>Present</b>	<b>Absent</b>	<b>N/A</b>
Alan Wells, Chairman	1 <sup>st</sup> Class Counties Police Chiefs	X		
Dr. Kenneth Scott, Vice-Chairman	2 <sup>nd</sup> , 3 <sup>rd</sup> , & 4 <sup>th</sup> Class Counties	X		
Lisa Schlottach, Secretary	911 Directors Association		X	
Jason White, Treasurer	Emergency Medical Services & Physicians	X		
Chief James Person	Police Chiefs	X		
Sheriff Stephen Korte	APCO	X		
Sheriff Rodney Herring	Sheriffs	X		
Chief Michael Snider	Fire Chiefs	X		
Kevin Bond	Department of Public Safety Designee	X		
Vacant	Governor’s Council on Disability			✓
Vacant	Municipalities			✓
Vacant	Wireless Telecommunications			✓
Vacant	Telecommunications			✓
Vacant	VOIP			✓
Vacant	MO-NENA			✓

## Missouri 911 Service Board Operating Assigned Fund

### Overview

The Missouri 911 Service Board ("Board") designates the creation of an OPERATING ASSIGNED FUND ("Fund") effective March 15, 2022. The general purpose of the Fund is to help to ensure the long-term financial stability of the organization and position it to respond to varying economic conditions and changes affecting the organization's financial position and the ability of the organization to continuously carry out its mission.

### Objectives

The Board will maintain the Fund to achieve the following objective(s):

1. To enable the organization to sustain operations through delays in payments of committed funding and to accept reimbursable contracts and grants without jeopardizing ongoing operations.
2. To promote public and funder confidence in the long-term sustainability of the organization by preventing chronic cash flow crises that can diminish its reputation and force its leaders to make expensive short-term crisis-based decisions.
3. To provide assurance to the employees and staff who depend upon the Board for employment through financial stability of the organization.

### Investment

The Missouri 911 Service Board Investment Policy (Policy) shall apply to the investment of all monies in the Fund. The Board will comply with this Policy.

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¶ **Maturity** ¶ The Operating Assigned Funds shall invest in securities appropriate for a one-to-three-year investment horizon. ¶

¶ **Balances** ¶ The Operating Assigned Fund shall consist of no less than 90 days of funds needed for the operation of the 911 Service Board. This amount will include payments made for employees, legal, accounting, administrative staff. ¶

¶ The Operating Assigned Fund shall not be a separate bank account but shall be a sub-category of Fund Balances listed as part of our Governmental Fund Balance Sheet and tracked as such. ¶

¶ The balance in the Operating Assigned Fund can be updated to the most current 90 day need by general board action. ¶

¶ **Reporting** ¶ A report shall be prepared on a semi-annual basis to be presented to the Finance Committee, which shall in turn be present the report to the Board. The report will include a schedule of investments, interest income year to date, current yield and total return.

# MISSOURI 911 SERVICE BOARD INVESTMENT POLICY

## I. Scope

This policy applies to the investment of all operating funds of the Missouri 911 Service Board (Board), including those in the Board's Operating Assigned Fund (Fund).

### A. Pooling of Funds

Except for cash in certain restricted and special funds, the Board will consolidate cash balances from all funds to maximize investment earnings. Investment income will be allocated to the Fund in accordance with generally accepted accounting principles.

### B. External Management of Funds

If done, investment through external programs, facilities and professionals operating in a manner consistent with this policy will constitute compliance.

## II. General Objectives

The primary objectives, in priority order, of investment activities shall be safety, liquidity, and yield:

### A. Safety

Safety of principal is the foremost objective of the investment program. Investments shall be undertaken in a manner that seeks to ensure the preservation of capital in the overall portfolio. The objective will be to mitigate or eliminate credit risk and interest rate risk.

#### 1. Credit Risk

The Board will minimize credit risk, the risk of loss due to the failure of the security issuer or backer, by:

- Pre-qualifying the financial institutions, broker/dealers, intermediaries, and advisors with which the Board will do business.
- Diversifying the portfolio so that potential losses on individual securities will be minimized.

#### 2. Interest Rate Risk

The Board will minimize the risk that the market value of securities in the portfolio will fall due to changes in general interest rates, by:

- Structuring the investment portfolio so that securities mature to meet cash requirements for ongoing operations, thereby avoiding the need to sell securities on the open market prior to maturity.

## **B. Liquidity**

The Board will ensure liquidity to meet all operating requirements that may be reasonably anticipated. This is accomplished by ensuring at all times that the Fund contains funds in an amount sufficient to pay the Board's operating expenses for a period of at least 90 days, including expenses for employees, administrative staff, and professional services such as legal and accounting services ("Operational Monies"). The Board's Operational Monies shall be placed in a FDIC insured checking account in a Missouri banking institution. The amount of Operational Monies in the Fund can be updated to the most current 90-day operational need by general Board action. Other monies in the Fund may be invested as provided in this investment policy.

## **C. Yield**

The Board's investment of monies in the Fund shall be designed with the objective of attaining a market rate of return throughout budgetary and economic cycles, taking into account the investment risk constraints and liquidity needs. Return on investment is of secondary importance compared to the safety and liquidity objectives described above. The core of investments is limited to relatively low risk securities in anticipation of earning a fair return relative to the risk being assumed. Securities shall not be sold prior to maturity with the following exceptions:

- A security with declining credit may be sold early to minimize loss of principal.
- A security swap would improve the quality, yield, or target duration in the portfolio.
- Liquidity needs of the portfolio require that the security be sold.

## **III. Standards of Care**

### **A. Prudence**

All participants in the investment process shall act responsibly as custodians of the public trust. The standard of prudence to be applied by the personnel of the Investment Division is the "prudent investor" rule, which states, "Investments shall be made with judgment and care, under circumstances then prevailing, which persons of prudence, discretion and intelligence exercise in the management of their own affairs, not for speculation, but for investment, considering the probable safety of their capital as well as the probable income to be derived."



## **B. Ethics and Conflicts of Interest**

Directors, officers, employees and administrative staff involved in the investment process shall refrain from personal business activity that could conflict with the proper execution and management of the investment program, or that could impair their ability to make impartial decisions. Employees, staff and investment officials shall disclose any material interests in financial institutions with which they conduct business. They shall further disclose any personal financial/investment positions that could be related to the performance of any investments. Employees, staff, directors and officers shall refrain from undertaking personal investment transactions with the same individual with which business is conducted on behalf of the Board.

## **C. Authority and Guidance**

The Board has authority under from § 650.330, RSMo to manage and operate the investment program with guidance from the Board's Finance Committee. The Board shall act in accordance with this investment policy. No person may engage in an investment transaction except as provided under the terms of this policy. The Board shall be responsible for all transactions undertaken.

# **IV. Investment Transactions**

## **A. Authorized Financial Dealers and Institutions**

A list will be maintained of financial institutions authorized to provide investment transactions. In addition, a list will also be maintained of approved security broker/dealers selected by creditworthiness as determined by the Board and approved by the governing body. These may include "primary" dealers or regional dealers that qualify under Securities and Exchange Commission (SEC) Rule 15C3-1 (uniform net capital rule).

All financial institutions and broker/dealers who desire to become qualified for investment transactions must supply the following as appropriate:

- Audited financial statements.
- Proof of National Association of Securities Dealers (NASD) certification.
- Proof of state registration.
- Certification of having read and understood and agreeing to comply with the Board's investment policy. An annual review of the financial condition and registration of qualified financial institutions will be conducted by the Board.

## **B. Internal Controls**

The Board's Finance Committee is responsible for establishing and maintaining an internal control structure that will be reviewed annually with the Board's independent auditor. The internal control structure shall be designed to ensure that the assets of the Board are protected from loss, theft, or misuse and to provide reasonable assurance that these objectives are met. The concept of reasonable assurance recognizes that (1) the cost of control should not exceed the benefits likely to be derived and (2) the valuation of costs and benefits require estimates and judgments by management.

The internal controls shall address the following points to the extent applicable:

- Control of collusion.
- Separation of transaction authority from accounting and record keeping.
- Custodial safekeeping.
- Avoidance of physical delivery of securities.
- Clear delegation of authority to subordinate staff members.
- Written confirmation of transactions for investments and wire transfers.
- Development of a wire transfer agreement with the lead bank and third -party custodian.

## **C. Delivery vs. Payment**

All trades where applicable will be executed by delivery vs. payment (DVP) to ensure that securities are deposited in eligible financial institutions prior to the release of funds. All securities shall be perfected in the name or for the account of the Board and shall be held by a third-party custodian as evidenced by safekeeping receipts.

## **V. Suitable and Authorized Investments**

### **A. Investment Types**

In accordance with and subject to restrictions imposed by current statutes, the following list represents the entire range of investments that the Board will consider and which shall be authorized for the investments of funds by the Board.

- 1. Governmental and Agency Debt** – those securities issued by and or guaranteed by the Federal Government or an Agency or Instrumentality of the Federal Government:

**(a) United States Treasury Securities.**

The Board may invest in short-term (less than 12 months) obligations of the United States government for which the full faith and credit of the United States are pledged for the payment of principal and interest.

**(b) United States Agency Securities.**

The Board may invest in short-term (less than 12 months) obligations issued or guaranteed by any agency of the United States Government as described below in paragraph V.B.

**2. Fixed Income Investments Secured by FDIC Insurance:**

**Collateralized Public Deposits (Certificates of Deposit).**

Instruments issued by financial institutions that are fully secured by FDIC insurance, not to exceed \$100,000 per institution, which state that specified sums have been deposited for one (1) to three (3) years and at specified rates of interest.

**B. Security Selection**

The following list represents the entire range of United States Agency Securities that the Board will consider, and which shall be authorized for the investment of funds by the Board. Additionally, the following definitions and guidelines should be used in purchasing the instruments:

- U.S. Govt. Agency Coupon and Zero Coupon Securities. Bullet coupon bonds with no embedded options.
- U.S. Govt. Agency Discount Notes. Purchased at a discount with maximum maturities of one (1) year.
- U.S. Govt. Agency Callable Securities. Restricted to securities callable at par only with final maturities of up to three (3) years.
- U.S. Govt. Agency Step-Up Securities. The coupon rate is fixed for an initial term. At coupon date, the coupon rate rises to a new, higher fixed term. Restricted to securities with final maturities of up to three (3) years.

**C. Investment Restrictions and Prohibited Transactions**

To provide for the safety and liquidity of the Board's funds, the investment portfolio will be subject to the following restrictions:

- Borrowing for investment purposes (“Leverage”) is prohibited.
- Instruments known as variable rate demand notes, floaters, inverse floaters, leveraged floaters, and equity- linked securities are not permitted. Investment in any instrument that is commonly considered a “derivative” instrument (e.g., options, futures, swaps, caps, floors, and collars) is prohibited.
- Contracting to sell securities not yet acquired in order to purchase other securities for purposes of speculating on developments or trends in the market is prohibited.

## **VI. Investment Parameters**

### **A. Diversification**

The investments shall be diversified to minimize the risk of loss resulting from over concentration of assets in specific maturity, specific issuer, or specific class of securities.

Diversification strategies shall be established and periodically reviewed. At a minimum, diversification standards by security type and issuer shall be:

- U.S. treasuries and securities having principal and/or interest guaranteed by the U.S. government: 100%
- Time and demand deposits that are fully secured by FDIC insurance: 100%
- U.S. Government agencies, and government sponsored enterprises: No more than 60%
- U.S. Government agency callable securities: No more than 30%

### **B. Maximum Maturities**

To the extent possible, the Board shall attempt to match its investments with anticipated cash flow requirements. Investments other than demand deposits shall mature and become payable one (1) to three (3) years from the date of purchase. The Board shall adopt weighted average maturity limitations that should not exceed three (3) years and are consistent with the investment objectives.

Because of inherent difficulties in accurately forecasting cash flow requirements, a portion of the portfolio should be continuously invested in readily available funds such as in bank deposits to ensure that appropriate liquidity is maintained to meet ongoing obligations.

## **VII. Reporting**

### **A. Methods**

The Board's Treasurer shall prepare an investment report at least quarterly, including a management summary that provides an analysis of the status of the current investment portfolio and transactions made over the last quarter, and present it to the Board. This management summary will be prepared in a manner that will allow the Board to ascertain whether investment activities during the reporting period have conformed to the investment policy. The report will include the following:

- Listing of individual securities held at the end of the reporting period.
- Realized and unrealized gains or losses resulting from appreciation or depreciation by listing the cost and market value of securities over a one-year duration (in accordance with Government Accounting Standards Board (GASB) 31 requirements).
- Average weighted yield to maturity of portfolio on investments as compared to applicable benchmarks.
- Listing of investment by maturity date.
- Percentage of the total portfolio that each type of investment represents.

#### **B. Performance Standards**

The investment portfolio will be managed in accordance with the parameters specified within this policy. The portfolio should obtain a market average rate of return during a market/economic environment of stable interest rates. A series of appropriate benchmarks may be established against which portfolio performance shall be compared on a regular basis.

#### **C. Marking to Market**

The Board's Treasurer shall calculate the market value of the portfolio at least quarterly and present a statement of the market value of the portfolio to the Board. This will ensure that review of the investment portfolio, in terms of value and price volatility, has been performed.

### **VIII. Policy Considerations**

#### **Exemption**

Any investment currently held that does not meet the guidelines of this policy shall be exempt from the requirements of this policy. At maturity or liquidation, such monies shall be reinvested only as provided by this policy.

This policy shall be adopted by resolution of the Board. The policy shall be reviewed annually by the Board's Treasurer and recommended changes will be presented to the Board for consideration.

#### **IX. List of Attachments**

The following documents are attached to this policy:

- Exhibit A - Listing of authorized broker/dealers and financial institutions

#### **EXHIBIT A**

#### **LISTING OF AUTHORIZED BROKER/DEALERS AND FINANCIAL INSTITUTIONS**



Lathrop GPM LLP  
lathropgpm.com

314 East High Street  
Jefferson City, MO 65101  
Main: 573.893.4336

**JENNIFER S. GRIFFIN**  
PARTNER  
JENNIFER.GRIFFIN@LATHROPGPM.COM  
573.761.5006

Sarah Schappe  
Joint Committee on Administrative Rules  
Capitol Building, Room B-8  
Jefferson City, Missouri 65101  
[JTCAR@senate.mo.gov](mailto:JTCAR@senate.mo.gov)

Re: **Proposed Amendment 11 CSR 90-2.010**

Dear Ms. Schappe,

Attached please find a rulemaking packet for filing with your office for the above-referenced proposed rule of the Missouri 911 Service Board. The packet includes the following documents:

1. This letter;
2. Rule Transmittal Sheet;
3. Cover letter for the Secretary of State;
4. Declaration of Public Cost;
5. Proposed Amendment; and
6. An email attachment in Microsoft Word containing the rule.

If there are any questions regarding this proposed rulemaking, please contact me via email at [jennifer.griffin@lathropgpm.com](mailto:jennifer.griffin@lathropgpm.com) or on my mobile at (573) 619-1629.

A handwritten signature in black ink, appearing to read "Jennifer S. Griffin".

---

Jennifer S. Griffin, Legal Counsel  
Missouri 911 Service Board







Lathrop GPM LLP  
lathropgpm.com

314 East High Street  
Jefferson City, MO 65101  
Main: 573.893.4336

**JENNIFER S. GRIFFIN**  
PARTNER  
JENNIFER.GRIFFIN@LATHROPGPM.COM  
573.761.5006

Secretary of State  
Administrative Rules  
600 West Main Street  
Jefferson City, Missouri 65101  
rules@sos.mo.gov

Re: **Proposed Amendment 11 CSR 90-2.010**

Dear Secretary,

CERTIFICATION OF ADMINISTRATIVE RULE

I do hereby certify that the attached is an accurate and complete copy of the proposed rulemaking lawfully submitted by the Missouri 911 Service Board.

The Missouri 911 Service Board further certifies that it has conducted an analysis of whether or not there has been a taking of real property pursuant to section 536.017, RSMo, and that the proposed rulemaking does not constitute a taking of real property under relevant state and federal law.

The Missouri 911 Service Board has determined and hereby also certifies that if the proposed rulemaking does affect small business pursuant to sections 536.300 to 536.310, RSMo, a small business impact statement has been filed as required by those sections. If no small business impact statement has been filed the proposed rulemaking either does not affect small business or the small business requirements do not apply pursuant to section 536.300.4, RSMo.

Statutory Authority: sections 650.330 and 650.335, RSMo Supp. 2025"

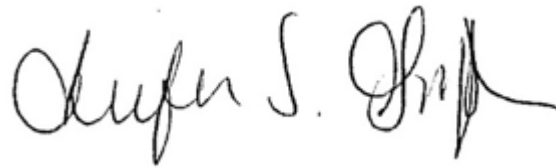
*Jennifer S. Griffin*  
*Lathrop GPM, LLP*  
*314 E. High St.*  
*Jefferson City, MO 65101*  
*(573) 619-1629 (mobile) or (573) 893-5398 (office)*  
*jennifer.griffin@lathropgpm.com*

---

Jennifer S. Griffin, Legal Counsel  
Missouri 911 Service Board

**DECLARATION  
OF PUBLIC COST**

I, Jennifer S. Griffin, do declare that it is my opinion that the cost of proposed amendment 11 CSR 90-2.010, is less than five hundred dollars in the aggregate to this agency, any other agency of state government or any political subdivision thereof.

A handwritten signature in black ink, appearing to read "Jennifer S. Griffin", with a stylized flourish at the end.

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Jennifer S. Griffin, Legal Counsel  
Missouri 911 Service Board

**Title 11 – DEPARTMENT OF PUBLIC SAFETY  
DIVISION 90 – Missouri 911 Service Board  
Chapter 2—911 Financial Assistance Program**

**PROPOSED AMENDMENT**

**11 CSR 90-2.010 Definitions.** The board is amending subsection (G) of section (1).

*PURPOSE: This amendment changes the definition of eligible applicants to include certain regional planning commissions consistent with a change to section 650.335, RSMo that becomes effective Aug. 28, 2023.*

(1) As used in this chapter, the following terms shall mean:

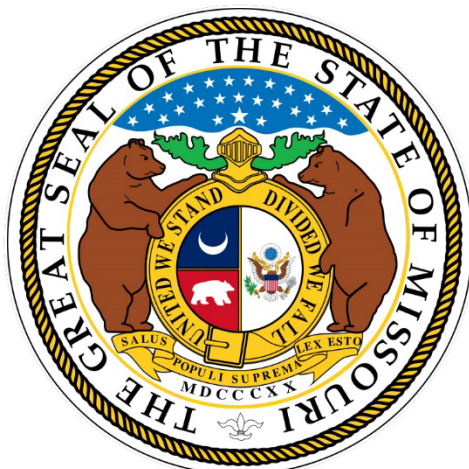
(G) “Eligible applicants” or “Applicants,” counties, cities [*and*], elected emergency service boards, **and regional planning commissions as defined in section 70.515, RSMo, that provide emergency telephone services to multiple counties**, that sections 650.330 and 655.335, RSMo, authorize to submit applications to the board for grants and loans to finance all or a portion of the costs incurred by their 911 services authorities in implementing a 911 communications service project;

*AUTHORITY: sections 650.330 and 650.335, RSMo Supp. [2021] 2023. Emergency rule filed May 6, 2020, effective May 21, 2020, expired Feb. 25, 2021. Original rule filed May 7, 2020, effective Dec. 30, 2020. Emergency amendment filed Aug. 31, 2021, effective Sept. 15, 2021, and expired March 13, 2022. Amended: Filed Jan.7, 2022, effective July 30, 2022. Amended: Filed July 14, 2023.*

*PUBLIC COST: This proposed amendment will not cost state agencies or political subdivisions and other public entities more than five hundred dollars (\$500) in the aggregate.*

*PRIVATE COST: This proposed amendment will cost private entities less than five hundred dollars (\$500) in the aggregate.*

*NOTICE TO SUBMIT COMMENTS: Anyone may file a statement in support of or opposition to this proposed amendment with Missouri 911 Service Board, P.O. Box 2126, Jefferson City, MO 65102. To be considered, comments must be received within thirty (30) days after publication of this notice in the **Missouri Register**. No public hearing is scheduled.*



# Missouri NG9-1-1 GIS Data Standard & Best Practices

June 2023

## Document Change Log

Date	Author	Change	Reason
6/27/2023	GIS Committee	Various additions and corrections	

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# 1 Introduction

In 2020, the State of Missouri 9-1-1 Board, in collaboration with the NG9-1-1 GIS Subcommittee, conducted efforts to prepare the State of Missouri for the implementation of Next Generation 9-1-1 (NG9-1-1). This standard and best practices document is the result of one such effort that focused on GIS data preparation for NG9-1-1.

## 1.1 Background

Accurate and complete GIS data is critical to the operation of an NG9-1-1 system. Locally developed GIS data will be used for routing and transferring 9-1-1 calls to the appropriate Public Safety Answering Point (PSAP) and to support the dispatch of emergency services providers. This requires the GIS data to be standardized for use in NG9-1-1. Most authoritative GIS data in Missouri is created at the county or local level to meet local government needs, including 9-1-1 purposes. Some data layers exist at the state level, such as hydrology, aerial imagery, state parks and trails, that may or may not be necessary for public safety.

## 1.2 Purpose of the Missouri NG9-1-1 GIS Data Standard

The purpose of the Missouri NG9-1-1 GIS Data Standard is to establish a uniform, common data model for the required NG9-1-1 GIS layers in the State of Missouri. The National Emergency Number Association (NENA) sets standards for implementing and managing 9-1-1 systems, including the data used in public safety systems to support emergency response, particularly as it relates to NG9-1-1. This document also provides recommendations and best practices for creating and maintaining the Road Centerline, Site/Structure Address Point and Boundary GIS data layers to meet Missouri's NG9-1-1 GIS data requirements and quality control processes for all of the required NG9-1-1 GIS data layers.

## 1.3 Applicability

This standard is not intended to replace any data producer's local schema, internal data capture, or storage specifications. Rather, it is the required GIS data standard for use in NG9-1-1 functional elements and core services such as:

- **Location Validation Function (LVF)** to determine if a civic location is valid for call routing and dispatch before a 911 call is ever made,
- **Emergency Call Routing Function (ECRF)** to identify the location of a 911 call and then perform a geographic query to determine the appropriate PSAP to route the call to,
- **MSAG Conversion Service (MCS)** to create an MSAG (Master Street Address Guide) record from an NG9-1-1 PIDF-LO record for backwards compatibility or to create a PIDF-LO (Presence Information Data Format – Location Object) record from an MSAG record for use in NG9-1-1,
- **Geocode Service (GCS)** to provide geocoding and reverse-geocoding services,
- **Mapping Data Service (MDS)** to display a map to the telecommunicator showing the location of an out-of-area call. GIS data to be used in NG9-1-1 must be in the format defined in this standard. Some data producers may find benefits from storing their data in this structure, such as reducing incompatibilities and inconsistencies when sharing data or eliminating the need for ETL (Extract, Transform, Load) processes when providing data for NG9-1-1 purposes.

## 1.4 Sources of this Standard

The Missouri NG9-1-1 GIS Data Standard is built upon the NENA Standard for NG9-1-1 GIS Data Model (NENA-STA-006.1.1) [1] and includes all required GIS data layers and their elements.

# 2 Compliance Notes

The NENA Standard for NG9-1-1 GIS Data Model [1] identifies the GIS data layers necessary for NG9-1-1 and defines their required data schema and associated fields. This Missouri NG9-1-1 GIS Data Standard is fully compliant with the NENA Standard. All fields listed in the NENA standard for these layers are included in this

document as well as a few additional fields specific to the State of Missouri's needs. All fields listed in this standard must be included in the GIS data layers, even if data does not exist for a field or a field is classified as Optional.

## **2.1 Required Layers**

The required layers for Missouri NG9-1-1 GIS Data Standard follows the NENA standard with the additional of the strongly recommended layers of Incorporated Municipality Boundary and County Boundary. These layers must be available for the NG9-1-1 system and public safety systems to support emergency response. The required layers for this standard are:

- Road Centerlines
- Site/Structure Address Points
- PSAP Boundaries
- Emergency Service Boundaries (law enforcement, fire/rescue, emergency medical services)
- Provisioning Boundaries
- Incorporated Municipality Boundaries
- County Boundaries

## **2.2 Spatial Reference**

Local GIS data may be maintained in any datum and coordinate system desired, however, GIS data must be transformed into the World Geodetic System of 1984 (WGS 1984) prior to its use in NG9-1-1 systems. All GIS data in i3 must be in this WGS84 format to support interoperability between all systems and all sites across the US, as referenced in NENA STA 010.

- Geodetic parameters for WGS84 are specified by the European Petroleum Survey Group (EPSG) as follows:
  - For 2-dimensional geometries the geodetic parameters are required to follow EPSG::4326
  - For 3-dimensional geometries the geodetic parameters are required to follow EPSG::4979

## **2.3 Title Case**

The standard requires that field values use title case format with the exception of the Country and State fields, which must be uppercase. Legacy Street Name fields should preserve the case of existing data. It is understood that some end users may need the uppercase format for some applications. There are several methods that allow end users to convert the data to uppercase for a desired purpose. Having the data in a title case format makes it much easier to automatically convert the data if needed.

## **2.4 Abbreviations**

NENA NG9-1-1 standards require certain field values to be fully spelled out to remove confusion and ambiguity, in compliance with Civic Location and Data Exchange Format (CLDXF) standards. This is important when dealing with street names where abbreviations could have multiple interpretations (e.g., "W Charles Tr" could be West Charles Trail, West Charles Trace, William Charles Trail, William Charles Trace, etc.). It is understood that abbreviations can be widely used for many applications and some fields may need to be maintained locally in abbreviated form. Abbreviations are allowed in the Legacy fields, as those fields are to be maintained in synchronization with MSAG and ALI databases.

The use of abbreviations in the NG9-1-1 GIS data should not be confused with what telecommunicators see on their screens or what they need to type into their systems. Consult with the NG9-1-1 Core Services Provider regarding the software translation capabilities of the data input interfaces used by the telecommunicators.

## **2.5 NENA Globally Unique IDs (NGUIDs)**

Each feature in a GIS data layer must be assigned a unique identifier so that when consolidated into a nationwide or global GIS dataset, the identifier is not duplicated. For NG9-1-1 GIS data layers, this identifier is known as a NENA Globally Unique Identifier (NGUID). The NGUID is created by combing a locally assigned

unique identifier (which can be numeric and/or text), the '@' symbol, and an Agency Identifier (which is a registered domain name in the public Domain Name System as defined in Internet Engineering Task Force RFC 1034 [2]).

It is important to note that in NG9-1-1, the PSAP Boundary layer is considered an Emergency Service Boundary layer. Thus, the PSAP Boundary layer and each Emergency Service Boundary layer use the same database field name (ES\_NGUID) for their NGUID element. While an ES\_NGUID value may be unique within its layer, without the proper checks in place, it is possible the same value may occur in the ES\_NGUID field in another layer. Care should be taken to keep the ES\_NGUID value for each feature in the PSAP, Law, Fire, EMS, and other Emergency Service Boundary layers truly unique across all layers. One way to do this is to add a prefix suggestive of the layer (e.g., PSAP, LAW, FIRE, EMS) to the locally assigned unique identifier. For example, the ES\_NGUID for a PSAP polygon in Cass County's PSAP layer with a locally assigned unique identifier of 57311256 would be PSAP57311256@co.cass.mo.us.

## 2.6 Field Type

For simplicity, this standard identifies five field types (Text, Date, Short, Long, Float) that equate to the following NENA-defined field types:

### Text Fields

**P [Text]** – Printable ASCII characters (decimal codes 32 to 126).

**E [Text]** – UTF 8 restricted to character sets designated by the 9-1-1 Authority, but not including pictographic characters. This allows for foreign names that require Latin letters not in the ASCII character set (e.g. Latin letters with tilde or grave accents).

**U [Text]** – A Uniform Resource Identifier (URI) as described in Section 17, Terminology, and defined in RFC 3986 [3][2], and also conforming to any rules specific to the scheme (e.g. sip:, https:, etc.) of the chosen URI. Consult with the NG9-1-1 Core Services Provider for requirements.

### Date Field

**D [Date]** – Date and time. Information for a record represented as local time with offset from Coordinated Universal Time (UTC) as defined by the W3C "dateTime" datatype described in XML Schema Part 2: Datatypes Second Edition [4]. Since many GIS applications cannot currently utilize this format, local data may store the date and time in the local database date/time format, but time must include seconds and may be recorded to 0.1 seconds. Local data stored in a local database date/time format must be converted to the NENA-required format prior to use in NG9-1-1.

### Number Fields

**N [Short, Long]** – Non-negative Integer, consisting of whole numbers only.

**F [Float]** – Floating (numbers that have a decimal place). There is no defined field length of a floating number; it is system dependent. These shall be double-precision fields.

## 2.7 Field Width

This is the maximum allowable field width, in number of characters.

## 2.8 Inclusion

Inclusion refers to the requirement for a field to be populated in a dataset to comply with the standard.

**Mandatory:** An attribute value must be provided for each record to comply with the standard.

**Conditional:** If an attribute value exists, it must be provided for each record to comply with the standard. If no value exists for the attribute, the data field is left blank.

**Optional:** An attribute value is not required to be populated.

## 2.9 Domains

A domain defines the set of valid values that are allowed in a data field. If the domain defines no values, then any value that matches the field type and description may be populated in the data field. This standard identifies several required domain tables (shown in italics in the Summary Tables below), some currently maintained by organizations within Missouri and others limited to values identified in external sources such as NENA and USPS (United States Postal Service). If a local value exists but is not included in an identified domain, submit the value with supporting documentation to the Missouri 9-1-1 Service Board for consideration of inclusion. The Missouri 9-1-1 Service Board will work with the appropriate organization to add the local values that meet the criteria for inclusion in the domains.

## 3 Road Centerline - Summary Table

The Road Centerline layer is an integral part of an NG9-1-1 GIS dataset. Its primary use is to validate civic address locations which are then used to determine the correct routing of live 9-1-1 calls in an NG9-1-1 environment.

### Chart Legend

Element Type	Description	Color
Identification Elements	Data elements required for feature level identification	
Relate Elements	Data elements used to relate features to other features	
Address Elements	Data elements required for addressing	
Area Elements	Data elements used for location identification	
Functional Elements	Data elements used for functionality in supported systems	
Management Elements	Data elements required for feature level management	
9-1-1 Elements	Data elements required to support 9-1-1	

Element Number	Element Name	Database Field Name	Field Type	Field Width	Inclusion	Domain	Reference Standard
<b>0 Identification Elements</b>							
3.1.1	Road Centerline NENA Globally Unique ID	RCL_NGUID	TEXT	254	<b>Mandatory</b>		NENA
<b>3.2 Relate Elements</b>							
<b>3.3 Address Elements</b>							
3.3.1	Left Address Number Prefix	AdNumPre_L	TEXT	15	Conditional		NENA
3.3.2	Left FROM Address	FromAddr_L	LONG	6	<b>Mandatory</b>	Whole numbers from 0 to 999999	NENA
3.3.3	Left TO Address	ToAddr_L	LONG	6	<b>Mandatory</b>	Whole numbers from 0 to 999999	NENA
3.3.4	Right Address Number Prefix	AdNumPre_R	TEXT	15	Conditional		NENA
3.3.5	Right FROM Address	FromAddr_R	LONG	6	<b>Mandatory</b>	Whole numbers from 0 to 999999	NENA
3.3.6	Right TO Address	ToAddr_R	LONG	6	<b>Mandatory</b>	Whole numbers from 0 to 999999	NENA
3.3.7	Street Name Pre Modifier	St_PreMod	TEXT	15	Conditional		NENA
3.3.8	Street Name Pre Directional	St_PreDir	TEXT	9	Conditional		NENA
3.3.9	Street Name Pre Type	St_PreTyp	TEXT	50	Conditional	NENA <i>Street Name Pre Types and Street Name Post Types Registry [15]</i>	NENA

Element Number	Element Name	Database Field Name	Field Type	Field Width	Inclusion	Domain	Reference Standard
3.3.10	Street Name Pre Type Separator	St_PreSep	TEXT	20	Conditional	NENA Street Name Pre Type Separators Registry [16]	NENA
3.3.11	Street Name	St_Name	TEXT	60	<b>Mandatory</b>		NENA
3.3.12	Street Name Post Type	St_PosTyp	TEXT	50	Conditional	NENA Street Name Pre Types and Street Name Post Types Registry [15]	NENA
3.3.13	Street Name Post Directional	St_PosDir	TEXT	9	Conditional		NENA
3.3.14	Street Name Post Modifier	St_PosMod	TEXT	25	Conditional		NENA
3.3.15	Full Street Name	FullStNm	TEXT	245	<b>Mandatory</b>	Concatenated field for NG9-1-1 formatted street names including: Street Name Pre Modifier, Street Name Pre Directional, Street Name Pre Type, Street Name Pre Type Separator, Street Name, Street Name Post Type, Street Name Post Directional, and Street Name Post Modifier	
3.3.16	Legacy Full Street Name	LgFullStNm	TEXT	175	Optional	Concatenated field for legacy formatted street names including: Legacy Street Name Pre Directional, Legacy Street Name, Legacy Street Name Type, and Legacy Street Name Post Directional	
3.3.17	Legacy Street Name Pre Directional	LSt_PreDir	TEXT	2	Conditional		NENA
3.3.18	Legacy Street Name	LSt_Name	TEXT	75	Conditional		NENA
3.3.19	Legacy Street Name Type	LSt_Type	TEXT	4	Conditional	USPS Publication 28, Appendix C1	NENA
3.3.20	Legacy Street Name Post Directional	LSt_PosDir	TEXT	2	Conditional		NENA
3.3.21	Postal Code Left	PostCode_L	TEXT	7	Optional	USPS City State File Product	USPS, NENA
3.3.22	Postal Code Right	PostCode_R	TEXT	7	Optional	USPS City State File Product	USPS, NENA
3.3.23	Postal Community Name Left	PostComm_L	TEXT	40	Optional	USPS City State File Product	USPS, NENA
3.3.24	Postal Community Name Right	PostComm_R	TEXT	40	Optional	USPS City State File Product	USPS, NENA
<b>3.4 Area Elements</b>							
3.4.1	Country Left	Country_L	TEXT	2	<b>Mandatory</b>	ISO 3166-1 alpha-2 codes	NENA
3.4.2	Country Right	Country_R	TEXT	2	<b>Mandatory</b>	ISO 3166-1 alpha-2 codes	NENA
3.4.3	State Left	State_L	TEXT	2	<b>Mandatory</b>		US Census, NENA
3.4.4	State Right	State_R	TEXT	2	<b>Mandatory</b>		US Census, NENA
3.4.5	County Left	County_L	TEXT	40	<b>Mandatory</b>	MONG911CountyDomain	US Census, NENA
3.4.6	County Right	County_R	TEXT	40	<b>Mandatory</b>	MONG911CountyDomain	US Census, NENA

Element Number	Element Name	Database Field Name	Field Type	Field Width	Inclusion	Domain	Reference Standard
3.4.7	Incorporated Municipality Left	IncMuni_L	TEXT	100	<b>Mandatory</b>		NENA
3.4.8	Incorporated Municipality Right	IncMuni_R	TEXT	100	<b>Mandatory</b>		NENA
3.4.9	Unincorporated Community Left	UnincCom_L	TEXT	100	Optional		NENA
3.4.10	Unincorporated Community Right	UnincCom_R	TEXT	100	Optional		NENA
3.4.11	Neighborhood Community Left	NbrhdCom_L	TEXT	100	Optional		NENA
3.4.12	Neighborhood Community Right	NbrhdCom_R	TEXT	100	Optional		NENA
3.4.13	Additional Code Left	AddCode_L	TEXT	6	Conditional		NENA
3.4.14	Additional Code Right	AddCode_R	TEXT	6	Conditional		NENA
<b>3.5 Functional Elements</b>							
3.5.1	One-Way	OneWay	TEXT	2	Optional		NENA
0	Speed Limit	SpeedLimit	SHORT	3	Optional		NENA
3.5.3	Road Class	RoadClass	TEXT	15	Optional		NENA
<b>3.6 Management Elements</b>							
3.6.1	Date Updated	DateUpdate	DATE		<b>Mandatory</b>		NENA
3.6.2	Effective Date	Effective	DATE		Optional		NENA
3.6.3	Expiration Date	Expire	DATE		Optional		NENA
<b>0 9-1-1 Elements</b>							
3.7.1	Discrepancy Agency ID	DiscrpAgID	TEXT	75	<b>Mandatory</b>		NENA
3.7.2	Parity Left	Parity_L	TEXT	1	<b>Mandatory</b>	O, E, B, Z	NENA
3.7.3	Parity Right	Parity_R	TEXT	1	<b>Mandatory</b>	O, E, B, Z	NENA
3.7.4	ESN Left	ESN_L	TEXT	5	Conditional	Characters from 000 to 99999	NENA
3.7.5	ESN Right	ESN_R	TEXT	5	Conditional	Characters from 000 to 99999	NENA
3.7.6	MSAG Community Name Left	MSAGComm_L	TEXT	30	Conditional		NENA
3.7.7	MSAG Community Name Right	MSAGComm_R	TEXT	30	Conditional		NENA
3.7.8	Validation Left	Valid_L	TEXT	1	Optional		NENA
3.7.9	Validation Right	Valid_R	TEXT	1	Optional		NENA

## Road Centerline - Data Element Details

### 3.1 Identification Elements

#### 3.1.1 Road Centerline NENA Globally Unique ID

Database Field Name	RCL_NGUID		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	254	Domain	
Examples	RCL47824393@PSAP.greenecounty.mo.us, RCL587392034@PSAP.boonecounty.mo.us, RCL90a942e1bc7f4g1h94c5acaadv24r89h@ psap.riverside.mo.us		
Description	The NENA Globally Unique ID (NGUID) for a Road Centerline segment such that when merging Road Centerline data from other local 9-1-1 Authorities, this unique ID only occurs once. A Road Centerline NGUID is created by concatenating the locally assigned unique ID, the "@" symbol, and the Agency Identifier (a registered domain name). The locally assigned unique ID may be the RCL_ExtID, an autogenerated unique ID, or a manually generated unique ID. The Road Centerline NGUID is also used to relate to alternate street name records in the Street Name Alias Table.		

### 3.2 Relate Elements

Not applicable.

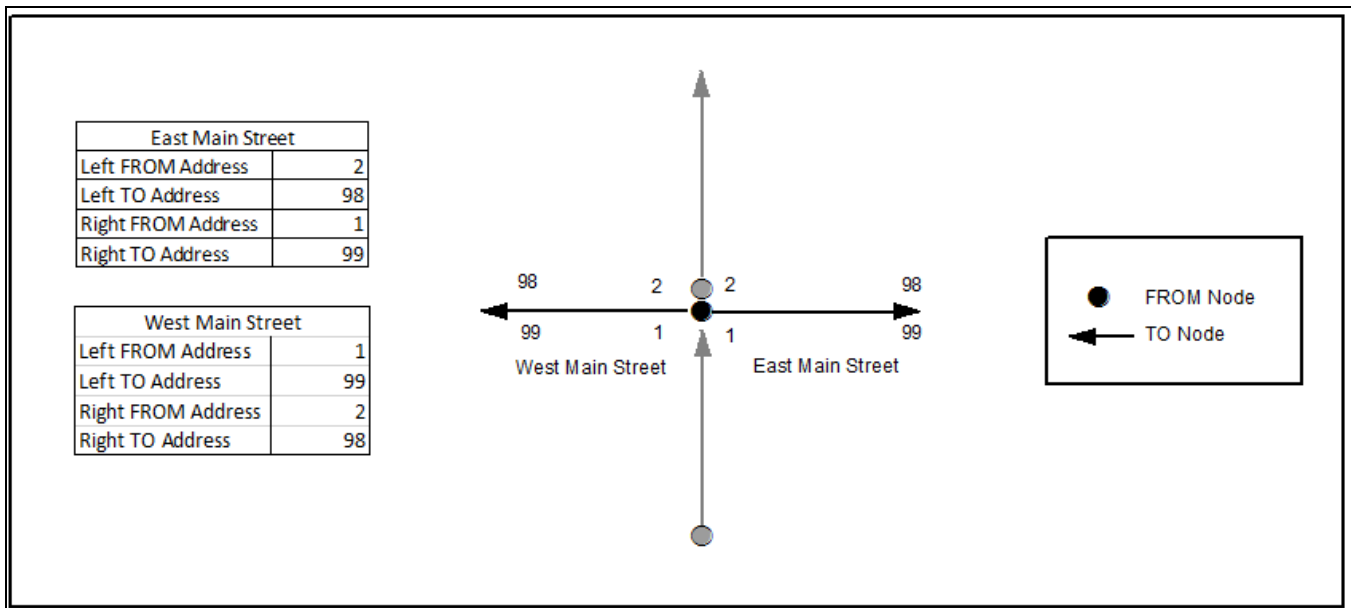
### 3.3 Address Elements

#### 3.3.1 Left Address Number Prefix

Database Field Name	AdNumPre_L		
Data Type	TEXT	Inclusion	Conditional
Width	15	Domain	
Examples	N123, W123, N, W, S123W		
Description	An extension of the Left FROM Address or Left TO Address on the left side of the road segment consisting of the non-integer portion of the identifier for a parcel, house, building or other feature which precedes the address number, as defined by the official Addressing Authority for the given jurisdiction. Used to include the directional to an address number (e.g., <b>N</b> 2554 Johnson Street). Also used in a few counties where grid address numbers exist to include the locally defined grid cell reference.		

#### 3.3.2 Left FROM Address

Database Field Name	FromAddr_L		
Data Type	LONG	Inclusion	<b>Mandatory</b>
Width	6	Domain	Whole numbers from 0 to 999999
Examples	123		
Description	The beginning value of the address range on the left side of the road segment at the FROM node (begin point). This value can be higher than the Left TO Address.		



Example of Left FROM, Left TO, Right FROM, and Right TO Addresses

### 3.3.3 Left TO Address

Database Field Name	ToAddr_L		
Data Type	LONG	Inclusion	<b>Mandatory</b>
Width	6	Domain	Whole numbers from 0 to 999999
Examples	123		
Description	The ending value of the address range on the left side of the road segment at the TO node (endpoint). This value can be lower than the Left FROM Address.		

### 3.3.4 Right Address Number Prefix

Database Field Name	AdNumPre_R		
Data Type	TEXT	Inclusion	Conditional
Width	15	Domain	
Examples	N123, W123, N, W, S123W		
Description	An extension of the Right FROM Address or Right TO Address on the right side of the road segment, consisting of the non-integer portion of the identifier for a parcel, house, building or other feature which precedes the address number, as defined by the official Addressing Authority for the given jurisdiction. Used to include the directional to an address number (e.g., N2554 Johnson Street). Also used in a few counties where grid address numbers exist to include the locally defined grid cell reference.		

### 3.3.5 Right FROM Address

Database Field Name	FromAddr_R		
Data Type	LONG	Inclusion	<b>Mandatory</b>
Width	6	Domain	Whole numbers from 0 to 999999
Examples	123		
Description	The beginning value of the address range on the right side of the road segment at the FROM node (begin point). This value can be higher than the Right TO Address.		



### 3.3.6 Right TO Address

Database Field Name	ToAddr_R		
Data Type	LONG	Inclusion	<b>Mandatory</b>
Width	6	Domain	Whole numbers from 0 to 999999
Examples	123		
Description	The ending value of the address range on the right side of the road segment at the TO node (endpoint). This value can be lower than the Right FROM Address.		

### 3.3.7 Street Name Pre Modifier

Database Field Name	St_PreMod		
Data Type	TEXT	Inclusion	Conditional
Width	15	Domain	
Examples	<b>Old</b> North Highway 63		
Description	A word or phrase that precedes all other Street Name elements and is separated from the Street Name element by a Street Name Pre Directional and/or a Street Name Pre Type element. Not commonly used and use should be minimized.		

### 3.3.8 Street Name Pre Directional

Database Field Name	St_PreDir		
Data Type	TEXT	Inclusion	Conditional
Width	9	Domain	
Examples	<b>East</b> Main Street, Old <b>North</b> Highway 63		
Description	A word or phrase preceding the Street Name element that indicates the direction taken by the road from an arbitrary starting point or the sector where it is located.		

### 3.3.9 Street Name Pre Type

Database Field Name	St_PreTyp		
Data Type	TEXT	Inclusion	Conditional
Width	50	Domain	<i>NENA Street Name Pre Types and Street Name Post Types Registry [15]</i>
Examples	<b>Avenue A</b> , Old North <b>Highway</b> 63, <b>United States Highway</b> 40, <b>State Highway</b> 266, <b>State Highway</b> AB, <b>Interstate</b> 70, <b>Route</b> K, <b>Highway</b> 124, <b>County Road</b> 443		
Description	A word or phrase that precedes the Street Name element and identifies the type of thoroughfare in the Full Street Name.		

### 3.3.10 Street Name Pre Type Separator

Database Field Name	St_PreSep		
Data Type	TEXT	Inclusion	Conditional
Width	20	Domain	<i>NENA Street Name Pre Type Separators Registry [16]</i>
Examples	Avenue <b>of the</b> Columns, Avenue <b>of</b> Champions		
Description	A preposition or prepositional phrase between the Street Name Pre Type and the Street Name element.		

### 3.3.11 Street Name

Database Field Name	St_Name		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	60	Domain	
Examples	<b>Jones</b> Road, Highway <b>U</b> , Avenue of the <b>Columns</b> , Avenue <b>C</b> , <b>Azure</b> Court South		
Description	The official name of the road as defined by the official Street Naming Authority for the given jurisdiction. The Street Name element does not include a street type, directional, or modifier unless assigned as such by the official Street Naming Authority.		

### 3.3.12 Street Name Post Type

Database Field Name	St_PosTyp		
Data Type	TEXT	Inclusion	Conditional
Width	50	Domain	<i>NENA Street Name Pre Types and Street Name Post Types Registry [15]</i>
Examples	Jones <b>Road</b> , Azure <b>Court</b> South		
Description	A word or phrase that follows the Street Name element and identifies the type of thoroughfare in the Full Street Name.		

### 3.3.13 Street Name Post Directional

Database Field Name	St_PosDir		
Data Type	TEXT	Inclusion	Conditional
Width	9	Domain	
Examples	Azure Court <b>South</b> , 10th Avenue <b>West</b>		
Description	A word or phrase following the Street Name element that indicates the direction taken by the road from an arbitrary starting point or the sector where it is located.		

### 3.3.14 Street Name Post Modifier

Database Field Name	St_PosMod		
Data Type	TEXT	Inclusion	Conditional
Width	25	Domain	
Examples	Highway 63 <b>Connector</b> , Buttonwood Drive <b>Access</b> , Lake Road <b>Fire Road 8</b> , United States Highway 71 West <b>Frontage Road</b> , Interstate 70 <b>westbound</b>		
Description	A word or phrase that follows all other Street Name elements and is separated from the Street Name element by a Street Name Post Directional and/or Street Name Post Type element. Not commonly used and use should be minimized.		

### 3.3.15 Full Street Name

Database Field Name	FullStNm		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	245	Domain	
Examples	Old North Highway 63, Azure Court South, Lake Road Fire Road 8		
Description	The Street Name with all Pre/Post Modifiers, Pre/Post Directionals, Pre Type Separator, and Pre/Post Types concatenated: St_PreMod + St_PreDir + St_PreTyp + St_PreSep + St_Name + St_PosTyp + St_PosDir + St_PosMod		

### 3.3.16 Legacy Full Street Name

Database Field Name	LgFullStNm		
Data Type	TEXT	Inclusion	Optional
Width	175	Domain	
Examples	OLD N HWY 63, AZURE CT S, LAKE RD FIRE RD 8		
Description	The Full Street Name with abbreviations (where appropriate) based on Legacy Street Name Pre Directional, Legacy Street Name, Legacy Street Name Type, and Legacy Street Name Post Directional		

### 3.3.17 Legacy Street Name Pre Directional

Database Field Name	LSt_PreDir		
Data Type	TEXT	Inclusion	Conditional
Width	2	Domain	
Examples	E MAIN ST, S ELMWOOD DR		
Description	The street direction prefix as it appears in the MSAG, as assigned by the official Street Naming Authority. Casing should reflect what appears in the MSAG data.		

### 3.3.18 Legacy Street Name

Database Field Name	LSt_Name		
Data Type	TEXT	Inclusion	Conditional
Width	75	Domain	
Examples	E MAIN ST, S ELMWOOD DR, I 70, HWY U, 10TH AVE W, AZURE CT S		
Description	The street name field as it appears in the MSAG, as assigned by the official Street Naming Authority. Casing should reflect what appears in the MSAG data.		

### 3.3.19 Legacy Street Name Type

Database Field Name	LSt_Type		
Data Type	TEXT	Inclusion	Conditional
Width	4	Domain	USPS Publication 28, Appendix C1 [5]
Examples	E MAIN ST, S ELMWOOD DR, 10TH AVE W, AZURE CT S		
Description	The valid street type abbreviation as it appears in the MSAG, as assigned by the official Street Naming Authority. Casing should reflect what appears in the MSAG data.		

### 3.3.20 Legacy Street Name Post Directional

Database Field Name	LSt_PosDir		
Data Type	TEXT	Inclusion	Conditional
Width	2	Domain	
Examples	10TH AVE W, AZURE CT S		
Description	The street direction suffix as it appears in the MSAG, as assigned by the official Street Naming Authority. Casing should reflect what appears in the MSAG data.		

### 3.3.21 Postal Code Left

Database Field Name	PostCode_L		
Data Type	TEXT	Inclusion	Optional
Width	7	Domain	USPS City State File Product [6]
Examples	64111, 63021		
Description	The 5-digit code on the left side of the road segment that identifies the individual US Post Office or metropolitan area delivery station associated with the addresses on that side of the road.		

### 3.3.22 Postal Code Right

Database Field Name	PostCode_R		
Data Type	TEXT	Inclusion	Optional
Width	7	Domain	USPS City State File Product [6]
Examples	64111, 63021		
Description	The 5-digit code on the right side of the road segment that identifies the individual US Post Office or metropolitan area delivery station associated with the addresses on that side of the road.		

### 3.3.23 Postal Community Name Left

Database Field Name	PostComm_L		
Data Type	TEXT	Inclusion	Optional
Width	40	Domain	USPS City State File Product [6]
Examples	Kansas City, Columbia, Springfield, Cape Girardeau		
Description	The name on the left side of the road segment recognized by the USPS as valid for the ZIP Code of the addresses on that side of the road.		

### 3.3.24 Postal Community Name Right

Database Field Name	PostComm_R		
Data Type	TEXT	Inclusion	Optional
Width	40	Domain	USPS City State File Product [6]
Examples	Kansas City, Columbia, Springfield, Cape Girardeau		
Description	The name on the right side of the road segment recognized by the USPS as valid for the ZIP Code of the addresses on that side of the road.		

## 3.4 Area Elements

### 3.4.1 Country Left

Database Field Name	Country_L		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	2	Domain	Restricted to the two-letter codes in ISO 3166-1 alpha-2 codes
Examples	US, CA		
Description	The two-letter abbreviation of the Country on the left side of the road segment where the address is located. Must be in uppercase.		

### 3.4.2 Country Right

Database Field Name	Country_R		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	2	Domain	Restricted to the two-letter codes in ISO 3166-1 alpha-2 codes
Examples	US, CA		
Description	The two-letter abbreviation of the Country on the right side of the road segment where the address is located. Must be in uppercase.		

### 3.4.3 State Left

Database Field Name	State_L		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	2	Domain	Restricted to the two-letter codes in ISO 3166-2
Examples	MO, AR, IL, IA, KS, KY, NE, OK, TN		
Description	The two-letter abbreviation of the State on the left side of the road segment where the address is located. Must be in uppercase.		

### 3.4.4 State Right

Database Field Name	State_R		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	2	Domain	Restricted to the two-letter codes in ISO 3166-2
Examples	MO, AR, IL, IA, KS, KY, NE, OK, TN		
Description	The two-letter abbreviation of the State on the right side of the road segment where the address is located. Must be in uppercase.		

### 3.4.5 County Left

Database Field Name	County_L		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	40	Domain	Restricted to the values in ANSI INCITS 31:2009, including casing and abbreviations [7] <i>MONG911CountyDomain</i>
Examples	Dent County, Jefferson County		
Description	The name of the County on the left side of the road segment where the address is located.		

### 3.4.6 County Right

Database Field Name	County_R		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	40	Domain	Restricted to the values in ANSI INCITS 31:2009, including casing and abbreviations [7] <i>MONG911CountyDomain</i>
Examples	Dent County, Jefferson County		
Description	The name of the County on the right side of the road segment where the address is located.		

### 3.4.7 Incorporated Municipality Left

Database Field Name	IncMuni_L		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	100	Domain	
Examples	Stella, Warsaw, Loch Lloyd, Jefferson City, Kansas City, Unincorporated		
Description	The name of the Incorporated Municipality on the left side of the road segment where the address is located, including the incorporated municipality type. If segments are in unincorporated areas, they should be populated with "UNINCORPORATED"		

### 3.4.8 Incorporated Municipality Right

Database Field Name	IncMuni_R		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	100	Domain	
Examples	Stella, Warsaw, Loch Lloyd, Jefferson City, Kansas City, Unincorporated		
Description	The name of the Incorporated Municipality on the right side of the road segment where the address is located, including the incorporated municipality type. If segments are in unincorporated areas, they should be populated with "UNINCORPORATED"		

### 3.4.9 Unincorporated Community Left

Database Field Name	UnincCom_L		
Data Type	TEXT	Inclusion	Optional
Width	100	Domain	
Examples	Prathersville, Globe, Tebbetts		
Description	The name of the Unincorporated Community on the left side of the road segment where the address is located.		

### 3.4.10 Unincorporated Community Right

Database Field Name	UnincCom_R		
Data Type	TEXT	Inclusion	Optional
Width	100	Domain	
Examples	Prathersville, Globe, Tebbetts		
Description	The name of the Unincorporated Community on the right side of the road segment where the address is located.		

### 3.4.11 Neighborhood Community Left

Database Field Name	NbrhdCom_L		
Data Type	TEXT	Inclusion	Optional
Width	100	Domain	
Examples	The Hill, Soulard, Forest Park		
Description	The name of an unincorporated neighborhood, subdivision, or area within an incorporated municipality on the left side of the road segment where the address point is located. Neighborhood communities are only used when they are known and have a clearly defined boundary.		

### 3.4.12 Neighborhood Community Right

Database Field Name	NbrhdCom_R		
Data Type	TEXT	Inclusion	Optional
Width	100	Domain	
Examples	The Hill, Soulard, Forest Park		
Description	The name of an unincorporated neighborhood, subdivision, or area within an incorporated municipality on the right side of the road segment where the address point is located. Neighborhood communities are only used when they are known and have a clearly defined boundary.		

### 3.4.13 Additional Code Left

Database Field Name	AddCode_L		
Data Type	TEXT	Inclusion	Conditional
Width	6	Domain	
Examples			
Description	A Standard Geographical Classification code used in Canada that specifies a geographic area and is used to differentiate two municipalities with the same name in a province that does not have counties. <b>Note:</b> Since this field is not applicable in the US, it will not be populated in MO GIS data layers		

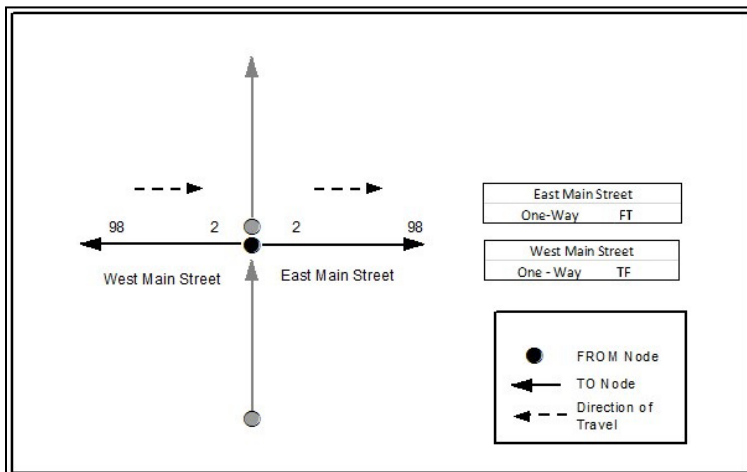
### 3.4.14 Additional Code Right

Database Field Name	AddCode_R		
Data Type	TEXT	Inclusion	Conditional
Width	6	Domain	
Examples			
Description	A Standard Geographical Classification code used in Canada that specifies a geographic area and is used to differentiate two municipalities with the same name in a province that does not have counties. <b>Note:</b> Since this field is not applicable in the US, it will not be populated in MO GIS data layers		

## 3.5 Functional Elements

### 3.5.1 One-Way

Database Field Name	OneWay		
Data Type	TEXT	Inclusion	Optional
Width	2	Domain	B, TF, FT
Examples	B, FT, TF		
Description	The direction of traffic movement along a road in relation to the FROM node and TO node of the road segment where: B (Travel allowed in both directions) FT (One-way, travel from FROM node to TO node) TF (One-way, travel from TO node to FROM node)		



Example of OneWay attribution

### 3.5.2 Speed Limit

Database Field Name	SpeedLimit		
Data Type	SHORT	Inclusion	Optional
Width	3	Domain	
Examples	10, 25, 30, 55, 65		
Description	The posted predominate speed limit of the road segment.		

### 3.5.3 Road Class

Database Field Name	RoadClass		
Data Type	TEXT	Inclusion	Optional
Width	15	Domain	Primary, Secondary, Local, Ramp, Service Drive, Vehicular Trail, Walkway, Stairway, Alley, Private, Parking Lot, Trail, Bridle Path, Other
Examples	Primary, Secondary, Local, Ramp, Alley, Private, Trail		
Description	<p>The general description of the type of road. These values are based on road classification definitions from the Census MAF/TIGER Feature Class Codes (MTFCC) at <a href="https://www.census.gov/library/reference/code-lists/mt-feature-class-codes.html">https://www.census.gov/library/reference/code-lists/mt-feature-class-codes.html</a>.</p> <ul style="list-style-type: none"> <li>• <i>Primary</i> roads are limited-access highways that connect to other roads only at interchanges and not at at-grade intersections. This classification includes interstate highways and other highways with limited access, some of which are toll roads.</li> <li>• <i>Secondary</i> roads are main arteries that are not limited access, usually in the US Highway, State Highway, or County Highway system. These roads have one or more lanes of traffic in each direction, may or may not be divided, and usually have at grade intersections with many other roads and driveways.</li> <li>• <i>Local</i> roads are generally a paved non-arterial street, road, or byway that usually has a single lane of traffic in each direction. This classification includes neighborhood, rural roads, city streets, and some unpaved roads.</li> <li>• <i>Ramp</i> is a road that allows controlled access from adjacent roads onto a limited access highway, often in the form of a cloverleaf interchange.</li> <li>• <i>Service Drive</i> is a road, usually paralleling a limited access highway, that provides access to structures and/or service facilities along the highway. These roads can be named and may intersect with other roads.</li> <li>• <i>Vehicular Trail</i> (4WD, snowmobile) is an unpaved dirt trail where a four-wheel drive vehicle, snowmobile, or similar vehicle is required.</li> <li>• <i>Walkway</i> (Pedestrian Trail, Boardwalk) is a path that is used for walking, being either too narrow for or legally restricted from vehicular traffic.</li> <li>• <i>Stairway</i> is a pedestrian passageway from one level to another by a series of steps.</li> <li>• <i>Alley</i> is a service road that does not generally have associated addressed structures and is usually unnamed. It is located at the rear of buildings and properties.</li> <li>• <i>Private</i> (service vehicles, logging, oil fields, ranches, etc.) is a road within private property that is privately maintained for service, extractive, or other purposes. These roads are often unnamed.</li> <li>• <i>Parking Lot</i> is the main travel route for vehicles through a paved parking area.</li> <li>• <i>Trail</i> (Ski, Bike, Walking/Hiking Trail) is generally a path used by human powered modes of transportation.</li> <li>• <i>Bridle Path</i> is a path that is used for horses, being either too narrow for or legally restricted from vehicular traffic.</li> <li>• <i>Other</i> is any road or path type that does not fit into the above categories.</li> </ul>		



## 3.6 Management Elements

### 3.6.1 Date Updated

Database Field Name	DateUpdate		
Data Type	DATE	Inclusion	<b>Mandatory</b>
Width		Domain	
Examples	2020-01-28T15:47:09.3-06:00 (representing a record updated on January 28, 2020 at 3:47 and 9.3 seconds PM US Central Standard Time, with a precision of .1 second); 2020-07-16T08:31:15.2-05:00 (representing a record updated on July 16, 2020 at 8:31 and 15.2 seconds AM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time that the record was created or last modified. If the record/feature was created or modified prior to implementing edit tracking, then any valid date prior to NG9-1-1 transition can be used.		

### 3.6.2 Effective Date

Database Field Name	Effective		
Data Type	DATE	Inclusion	Optional
Width		Domain	
Examples	2021-02-11T01:30:00.1-06:00 (representing a record that will become active on February 11, 2021 at 1:30 and 0.1 seconds AM US Central Standard Time, with a precision of .1 second); 2021-10-15T20:15:30.5-05:00 (representing a record that will become active on October 15, 2021 at 8:15 and 30.5 seconds PM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time that the record is scheduled to take effect (e.g., the date and time an annexation takes effect and a copy of the road centerlines within the annexed area that have had their Incorporated Municipality, ESN, and MSAG Community Name fields populated with the new values are recognized for use in the NG9-1-1 system).		

### 3.6.3 Expiration Date

Database Field Name	Expire		
Data Type	DATE	Inclusion	Optional
Width		Domain	
Examples	2021-02-11T01:30:00.1-06:00 (representing a record that will expire and no longer be valid on February 11, 2021 at 1:30 and 0.1 seconds AM US Central Standard Time, with a precision of .1 second); 2021-10-15T20:15:30.5-05:00 (representing a record that will expire and no longer be valid on October 15, 2021 at 8:15 and 30.5 seconds PM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time when the information in the record is no longer considered valid (e.g., the date and time an annexation takes effect and the road centerlines within the annexed area that have their Incorporated Municipality, ESN, and MSAG Community Name fields populated with the former values are no longer recognized for use in the NG9-1-1 system).		

### 3.7 9-1-1 Elements

#### 3.7.1 Discrepancy Agency ID

Database Field Name	DiscrpAgID		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	75	Domain	
Examples	psap.boonecounty.mo.us, psap.greenecounty.mo.us, psap.riverside.mo.us		
Description	The Agency Identifier (a registered domain name) for the agency that is responsible for receiving a Discrepancy Report and sufficiently resolving the discrepancy, should a discrepancy be discovered in the GIS data layer. This shall be the agency responsible for provisioning the GIS data layer to the Spatial Interface (SI) or to the SI Provider and may be the same agency as the locally appointed 9-1-1 Authority. If a PSAP does not have a registered domain name, the NG9-1-1 Core Service provider can provide assistance during transition.		

#### 3.7.2 Parity Left

Database Field Name	Parity_L		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	1	Domain	O, E, B, Z
Examples	O, E, B, Z		
Description	The even or odd property of the address number range on the left side of the road segment relative to the FROM Node where: O (only Odd addresses in the address range) E (only Even addresses in the address range) B (Both Even and Odd addresses in the address range) Z (Address Range is 0-0)		

#### 3.7.3 Parity Right

Database Field Name	Parity_R		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	1	Domain	O, E, B, Z
Examples	O, E, B, Z		
Description	The even or odd property of the address number range on the left side of the road segment relative to the FROM Node where: O (only Odd addresses in the address range) E (only Even addresses in the address range) B (Both Even and Odd addresses in the address range) Z (Address Range is 0-0)		

#### 3.7.4 ESN Left

Database Field Name	ESN_L		
Data Type	TEXT	Inclusion	Conditional
Width	5	Domain	Characters from 000 to 99999
Examples	35, 810, 7115		
Description	A 3-5-character alphanumeric string that represents the Emergency Service Zone (ESZ) on the left side of the road segment relative to the FROM Node. ESZ is used for 10-digit routing in Legacy Systems and is not used in a full NG9-1-1 implementation.		

### 3.7.5 ESN Right

Database Field Name	ESN_R		
Data Type	TEXT	Inclusion	Conditional
Width	5	Domain	Characters from 000 to 99999
Examples	35, 810, 7115		
Description	A 3-5-character alphanumeric string that represents the Emergency Service Zone (ESZ) on the right side of the road segment relative to the FROM Node. ESZ is used for 10-digit routing in Legacy Systems and is not used in a full NG9-1-1 implementation.		

### 3.7.6 MSAG Community Name Left

Database Field Name	MSAGComm_L		
Data Type	TEXT	Inclusion	Conditional
Width	30	Domain	
Examples	Springfield, Liberty, Kansas City		
Description	The Community name on the left side of the road segment relative to the FROM Node, as it appears in the MSAG. This may or may not be the same as the Postal Community Name used by the US Postal Service.		

### 3.7.7 MSAG Community Name Right

Database Field Name	MSAGComm_R		
Data Type	TEXT	Inclusion	Conditional
Width	30	Domain	
Examples	Springfield, Liberty, Kansas City		
Description	The Community name on the right side of the road segment relative to the FROM Node, as it appears in the MSAG. This may or may not be the same as the Postal Community Name used by the US Postal Service.		

### 3.7.8 Validation Left

Database Field Name	Valid_L		
Data Type	TEXT	Inclusion	Optional
Width	1	Domain	
Examples	Y, N		
Description	Indicates if the address range on the left side of the road segment should be used for civic location validation. A value of "Y" means the Road Centerline layer can be used for address validation and therefore any Address Number within the address range on the left side of the road segment should be considered by the LVF to be valid. A value of "N" means the Road Centerline layer should not be used for validation and an Address Number within the address range on the left side of the road segment should only be validated using the Site/Structure Address Point layer. If no values are populated, a value of "Y" is assumed.		

### 3.7.9 Validation Right

Database Field Name	Valid_R		
Data Type	TEXT	Inclusion	Optional
Width	1	Domain	
Examples	Y, N		
Description	Indicates if the address range on the right side of the road segment should be used for civic location validation. A value of "Y" means the Road Centerline layer can be used for address validation and therefore any Address Number within the address range on the right side of the road segment should be considered by the LVF to be		

valid. A value of “N” means the Road Centerline layer should not be used for validation and an Address Number within the address range on the right side of the road segment should only be validated using the Site/Structure Address Point layer. If no values are populated, a value of “Y” is assumed.

## 4 Site/Structure Address Point - Summary Table

Site/Structure Address Points represent the locations of sites or structures, or the location of access to sites, structures, or landmarks. There is no requirement for the completeness of the data even though it is a required layer. Address points can be used to properly locate sites that otherwise would not accurately be locate in the road centerline geocoding process. (e.g., odd addresses on even side of the road centerlines and vice versa).

### Chart Legend

Element Type	Description	Color
Identification Elements	Data elements required for feature level identification	
Relate Elements	Data elements used to relate features to other features	
Address Elements	Data elements required for addressing	
Area Elements	Data elements used for location identification	
Functional Elements	Data elements used for functionality in supported systems	
Management Elements	Data elements required for feature level management	
9-1-1 Elements	Data elements required to support 9-1-1	

Element Number	Element Name	Database Field Name	Field Type	Field Width	Inclusion	Domain	Reference Standard
<b>4.1 Identification Elements</b>							
4.1.1	Site NENA Globally Unique ID	Site_NGUID	TEXT	254	Mandatory		NENA
<b>4.2 Relate Elements</b>							
4.2.1	Road Centerline NENA Globally Unique ID	RCL_NGUID	TEXT	254	Mandatory		NENA
<b>4.3 Address Elements</b>							
4.3.1	Address Number Prefix	AddNum_Pre	TEXT	15	Conditional		NENA
4.3.2	Address Number	Add_Number	LONG	6	Conditional	Whole numbers from 0 to 999999	NENA
4.3.3	Address Number Suffix	AddNum_Suf	TEXT	15	Conditional		NENA
4.3.4	Complete Landmark Name	LandmkName	TEXT	150	Conditional		NENA
4.3.5	Mile Post	Mile_Post	TEXT	150	Conditional		NENA
4.3.6	Building	Building	TEXT	75	Optional		NENA
4.3.7	Floor	Floor	TEXT	75	Optional		NENA
4.3.8	Unit	Unit	TEXT	75	Optional		NENA
4.3.9	Room	Room	TEXT	75	Optional		NENA
4.3.10	Seat	Seat	TEXT	75	Optional		NENA
4.3.11	Additional Location Information	Addtl_Loc	TEXT	225	Optional		NENA
4.3.12	Street Name Pre Modifier	St_PreMod	TEXT	15	Conditional		NENA
4.3.13	Street Name Pre Directional	St_PreDir	TEXT	9	Conditional		NENA
4.3.14	Street Name Pre Type	St_PreTyp	TEXT	50	Conditional	NENA Street Name Pre Types and Street Name Post Types Registry [15]	NENA
4.3.15	Street Name Pre Type Separator	St_PreSep	TEXT	20	Conditional	NENA Street Name Pre Type Separators Registry [16]	NENA
4.3.16	Street Name	St_Name	TEXT	60	Conditional		NENA

Element Number	Element Name	Database Field Name	Field Type	Field Width	Inclusion	Domain	Reference Standard
4.3.17	Street Name Post Type	St_PosTyp	TEXT	50	Conditional	NENA <i>Street Name Pre Types and Street Name Post Types Registry [15]</i>	NENA
4.3.18	Street Name Post Directional	St_PosDir	TEXT	9	Conditional		NENA
4.3.19	Street Name Post Modifier	St_PosMod	TEXT	25	Conditional		NENA
4.3.20	Full Street Name	FullStNm	TEXT	245	<b>Mandatory</b>	Concatenated field for NG9-1-1 formatted street names including: <i>Street Name Pre Modifier, Street Name Pre Directional, Street Name Pre Type, Street Name Pre Type Separator, Street Name, Street Name Post Type, Street Name Post Directional, and Street Name Post Modifier</i>	
4.3.21	Legacy Full Street Name	LgFullStNm	TEXT	175	Optional	Concatenated field for legacy formatted street names including: <i>Legacy Street Name Pre Directional, Legacy Street Name, Legacy Street Name Type, and Legacy Street Name Post Directional</i>	
4.3.22	Legacy Street Name Pre Directional	LSt_PreDir	TEXT	2	Conditional		NENA
4.3.23	Legacy Street Name	LSt_Name	TEXT	75	Conditional		NENA
4.3.24	Legacy Street Name Type	LSt_Type	TEXT	4	Conditional	USPS Publication 28, Appendix C1	NENA
4.3.25	Legacy Street Name Post Directional	LSt_PosDir	TEXT	2	Conditional		NENA
4.3.26	Postal Code	Post_Code	TEXT	7	Optional	USPS City State File Product	USPS, NENA
4.3.27	ZIP Plus 4	Post_Code4	TEXT	4	Optional	USPS City State File Product	USPS, NENA
4.3.28	Postal Community Name	Post_Comm	TEXT	40	Optional	USPS City State File Product	USPS, NENA
<b>4.4 Area Elements</b>							
4.4.1	Country	Country	TEXT	2	<b>Mandatory</b>	ISO 3166-1 alpha-2 codes	NENA
4.4.2	State	State	TEXT	2	<b>Mandatory</b>		US Census, NENA
4.4.3	County	County	TEXT	40	<b>Mandatory</b>	<i>MONG911CountyDomain</i>	US Census, NENA
4.4.4	Incorporated Municipality	Inc_Muni	TEXT	100	<b>Mandatory</b>		US Census, NENA
4.4.5	Unincorporated Community	Uninc_Comm	TEXT	100	Optional		NENA
4.4.6	Neighborhood Community	Nbrhd_Comm	TEXT	100	Optional		NENA
4.4.7	Additional Code	AddCode	TEXT	6	Conditional		NENA
<b>4.5 Functional Elements</b>							
4.5.1	Placement Method	Placement	TEXT	25	Optional	NENA <i>Site/Structure Address Point Placement Method Registry</i>	NENA

Element Number	Element Name	Database Field Name	Field Type	Field Width	Inclusion	Domain	Reference Standard
4.5.2	Place Type	Place_Type	TEXT	50	Optional		NENA
4.5.3	Additional Data URI	AddDataURI	TEXT	254	Conditional		NENA
<b>4.6 Management Elements</b>							
4.6.1	Date Updated	DateUpdate	DATE		<b>Mandatory</b>		NENA
4.6.2	Effective Date	Effective	DATE		Optional		NENA
4.6.3	Expiration Date	Expire	DATE		Optional		NENA
<b>4.7 9-1-1 Elements</b>							
4.7.1	Discrepancy Agency ID	DiscrpAgID	TEXT	75	<b>Mandatory</b>		NENA
4.7.2	ESN	ESN	TEXT	5	Conditional	Characters from 000 to 99999	NENA
4.7.3	MSAG Community Name	MSAGComm	TEXT	30	Conditional		NENA
4.7.4	Latitude	Lat	FLOAT		Optional		NENA
4.7.5	Longitude	Long	FLOAT		Optional		NENA
4.7.6	Elevation	Elev	LONG	6	Optional		NENA

## Site/Structure Address Point - Data Element Details

### 4.1 Identification Elements

#### 4.1.1 Site NENA Globally Unique ID

Database Field Name	Site_NGUID		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	254	Domain	
Examples	SSAP17342239@psap.boonecounty.mo.us, SSAP100373182@psap.greenecounty.mo.us, SSAP44f161f2jk7f4g1v45b1hgaw71av189c@ psap.riverside.mo.us		
Description	The NENA Globally Unique ID (NGUID) for a Site/Structure Address Point such that when coalescing Site/Structure Address Point data from other local 9-1-1 Authorities, this unique ID only occurs once. A Site/Structure Address Point NGUID is created by concatenating the locally assigned unique ID, the "@" symbol, and the Agency Identifier (a registered domain name). The locally assigned unique ID may be an autogenerated unique ID, or a manually generated unique ID.		

### 4.2 Relate Elements

#### 4.2.1 Road Centerline NENA Globally Unique ID

Database Field Name	RCL_NGUID		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	254	Domain	
Examples	RCL47824393@co.polk.mo.us, RCL587392034@dentcounty.gov, RCL90a942e1bc7f4g1h94c5acaadv24r89h@countyofhenry.com		
Description	The NENA Globally Unique ID (NGUID) for the Road Centerline segment that the Address Point record is associated with. The Road Centerline NGUID is also used to relate to alternate street name records in the Street Name Alias Table.		

## 4.3 Address Elements

### 4.3.1 Address Number Prefix

Database Field Name	AddNum_Pre		
Data Type	TEXT	Inclusion	Conditional
Width	15	Domain	
Examples	N123, W123, N, W, S123W		
Description	The non-integer portion of the identifier for a parcel, house, building or other feature which precedes the address number, as defined by the official Addressing Authority for the given jurisdiction. Used to include the directional to an address number (e.g., <b>N</b> 2554 Johnson Street). Also used in a few counties where grid address numbers exist to include the locally-defined grid cell reference.		

### 4.3.2 Address Number

Database Field Name	Add_Number		
Data Type	LONG	Inclusion	Conditional
Width	6	Domain	Whole numbers from 0 to 999999
Examples	123, 10546		
Description	The numeric identifier for a parcel, house, building or other feature, as defined by the official Addressing Authority for a given jurisdiction.		

### 4.3.3 Address Number Suffix

Database Field Name	AddNum_Suf		
Data Type	TEXT	Inclusion	Conditional
Width	15	Domain	
Examples	A, 1/2		
Description	The non-integer portion of the identifier for a parcel, house, building or other feature which follows the address number, as defined by the official Addressing Authority for a given jurisdiction. Not commonly used and use should be minimized. Not to be confused with Unit divisions within a building.		

### 4.3.4 Complete Landmark Name

Database Field Name	LandmkName		
Data Type	TEXT	Inclusion	Conditional
Width	150	Domain	
Examples	Ha Ha Tonka Castle Ruins, The Gateway Arch, Busch Stadium, Fort Leonard Wood Main Gate		
Description	The name by which a prominent site or structure is publicly known, and which may or may not be associated with a civic address. <b>Note:</b> This element may be impacted by a potential future change in NENA Standards. See Section 10 for more information.		

### 4.3.5 Mile Post

Database Field Name	Mile_Post		
Data Type	TEXT	Inclusion	Conditional
Width	150	Domain	
Examples	Mile Marker 186.0, MM_10		
Description	A measured distance travelled along a road, highway, trail, navigable waterway, or other unaddressed route, from a given point, that is typically posted with a milepost sign, a mile marker sign, or other marker. Mile Post numbers may be used in place of, or in addition to, Address Numbers.		

### 4.3.6 Building

Database Field Name	Building		
Data Type	TEXT	Inclusion	Optional
Width	75	Domain	
Examples	Building 1, Building 2, Tower A, Tower B		
Description	The type (e.g., Building, Tower) and identifier (e.g., 2, B) for a building among a group of buildings that have the same Address Number and Full Street Name. <b>Note:</b> This element may be impacted by a potential future change in NENA Standards. See Section 10 for more information.		

### 4.3.7 Floor

Database Field Name	Floor		
Data Type	TEXT	Inclusion	Optional
Width	75	Domain	
Examples	Floor 4, First Floor, 11, Mezzanine		
Description	The floor, story, or level within a building.		

### 4.3.8 Unit

Database Field Name	Unit		
Data Type	TEXT	Inclusion	Optional
Width	75	Domain	
Examples	Suite 2102, Apartment 3C, Unit 12, Penthouse		
Description	The type (e.g., Apartment, Unit) and identifier (e.g., 101, F) for a group or suite of rooms within a building that are under common ownership or tenancy, typically having a common primary entrance. <b>Note:</b> This element may be impacted by a potential future change in NENA Standards. See Section 10 for more information.		

### 4.3.9 Room

Database Field Name	Room		
Data Type	TEXT	Inclusion	Optional
Width	75	Domain	
Examples	Room 101A, 1202, E, Capitol Ballroom		
Description	The name or identifier of a single room within a building.		



#### 4.3.10 Seat

Database Field Name	Seat		
Data Type	TEXT	Inclusion	Optional
Width	75	Domain	
Examples	1, 2, A, B, Registration Desk, Cubicle D6		
Description	An individual seat location.		

#### 4.3.11 Additional Location Information

Database Field Name	Addtl_Loc		
Data Type	TEXT	Inclusion	Optional
Width	225	Domain	
Examples	Concourse B; Gate C14; Loading Dock 2B, Stairwell D		
Description	The type and identifier for a part of a sub address that is not a Building, Floor, Unit, Room, or Seat.		

#### 4.3.12 Street Name Pre Modifier

Database Field Name	St_PreMod		
Data Type	TEXT	Inclusion	Conditional
Width	15	Domain	
Examples	<b>Old</b> North Highway 63		
Description	A word or phrase that precedes all other Street Name elements and is separated from the Street Name element by a Street Name Pre Directional and/or a Street Name Pre Type element. Not commonly used and use should be minimized.		

#### 4.3.13 Street Name Pre Directional

Database Field Name	St_PreDir		
Data Type	TEXT	Inclusion	Conditional
Width	9	Domain	
Examples	<b>East</b> Main Street, Old <b>North</b> Highway 63		
Description	A word or phrase preceding the Street Name element that indicates the direction taken by the road from an arbitrary starting point or the sector where it is located.		

#### 4.3.14 Street Name Pre Type

Database Field Name	St_PreTyp		
Data Type	TEXT	Inclusion	Conditional
Width	50	Domain	<i>NENA Street Name Pre Types and Street Name Post Types Registry [15]</i>
Examples	<b>Avenue A</b> , Old North <b>Highway 63</b> , <b>United States Highway 40</b> , <b>State Highway 266</b> , <b>Interstate 70</b> , <b>Route K</b> , <b>Highway 124</b> , <b>County Road 443</b>		
Description	A word or phrase that precedes the Street Name element and identifies the type of thoroughfare in the Full Street Name.		

#### 4.3.15 Street Name Pre Type Separator

Database Field Name	St_PreSep		
Data Type	TEXT	Inclusion	Conditional
Width	20	Domain	<i>NENA Street Name Pre Type Separators Registry [16]</i>
Examples	Avenue <b>of the</b> Columns, Avenue <b>of</b> Champions		
Description	A preposition or prepositional phrase between the Street Name Pre Type and the Street Name element.		

#### 4.3.16 Street Name

Database Field Name	St_Name		
Data Type	TEXT	Inclusion	Conditional
Width	60	Domain	
Examples	Jones Road, Highway <b>U</b> , Avenue of the <b>Columns</b> , Avenue <b>C</b> , <b>Azure</b> Court South		
Description	The official name of the road as defined by the official Street Naming Authority for the given jurisdiction. The Street Name element does not include a street type, directional, or modifier unless assigned as such by the official Street Naming Authority.		

#### 4.3.17 Street Name Post Type

Database Field Name	St_PosTyp		
Data Type	TEXT	Inclusion	Conditional
Width	50	Domain	<i>NENA Street Name Pre Types and Street Name Post Types Registry [15]</i>
Examples	Jones <b>Road</b> , Azure <b>Court</b> South		
Description	A word or phrase that follows the Street Name element and identifies the type of thoroughfare in the Full Street Name.		

#### 4.3.18 Street Name Post Directional

Database Field Name	St_PosDir		
Data Type	TEXT	Inclusion	Conditional
Width	9	Domain	
Examples	Azure Court <b>South</b> , 10th Avenue <b>West</b>		
Description	A word or phrase following the Street Name element that indicates the direction taken by the road from an arbitrary starting point or the sector where it is located.		

#### 4.3.19 Street Name Post Modifier

Database Field Name	St_PosMod		
Data Type	TEXT	Inclusion	Conditional
Width	25	Domain	
Examples	Highway 63 <b>Connector</b> , Buttonwood Drive <b>Access</b> , Lake Road <b>Fire Road 8</b> , United States Highway 71 West <b>Frontage Road</b> , Interstate 70 <b>westbound</b>		
Description	A word or phrase that follows all other Street Name elements and is separated from the Street Name element by a Street Name Post Directional and/or Street Name Post Type element. Not commonly used and use should be minimized.		

#### 4.3.20 Full Street Name

Database Field Name	FullStNm		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	245	Domain	
Examples	Old North County Highway 12, Azure Court South, Lake Road Fire Road 8		
Description	The Street Name with all Pre/Post Modifiers, Pre/Post Directionals, Pre Type Separator, and Pre/Post Types concatenated: St_PreMod + St_PreDir + St_PreTyp + St_PreSep + St_Name + St_PosTyp + St_PosDir + St_PosMod		

#### 4.3.21 Legacy Full Street Name

Database Field Name	LgFullStNm		
Data Type	TEXT	Inclusion	Optional
Width	175	Domain	
Examples	OLD N HWY 63, AZURE CT S, LAKE RD FIRE RD 8		
Description	The Full Street Name with abbreviations (where appropriate) based on Legacy Street Name Pre Directional, Legacy Street Name, Legacy Street Name Type, and Legacy Street Name Post Directional		

#### 4.3.22 Legacy Street Name Pre Directional

Database Field Name	LSt_PreDir		
Data Type	TEXT	Inclusion	Conditional
Width	2	Domain	
Examples	E MAIN ST, S ELMWOOD DR		
Description	The street direction prefix as it appears in the MSAG, as assigned by the official Street Naming Authority. Casing should reflect what appears in the MSAG data.		

#### 4.3.23 Legacy Street Name

Database Field Name	LSt_Name		
Data Type	TEXT	Inclusion	Conditional
Width	75	Domain	
Examples	E MAIN ST, S ELMWOOD DR, I 35, HWY U, 10TH AVE W, AZURE CT S		
Description	The street name field as it appears in the MSAG, as assigned by the official Street Naming Authority. Casing should reflect what appears in the MSAG data.		

#### 4.3.24 Legacy Street Name Type

Database Field Name	LSt_Type		
Data Type	TEXT	Inclusion	Conditional
Width	4	Domain	USPS Publication 28, Appendix C1 [5]
Examples	E MAIN ST, S ELMWOOD DR, 10TH AVE W, AZURE CT S		
Description	The valid street type abbreviation as it appears in the MSAG, as assigned by the official Street Naming Authority. Casing should reflect what appears in the MSAG data.		

#### 4.3.25 Legacy Street Name Post Directional

Database Field Name	LSt_PosDir		
Data Type	TEXT	Inclusion	Conditional
Width	2	Domain	
Examples	10TH AVE W, AZURE CT S		
Description	The street direction suffix as it appears in the MSAG, as assigned by the official Street Naming Authority. Casing should reflect what appears in the MSAG data.		

#### 4.3.26 Postal Code

Database Field Name	Post_Code		
Data Type	TEXT	Inclusion	Optional
Width	7	Domain	USPS City State File Product [6]
Examples	64111, 63021		
Description	The 5-digit code that identifies the individual US Post Office or metropolitan area delivery station associated with an address.		

#### 4.3.27 ZIP Plus 4

Database Field Name	Post_Code4		
Data Type	TEXT	Inclusion	Optional
Width	4	Domain	USPS City State File Product [6]
Examples	9675, 2871		
Description	A system of 4-digit codes that are used after the 5-digit Postal Code to specify a range of USPS delivery addresses.		

#### 4.3.28 Postal Community Name

Database Field Name	Post_Comm		
Data Type	TEXT	Inclusion	Optional
Width	40	Domain	USPS City State File Product [6]
Examples	Branson, Hardin		
Description	The municipal name recognized by the USPS as valid for the ZIP Code of an address.		

### 4.4 Area Elements

#### 4.4.1 Country

Database Field Name	Country		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	2	Domain	Restricted to the two-letter codes in ISO 3166-1 alpha-2 codes
Examples	US, CA		
Description	The two-letter abbreviation of the Country where the address is located. Must be in uppercase.		

#### 4.4.2 State

Database Field Name	State		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	2	Domain	Restricted to the two-letter codes in ISO 3166-2
Examples	MO, AR, IL, IA, KS, KY, NE, OK, TN		
Description	The two-letter abbreviation of the State where the address is located. Must be in uppercase.		

#### 4.4.3 County

Database Field Name	County		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	40	Domain	Restricted to the values in ANSI INCITS 31:2009, including casing and abbreviations [7] <i>MONG911CountyDomain</i>
Examples	Iron County, Knox County		
Description	The name of the County where the address is located.		

#### 4.4.4 Incorporated Municipality

Database Field Name	Inc_Muni		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	100	Domain	
Examples	Stella, Warsaw, Loch Lloyd, Jefferson City, Kansas City, Unincorporated		
Description	The name of the Incorporated Municipality where the address is located, including the incorporated municipality type. If segments are in unincorporated areas, they should be populated with "UNINCORPORATED"		

#### 4.4.5 Unincorporated Community

Database Field Name	Uninc_Comm		
Data Type	TEXT	Inclusion	Optional
Width	100	Domain	
Examples	Prathersville, Globe, Tebbetts		
Description	The name of the Unincorporated Community where the address is located.		

#### 4.4.6 Neighborhood Community

Database Field Name	Nbrhd_Comm		
Data Type	TEXT	Inclusion	Optional
Width	100	Domain	
Examples	The Hill, Soulard, Forest Park		
Description	The name of an unincorporated neighborhood, subdivision, or area within an incorporated municipality where the address is located. Neighborhood communities are only used when they are known and have a clearly defined boundary.		

#### 4.4.7 Additional Code

Database Field Name	AddCode		
Data Type	TEXT	Inclusion	Conditional
Width	6	Domain	
Examples			
Description	A Standard Geographical Classification code used in Canada that specifies a geographic area and is used to differentiate two municipalities with the same name in a province that does not have counties. <b>Note:</b> Since this field is not applicable in the US, it will not be populated in MO GIS data layers		

### 4.5 Functional Elements

#### 4.5.1 Placement Method

Database Field Name	Placement		
Data Type	TEXT	Inclusion	Optional
Width	25	Domain	<i>NENA Site/Structure Address Point Placement Method Registry [17]</i>
Examples	Geocoding, Parcel, Property Access, Site, Structure, Unknown		
Description	The methodology used for placement of the address point.		

#### 4.5.2 Place Type

Database Field Name	Place_Type		
Data Type	TEXT	Inclusion	Optional
Width	50	Domain	Restricted to the values in RFC 4589 [8]
Examples	Airport, bank, hotel, office, residence, stadium, store		
Description	The type of feature identified by the address.		

#### 4.5.3 Additional Data URI

Database Field Name	AddDataURI		
Data Type	TEXT	Inclusion	Conditional
Width	254	Domain	
Examples	https://addtl12345.example.com		
Description	A Uniform Resource Identifier (URI) that defines the Service URI for accessing additional data and information associated with the address location, including building information (e.g., blueprints, contact info, floor plans).		

### 4.6 Management Elements

#### 4.6.1 Date Updated

Database Field Name	DateUpdate		
Data Type	DATE	Inclusion	<b>Mandatory</b>
Width		Domain	
Examples	2020-01-28T15:47.09.3-06:00 (representing a record updated on January 28, 2020 at 3:47 and 9.3 seconds PM US Central Standard Time, with a precision of .1 second); 2020-07-16T08:31:15.2-05:00 (representing a record updated on July 16, 2020 at 8:31 and 15.2 seconds AM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time that the record was created or last modified. If the record/feature was created or modified prior to implementing edit tracking, then any valid date prior to NG9-1-1 transition can be used.		

#### 4.6.2 Effective Date

Database Field Name	Effective		
Data Type	DATE	Inclusion	Optional
Width		Domain	
Examples	2021-02-11T01:30:00.1-06:00 (representing a record that will become active on February 11, 2021 at 1:30 and 0.1 seconds AM US Central Standard Time, with a precision of .1 second); 2021-10-15T20:15:30.5-05:00 (representing a record that will become active on October 15, 2021 at 8:15 and 30.5 seconds PM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time that the record is scheduled to take effect (e.g., the date and time an annexation takes effect and a copy of the Site/Structure Address Points within the annexed area that have had their Incorporated Municipality, ESN, and MSAG Community Name fields populated with the new values are recognized for use in the NG9 1 1 system).		

### 4.6.3 Expiration Date

Database Field Name	Expire		
Data Type	DATE	Inclusion	Optional
Width		Domain	
Examples	2021-02-11T01:30:00.1-06:00 (representing a record that will expire and no longer be valid on February 11, 2021 at 1:30 and 0.1 seconds AM US Central Standard Time, with a precision of .1 second); 2021-10-15T20:15:30.5-05:00 (representing a record that will expire and no longer be valid on October 15, 2021 at 8:15 and 30.5 seconds PM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time when the information in the record is no longer considered valid (e.g., the date and time an annexation takes effect and the Site/Structure Address Points within the annexed area that have their Incorporated Municipality, ESN, and MSAG Community Name fields populated with the former values are no longer recognized for use in the NG9-1-1 system).		

## 4.7 9-1-1 Elements

### 4.7.1 Discrepancy Agency ID

Database Field Name	DiscrpAgID		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	75	Domain	
Examples	psap.boonecounty.mo.us, psap.greenecounty.mo.us, psap.riverside.mo.us		
Description	The Agency Identifier (a registered domain name) for the agency that is responsible for receiving a Discrepancy Report and sufficiently resolving the discrepancy, should a discrepancy be discovered in the GIS data layer. This shall be the agency responsible for provisioning the GIS data layer to the Spatial Interface (SI) or to the SI Provider and may be the same agency as the locally appointed 9-1-1 Authority. If a PSAP does not have a registered domain name, the NG9-1-1 Core Service provider can provide assistance during transition.		

### 4.7.2 ESN

Database Field Name	ESN		
Data Type	TEXT	Inclusion	Conditional
Width	5	Domain	Characters from 000 to 99999
Examples	35, 810, 7115		
Description	A 3-5-character alphanumeric string that represents the Emergency Service Zone (ESZ) where the address is located.		

### 4.7.3 MSAG Community Name

Database Field Name	MSAGComm		
Data Type	TEXT	Inclusion	Conditional
Width	30	Domain	
Examples	Springfield, Liberty, Kansas City		
Description	The Community name where the address is located, as it appears in the MSAG. This may or may not be the same as the Postal Community Name used by the US Postal Service.		

#### 4.7.4 Latitude

Database Field Name	Lat		
Data Type	FLOAT	Inclusion	Optional
Width		Domain	+90 degrees to -90 degrees
Examples	43.075450		
Description	The angular distance of the address point location north or south of the equator as defined by the coordinate system, expressed in decimal degrees. It is recommended to include 6 decimal places in the value.		

#### 4.7.5 Longitude

Database Field Name	Long		
Data Type	FLOAT	Inclusion	Optional
Width		Domain	-180 degrees to +180 degrees
Examples	-89.385161		
Description	The angular distance of the address point location east or west of the prime meridian of the coordinate system, expressed in decimal degrees. It is recommended to include 6 decimal places in the value.		

#### 4.7.6 Elevation

Database Field Name	Elev		
Data Type	LONG	Inclusion	Optional
Width	6	Domain	Whole numbers from 0 to 999999
Examples	68, 136		
Description	The WGS84 (GPS) elevation, given in meters above the ellipsoid, associated with the address.		



## 5 PSAP Boundary - Summary Table

This layer represents the geographic extent of each PSAP's primary call-taking responsibility. Some Mandatory attributes, such as Service URI, cannot be attributed until the ESInet has been established.

### Chart Legend

Element Type	Description	Color
Identification Elements	Data elements required for feature level identification	Grey
Relate Elements	Data elements used to relate features to other features	Blue
Address Elements	Data elements required for addressing	Yellow
Area Elements	Data elements used for location identification	Light Blue
Functional Elements	Data elements used for functionality in supported systems	Light Green
Management Elements	Data elements required for feature level management	Pink
9-1-1 Elements	Data elements required to support 9-1-1	Green

Element Number	Element Name	Database Field Name	Field Type	Field Width	Inclusion	Domain	Reference Standard
<b>5.1 Identification Elements</b>							
5.1.1	Emergency Service Boundary NENA Globally Unique ID	ES_NGUID	TEXT	254	Mandatory		NENA
<b>5.2 Relate Elements</b>							
<b>5.3 Address Elements</b>							
<b>5.4 Area Elements</b>							
5.4.1	State	State	TEXT	2	Mandatory		US Census, NENA
<b>5.5 Functional Elements</b>							
5.5.1	Agency ID	Agency_ID	TEXT	100	Mandatory		NENA
5.5.2	Service URI	ServiceURI	TEXT	254	Mandatory		NENA
5.5.3	Service URN	ServiceURN	TEXT	50	Mandatory		NENA
5.5.4	Service Number	ServiceNum	TEXT	15	Optional		NENA
5.5.5	Agency vCard URI	AVcard_URI	TEXT	254	Mandatory		NENA
5.5.6	Display Name	DsplayName	TEXT	60	Mandatory		NENA
<b>5.6 Management Elements</b>							
5.6.1	Date Updated	DateUpdate	DATE		Mandatory		NENA
5.6.2	Effective Date	Effective	DATE		Optional		NENA
5.6.3	Expiration Date	Expire	DATE		Optional		NENA
<b>5.7 9-1-1 Elements</b>							
5.7.1	Discrepancy Agency ID	DiscrpAgID	TEXT	75	Mandatory		NENA

# PSAP Boundary - Data Element Details

## 5.1 Identification Elements

### 5.1.1 Emergency Service Boundary NENA Globally Unique ID

Database Field Name	ES_NGUID		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	254	Domain	
Examples	PSAP57311256@ psap.boonecounty.mo.us, PSAP410371581@ psap.greenecounty.mo.us, PSAP45a133f2jm7f2g5n41b1hjpw18ay583t@ psap.riverside.mo.us		
Description	The NENA Globally Unique ID (NGUID) for a PSAP Boundary polygon such that when coalescing PSAP Boundary polygon data from other local 9-1-1 Authorities, this unique ID only occurs once. An Emergency Service Boundary NGUID is created by concatenating the locally assigned unique ID, the "@" symbol, and the Agency Identifier (a registered domain name). The locally assigned unique ID may be an autogenerated unique ID or a manually generated unique ID.		

## 5.2 Relate Elements

Not applicable.

## 5.3 Address Elements

Not applicable.

## 5.4 Area Elements

### 5.4.1 State

Database Field Name	State		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	2	Domain	Restricted to the two-letter codes in ISO 3166-2
Examples	MO, AR, IL, IA, KS, KY, NE, OK, TN		
Description	The two-letter abbreviation of the State where the address is located. Must be in uppercase.		

## 5.5 Functional Elements

### 5.5.1 Agency ID

Database Field Name	Agency_ID		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	100	Domain	Must be a registered domain name
Examples	psap.boonecounty.mo.us, psap.greenecounty.mo.us, psap.riverside.mo.us		
Description	A Domain Name System (DNS) registered domain name which is used to uniquely identify an agency. An agency is represented by a domain name as defined in Internet Engineering Task Force (IETF) RFC 1034 [2]. Each agency MUST use one domain name consistently in order to correlate actions across a wide range of calls and incidents. Any domain name in the public DNS is acceptable so long as each distinct agency uses a different domain name to ensure that each agency ID is globally unique.		

### 5.5.2 Service URI

Database Field Name	ServiceURI		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	254	Domain	Must be a registered domain name
Examples	sips:sos@psap.city.st.us; tel:+18165551212		
Description	The Uniform Resource Identifier (URI) used for call routing that defines the URI of the specific service. The URI is usually a Session Initiation Protocol (SIP or SIPs) URI but may be a telephone number (e.g., tel) URI that defines the route to reach the service. Internet Engineering Task Force (IETF) RFC 1035 [9] defines the process to register a domain name		

### 5.5.3 Service URN

Database Field Name	ServiceURN		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	50	Domain	<i>NENA urn:service:sos Registry</i>
Examples	urn:service:sos.psap; urn:service:responder.police; urn:service:responder.fire; urn:service:responder.ems		
Description	The Uniform Resource Name (URN) used to select the service for which a route is desired. The ECRF is queried with a location and a service URN, and then returns the service URI.		

### 5.5.4 Service Number

Database Field Name	ServiceNum		
Data Type	TEXT	Inclusion	Optional
Width	15	Domain	A dialable number or dial string
Examples	911, 18002221212		
Description	The numbers that would be dialed on a 12-digit keypad to reach the emergency service appropriate for the location. This is not the same as an Emergency Service Number (ESN) in Legacy E9-1-1 systems. This field is used for all Emergency Boundaries including PSAP; Law; Fire; EMS; and others such as Poison Control. Within the United States the Service Number for most emergency services is 9-1-1, however, there may be Emergency Service boundaries that have a different number that may be associated with them such as Poison Control.		

### 5.5.5 Agency vCard URI

Database Field Name	AVcard_URI		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	254	Domain	
Examples	https://vcard.psap.city.st.us; https://vcard.jurisdiction.gov/fire		
Description	A vCard (virtual card) is a file format standard for electronic business cards. The Agency vCard URI is the internet address of an eXtensible Markup Language (XML) data structure that contains contact information (e.g., agency name, contact phone numbers) in the form of a vCard (RFC 6350 [10]). vCard files may be exported from most email programs or created with a text editor. The vCard URI is used in the service boundary layers to provide contact information for each agency. The Service/Agency Locator (see NENA STA-010.2-2016 [11]) will provide these URIs for agencies listed within it.		

### 5.5.6 Display Name

Database Field Name	DsplayName		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	60	Domain	
Examples	Columbia Fire Department		
Description	A name or description of the entity offering emergency services within a PSAP or Emergency Service Boundary. This value must be suitable for display.		

## 5.6 Management Elements

### 5.6.1 Date Updated

Database Field Name	DateUpdate		
Data Type	DATE	Inclusion	<b>Mandatory</b>
Width		Domain	
Examples	2020-01-28T15:47.09.3-06:00 (representing a record updated on January 28, 2020 at 3:47 and 9.3 seconds PM US Central Standard Time, with a precision of .1 second); 2020-07-16T08:31:15.2-05:00 (representing a record updated on July 16, 2020 at 8:31 and 15.2 seconds AM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time that the record was created or last modified. If the record/feature was created or modified prior to implementing edit tracking, then any valid date prior to NG9-1-1 transition can be used.		

### 5.6.2 Effective Date

Database Field Name	Effective		
Data Type	DATE	Inclusion	Optional
Width		Domain	
Examples	2021-02-11T01:30:00.1-06:00 (representing a record that will become active on February 11, 2021 at 1:30 and 0.1 seconds AM US Central Standard Time, with a precision of .1 second); 2021-10-15T20:15:30.5-05:00 (representing a record that will become active on October 15, 2021 at 8:15 and 30.5 seconds PM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time that the record is scheduled to take effect (e.g., the date and time an annexation takes effect and the new PSAP Boundary is recognized for use in the NG9-1-1 system).		

### 5.6.3 Expiration Date

Database Field Name	Expire		
Data Type	DATE	Inclusion	Optional
Width		Domain	
Examples	2021-02-11T01:30:00.1-06:00 (representing a record that will expire and no longer be valid on February 11, 2021 at 1:30 and 0.1 seconds AM US Central Standard Time, with a precision of .1 second); 2021-10-15T20:15:30.5-05:00 (representing a record that will expire and no longer be valid on October 15, 2021 at 8:15 and 30.5 seconds PM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time when the information in the record is no longer considered valid (e.g., the date and time an annexation takes effect and the former PSAP Boundary is no longer recognized for use in the NG9-1-1 system).		

## 5.7 9-1-1 Elements

### 5.7.1 Discrepancy Agency ID

Database Field Name	DiscrpAgID		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	75	Domain	
Examples	psap.boonecounty.mo.us, psap.greenecounty.mo.us, psap.riverside.mo.us		
Description	<p>The Agency Identifier (a registered domain name) for the agency that is responsible for receiving a Discrepancy Report and sufficiently resolving the discrepancy, should a discrepancy be discovered in the GIS data layer. This shall be the agency responsible for provisioning the GIS data layer to the Spatial Interface (SI) or to the SI Provider and may be the same agency as the locally appointed 9-1-1 Authority. If a PSAP does not have a registered domain name, the NG9-1-1 Core Service provider can provide assistance during transition.</p>		

## 6 Emergency Service Boundary - Summary Table

This layer represents the geographic area for the primary responders of emergency response services. There must be an individual Emergency Service Boundary layer for each type of service. At a minimum, there must be a separate layer for Law Enforcement, Fire, and Emergency Medical Services. Other Emergency Service Boundaries such as Poison Control, Forest Service, Coast Guard, etc., may also be created, each following this same data structure but in their own separate layer. Note that the Emergency Service Boundary layer may be maintained locally either as a combined layer or as separate layers for each emergency service. However, when providing data for NG9-1-1, the Emergency Service Boundary must be provided as separate layers for each emergency service. Some Mandatory attributes, such as Service URI, cannot be attributed until the ESInet has been established.

### Chart Legend

Element Type	Description	Color
Identification Elements	Data elements required for feature level identification	
Relate Elements	Data elements used to relate features to other features	
Address Elements	Data elements required for addressing	
Area Elements	Data elements used for location identification	
Functional Elements	Data elements used for functionality in supported systems	
Management Elements	Data elements required for feature level management	
9-1-1 Elements	Data elements required to support 9-1-1	

Element Number	Element Name	Database Field Name	Field Type	Field Width	Inclusion	Domain	Reference Standard
<b>6.1 Identification Elements</b>							
6.1.1	Emergency Service Boundary NENA Globally Unique ID	ES_NGUID	TEXT	254	Mandatory		NENA
<b>6.2 Relate Elements</b>							
<b>6.3 Address Elements</b>							
<b>6.4 Area Elements</b>							
6.4.1	State	State	TEXT	2	Mandatory		US Census, NENA
<b>6.5 Functional Elements</b>							
6.5.1	Agency ID	Agency_ID	TEXT	100	Mandatory		NENA
6.5.2	Service URI	ServiceURI	TEXT	254	Mandatory		NENA
6.5.3	Service URN	ServiceURN	TEXT	50	Mandatory	NENA <i>urn:nena:service:sos Registry</i>	NENA
6.5.4	Service Number	ServiceNum	TEXT	15	Optional		NENA
6.5.5	Agency vCard URI	AVcard_URI	TEXT	254	Mandatory		NENA
6.5.6	Display Name	DsplayName	TEXT	60	Mandatory		NENA
<b>6.6 Management Elements</b>							
6.6.1	Date Updated	DateUpdate	DATE		Mandatory		NENA
6.6.2	Effective Date	Effective	DATE		Optional		NENA
6.6.3	Expiration Date	Expire	DATE		Optional		NENA
<b>6.7 9-1-1 Elements</b>							
6.7.16.7.1	Discrepancy Agency ID	DiscrpAgID	TEXT	75	Mandatory		NENA

## Emergency Service Boundary - Data Element Details

### 6.1 Identification Elements

#### 6.1.1 Emergency Service Boundary NENA Globally Unique ID

Database Field Name	ES_NGUID		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	254	Domain	
Examples	LAW71378233@ psap.boonecounty.mo.us, LAW617271786@.greencounty.mo.us, LAW54a513f2kk7g5h7n41b0hxwa81jw531c@ psap.riverside.mo.us		
Description	The NENA Globally Unique ID (NGUID) for an ESB Boundary polygon such that when coalescing ESB Boundary polygon data from other local 9-1-1 Authorities, this unique ID only occurs once. An Emergency Service Boundary NGUID is created by concatenating the locally assigned unique ID, the "@" symbol, and the Agency Identifier (a registered domain name). The locally assigned unique ID may be an autogenerated unique ID or a manually generated unique ID.		

### 6.2 Relate Elements

Not applicable.

### 6.3 Address Elements

Not applicable.

### 6.4 Area Elements

#### 6.4.1 State

Database Field Name	State		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	2	Domain	Restricted to the two-letter codes in ISO 3166-2
Examples	MO, AR, IL, IA, KS, KY, NE, OK, TN		
Description	The two-letter abbreviation of the State where the address is located. Must be in uppercase.		

### 6.5 Functional Elements

#### 6.5.1 Agency ID

Database Field Name	Agency_ID		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	100	Domain	Must be a registered domain name
Examples	psap.boonecounty.mo.us, psap.greencounty.mo.us, psap.riverside.mo.us		
Description	A Domain Name System (DNS) registered domain name which is used to uniquely identify an agency. An agency is represented by a domain name as defined in Internet Engineering Task Force (IETF) RFC 1034 [2]. Each agency MUST use one domain name consistently in order to correlate actions across a wide range of calls and incidents. Any domain name in the public DNS is acceptable so long as each distinct agency uses a different domain name to ensure that each agency ID is globally unique.		

### 6.5.2 Service URI

Database Field Name	ServiceURI		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	254	Domain	Must be a registered domain name
Examples	sips:sos@fire.city.st.us; tel:+18165551212		
Description	The Uniform Resource Identifier (URI) used for call routing that defines the URI of the specific service. The URI is usually a Session Initiation Protocol (SIP or SIPs) URI but may be a telephone number (e.g., tel) URI that defines the route to reach the service. Internet Engineering Task Force (IETF) RFC 1035 [9] defines the process to register a domain name		

### 6.5.3 Service URN

Database Field Name	ServiceURN		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	50	Domain	<i>NENA urn:service:sos Registry</i>
Examples	urn:service:responder.police; urn:service:responder.fire; urn:service:responder.ems		
Description	The Uniform Resource Name (URN) used to select the service for which a route is desired. The ECRF is queried with a location and a service URN, and then returns the service URI.		

### 6.5.4 Service Number

Database Field Name	ServiceNum		
Data Type	TEXT	Inclusion	Optional
Width	15	Domain	A dialable number or dial string
Examples	911, 18002221212		
Description	The numbers that would be dialed on a 12-digit keypad to reach the emergency service appropriate for the location. This is not the same as an Emergency Service Number (ESN) in Legacy E9-1-1 systems. This field is used for all Emergency Boundaries including PSAP; Law; Fire; EMS; and others such as Poison Control. Within the United States the Service Number for most emergency services is 9-1-1, however, there may be Emergency Service boundaries that have a different number that may be associated with them such as Poison Control.		

### 6.5.5 Agency vCard URI

Database Field Name	AVcard_URI		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	254	Domain	
Examples	https://vcard.psap.city.st.us; https://vcard.jurisdiction.gov/fire		
Description	A vCard (virtual card) is a file format standard for electronic business cards. The Agency vCard URI is the internet address of an eXtensible Markup Language (XML) data structure that contains contact information (e.g., agency name, contact phone numbers) in the form of a vCard (RFC 6350 [10]). vCard files may be exported from most email programs or created with a text editor. The vCard URI is used in the service boundary layers to provide contact information for each agency. The Service/Agency Locator (see NENA STA-010.2-2016 [11]) will provide these URIs for agencies listed within it.		



### 6.5.6 Display Name

Database Field Name	DsplayName		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	60	Domain	
Examples	Columbia Fire Department		
Description	A name or description of the entity offering emergency services within a PSAP or Emergency Service Boundary. This value must be suitable for display.		

## 6.6 Management Elements

### 6.6.1 Date Updated

Database Field Name	DateUpdate		
Data Type	DATE	Inclusion	<b>Mandatory</b>
Width		Domain	
Examples	2020-01-28T15:47.09.3-06:00 (representing a record updated on January 28, 2020 at 3:47 and 9.3 seconds PM US Central Standard Time, with a precision of .1 second); 2020-07-16T08:31:15.2-05:00 (representing a record updated on July 16, 2020 at 8:31 and 15.2 seconds AM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time that the record was created or last modified. If the record/feature was created or modified prior to implementing edit tracking, then any valid date prior to NG9-1-1 transition can be used.		

### 6.6.2 Effective Date

Database Field Name	Effective		
Data Type	DATE	Inclusion	Optional
Width		Domain	
Examples	2021-02-11T01:30:00.1-06:00 (representing a record that will become active on February 11, 2021 at 1:30 and 0.1 seconds AM US Central Standard Time, with a precision of .1 second); 2021-10-15T20:15:30.5-05:00 (representing a record that will become active on October 15, 2021 at 8:15 and 30.5 seconds PM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time that the record is scheduled to take effect (e.g., the date and time an annexation takes effect, and the new Emergency Service Boundary is recognized for use in the NG9-1-1 system).		

### 6.6.3 Expiration Date

Database Field Name	Expire		
Data Type	DATE	Inclusion	Optional
Width		Domain	
Examples	2021-02-11T01:30:00.1-06:00 (representing a record that will expire and no longer be valid on February 11, 2021 at 1:30 and 0.1 seconds AM US Central Standard Time, with a precision of .1 second); 2021-10-15T20:15:30.5-05:00 (representing a record that will expire and no longer be valid on October 15, 2021 at 8:15 and 30.5 seconds PM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time when the information in the record is no longer considered valid (e.g., the date and time an annexation takes effect and the former Emergency Service Boundary is no longer recognized for use in the NG9-1-1 system).		

## 6.7 9-1-1 Elements

### 6.7.1 Discrepancy Agency ID

Database Field Name	DiscrpAgID		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	75	Domain	
Examples	psap.boonecounty.mo.us, psap.greenecounty.mo.us, psap.riverside.mo.us		
Description	The Agency Identifier (a registered domain name) for the agency that is responsible for receiving a Discrepancy Report and sufficiently resolving the discrepancy, should a discrepancy be discovered in the GIS data layer. This shall be the agency responsible for provisioning the GIS data layer to the Spatial Interface (SI) or to the SI Provider and may be the same agency as the locally appointed 9-1-1 Authority. If a PSAP does not have a registered domain name, the NG9-1-1 Core Service provider can provide assistance during transition.		

## 7 Provisioning Boundary - Summary Table

This layer represents the coverage area for which GIS data providers are responsible for submitting GIS data for NG9-1-1. The data provided must cover the entire extent of the coverage area that defines their geographic area of responsibility, but data must not extend beyond the identified coverage area.

### Chart Legend

Element Type	Description	Color
Identification Elements	Data elements required for feature level identification	Grey
Relate Elements	Data elements used to relate features to other features	Blue
Address Elements	Data elements required for addressing	Yellow
Area Elements	Data elements used for location identification	Light Blue
Functional Elements	Data elements used for functionality in supported systems	Light Green
Management Elements	Data elements required for feature level management	Pink
9-1-1 Elements	Data elements required to support 9-1-1	Dark Green

Element Number	Element Name	Database Field Name	Field Type	Field Width	Inclusion	Domain	Reference Standard
<b>7.1 Identification Elements</b>							
7.1.1	Provisioning Boundary NENA Globally Unique ID	PB_NGUID	TEXT	254	<b>Mandatory</b>		NENA
<b>7.2 Relate Elements</b>							
<b>7.3 Address Elements</b>							
<b>7.4 Area Elements</b>							
<b>7.5 Functional Elements</b>							
<b>7.6 Management Elements</b>							
7.6.1	Date Updated	DateUpdate	DATE		<b>Mandatory</b>		NENA
7.6.2	Effective Date	Effective	DATE		Optional		NENA
7.6.3	Expiration Date	Expire	DATE		Optional		NENA
<b>7.7 9-1-1 Elements</b>							
7.7.1	Discrepancy Agency ID	DiscrpAgID	TEXT	75	<b>Mandatory</b>		NENA

## Provisioning Boundary - Data Element Details

### 7.1 Identification Elements

#### 7.1.1 Provisioning Boundary NENA Globally Unique ID

Database Field Name	PB_NGUID		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	254	Domain	
Examples	PB16424289@ psap.boonecounty.mo.us, PB210252128@ us psap, PB65e160f2ad7f2g1w55k1hjwa74ap891v@ psap.riverside.mo.us		
Description	The NENA Globally Unique ID (NGUID) for a Provisioning Boundary such that when coalescing Provisioning Boundary polygon data from other local 9-1-1 Authorities, this unique ID only occurs once. A Provisioning Boundary NGUID is created by concatenating the locally assigned unique ID, the "@" symbol, and the Agency Identifier (a registered domain name). The locally assigned unique ID may be an autogenerated unique ID or a manually generated unique ID.		

### 7.2 Relate Elements

Not applicable.

### 7.3 Address Elements

Not applicable.

### 7.4 Area Elements

Not applicable.

### 7.5 Functional Elements

Not applicable.

### 7.6 Management Elements

#### 7.6.1 Date Updated

Database Field Name	DateUpdate		
Data Type	DATE	Inclusion	<b>Mandatory</b>
Width		Domain	
Examples	2020-01-28T15:47.09.3-06:00 (representing a record updated on January 28, 2020 at 3:47 and 9.3 seconds PM US Central Standard Time, with a precision of .1 second); 2020-07-16T08:31:15.2-05:00 (representing a record updated on July 16, 2020 at 8:31 and 15.2 seconds AM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time that the record was created or last modified. If the record/feature was created or modified prior to implementing edit tracking, then any valid date prior to NG9-1-1 transition can be used.		

### 7.6.2 Effective Date

Database Field Name	Effective		
Data Type	DATE	Inclusion	Optional
Width		Domain	
Examples	2021-02-11T01:30:00.1-06:00 (representing a record that will become active on February 11, 2021 at 1:30 and 0.1 seconds AM US Central Standard Time, with a precision of .1 second); 2021-10-15T20:15:30.5-05:00 (representing a record that will become active on October 15, 2021 at 8:15 and 30.5 seconds PM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time that the record is scheduled to take effect (e.g., the date and time an annexation takes effect and the new Provisioning Boundary is recognized for use in the NG9-1-1 system).		

### 7.6.3 Expiration Date

Database Field Name	Expire		
Data Type	DATE	Inclusion	Optional
Width		Domain	
Examples	2021-02-11T01:30:00.1-06:00 (representing a record that will expire and no longer be valid on February 11, 2021 at 1:30 and 0.1 seconds AM US Central Standard Time, with a precision of .1 second); 2021-10-15T20:15:30.5-05:00 (representing a record that will expire and no longer be valid on October 15, 2021 at 8:15 and 30.5 seconds PM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time when the information in the record is no longer considered valid (e.g., the date and time an annexation takes effect and the former Provisioning Boundary is no longer recognized for use in the NG9-1-1 system).		

## 7.7 9-1-1 Elements

### 7.7.1 Discrepancy Agency ID

Database Field Name	DiscrepAgID		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	75	Domain	
Examples	psap.boonecounty.mo.us, psap.greenecounty.mo.us, psap.riverside.mo.us		
Description	The Agency Identifier (a registered domain name) for the agency that is responsible for receiving a Discrepancy Report and sufficiently resolving the discrepancy, should a discrepancy be discovered in the GIS data layer. This shall be the agency responsible for provisioning the GIS data layer to the Spatial Interface (SI) or to the SI Provider and may be the same agency as the locally appointed 9-1-1 Authority. If a PSAP does not have a registered domain name, the NG9-1-1 Core Service provider can provide assistance during transition.		

## 8 Incorporated Municipality Boundary - Summary Table

This layer defines the boundaries of cities, towns, villages, boroughs, or similar entities that have local governmental powers and may be useful in determining jurisdictional authority for addressing and emergency response.

### Chart Legend

Element Type	Description	Color
Identification Elements	Data elements required for feature level identification	
Relate Elements	Data elements used to relate features to other features	
Address Elements	Data elements required for addressing	
Area Elements	Data elements used for location identification	
Functional Elements	Data elements used for functionality in supported systems	
Management Elements	Data elements required for feature level management	
9-1-1 Elements	Data elements required to support 9-1-1	

Element Number	Element Name	Database Field Name	Field Type	Field Width	Inclusion	Domain	Reference Standard
<b>7.1 Identification Elements</b>							
7.1.1	Incorporated Municipality NENA Globally Unique ID	IncM_NGUID	TEXT	254	Mandatory		NENA
<b>7.2 Relate Elements</b>							
<b>7.3 Address Elements</b>							
<b>7.4 Area Elements</b>							
8.4.1	Country	Country	TEXT	2	Mandatory		NENA
8.4.2	State	State	TEXT	2	Mandatory		US Census, NENA
8.4.3	County	County	TEXT	40	Mandatory	<i>MONG911CountyDomain</i>	US Census, NENA
8.4.4	Incorporated Municipality	Inc_Muni	TEXT	100	Mandatory		US Census, NENA
8.4.5	Additional Code	AddCode	TEXT	6	Conditional		NENA
<b>7.5 Functional Elements</b>							
<b>7.6 Management Elements</b>							
7.6.1	Date Updated	DateUpdate	DATE		Mandatory		NENA
7.6.2	Effective Date	Effective	DATE		Optional		NENA
7.6.3	Expiration Date	Expire	DATE		Optional		NENA
<b>7.7 9-1-1 Elements</b>							
7.7.1	Discrepancy Agency ID	DiscrpAgID	TEXT	75	Mandatory		NENA

# Incorporated Municipality Boundary - Data Element Details

## 8.1 Identification Elements

### 8.1.1 Incorporated Municipality Boundary NENA Globally Unique ID

Database Field Name	IncM_NGUID		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	254	Domain	
Examples	MUNI16424289@ psap.boonecounty.mo.us, MUNI210252128@ psap.greenecounty.mo.us, MUNI65e160f2ad7f2g1w55k1hjwa74ap891v@ psap.riverside.mo.us		
Description	The NENA Globally Unique ID (NGUID) for an Incorporated Municipality Boundary such that when coalescing Incorporated Municipality Boundary polygon data from other local 9-1-1 Authorities, this unique ID only occurs once. An Incorporated Municipality Boundary NGUID is created by concatenating the locally assigned unique ID, the "@" symbol, and the Agency Identifier (a registered domain name). The locally assigned unique ID may be an autogenerated unique ID or a manually generated unique ID.		

## 8.2 Relate Elements

Not applicable.

## 8.3 Address Elements

Not applicable.

## 8.4 Area Elements

### 8.4.1 Country

Database Field Name	Country		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	2	Domain	Restricted to the two-letter codes in ISO 3166-1 alpha-2 codes
Examples	US, CA		
Description	The two-letter abbreviation of the Country where the address is located. Must be in uppercase.		

### 8.4.2 State

Database Field Name	State		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	2	Domain	Restricted to the two-letter codes in ISO 3166-2
Examples	MO, AR, IL, IA, KS, KY, NE, OK, TN		
Description	The two-letter abbreviation of the State where the address is located. Must be in uppercase.		

### 8.4.3 County

Database Field Name	County		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	40	Domain	Restricted to the values in ANSI INCITS 31:2009, including casing and abbreviations [7] <i>MONG911CountyDomain</i>
Examples	Iron County, Knox County		
Description	The name of the County where the address is located.		

### 8.4.4 Incorporated Municipality

Database Field Name	Inc_Muni		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	100	Domain	
Examples	Stella, Warsaw, Loch Lloyd, Jefferson City, Kansas City		
Description	The name of the Incorporated Municipality where the address is located, including the incorporated municipality type.		

### 8.4.5 Additional Code

Database Field Name	AddCode		
Data Type	TEXT	Inclusion	Conditional
Width	6	Domain	
Examples			
Description	A Standard Geographical Classification code used in Canada that specifies a geographic area and is used to differentiate two municipalities with the same name in a province that does not have counties. <b>Note:</b> Since this field is not applicable in the US, it will not be populated in MO GIS data layers		

## 8.5 Functional Elements

Not applicable.

## 8.6 Management Elements

### 8.6.1 Date Updated

Database Field Name	DateUpdate		
Data Type	DATE	Inclusion	<b>Mandatory</b>
Width		Domain	
Examples	2020-01-28T15:47.09.3-06:00 (representing a record updated on January 28, 2020 at 3:47 and 9.3 seconds PM US Central Standard Time, with a precision of .1 second); 2020-07-16T08:31:15.2-05:00 (representing a record updated on July 16, 2020 at 8:31 and 15.2 seconds AM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time that the record was created or last modified. If the record/feature was created or modified prior to implementing edit tracking, then any valid date prior to NG9-1-1 transition can be used.		

### 8.6.2 Effective Date

Database Field Name	Effective		
Data Type	DATE	Inclusion	Optional
Width		Domain	
Examples	2021-02-11T01:30:00.1-06:00 (representing a record that will become active on February 11, 2021 at 1:30 and 0.1 seconds AM US Central Standard Time, with a precision of .1 second); 2021-10-15T20:15:30.5-05:00 (representing a record that will become active on October 15, 2021 at 8:15 and 30.5 seconds PM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time that the record is scheduled to take effect (e.g., the date and time an annexation takes effect, and the new Provisioning Boundary is recognized for use in the NG9-1-1 system).		

### 8.6.3 Expiration Date

Database Field Name	Expire		
Data Type	DATE	Inclusion	Optional
Width		Domain	
Examples	2021-02-11T01:30:00.1-06:00 (representing a record that will expire and no longer be valid on February 11, 2021 at 1:30 and 0.1 seconds AM US Central Standard Time, with a precision of .1 second); 2021-10-15T20:15:30.5-05:00 (representing a record that will expire and no longer be valid on October 15, 2021 at 8:15 and 30.5 seconds PM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time when the information in the record is no longer considered valid (e.g., the date and time an annexation takes effect and the former Provisioning Boundary is no longer recognized for use in the NG9-1-1 system).		

## 8.7 9-1-1 Elements

### 8.7.1 Discrepancy Agency ID

Database Field Name	DiscrepAgID		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	75	Domain	
Examples	psap.boonecounty.mo.us, psap.greenecounty.mo.us, psap.riverside.mo.us		
Description	The Agency Identifier (a registered domain name) for the agency that is responsible for receiving a Discrepancy Report and sufficiently resolving the discrepancy, should a discrepancy be discovered in the GIS data layer. This shall be the agency responsible for provisioning the GIS data layer to the Spatial Interface (SI) or to the SI Provider and may be the same agency as the locally appointed 9-1-1 Authority. If a PSAP does not have a registered domain name, the NG9-1-1 Core Service provider can provide assistance during transition.		



## 9 County Boundary - Summary Table

This layer represents counties or their equivalent boundary as the primary legal division of a state, province, or territory.

### Chart Legend

Element Type	Description	Color
Identification Elements	Data elements required for feature level identification	
Relate Elements	Data elements used to relate features to other features	
Address Elements	Data elements required for addressing	
Area Elements	Data elements used for location identification	
Functional Elements	Data elements used for functionality in supported systems	
Management Elements	Data elements required for feature level management	
9-1-1 Elements	Data elements required to support 9-1-1	

Element Number	Element Name	Database Field Name	Field Type	Field Width	Inclusion	Domain	Reference Standard
<b>9.1 Identification Elements</b>							
9.1.1	County NENA Globally Unique ID	Cnty_NGUID	TEXT	254	Mandatory		NENA
<b>9.2 Relate Elements</b>							
<b>9.3 Address Elements</b>							
<b>9.4 Area Elements</b>							
9.4.1	Country	Country	TEXT	2	Mandatory		NENA
9.4.2	State	State	TEXT	2	Mandatory		US Census, NENA
9.4.3	County	County	TEXT	40	Mandatory	<i>MONG911CountyDomain</i>	US Census, NENA
<b>9.5 Functional Elements</b>							
<b>9.6 Management Elements</b>							
9.6.1	Date Updated	DateUpdate	DATE		Mandatory		NENA
9.6.2	Effective Date	Effective	DATE		Optional		NENA
9.6.3	Expiration Date	Expire	DATE		Optional		NENA
<b>9.7 9-1-1 Elements</b>							
9.7.1	Discrepancy Agency ID	DiscrpAgID	TEXT	75	Mandatory		NENA

## County Boundary - Data Element Details

### 9.1 Identification Elements

#### 9.1.1 County Boundary NENA Globally Unique ID

Database Field Name	Cnty_NGUID		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	254	Domain	
Examples	CB16424289@ psap.boonecounty.mo.us, CB210252128@psap.greenecounty.mo.us, CB65e160f2ad7f2g1w55k1hjwa74ap891v@ psap.riverside.mo.us		
Description	The NENA Globally Unique ID (NGUID) for a County Boundary such that when coalescing County Boundary polygon data from other local 9-1-1 Authorities, this unique ID only occurs once. A County Boundary NGUID is created by concatenating the locally assigned unique ID, the "@" symbol, and the Agency Identifier (a registered domain name). The locally assigned unique ID may be an autogenerated unique ID or a manually generated unique ID.		

### 9.2 Relate Elements

Not applicable.

### 9.3 Address Elements

Not applicable.

### 9.4 Area Elements

#### 9.4.1 Country

Database Field Name	Country		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	2	Domain	Restricted to the two-letter codes in ISO 3166-1 alpha-2 codes
Examples	US, CA		
Description	The two-letter abbreviation of the Country where the address is located. Must be in uppercase.		

#### 9.4.2 State

Database Field Name	State		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	2	Domain	Restricted to the two-letter codes in ISO 3166-2
Examples	MO, AR, IL, IA, KS, KY, NE, OK, TN		
Description	The two-letter abbreviation of the State where the address is located. Must be in uppercase.		

### 9.4.3 County

Database Field Name	County		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	40	Domain	Restricted to the values in ANSI INCITS 31:2009, including casing and abbreviations [7] <i>MONG911CountyDomain</i>
Examples	Iron County, Knox County		
Description	The name of the County where the address is located.		

## 9.5 Functional Elements

Not applicable.

## 9.6 Management Elements

### 9.6.1 Date Updated

Database Field Name	DateUpdate		
Data Type	DATE	Inclusion	<b>Mandatory</b>
Width		Domain	
Examples	2020-01-28T15:47:09.3-06:00 (representing a record updated on January 28, 2020 at 3:47 and 9.3 seconds PM US Central Standard Time, with a precision of .1 second); 2020-07-16T08:31:15.2-05:00 (representing a record updated on July 16, 2020 at 8:31 and 15.2 seconds AM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time that the record was created or last modified. If the record/feature was created or modified prior to implementing edit tracking, then any valid date prior to NG9-1-1 transition can be used.		

### 9.6.2 Effective Date

Database Field Name	Effective		
Data Type	DATE	Inclusion	Optional
Width		Domain	
Examples	2021-02-11T01:30:00.1-06:00 (representing a record that will become active on February 11, 2021 at 1:30 and 0.1 seconds AM US Central Standard Time, with a precision of .1 second); 2021-10-15T20:15:30.5-05:00 (representing a record that will become active on October 15, 2021 at 8:15 and 30.5 seconds PM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time that the record is scheduled to take effect (e.g., the date and time an annexation takes effect and the new Provisioning Boundary is recognized for use in the NG9-1-1 system).		

### 9.6.3 Expiration Date

Database Field Name	Expire		
Data Type	DATE	Inclusion	Optional
Width		Domain	
Examples	2021-02-11T01:30:00.1-06:00 (representing a record that will expire and no longer be valid on February 11, 2021 at 1:30 and 0.1 seconds AM US Central Standard Time, with a precision of .1 second); 2021-10-15T20:15:30.5-05:00 (representing a record that will expire and no longer be valid on October 15, 2021 at 8:15 and 30.5 seconds PM US Central Daylight Time, with a precision of .1 second)		
Description	The date and time when the information in the record is no longer considered valid (e.g., the date and time an annexation takes effect and the former Provisioning Boundary is no longer recognized for use in the NG9-1-1 system).		

## 9.7 9-1-1 Elements

### 9.7.1 Discrepancy Agency ID

Database Field Name	DiscrpAgID		
Data Type	TEXT	Inclusion	<b>Mandatory</b>
Width	75	Domain	
Examples	psap.boonecounty.mo.us, psap.greenecounty.mo.us, psap.riverside.mo.us		
Description	The Agency Identifier (a registered domain name) for the agency that is responsible for receiving a Discrepancy Report and sufficiently resolving the discrepancy, should a discrepancy be discovered in the GIS data layer. This shall be the agency responsible for provisioning the GIS data layer to the Spatial Interface (SI) or to the SI Provider and may be the same agency as the locally appointed 9-1-1 Authority. If a PSAP does not have a registered domain name, the NG9-1-1 Core Service provider can provide assistance during transition.		

## 10 Metadata

- a. Every data layer shall have the FGDC mandatory fields as defined in the Content Standard for Digital Geospatial Metadata (CSDGM) Essential Metadata Elements document. In Esri ArcGIS Desktop software, many of these metadata elements are automatically populated. The following elements, described as they appear in ArcGIS Desktop software, must be populated by the Local Data Steward directly:
  - Item Description Section
    - Abstract
    - Purpose
    - Tag, topic or theme keyword
  - Reference system information
    - Datum
    - coordinate system
    - projection
  - Citation Section
    - Publication Date
  - Citation Contacts Section
    - Originator
  - Contacts Section

- At least one contact
      - Person
      - Position
      - Organization
      - contact information
  - Details Section
    - Status Code
  - Extents Section
    - Temporal Extent
  - Maintenance Section
    - Maintenance Frequency Code
  - Lineage Section
    - Statement

## 11 Potential Future Changes in NENA Standards Impacting this Standard

NENA NG9-1-1 Standards undergo continuous review and update, particularly as the implementation of the NENA Standards often identifies areas needing improvement, clarification, or reconsideration. It is important for the State of Missouri to monitor the development of NENA NG9-1-1 GIS standards and how elements in this standard may be impacted by potential future changes in the NENA Standards. The NENA NG9-1-1 Civic Location Data Exchange Format (CLDXF) Standard [12] and the NENA Standard for NG9-1-1 GIS Data Model [1] are both undergoing an update as of the release of this document. Noted below are planned changes in these documents that may impact the Missouri NG9-1-1 GIS Data Standard.

New elements planned to be added in version 2 of the NENA CLDXF Standard, which will eventually result in equivalent additions to the NENA NG9-1-1 GIS Data Model Standard:

- Site                    The name of an exterior area which is publicly known and unique within a given place. A site may contain one or more structures and/or sub-sites.
- Subsite                The name of a sub-area within a larger area specified either by site name, by a thoroughfare address, or both.
- Structure             A built feature which has a vertical dimension, including conventional buildings which have walls, doors, and a roof, as well as other kinds of infrastructure such as cell towers, transformer stations, fuel tanks, and so on.
- Unit Pre Type        Part of the complete unit identifier that precedes the Unit Value and indicates the kind of unit.
- Unit Value            Part of the complete unit identifier that uniquely identifies a particular unit.
- Wing                    A designated part of a structure which spans one or many floors, typically including more than one unit or room and representing a significant portion of the structure floor area.
- Section                An identified, unenclosed area within a structure, wing, unit, or room.
- Row                    An identified linear feature, such as a linear arrangement of seats, workstations, equipment, or storage, within a structure, wing, unit or room.

Existing elements planned for removal and replacement with new element(s) in version two of the NENA CLDXF Standard, which will eventually result in equivalent changes to the NENA NG9-1-1 GIS Data Model Standard, currently include:

- Complete Landmark Name – to be replaced by new Site, Subsite, and Structure elements
- Building – to be replaced by new Structure element
- Unit – to be replaced with new Unit PreType and Unit Value elements

## 12 Considerations for GIS Data Development and Maintenance

### 12.1 General Considerations

Not all attribute fields are required for the ECRF and LVF to function. Having a strategy to populate these optional fields over time will help keep costs in check while making the best use of available resources. A good data development and maintenance plan should be created at the earliest stages to ensure the best use of available resources. Considerations when developing such a plan are discussed throughout Section 11.

#### 12.1.1 Metadata

Metadata is information about the dataset that explains the who, what, where, when, why, and how. This information is important when sharing data with others so that the recipient clearly understands what the data contains and who to contact if there are additional questions. Minimum metadata to consider providing include:

- Identification information (abstract, purpose for creating)
- Date updated (date when changes were last made to the data)
- Point of Contact (person, position, organization, contact information)
- Reference system information (datum, coordinate system, projection)

#### 12.1.2 Use of Orthoimagery versus Field Collection

The availability of current, high resolution orthoimagery can provide a cost-effective way to create spatially accurate address points, add new road centerlines, or compile changes in existing road centerlines. Road centerline compilation and address point placement performed in the office is more efficient than sending staff into the field to collect geospatial coordinates for addressed locations and road alignments that clearly exist in orthoimagery. Consider limiting field collection to:

- Subaddresses
- Sites, structures, and new roads not yet present in the existing imagery
- Sites, structures, and road centerlines that are not clearly discernible in the existing imagery

The aerial imagery for Missouri is hosted at the State GIS Clearinghouse - [MSDIS \(missouri.edu\)](http://MSDIS(missouri.edu)). The last state-wide flight was 2015-2016. Urban areas are typically flown more frequently. While orthoimagery may provide an excellent resource for mapping existing features, updated imagery is useful to capture new roads and addressed features.

### 12.2 Considerations for Road Centerlines

#### 12.2.1 Accuracy of Boundary Data (for alignment/segmentation at boundaries)

Boundary data is essential for accurate NG9-1-1 systems. Overlapping boundaries can create issues when segmenting data. This is especially important when aligning Road Centerlines with state and county boundaries. When aligning and segmenting Road Centerlines with any boundary, the local jurisdiction should always check with the entity responsible for maintaining that boundary alignment to ensure the correct boundary is being used.

#### 12.2.2 Limitations of CAD Software

Each CAD software has its own requirements when dealing with road centerline data. Some CAD systems may require 0-0 ranges, while others may not. Some CAD software may also allow for Z (height) values which will affect how road centerlines are split at over/underpasses. Currently, not all CAD software programs can natively consume GIS data in NENA's NG9-1-1 GIS Data Model [1] format (upon which the Missouri NG9-1-1 GIS Data Standard is based) and may require the use of abbreviations or different parsing of the street names and

addresses. These best practices do not consider each CAD software vendor's solutions, and therefore the data developer should always refer to CAD software requirements when updating Road Centerlines.

### **12.3 Considerations for Site/Structure Address Points**

Organizations developing Site/Structure Address Points need to carefully consider the level of positional accuracy desired and the resources available, not just for initial data development but long-term data maintenance. In general, address point placement methodologies that result in more spatially accurate points require more resources to create and maintain them.

#### **12.3.1 Placement Method (e.g., Structure, Site, Property Access, Parcel, Geocoding)**

Some address point placement methodologies require minimal resources while others are resource intensive. Consider starting with a less spatially accurate placement method and over time gradually improve the spatial accuracy of the address points as resources allow. For example, use available parcel data to generate address points from parcel centroids and then, as resources permit, use orthoimagery to move the address points onto the sites and structures. This allows for quick creation of a Site/Structure Address Point layer that can be used immediately in 9-1-1 applications. Temporary address points can be created using the parcel centroid or property access in cases where a structure cannot be discerned in the orthoimagery until field collection of the structure can be made. Population of the Placement Method attribute is recommended in these situations to provide data users with information on the address point's positional accuracy.

#### **12.3.2 Available Resources for Development**

The initial development of site/structure address points can be a daunting initiative. As a starting point, the University of Missouri collected structure footprints and points by county between 2011 and 2014 [18]. The project only collected features for structures visually identified in the current imagery at the time and did not collect addresses. While the GIS data is not complete, it is a great resource for counties without any current site/structure address points. There is also a series of Map Atlas documents per county that include an index of road names per map book [19].

Additionally, the Fire Safety Inspection Program, the Office of the State Fire Marshal collects geographic locations and civic addresses for all sites they license. For more information on available resources contact the Fire Safety Inspection Program.

#### **12.3.3 Amount of Subaddress Detail Needed**

Costs increase directly with the amount of subaddress detail that is collected. When determining the amount of subaddress detail needed, consider how 9-1-1 applications will use the data and how precise the address point location needs to be. At a minimum, enough subaddress detail should be provided to route 9-1-1 calls to the appropriate PSAP and get first responders to the correct location. Consider beginning with a low level of subaddress information and increase in granularity as time and resources permit. For example, collect subaddress information that will at least get responders to a specific building. Additional subaddress details may be needed where a large site or building is split by an Emergency Service Boundary and subaddresses at that location are served by different responding agencies.

#### **12.3.4 Limitations of CAD Software**

It is important to understand the limitations and requirements of your CAD software as currently not all CAD software programs can natively consume GIS data in NENA's NG9-1-1 GIS Data Model [1] format and may require the use of abbreviations or different parsing of the street names and addresses. Some optional fields may not be recognized and therefore population of those fields could be postponed. Consider the CAD software's ability to use stacked points, subaddress data in a related table structure, or even recognize subaddresses as unique addresses. Also consider whether the CAD software can differentiate between the Placement Methods or requires a specific Placement Method (e.g., Property Access versus Structure). For example, a structure located far from the road it is addressed off of may benefit from having two address points:

a Property Access address point at the driveway entrance and a Structure address point on the structure. If the CAD software cannot differentiate between the two types of points, it may be preferred to only show one type of point.

## **12.4 Considerations for PSAP, Emergency Service, and Provisioning Boundaries**

Organizations developing these GIS data layers need to understand that these layers often are not identical to the legal county, city, village, or other administrative boundaries within Missouri. Existing agreements between PSAPs that define their areas of responsibility, particularly in areas where the PSAP boundary differs from the administrative boundary, need to be properly reflected in the GIS data layers. As Missouri moves forward on the NG9-1-1 path, open and frequent coordination of boundaries between neighboring PSAPs and Emergency Services will become critical to ensuring no overlaps or gaps exist in these boundaries. This will involve particular focus on boundaries that follow physical (road centerline) or natural (water body) features where opinions may differ on jurisdiction for answering 9-1-1 calls.

### **12.4.1 Accuracy of the PSAP and Emergency Service Boundaries**

There should be no unintentional gaps or overlaps within the PSAP Boundary layer or the Emergency Service Boundary layers. Gaps in PSAP boundaries prevent the ECRF from identifying the correct PSAP should a civic or geodetic location fall within that gap. Similarly, if a civic or geodetic location fell within an area where PSAP Boundaries overlapped, the ECRF would not be able to identify the correct PSAP. Similarly, gaps and overlaps within an Emergency Service Boundary would prevent the ECRF from determining the correct Emergency Service Provider.

Boundaries with unintentional overlaps also create issues for line segments. Overlapping areas result in attribution conflicts for Road Centerline segments in the overlapping area. Attribution conflict can include the address, area, and 9-1-1 attribution elements.

GIS Data Providers must work together to resolve any discrepancies in these layers such that there are no unintentional gaps or overlaps.

### **12.4.2 Accuracy of the Provisioning Boundary**

There should be no unintentional gaps or overlaps within the Provisioning Boundary layer. Overlapping boundaries can result in multiple GIS Data Providers being able to submit GIS data for the same area, causing duplicate GIS features (e.g., Road Centerlines, Site/Structure Address Points) in the overlapping area. GIS Data Providers must work together to resolve these discrepancies such that their Provisioning Boundary covers the entire extent of their geographic area of responsibility but does not extend beyond their coverage area into a neighboring jurisdiction's geographic area of responsibility.

## **13 Quality Control of Next Generation 9-1-1 GIS Data**

Quality Control is an all-encompassing management approach that combines technical, qualitative, and human resources to evaluate the quality of GIS data to meet the requirements of a system. Each GIS data layer, individually and in relation to others, is analyzed to determine where integrity issues exist.

Integrity issues for NG9-1-1 GIS data are separated into two categories: critical and non-critical. Critical errors will disrupt the NG9-1-1 Location Validation and Emergency Call Routing Functions and will not be accepted into the NG9-1-1 Core Services components. Non-critical errors have the potential to disrupt both functions, however additional features within the system will ensure the calls are correctly routed. Non-critical errors may be identified by the NG9-1-1 Core Services Provider but will not prevent the data from being provisioned into the system.

Prior to and during transition to a NG9-1-1 system, quality control between the 9-1-1 GIS data and the E9-1-1 routing databases, ALI and MSAG, must continue to be quality controlled through data synchronization. It is important to utilize the legacy street name elements within the Road Centerline and Site/Structure Address



Point datasets for synchronization with the legacy E9-1-1 databases. Integrity issues identified during the data synchronization process may need to be resolved through updates to the ALI and/or MSAG and the GIS data.

The process for quality control can be dependent on a variety of factors; however, the major factors are the software utilized to perform the analysis, and the format of the GIS data. Resolution of all errors identified as **Critical** is of utmost importance. For NG9-1-1, 98% is often cited as a benchmark for resolution of GIS data errors and ALI to Road Centerlines errors, with a goal to continually improve the GIS data and achieve 100% resolution of all errors. Accuracy requirements should be discussed with your Next Generation 9-1-1 Core Services (NGCS) Provider.

## 13.1 Definitions of Commonly Used Quality Control Terms

### 13.1.1 Street Name Elements

**Description:** All the NENA CLDXF Standard [12] (fully spelled out) street name fields and/or all the legacy (abbreviated) street name fields in both the Road Centerline and Site/Structure Address Point feature classes.

**CLDXF:** Street Name Pre Modifier, Street Name Pre Directional, Street Name Pre Type, Street Name Pre Type Separator, Street Name, Street Name Post Type, Street Name Post Directional, Street Name Post Modifier

**Legacy:** Legacy Street Name Pre Directional, Legacy Street Name, Legacy Street Name Type, Legacy Street Name Post Directional

### 13.1.2 Zone

**Description:** Any field or combination of fields used to ensure location uniqueness.

**CLDXF:** May include Country, State, County, Incorporated Municipality

**Legacy:** May include MSAG Community Name and ESN

### 13.1.3 Address Elements

**Description:** All the address and subaddress elements including Address Number Prefix, Address Number, Address Number Suffix, Building, Floor, Unit, Room, Seat, Additional Location Information.

## 13.2 General Quality Control

The following checks should be performed during quality control for all GIS data layers.

- *Field format validation (Critical):* Identify where fields are not formatted to meet the Missouri NG9-1-1 GIS Data Standard.
- *Unique Identifier (Critical):* Identify duplicate unique identifiers within individual or all source feature classes.
- *Missing mandatory field values (Critical):* Identify where mandatory field attribution, as defined in the Missouri NG9-1-1 GIS Data Standard, is missing.
- *Field values outside of domain:* Identify where field values are outside of the acceptable domain values as defined by the Missouri NG9-1-1 GIS Data Standard.

## 13.3 Boundary Quality Control

Includes Provisioning Boundary, PSAP Boundary and Emergency Service Boundary; may also include County Boundary, Incorporated Municipality Boundary, Unincorporated Community Boundary, and Neighborhood Community Boundary where available. Overlap errors are critical only for the Provisioning Boundary, PSAP Boundary, and Emergency Service Boundary layers.

- **Boundary has overlaps (Critical):** Identify where overlaps exist between polygons in each boundary feature class.

- *Boundary does not cover the Provisioning Boundary (Critical):* Identify where Emergency Service Boundaries do not cover the Provisioning Boundary in its entirety.
- *Boundary has gap:* Identify where gaps exist between polygons in each boundary feature class.

### 13.4 Site/Structure Address Point Quality Control

- *Address found multiple times (Critical):* Identify where site/structure addresses occur multiple times in a single Site/Structure Address Point dataset. This check analyzes all the street name elements, address elements and zone(s) to determine duplication of address points.
- *Site/Structure Address Point outside Provisioning Boundary (Critical):* Identify where site/structure address points exist outside of the Provisioning Boundary.
- *Site/Structure Address Point full address does not match parsed values:* Identify where the individual parsed address fields do not match the full address field.
- *Site/Structure Address Point zone attribution against intersecting polygon attribution:* Identify discrepancies between a site/structure address point's zone attribution (incorporated municipality) and the associated boundary (incorporated municipal boundary) it intersects within a buffer distance around the site/structure address point.

### 13.5 Road Centerline Quality Control

- *Road centerline segments have overlapping address range values (Critical):* Identify where road segments have overlapping address ranges in a given zone. The zone must be defined by the governing entity.
- *Road centerline outside Provisioning Boundary (Critical):* Identify where road segments exist outside of the Provisioning Boundary.
- *Road centerline segment crosses a boundary layer:* Identify where road segments cross a boundary and a split should occur. All boundaries where attribute values change should be included in the quality control. Includes, but may not be limited to: Incorporated Municipality Boundary, County Boundary, Provisioning Boundary, Emergency Service Boundary.
- *Road centerline segment FROM value is higher than the TO value:* Identify where road segment address ranges have a higher FROM value than TO value.
- *Road centerline full street name does not match parsed values:* Identify where the individual parsed street name fields of an address do not match the full street name field.
- *Road centerline segment has incorrect line directions:* Identify where road segments are drawn in the opposite direction of addressing.
- *Road centerline has incorrect one-way value:* Identify where roads are spatially continuous but one-way values are inconsistent or incorrect.
- *Road centerline has range gaps:* Identify where theoretically/potentially ranged road centerlines have address range gaps; zero ranged roads are ignored. *Only ran on counties with theoretical/potential ranging.*
- *Road centerline segment parity issue:* Identify where a road segment has a mixture of even and odd address ranges on the same side of the segment and conflicts with the Parity Left and Parity Right field values.
- *Road centerline segment not snapped to adjacent segments:* Identify where road segments are not snapped to an adjacent segment.
- *Road centerline segment has zero in address range value:* Identify where road segment address ranges have a zero in one address range value and a nonzero value in the other.
- *Road centerline zone attribution against intersecting polygon attribution:* Identify discrepancies between a road centerline's zone attribution (incorporated municipality) and the associated boundary (incorporated municipal boundary) it intersects within a buffer distance around the road centerline.

## 13.6 Site/Structure Address Point to Road Centerline Quality Control

- *Fail on full street name:* Identify where the site/structure address point's street name elements and road segment's street name elements are not identical.
- *Fail on zone:* Identify where the site/structure address point's address number and street name elements match the road segment but are not found in the same zone.
- *Fail on address range:* Identify where the site/structure address point's street name elements and zone match the road segment, but the address number falls outside of the road segment's address ranges.
- *Fail on block:* Identify where the site/structure address point's street name elements, zone and address number match the road segment, but the site/structure address point does not fall on the correct block.
- *Fail on parity:* Identify where the site/structure address point's street name elements, zone and address number match the road segment, but the site/structure address point falls on the wrong side of the road segment.

## 13.7 Synchronization of ALI and MSAG to GIS Data

### 13.7.1 ALI to Road Centerline Synchronization

- *Fail on full street name:* Identify where the ALI street name elements and road segment's street name elements are not identical.
- *Fail on zone:* Identify where the ALI address number and street name elements match the road segment but are not found in the same zone (ESN and MSAG Community).
- *Fail on address range:* Identify where the ALI street name elements and zone (ESN and MSAG Community) match the road segment, but the address number falls outside of the road segment's address ranges.

### 13.7.2 ALI to Site/Structure Address Point Synchronization

- *Fail on full street name:* Identify where the ALI street name elements and site/structure address point's street name elements are not identical.
- *Fail on zone:* Identify where the ALI address number and street name elements match the site/structure address point but are not found in the same zone (ESN and MSAG Community).
- *Fail on address range:* Identify where the ALI street name elements and zone (ESN and MSAG Community) match the site/structure address point, but no exact address number match can be made.
- *Fail on address number suffix:* Identify where the ALI address number, street name elements and zone match the site/structure address point, but no exact address number suffix match can be made.

### 13.7.3 MSAG (Low and High) to Road Centerlines

- *Fail on full street name:* Identify where the MSAG street name elements and the road segment's street name elements are not identical.
- *Fail on zone:* Identify where an MSAG address range (high or low) and street name elements match the road segment but are not found in the same zone.
- *Fail on address range:* Identify where the MSAG street name elements and zone match the road segment, but no exact address range value match can be made.

## 13.8 Quality Control Exceptions

Exceptions are flags at the feature level that notify QC checks to omit a feature from a specific check. Features may have multiple exceptions. Exceptions should only be used to accommodate real-world situations that are identified as errors in the quality control process. Caution should be used when setting exceptions for features within a GIS dataset and should only be used when there is a viable exception that will cause an error to be identified. While there is no single, specific process of implementing exceptions and the use of exception codes, the typical process is to add an exceptions field to each GIS data layer and populate with a defined code for each needed exception at the feature level. For example, it is common for a structure to be addressed on the wrong side of the road. An exception code can be used in the NG9-1-1 system to allow the exception through and not

be marked as an error. The proper use and domain of exception codes will be determined as part of the State’s NG Core Services implementation.

## 14 Parsing Street Names and Addresses into the Missouri Standard

The Address Number is the integer portion with anything preceding the integer being placed in the Address Number Prefix field and anything following the integer being placed in the Address Number Suffix field. Table 13-1 provides examples of how to parse address numbers into their appropriate fields.

**Table 13-1 Example Parsing of Address Numbers**

Address Number Prefix	Address Number	Address Number Suffix	Street Name Pre Modifier	Street Name Pre Directional	Street Name Pre Type	Street Name Pre Type Separator	Street Name	Street Name Post Type	Street Name Post Directional	Street Name Post Modifier	Unit
	123	A					Highridge	Drive			
	1209	D		Northwest			North Ridge	Drive			
	123	1/2					Prospect	Avenue			
	4032	A		South			Lynn Court	Drive			
	16423	1/2		East			29th	Street Court	South		
	11408			East			272nd	Street			L11
	110			East			Canada	Street			Lot 1

Parsing street names into the appropriate elements is usually straightforward and mirrors how the street name is parsed in legacy 9-1-1 databases. Typically, the Street Name Pre Modifier, Street Name Pre Type, Street Name Pre Type Separator, and Street Name Post Modifier elements are not found in legacy 9-1-1 databases that were based on the USPS Publication 28 [5] postal addressing standard. Of these four new fields, the Street Name Pre Type field will be the one most used, mostly for numbered routes. The other three fields are not commonly used but must be populated if the address parsing rules apply. It is recommended to avoid assigning new Street Names that require usage of the Street Name Pre Modifier or Street Name Post Modifier fields.

Details on each Street Name element are provided in [Section 3 Road Centerline – Data Element Details](#). The NENA CLDXF Standard [12] defines the detailed civic location data elements needed for address data exchange. Review of the document is strongly recommended as it provides an in-depth discussion of address parsing for NG9-1-1 purposes.

Table 13-2 provides examples of how to parse Street Names into their appropriate fields. Footnotes immediately follow the table to explain the parsing of Street Names that have special considerations.

**Table 13-2 Example Parsing of Street Names**

Street Name Pre Modifier	Street Name Pre Directional	Street Name Pre Type	Street Name Pre Type Separator	Street Name	Street Name Post Type	Street Name Post Directional	Street Name Post Modifier
				Prospect	Avenue		
	North			Lane	Avenue		
	Northwest			North Ridge <sup>1</sup>	Drive		
	West			North Main <sup>1</sup>	Street		
	East			11th	Street Court <sup>2</sup>	North	
	South			Lynn Court <sup>2</sup>	Drive		
	East			10th Terrace <sup>2</sup>	Court	North	
	East			14th Terrace <sup>2</sup>	Drive	North	
	East			24 Highway <sup>2</sup>	Circle		
				Blue Ridge <sup>2</sup>	Extension		
	East			29th	Street Court	South	
	East	State Route		58			
				Alley	Street		
				Golf Club	Drive	South	
	East			Lone Jack Lee's Summit <sup>3</sup>	Road		
	South			Fox's Den <sup>3</sup>	Road		
	Northwest			D'Mons <sup>3</sup>	Drive		
				Bi-State <sup>3</sup>	Drive		
				Hi-View Ridge <sup>3</sup>	Drive		
	Northwest			Sni-A-Bar <sup>3</sup>	Terrace		
				Tam-O-Shanter <sup>3</sup>	Drive		
				Blue Ridge Cut Off			
				Street of Dreams			
				Worlds Of Fun	Avenue		
				Burlington Northern	Road		
				Saint Catherines <sup>4</sup>	Lane		
Old	North	Highway		63			
		Highway		63	Connector		
Business		Highway		63			
		Interstate		35			northbound <sup>5</sup>
	North	Highway		291			
	East	United States Highway		60			
Old		Route		A			
Old		United States Highway		40			
		Route		Q			
		Interstate		35/29 <sup>3/6</sup>			northbound <sup>5</sup>
	South	State Highway		ZZ			
	West			Farm Road 84			
				Buttonwood			Access <sup>7</sup>
Old	North			Number 7			
				Old Number 7			
Old <sup>8</sup>				Number 7			
		Rue <sup>9</sup>		Orleans			
		Rue <sup>9</sup>	de	Renard			
		Avenue	of the	Columns			
	North			Lake of the Woods <sup>10</sup>	Road		
West <sup>11</sup>	South			4th	Street		
	West			South 4th <sup>12</sup>	Street		
	West			Business Loop 70			
				Old Hawthorne	Drive	East	

NOTES:

<sup>1</sup> When the Street Name is the name of a place, geographic feature, landmark, or other similar feature, the directional is included in the Street Name field and is not parsed as a Street Name Pre Directional (requires local knowledge as to whether the directional is part of the name of the place, geographic feature, landmark, or other similar feature).

<sup>2</sup> When two Street Name Post Types occur after the Street Name, both are placed in the Street Name Post Type. However, if local addressing rules consider the first occurrence part of the Street Name, the first occurrence is included in the Street Name field and the second is parsed as a Street Name Post Type.

<sup>3</sup> Special characters are allowed in NG9-1-1 Street Name fields which have a field type of Printable ASCII characters (decimal codes 32 to 126) or UTF-8-character sets. Consult with your Core Service Provider regarding their recommendation for current 9-1-1 and CAD system requirements.

<sup>4</sup> All street name field values must be fully spelled out to remove confusion and ambiguity. This is important as abbreviations could have multiple interpretations. For example, "ST" could be Saint, Street, or Sandra Theresa (someone's initials).

<sup>5</sup> The traveling direction on divided roads is parsed as a Street Name Post Modifier (in lowercase).

<sup>6</sup> Some street names are a combination of two route numbers or a route number and a local street name. When the street name is a combination of two route numbers, the jurisdiction is placed in the Street Name Pre Type and both route numbers are placed in the Street Name, typically separated by '&', '/', or 'and' (note: the separator used should be consistent across the jurisdiction). When the street name is a combination of a route number and a local street name, both are placed in the Street Name. Alternatively, the first name is parsed normally, and the second name is placed in the Street Name Post Modifier. In all cases, consult with your Core Service Provider regarding their recommendation for current 9-1-1 and CAD system requirements.

<sup>7</sup> Since "Access" is not in USPS Publication 28, Appendix C1 [5], it is parsed as a Street Name Post Modifier.

<sup>8</sup> A Pre Modifier must be separated from the Street Name by either a Street Name Pre Directional or a Street Name Pre Type unless the Street Naming Authority has established a local practice where words such as "Business" or "Old" that precede a Street Name are placed in the Street Name Pre Modifier field so the Street Name can be placed properly in an alphabetized list.

<sup>9</sup> Foreign language (e.g., French, Spanish, Italian) equivalents of Street Name Pre Types and Street Name Pre Type Separators are parsed into these fields and not in the Street Name field.

<sup>10</sup> Since "Lake" is not a valid Street Name Pre Type and is not in USPS Publication 28, Appendix C1 [5], it is included in the Street Name.

<sup>11</sup> When two directional words occur together before the Street Name and the second directional is not the name of a place, geographic feature, landmark, or other similar feature, the first occurrence is a Street Name Pre Modifier and the second is a Street Name Pre Directional.

<sup>12</sup> When two directional words occur before the Street Name and the local addressing rules consider the second occurrence part of the Street Name, the second occurrence is included in the Street Name field and the first is parsed as a Street Name Pre Directional.

## **15 Road Centerline Recommendations and Best Practices for Development and Maintenance**

### **15.1 General Best Practices**

The Quality Control checks described in [Section 12](#), Quality Control of Next Generation 9-1-1 GIS Data, provide valuable information on how the validation software looks at the Road Centerline layer to identify integrity issues and ensure consistent, valid data throughout the dataset. Ensuring that the data meets the requirements of the Road Centerline QC checks and the synchronization of the ALI and MSAG to the Road Centerline layer will eliminate unnecessary rework and ensure that the data meets the required specifications for the NG9-1-1 LVF and ECRF. Quality control is a continuous process. The data maintenance plan for the Road Centerline layer must include these QC checks and, at a minimum, resolution of all critical errors.

Road centerlines should be compiled from current orthoimagery or a high-quality data collection device, and attributed using source data with reliable attribution. The accuracy of the Road Centerline layer is only as good as the least accurate data source or data collection device that was used to create it.

### **15.2 Road Centerline Digitizing Direction**

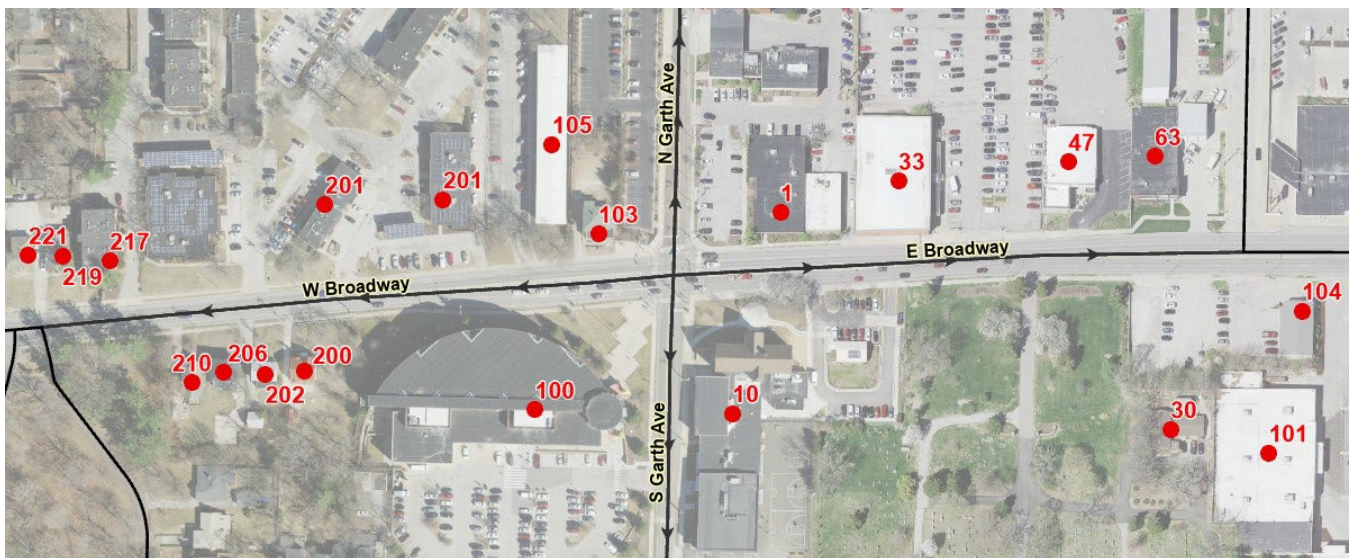
Road centerlines should be digitized in the direction of increasing addressing. Highways and other unaddressed limited-access roads should be digitized in the direction of increasing mile marker numbering, the direction of

the local addressing grid, or the direction of travel. Whichever method is chosen, it is important to be consistent throughout the jurisdiction.

Limited access roads typically have some type of physical barrier (e.g., concrete wall or curb, metal barrier, grassy median, ditches) separating the opposing traffic flow. These should be digitized with two centerlines, each representing a different direction of travel. A single centerline is used when there is only yellow painted striping or a flat surface separating the opposing traffic flow that can be easily driven over without damaging a vehicle.

Cul-de-sacs should be digitized showing the center physical median when it exists. This is important for fire responders who need to know limitations of turning a large vehicle around in the cul-de-sac. If there is no physical median, the road centerline should extend straight through the cul-de-sac, ending on the pavement.

Addressed roads with parity issues and unaddressed local or private roads should be digitized following the direction of the local addressing grid. If a local addressing grid does not exist, they should be digitized in the same direction as other nearby road centerlines.



**Figure 14-1 Digitizing Segments in the Direction of Increasing Addresses**

### 15.3 Road Centerline Segmentation

Road segmentation is an important consideration during development and maintenance of the NG9-1-1 Road Centerline layer. Road segments should be split in the following:

- Road intersections
- Boundaries: County, Incorporated Municipality, PSAP, Emergency Services, ESN, MSAG Community
- Change in the Street Name
- Change in other attribute values: One-Way, Speed Limit, Road Class (only if these Optional fields are being maintained in the Road Centerline layer)
- Other boundaries (where available): Unincorporated Community, Neighborhood Community, Postal Community (only if these Optional fields are being maintained in the Road Centerline layer)

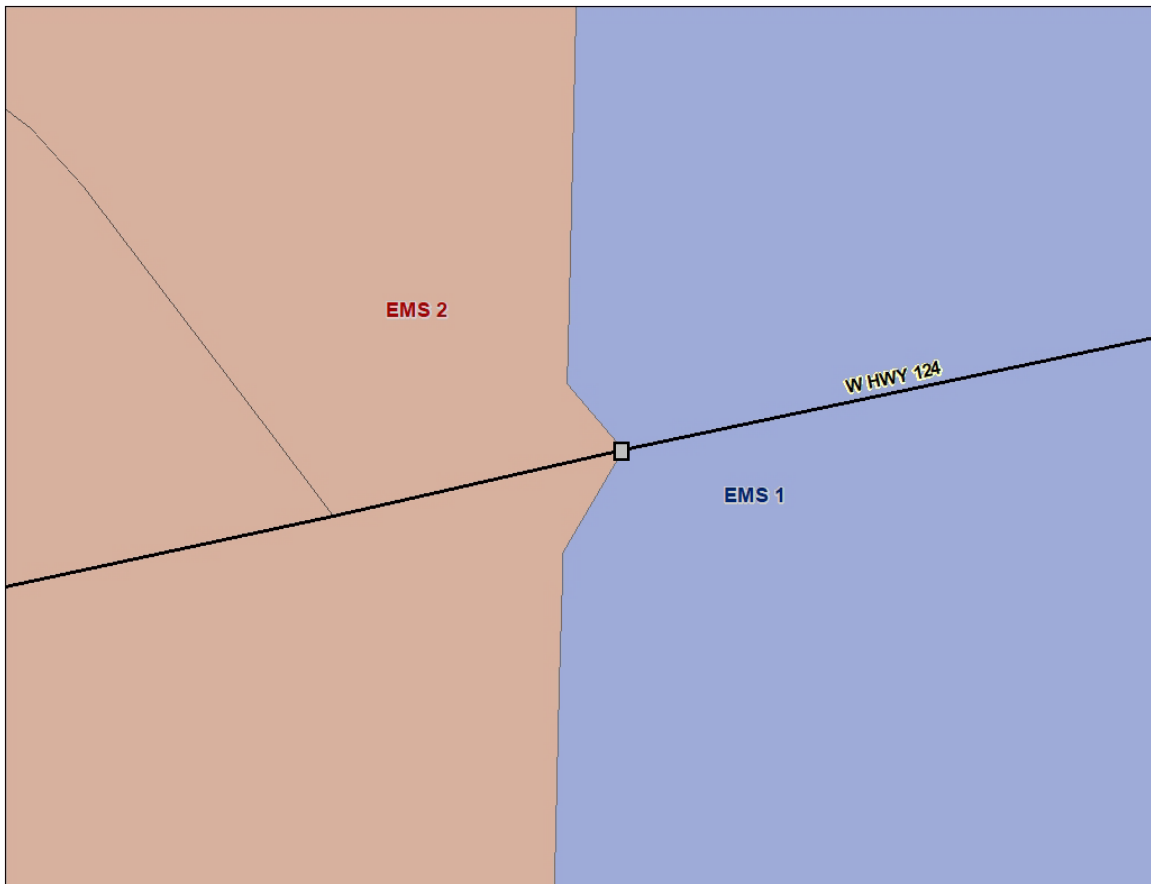
Intersections at overpasses and underpasses are only segmented if they carry elevation data that can be used to determine if the intersection is at-grade or an overpass/underpass. Consultation with the Core Services Provider and understanding the requirements of the local CAD software is necessary to determine when an overpass/underpass intersection should be segmented.

In most cases, roads should not be split at driveways or parking lots. There are some situations where splitting a road centerline at these intersections may be beneficial for routing first responders, particularly in rural areas where there are not many addressed properties or where an addressed structure may not be visible from the

road. Breaking a road centerline at these intersections allows the address ranges to be refined, providing more accurate geocoding results.

Special consideration is needed for segmentation at intersections with unaddressed alleys. Generally, if an alley is named and routable, the intersecting street should be broken. However, these named alleys should be assigned a very low speed limit (e.g., 5 or 10mph maximum) to deter Automatic Vehicle Location (AVL) from choosing them as preferred routing options. Inclusion of unaddressed alleys is a local decision and should take the capabilities of the local CAD software into consideration.

There are often specific requirements for road segmentation based on the needs of the local CAD software and attributes that may need to be carried in the Road Centerline layer to support CAD functionality. Consultation with the Core Services Provider and understanding the requirements of the local CAD software is necessary to determine when additional segmentation may be needed.



**Figure 14-2 Road Centerline Split at Boundary Changes**

**Alignment at Boundaries**

Aligning Road Centerlines at boundaries is essential for providing accurate locations for the NG9-1-1 Location Validation and Emergency Call Routing Functions and other 9-1-1 applications that rely upon geocoded locations derived from the Road Centerline address ranges. Road Centerlines must be aligned and snapped to boundaries with different jurisdictions or emergency service responsibilities so that the geocoded locations fall within the correct jurisdiction, PSAP, and Emergency Service Provider boundaries. These boundaries include:

- PSAP Boundary
- Emergency Service Boundaries
- State Boundary
- County Boundary



- Incorporated Municipality Boundary
- Military Installation Boundary, if applicable

If a Road Centerline is contiguous with a boundary (e.g., County Line Road), it must be aligned with the corresponding boundary, node for node. This is especially critical for Emergency Call Routing where the slightest deviation may result in a geocoded location being placed into the wrong PSAP Boundary polygon, causing the call to be routed to the incorrect PSAP.

Agreement on exactly where these boundaries are located is necessary for emergency response and data maintenance responsibilities. It is recommended that a “stitch point layer” be created that represents the location of points where GIS data from one jurisdiction ends and where the GIS data for the adjacent jurisdiction begins. These would be points where road centerline segments would be snapped to and the vertices where polygon boundaries between neighboring jurisdictions would need to align and be snapped to. Counties and local municipalities must agree on the location of these points both within Missouri and between their neighboring states. These points do not need to represent formal or legal boundaries but instead represent their agreed upon location for data maintenance purposes.

When aligning road centerline data with these neighboring jurisdictions, counties and other states, care should be taken to ensure that there are no spatial overlaps or gaps in the data. Working directly with the neighboring jurisdictions will greatly reduce these issues with the data.

In some cases, a PSAP Boundary does not align with a County Boundary due to the agreed upon response areas. Road centerlines must be split at the PSAP boundary and the County Boundary, regardless of how close they may be located to each other. Figure 14-3 below shows West 161st Street split at the Clay and Ray County line. Even if the address in Clay County is within the Ray County PSAP Boundary, West 161st Street must still be split at the county boundary to accommodate the Area Name elements (e.g., County, Incorporated Municipality).



**Figure 14-3 Road Dead-Ending in Adjacent County**

## 15.4 Naming and Addressing

### Address Ranges

For use in NG9-1-1, the address ranges on adjacent Road Centerlines with the same street name that are within the same jurisdiction must not have unintentional gaps and overlaps. In Missouri, intentional gaps may exist at

jurisdictional boundaries (e.g., ranges change from 4-digit numbers to 6-digit numbers) and at changes in the local addressing grid. When a street name extends over a boundary, the address ranges should be checked to confirm that there are no unintentional gaps or overlaps in the address ranges. Any issues should be brought to the attention of the local Addressing Authorities for resolution so that the address ranges properly reflect the addresses each PSAP is responsible for on the Road Centerlines within their PSAP Boundary.

There is no NENA requirement for address ranges to be populated as potential address ranges (also known as theoretical or buffered ranges) or as actual address ranges. There are pros and cons with each method, although potential address ranges generally require less maintenance. Consultation with the Core Services Provider and understanding the requirements of the local CAD software and other local GIS needs may impact which address range method to use.

Currently, some jurisdictions utilize 0-0 address ranges to accommodate local CAD software requirements such as on the median side of limited-access roads or within a large intersection of a divided road where there is no gap in the assigned addresses on each side of the intersection. In general, 0-0 address ranges should be avoided as 0-0 ranges may conflict with some quality control processes (e.g., duplicate 0-0 address ranges with the same Street Name). On rare occasions, an address range may need to start with 0 if the first assigned address has a value less than one (e.g., ½, ¼, .5).

### **Different Street Names on Each Side of the Road Centerline**

There are some roads along jurisdictional boundaries that have been assigned different street names on each side of the road. This can be confusing to responders and require GIS data to be falsely portrayed in order to include both street names for use in the NG9-1-1 LVF and ECRF. Rather than trying to make the GIS data fit the situation, the Street Naming Authorities should work together to come to agreement on a single street name that can be used for both sides of the street. If a common resolution is unable to be obtained, it is recommended that two road centerlines be created and placed slightly offset and parallel to each other, representing their direction of travel, and be reunited at a single point at intersections. Each alignment would be populated with the Street Name as assigned by its Street Naming Authority and addressed only on the side of the road with that Street Name. Stacked road centerlines are not recommended as they may cause issues with local CAD systems.

### **Road Centerline in a Different Jurisdiction than the Addressed Properties**

On occasion, jurisdictional boundaries may parallel and fall along one side of a road centerline rather than being coincident with the road centerline. For NG9-1-1 Location Validation and Emergency Call Routing purposes, the road centerline attributes must reflect the addressed properties on each side of the line segment, regardless of where the physical roadway is located.

### **Interstates/Highways**

Interstates and limited-access highways are named with their jurisdiction and route number. Travel direction (e.g., northbound, southbound, eastbound, westbound) is often not part of the official street name but is important for responders and other service providers that need to know which side of the highway a location is associated with. It is recommended that the travel direction be included in the Post Modifier in lowercase as “northbound”, “southbound”, “eastbound”, or “westbound”.

**Example:** I70 EB and I49 NB

Street Name Pre Type:	Interstate
Street Name:	70
Street Name Post Modifier:	eastbound
Street Name Pre Type:	Interstate
Street Name:	49
Street Name Post Modifier:	northbound

## Ramps and Interchanges

Ramp and interchange naming can be particularly challenging. It is strongly recommended that as much information as possible be put into the Street Name field for ramps, including the FROM road, TO road, travel direction, designation as an on ramp or off ramp, and exit number as appropriate. Ramps should be single segments unless a physical barrier exists that splits the ramp for separate travel directions.

The following ramp naming convention is recommended, with everything placed in the Street Name field:

**<Ramp/Exit #> <FROM Street> <travel direction> to <TO Street> <travel direction>**

Where:

- **Ramp/Exit #:** The text “On Ramp” or “Off Ramp” and, if applicable, “Exit <#>”

Note: If there is no exit number for ramps connecting an undivided road and a limited-access road, then “On Ramp” and “Off Ramp” are preferred to a generic “Ramp” designation.

- **FROM Street:** Route/Street Name that the ramp is exiting from
- **TO Street:** Route/Street Name that the ramp is going to
- **Travel direction:** NB, SB, EB, WB

Due to the current 60-character field width limitation of the Street Name field, some abbreviations are necessary for the ramp names. For consistency, abbreviations are allowed ONLY for the travel direction (i.e., NB, SB, EB, WB) and the road jurisdiction for numbered routes in a ramp name. Everything else must be fully spelled out. The allowable abbreviations for the road jurisdiction in a ramp name are:

- I – Interstate
- HWY – United States Highway, State Highway
- M – Missouri Route, Missouri Highway
- RTE – State Route, County Route
- CR – County Route

Example ramp names using the recommended ramp naming convention:

- **Street Name:** Off Ramp Exit 115 I70 EB to W HWY BB NB
- **Street Name:** Off Ramp Exit 127 I70 EB to MO763 NB
- **Street Name:** Off Ramp 291 HWY NB to N 210 HWY SB
- **Street Name:** On Ramp Oak Trafficway SB to I 70/35 EB

An alternate ramp naming convention can be utilized when established in a jurisdiction. For example, a ramp’s street name field could also be N PROVIDENCE RD ONR EB. The key for naming ramps is to be consistent in the method used.

## Diverging Diamonds, Rest Areas, Service Plazas

Diverging Diamonds, Rest areas, service plazas and their buildings on controlled-access highways, On and off ramps to rest areas and service plazas, crossover/connector roads on controlled-access highways, should be treated the same as ramps and other interchanges as spelled out in the Ramps and Interchanges section.

## 15.5 Overlapping Routes and Multiple Street Names

Street names are an important part of an NG9-1-1 system. However, in many cases, roads can be known by several different street names. Local jurisdictions may assign a local name for a road, while the Missouri Department of Transportation (DOT) may assign a state highway number to that same road. As a further complication, the road may also carry a US route number, a second state route number, a county route number, or a memorial or honorary name for that same road.

These multiple street names are all important, however, the official 9-1-1 name assigned by the Street Naming Authority is the Street Name that must be populated in the Road Centerlines layer for NG9-1-1 Location Validation and Emergency Call Routing purposes. A future version of this Missouri NG9-1-1 GIS Data Standard and Best Practices document is expected to contain an Alias Street Name Table. This future related table will allow an unlimited number of alias street names to be cross referenced to individual segments in the Road Centerline layer. The Alias Street Name Table will parse the alias street names into the same street name elements as used in the Road Centerline layer.

Organizations with local CAD systems that can currently use related tables should consider developing an Alias Street Name Table now in a format that can be used by their CAD system, if time and resources permit. More advanced CAD systems may allow alias street names to be parsed into the Street Name elements while others may initially only be able to handle a simple concatenated full street name. Any work done now would not be lost but would instead be an important first step for developing the future NG9-1-1 Alias Street Name Table.

### **Street Naming Hierarchy**

For NG9-1-1 purposes, the official 9-1-1 name assigned by the Street Naming Authority is the Street Name that must be populated in the Road Centerlines layer. All other names are considered alias street names and would be populated in the Alias Street Name Table.

Where named and numbered roads overlap, it is usually clear which street name is the official 9-1-1 street name to populate in Road Centerline layer. However, there are some situations where the street name overlap is in a small, limited area (e.g., traffic circles, roundabouts, exit ramps that lead to multiple roads) and determining which official 9-1-1 street name to populate in the Road Centerlines layer may not be straightforward. For these situations where two official 9-1-1 Street Names overlap, follow this hierarchy for populating the Street Name in the Road Centerlines:

- Interstate Name (highest priority)
- Interstate Business Route name
- US Route name
- US Business, Alternate, or Truck Route name
- State Route name
- State Business, Alternate, or Truck Route name
- County Route Name
- Other local or memorial street name (lowest priority)

Using this hierarchy, the highest jurisdiction route name would be put into the Road Centerline Street Name, and the lower jurisdiction route would go into the Alias Street Name Table. When multiple routes with the same jurisdiction overlap, the lowest route number would go into the Road Centerline Street Name and the higher route number(s) would go into the Alias Street Name Table.

For example, sometimes an exit ramp leads to more than one connected road but only one of the connected street names can be used for the “TO Street” in the ramp name. For the road centerline leaving the “FROM Street,” the “TO Street” in the ramp name should follow the naming hierarchy above and be populated with the highest jurisdiction route name. The lower jurisdiction route would go into the Alias Street Name Table. At some point, the ramp will split and the centerline for each ramp after the split should be named with the “TO Street” for the connected road it leads to.

### 15.6 Roundabouts and Traffic Circles

Naming of roundabouts and traffic circles can be complicated, particularly when routes overlap the official 9-1-1 street name or when street names end or change at the circle. The sections of a roundabout associated with the road that traffic flows from should be named the same as the associated parent road. The road centerline follows the direction of travel. The Street Naming Hierarchy concepts in Section 13.1.5 should be applied to roundabouts and traffic circles. Many of the Street Naming Hierarchy concepts discussed above in Section 13.1.5 Overlapping Routes and Multiple Street Names can be applied to roundabouts and traffic circles.



**Figure 15-1 Roundabout and traffic circle naming**

### 15.7 Military Bases

Military bases may or may not have their own PSAP and responsibility for emergency services. In most cases, the military facility will share street name information but will not provide address specific information. It is recommended that the local 9-1-1 jurisdiction reach out to the military facility and work directly with them to obtain the most current information the facility is willing to provide.

## 16 Site/Structure Address Point Recommendations and Best Practices for Development and Maintenance

### 16.1 General Best Practices

The Quality Control checks described in [Section 11](#), Quality Control of Next Generation 9-1-1 GIS Data, provide valuable information into how the validation software looks at the Site/Structure Address Point layer to identify integrity issues and ensure consistent, valid data throughout the dataset. Ensuring that the data meets the requirements of the Address Point QC checks, Address Point to Road Centerline QC checks, and the synchronization of the ALI to the Site/Structure Address Point layer will eliminate unnecessary rework and ensure that the data meets the required specifications for the NG9-1-1 Location Validation and the Emergency Call Routing Functions. Quality control is a continuous process. The data maintenance plan for the Site/Structure Address Point layer must include these QC checks and at a minimum, resolution of all critical errors.

Address point placement should be based on an authoritative list of addresses, current orthoimagery or a high-quality data collection device, and source data with reliable attribution. The accuracy of the Site/Structure Address Point layer is only as good as the least accurate data source or data collection device that was used to create it.

Given today's navigation technologies used by consumers and emergency responders, it is strongly recommended that Addressing Authorities assign an address based on the named road used to access the structure. This is especially important when there is no direct access from the road that the front entrance to the addressed structure faces. Emergency responders may waste valuable time backtracking to an address if the assigned address does not provide the most direct route to the structure.

### 16.2 Address Point Placement

The NENA Information Document for Development of Site/Structure Address Point Data for 9-1-1 [13] provides detailed guidelines on address point placement and subaddress data development. Review of the document is strongly recommended as it provides an in-depth discussion of five address point placement methodologies that meet NG9-1-1 Location Validation and Emergency Call Routing requirements. These include:

- **Geocoding:** Placement of an Address Point Based on Geocoding off of Road Centerlines
- **Parcel:** Placement of an Address Point Based on a Parcel
- **Site:** Placement of an Address Point Based on a Site
- **Structure:** Placement of an Address Point Based on a Structure(s)
- **Property Access:** Placement of an Address Point Based on Property Access

The document also includes a section on Address Point Placement for Subaddresses (specific locations within structures, sites, or within a group of structures and/or sites). As such, the NENA Information Document for Development of Site/Structure Address Point Data for 9-1-1 [13] should be considered a companion document to [Section 15.2](#) Site/Structure Address Point Best Practices in this document.

Address point placement is especially critical for NG9-1-1 Emergency Call Routing and dispatch. During NG9-1-1 Emergency Call Routing, the location of an identified address point is spatially compared to the PSAP Boundary to determine which PSAP to send the call. The location of the same identified address point is also spatially compared to the Emergency Services Boundaries to provide the call taker with the recommended Law, Fire and EMS providers that should respond to the call. The address point must fall within the correct PSAP Boundary or valuable time will be lost for call transfer to the correct PSAP.

#### Address Point versus Access Point

Address points are typically placed on the addressed feature (e.g., a structure or a site). However, there are some situations where an access point may be preferred. An access point is the point of access to the addressed feature and may represent a driveway, gate, an entrance to a building containing multiple addresses, or other entrance. Access points can also be used for a building with multiple entrances where each entrance serves

many specific addresses (e.g., a high-rise building where certain entrances only allow access to units on specific floors.)

The access point can be useful for directing emergency responders to a structure that may be located far from the road it is addressed off of or may share a long driveway with several other addressed structures as shown below in Figure 15-1. In such cases, it may be useful to include an address point and an access point. Access points should be placed as a Property Access address point, offset from the road centerlines and in alignment with the direction of the increasing address ranges. Attributes on a Property Access address point should be populated with the same values as on the Structure address point it represents, with only the [Placement Method](#) attribute being populated differently. This is regardless as to whether the access point is physically located in a different jurisdiction or responder area since its location only represents from where off of a named road one would turn to access the addressed structure.

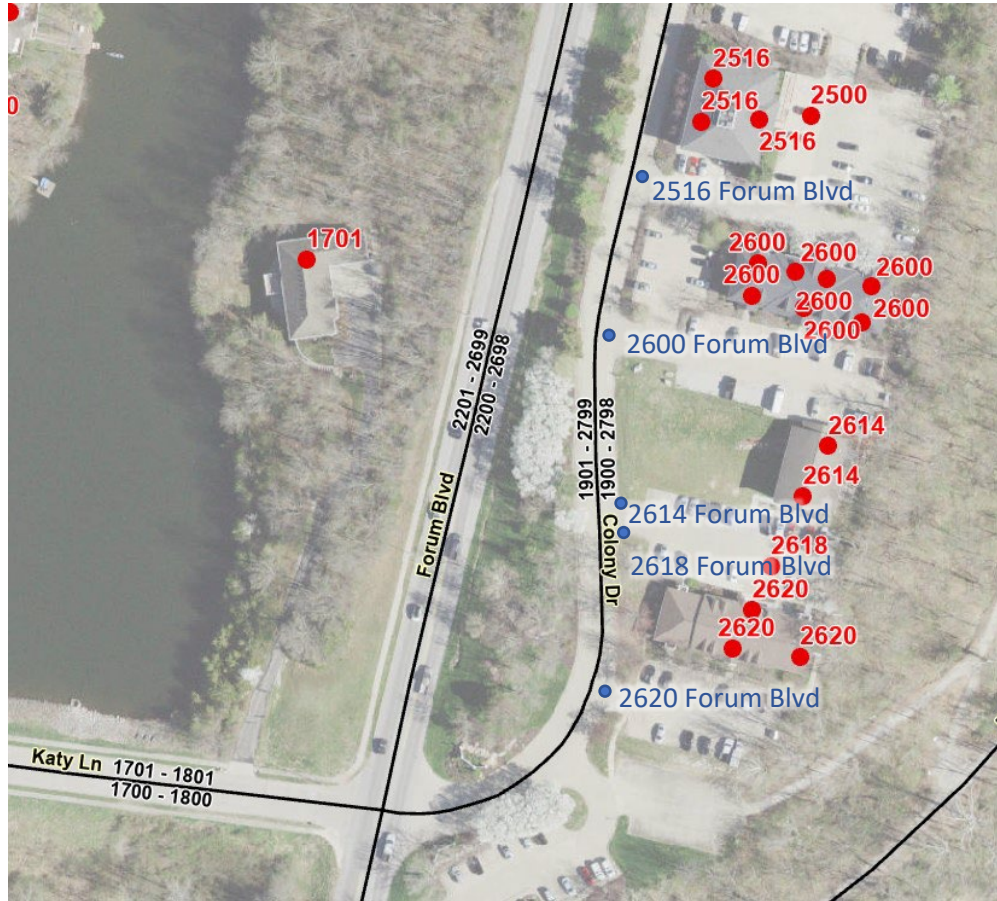


**Figure 15-2 Structure Address Points structure placement versus driveway placement**





Road reconstruction projects for more safe and efficient traffic flow may result in the access to addressed properties being relocated so that access is from a different road than what the property is addressed off of, as shown below in Figure 15-4. If the properties are unable to be readdressed to the new access road (which is strongly recommended), then including both a Structure address point and a Property Access address point may benefit emergency responders by directing them to the relocated entrance. In Figure 15-4 all structures along Colony Drive are address from Forum Boulevard.



**Figure 15-5 Property Access Address Points indicating the entrance to use to reach the Structures**

If both an access point and address point are shown, population of the Placement Method attribute is strongly recommended to clearly differentiate the two points. It also provides a means to easily remove one or the other if a 9-1-1 application is unable to differentiate between them. Currently, the NENA Standard for NG9-1-1 GIS Data Model [1] only defines one Placement Method, Property Access, that specifically represents an access point “based on the location of the primary access to a given property”. See NENA Information Document for Development of Site/Structure Address Point Data for 9-1-1 [13], Section 3.4.5 Placement of an Address Point Based on Property Access, for more information.

### **16.3 Address Point Placement for Special Cases**

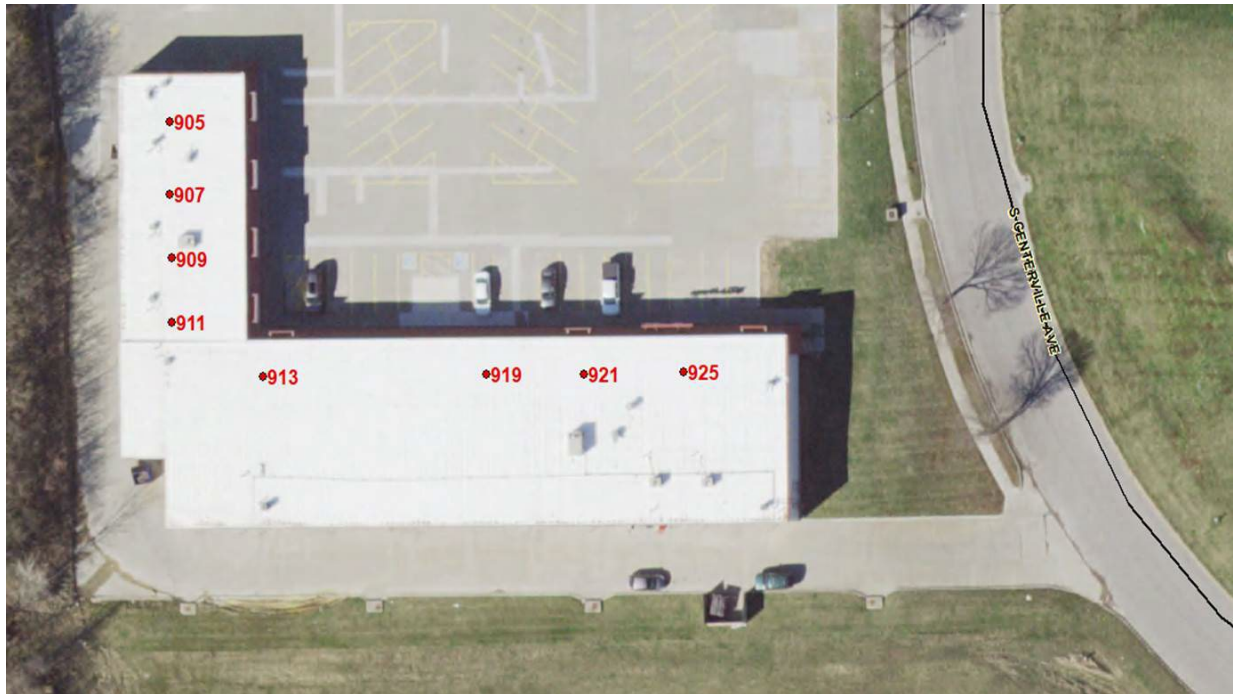
In most cases, address point placement is straightforward with points placed on the center of a structure or site. Large structures or sites, particularly those with multiple entry points, may benefit by having the address point placed at the primary entrance to the structure or site. However, there are some situations that may require a little more research or even field visits to determine the correct placement location.

#### **Multiple Addresses or Units within a Single Structure**

Shopping centers, commercial buildings, condominiums, and duplexes contain multiple businesses or residences that are located within the same structure. In some cases, the individual units have been addressed with their own individual address number but in many situations, they share the same address number and are only

differentiated by subaddress information (e.g., apartment, unit, suite, etc.). In both situations, address point placement is usually based on whether the units share an entrance to the building or have their own separate entrance.

Generally, Structure address points should be placed at or near each addressed unit's building entrance, just within the building footprint and near the building base. This will keep the address points very close to their true location, even if future imagery shifts slightly, and will help avoid the urge to move the address points each time new imagery is acquired. This point placement method is shown in Figures 15-4 and Figure 15-5 below, where each unit in a shopping center has its own separate entrance.



**Figure 15-6 Multiple addresses within a single structure, all with separate entrances**

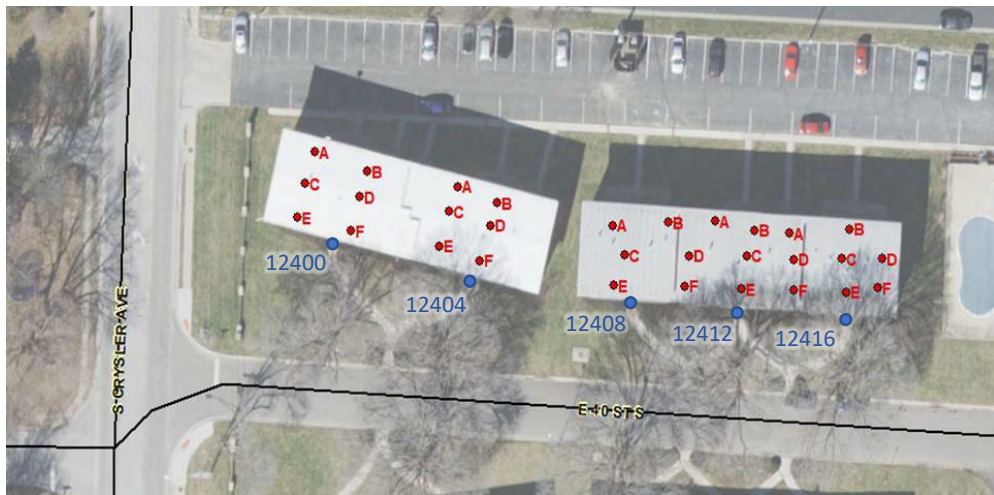


**Figure 15-7 Multiple addresses within a single structure, all with separate entrances with upper-level apartments addressed based on entrance location**

For Figure 15-6 the single structure along East Broadway Avenue is two stories. The second story apartments at both ends of the block are addressed based on their entrance locations along North Main Street and Elizabeth Street.

When addressed units share a common entrance, typical practice is to stack the address points at the shared building entrance as exactly where within the structure an individual unit is located is usually unknown. Structure address points should be placed just within the building footprint, near the shared entrance for the addressed unit. Consultation with the Core Services Provider and understanding the requirements of the local CAD software is necessary to determine whether stacked points can be used.

In Figure 15-7 below, two buildings share the same address with each building having two primary entrances. Each entrance provide access to four separate apartments. Four Structure address points are stacked at each building entrance, representing the four apartments that can be accessed through that entrance. Providing this level of detail for complicated addressing situations will help direct responders to the correct entrance, saving valuable time during an emergency.



**Figure 15-8 Multiple addresses within a single structure, sharing a common entrance**

Some 9-1-1 applications and CAD software have difficulty with subaddresses. To alleviate this issue, an address point that has only the structure address and no subaddress information can be created and placed at the structure's primary entrance. The address points with subaddress information can then be stacked on it. If subaddresses are not usable in an application, address points with populated subaddress fields can then be easily extracted from the file while still allowing other applications full use of the address points with subaddress information.

Trying to place address points exactly where individual units are located can be resource intensive to research, create, and maintain. Placement at this level of detail should be reserved for locations where knowing that level of detail will be valuable to the responders.

Large buildings may sometimes have multiple entrances with elevators located nearby that only serve specific floors. In these situations, it is important to make sure that address points are stacked at the building entrance associated with the elevator that serves their floor so that responders are directed to the correct entrance.

In rare situations, a structure may be split by a PSAP Boundary or Emergency Service Boundary. In these situations, it is critical that the address points are placed within the corresponding PSAP and Emergency Services Boundaries that services the address. This may not be at the structure entrance.

### **Multiple Structures and/or Sites that Share the Same Address**

Some properties contain multiple structures and/or sites that share the same address and are only differentiated by a number, name, or other unique identifier (e.g., medical campus, mobile home park, correctional facility, campground).

At a minimum, each structure and/or site should have its own Structure address point with subaddress fields populated so that responders can be sent to the correct location. This is especially critical when the property is split by a PSAP Boundary or Emergency Service Boundary. Address points must be placed so that calls can be routed to the correct PSAP and the appropriate emergency service providers can be identified.

To assist responders, it is often helpful to create a Property Access address point that contains only the property address (no subaddress information) and place the address point at the primary access to the property, particularly if the property is very large or the CAD software does not recognize subaddresses as unique addresses. If subaddress information is known but one is not able to identify the specific structure and/or site it is associated with, Property Access address points with subaddress information can be stacked on this access point.

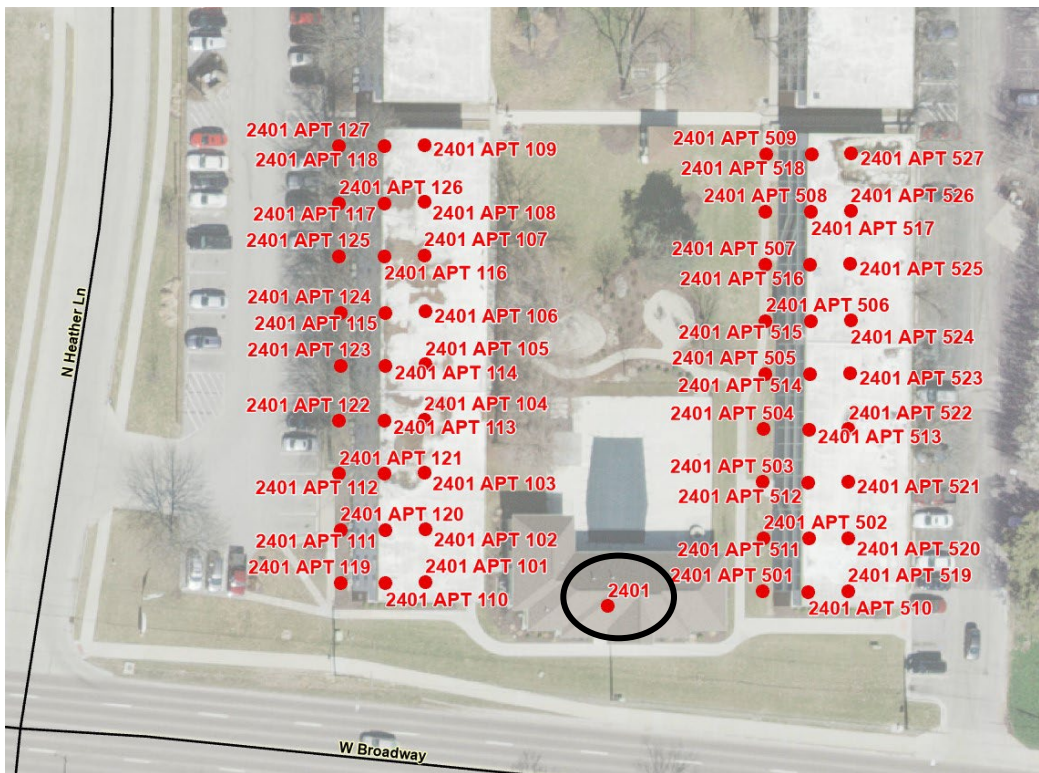
In the mobile home park in Figure 15-8 below, there is one separate unnamed driveway where the structures share the same address but have different unit numbers. For example, Lots 1-17 are all addressed as 110 East Canada Street. Structure address points with subaddress information are placed on each structure. A separate

Property Access address point with no subaddress information is placed at the driveway entrance that provide access to their specific units.



**Figure 15-9 Structures share same address but are differentiated by their unit number**

On occasion, properties containing multiple structures and/or sites that share the same address and are only differentiated by their subaddress information, may have an administrative building that carries the same address as the other units, but the administrative building does not have subaddress information. Figure 15-9 below shows an example of this situation where all structures are addressed as 2401 West Broadway but are differentiated by their apartment number, with the exception of the administrative building. It is addressed without any subaddress information.



**Figure 15-10 Administrative building has same address but no unit number as other subaddressed structures**

If the CAD system does not recognize subaddresses as unique addresses, only the Structure address point placed on the administration building will be recognized. For such a situation, consideration should be given to create an additional Property Access address point that contains only the property address (no subaddress information) to represent the access for all units at that location and place the Property Access address point at the primary access to the property.

**Multiple Properties Sharing One Address**

Large properties assigned a single address may consist of multiple parcels and even span across a road. A Structure address point for the property should be placed on the addressed structure regardless if the address conflicts with the address range odd/even parity on that side of the road. In such a case, the Structure address point would need to be flagged as an exception for Parity Checks during the QC process. If no structure exists on the addressed property, a Parcel address point should be placed on the side of the road that does not conflict with the address range odd/even parity. If there is a driveway or other main access to the property that goes to a specific feature on the property such as a swimming hole or fishing pond, a Property Access address point could be used instead of a Parcel address point.

**Transient Structures**

Mobile home parks, seasonal camps, and other addressed locations often have temporary structures that can be moved to a different location on the addressed property or be removed entirely from the property. For large properties where the temporary structure is moved frequently, a Property Access address point should be placed at the access to the property or, if there is no primary access to the property, a Parcel address point should be used.

For small areas or areas where the temporary structure is usually located when it is on the property (e.g. mobile home park, campsite), the address point can be placed where the transient structure would normally be located. To minimize maintenance of the Placement Method attribute for such situations, populate Placement Method as “Site” if the address contains subaddress information (e.g., Lot #, Unit #, etc.) and “Parcel” if there is only one address for the property. This avoids having to constantly update the record when the temporary structure is removed from the property.

## 16.4 Location Markers

Mile posts, trail head marker, trail intersection markers, and other location markers provide a valuable reference for 9-1-1 callers when a civic address location is unavailable. If these locations will be used for call routing purposes, they can be represented as an address point in the Site/Structure Address Points dataset by populating the Mile\_Post field instead of, or in addition to, the Address Number fields. Alternatively, they can be placed in a Mile Marker layer that can be referenced by the telecommunicator. This is a recommended layer in the NENA Standard for NG9-1-1 GIS Data Model [1], but it is not used for the Emergency Call Routing or Location Validation Functions. Development and maintenance of these features and their associated layers is an important consideration when deciding how to represent them in the NG9-1-1 GIS data.

## 16.5 Military Bases

Military bases may or may not have their own PSAP and responsibility for emergency services. In most cases, they will share street name information with the local 9-1-1 jurisdiction but may not provide address specific information. It is recommended that the local 9-1-1 jurisdiction reach out to the military facility and work directly with them to obtain the most current information they are willing to provide. Some may share their address information but restrict usage for 9-1-1 operations only, not allowing the data to be publicly shared.

Local 9-1-1 jurisdictions having difficulties obtaining address information from military bases should reach out to the Missouri 9-1-1 Services Board for contact information (<https://www.missouri911.org>).

## 17 Items Pending Future Work

The following items require additional research and/or development work:

- Maintenance of domains used within Missouri
- Development of an Alias Street Names table
- Create a list of standardized QC exception codes and descriptions level in conjunction with the NG Core Service provider
- Discuss data sharing and add language to the Missouri GIS Data Standard and Best Practices once a policy is in place.
- Monitor changes to the NENA Site/Structure Address Point Placement Method Registry [17]
- Monitor changes to NENA Civic Location Data Exchange Format (CLDXF) [12]
- Monitor changes to NENA Standard for NG9-1-1 GIS Data Model [1]
- Monitor work and output of NENA 3D GIS workgroup

## 18 Terminology

Unless otherwise noted, the following terms are a subset of terms defined in the NENA Master Glossary of 9-1-1 Terminology [14] or the NENA Standard for NG9-1-1 GIS Data Model [1].

<b>Term or Abbreviation</b>	<b>Definition / Description</b>
<i>Addressing Authority</i>	An Addressing Authority is a local, military, or county department responsible for issuing addresses and reconciling addressing discrepancies, through administrative procedures, to locations within its jurisdiction. The local and county authority is provided by state statute for the specific purpose of aiding in fire protection, emergency services, and civil defense.
<i>ALI (Automatic Location Identification)</i>	The automatic display at the PSAP of the caller's telephone number, the address/location of the telephone and supplementary emergency services information of the location from which a call originates.
<i>BCF (Border Control Function)</i>	Provides a secure entry into the ESInet for emergency calls presented to the network. The BCF incorporates firewall, admission control, and may include anchoring of session and media as well as other security mechanisms to prevent deliberate or malicious attacks on PSAPs or other entities connected to the ESInet
<i>CAD (Computer Aided Dispatch)</i>	A computer-based system, which aids PSAP Telecommunicators by automating selected dispatching and record keeping activities.
<i>CLDXF (Civic Location Data Exchange Format)</i>	A United States emergency services profile of PIDF-LO that defines a set of data elements that describe detailed street address information.
<i>Data Domain</i>	An enumerated listing or range of valid values that may be used as an attribute. If no Data Domain is provided, then any value that meets the format criteria may be used.
<i>DHCP (Dynamic Host Configuration Protocol)</i>	A widely used configuration protocol that allows a host to acquire configuration information from a visited network and, in particular, an IP address.
<i>DNS (Domain Name System)</i>	A globally distributed database for the resolution of host names to numeric IP addresses.
<i>ECRF (Emergency Call Routing Function)</i>	A functional element in an NGCS (Next Generation 9-1-1 Core Services) which is a LoST protocol server where location information (either civic address or geo-coordinates) and a Service URN serve as input to a mapping function that returns a URI used to route an emergency call toward the appropriate PSAP for the caller's location or towards a responder agency.
<i>ESInet (Emergency Services IP Network)</i>	A 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 NG9-1-1 services. ESInets may be constructed from a mix of dedicated and shared facilities. ESInets may be interconnected at local, regional, state, federal, national and international levels to form an IP-based inter-network (network of networks). The term ESInet designates the network, not the services that ride on the network.



Term or Abbreviation	Definition / Description
ESRP (Emergency Service Routing Proxy)	<p>An i3 functional element which is a SIP proxy server that 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 NG9-1-1 PSAP. There may be one or more intermediate ESRPs between them.</p> <ul style="list-style-type: none"> <li>• Originating ESRP: The first routing element within the Next Generation Core Services (NGCS). It receives calls from the BCF at the edge of the ESInet.</li> <li>• Terminating ESRP: The last ESRP for a call in NGCS.</li> </ul>
<i>GCS (Geocode Service)</i>	<p>A web-based i3 service that provides two functions: Geocoding and reverse-geocoding. Geocoding takes a PIDF-LO, which contains a civic address and returns a PIDF-LO containing a geodetic representation for the same location; reverse-geocoding takes a PIDF-LO, which contains a geodetic representation and returns a PIDF-LO that contains a civic address for the same location.</p>
<i>i3</i>	<p>A shorthand term for a version of a NENA technical architecture that introduces the concept of an Emergency Services IP network (ESInet), which is designed as an IP-based inter-network (network of networks) shared by all agencies which may be involved in any emergency. An interim version of the NENA E9-1-1 architecture evolving to an IP infrastructure is referred to as 'i2'.</p>
<i>LoST (Location-to-Service Translation) Protocol</i>	<p>A protocol that takes location information and a Service URN and returns a URI. Used generally for location-based call routing. In NG9-1-1, used as the protocol for the ECRF and LVF.</p>
<i>LVF (Location Validation Function)</i>	<p>A functional element in an NGCS that is a LoST protocol server where civic location information is validated against the authoritative GIS database information. A civic address is considered valid if it can be located within the database uniquely, is suitable to provide an accurate route for an emergency call and adequate and specific enough to direct responders to the right location.</p>
<i>MCS (MSAG Conversion Service)</i>	<p>A web service providing conversion between Presence Information Data Format-Location Object (PIDF-LO) and Master Street Address Guide (MSAG) data.</p>
<i>MDS (Mapping Data Service)</i>	<p>A service that returns images or features stored in a GIS that can be used to create a display for a telecommunicator or facilitate spatial analyses. Often used to provide maps for handling out of area calls, the Mapping Data Service can also be used locally to provide a single, uniform map display for all functional elements in a PSAP that require maps.</p>
<i>MSAG (Master Street Address Guide)</i>	<p>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.</p>

Term or Abbreviation	Definition / Description
<i>NENA (National Emergency Number Association)</i>	<p>NENA, also referred to as The 9-1-1 Association, is fully dedicated to the continued improvement and modernization of the 9-1-1 emergency communication system. NENA's approach includes research, standards development, training, education, certification, outreach, and advocacy through communication with stakeholders. As an ANSI-accredited Standards Developer, NENA works with 9-1-1 professionals, public policy leaders, emergency services and telecommunications industry partners, like-minded public safety associations, and more. Current NENA activities center on awareness, documentation, and implementation for Next Generation 9-1-1 (NG9-1-1) and international three-digit emergency communication systems.</p> <p>See <a href="http://www.nena.org">www.nena.org</a>.</p>
<i>NG9-1-1 (Next Generation 9-1-1 Services)</i>	<p>A secure, IP-based, open-standards system comprised of hardware, software, data, and operational policies and procedures that</p> <ul style="list-style-type: none"> <li>(A) provides standardized interfaces from emergency call and message services to support emergency communications;</li> <li>(B) processes all types of emergency calls, including voice, text, data, and multimedia information;</li> <li>(C) acquires and integrates additional emergency call data useful to call routing and handling;</li> <li>(D) delivers the emergency calls, messages, and data to the appropriate public safety answering point and other appropriate emergency entities based on the location of the caller;</li> <li>(E) supports data, video, and other communications needs for coordinated incident response and management; and</li> <li>(F) interoperates with services and networks used by first responders to facilitate emergency response.</li> </ul> <p>Ref: Agreed to by NENA, NASNA, iCERT, and the National 9-1-1 Office representatives on 01/12/2018.</p>
<i>NGCS (NG9-1-1 Core Services)</i>	<p>The base set of services needed to process a 9-1-1 call on an ESInet. Includes:</p> <ul style="list-style-type: none"> <li>• Emergency Services Routing Proxy (ESRP)</li> <li>• Emergency Call Routing Function (ECRF)</li> <li>• Location Validation Function (LVF)</li> <li>• Boarder Control Function (BCF)</li> <li>• Bridge</li> <li>• Policy Store</li> <li>• Logging Services</li> <li>• Domain Name System (DNS)</li> <li>• Dynamic Host Configuration Protocol (DHCP)</li> </ul> <p>The term NG9-1-1 Core Services includes the services and not the network on which they operate.</p>
<i>PIDF-LO (Presence Information Data Format – Location Object)</i>	<p>Provides a flexible and versatile means to represent location information in a SIP header using an XML schema.</p>
Policy Store	<p>A functional element in the ESInet that stores policy documents/rules.</p>

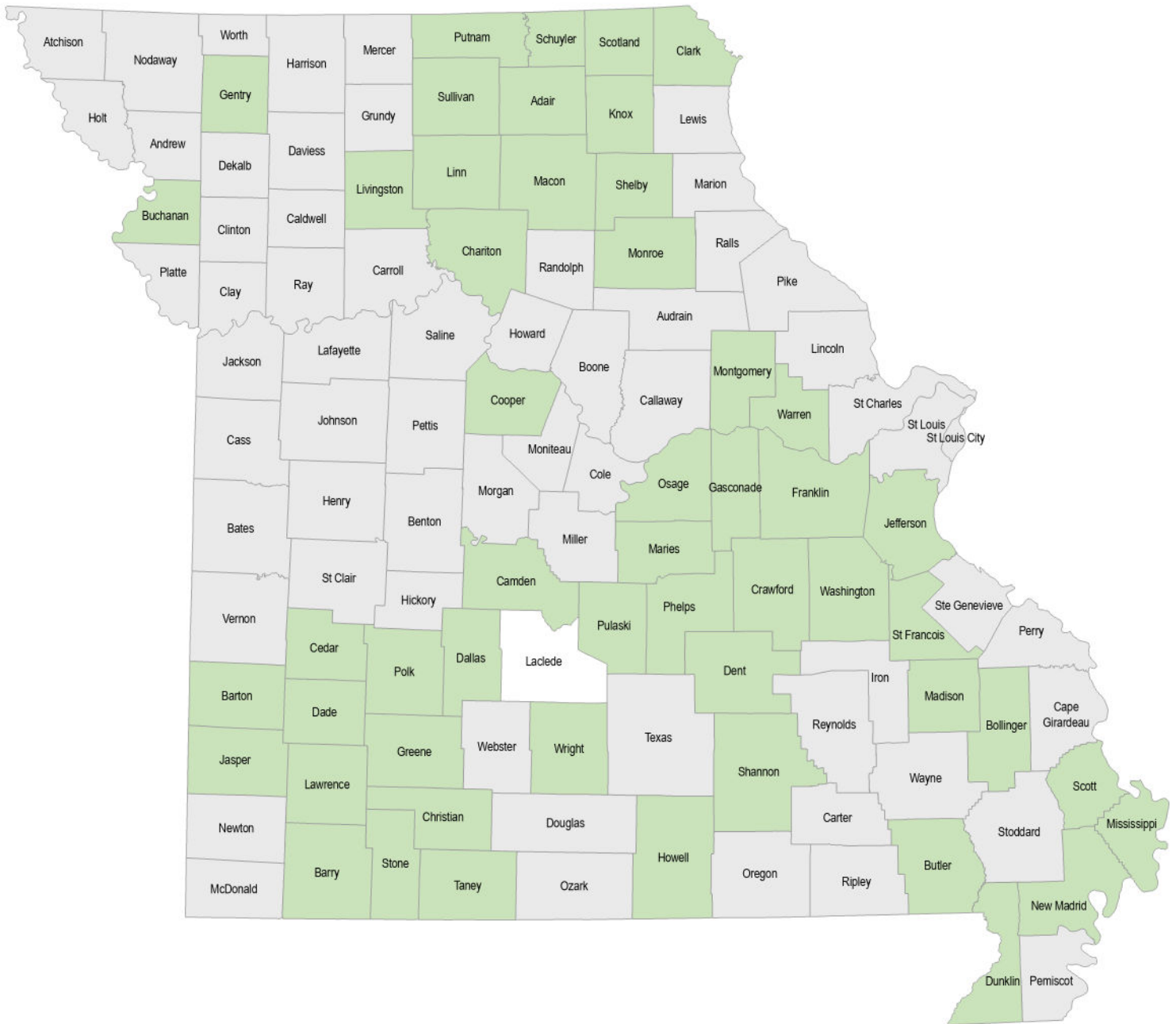
Term or Abbreviation	Definition / Description
PSAP (Public Safety Answering Point)	<p>An entity responsible for receiving 9-1-1 calls and processing those calls according to a specific operational policy.</p> <p>Variations:</p> <ul style="list-style-type: none"> <li>• Primary PSAP: A PSAP to which 9-1-1 calls are routed directly from the 9-1-1 Control Office.</li> <li>• Secondary PSAP: A PSAP to which 9-1-1 calls are transferred from a Primary PSAP.</li> <li>• Alternate PSAP: A PSAP designated to receive calls when the primary PSAP is unable to do so.</li> <li>• Consolidated PSAP: A facility where multiple Public Safety Agencies choose to operate as a single 9-1-1 entity.</li> <li>• Legacy PSAP: A PSAP that cannot process calls received via i3-defined call interfaces (IP-based calls) and still requires the use of CAMA or ISDN trunk technology for delivery of 9-1-1 emergency calls.</li> <li>• Serving PSAP: The PSAP to which a call would normally be routed.</li> <li>• NG9-1-1 PSAP: This term is used to denote a PSAP capable of processing calls and accessing data services as defined in NENA's i3 specification, NENA NENA-STA-010, and referred to therein as an "i3 PSAP".</li> </ul>
<i>Registry</i>	A single place for keeping valid data values associated with a specific data element.
<i>SI (Spatial Interface)</i>	A standardized NG9-1-1 interface between the GIS data and the functional elements that consume GIS data, such as the ECRF/LVF, Map Database Services, etc.
<i>Street Naming Authority</i>	A Street Naming Authority is the local, military, or county department responsible for approving or issuing street names and reconciling street name discrepancies, through resolution or ordinance, to public streets and private driveways within its jurisdiction. The local and county authority is provided by state statute for the specific purpose of aiding in fire protection, emergency services, and civil defense.
<i>URI (Uniform Resource Identifier)</i>	An identifier consisting of a sequence of characters matching the syntax rule that is named <URI> in RFC 3986 [3]. It enables uniform identification of resources via a set of naming schemes. A URI can be further classified as a locator (URL), a name (URN), or both. A Uniform Resource Locator (URL) is a type of URI that provides a means of locating the resource by describing its primary access mechanism (e.g., its network "location"). An example of a URI that is neither a URL nor a URN is sip:psap@example.com.
<i>URN (Uniform Resource Name)</i>	A type of URI (Uniform Resource Identifier). URNs are intended to serve as persistent, location-independent, resource identifiers and are designed to make it easy to map other namespaces (which share the properties of URNs) into URN-space. An example of a URN is urn:service.sos.
<i>WGS 84 (World Geodetic System 1984)</i>	The reference coordinate system used by the Global Positioning Systems and in cartography and navigation.

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# NG911 Implementation Director Contacts

## NG911 Equipment and Consolidation Efforts



## VERY HIGH-LEVEL OVERVIEW OF COUNTY DISCUSSIONS AND IN-PERSON VISITS SCOTT HAS HAD REFERENCE NG911 AND GRANT OPTIONS: **UPDATES FOR 6/27/23 BOARD MEETING**

Mercy Springfield: Discussions with Bob Patterson and an InDigital Quote delivered for Mercy service ESInet for the following Counties: STONE, BARRY, LAWRENCE, JASPER, GREENE, DALLAS, LACLEADE, CAMDEN, WRIGHT, SHANNON AND PARTS OF TEXAS AND HOWELL COUNTIES. (Scott and Brian)

SCOTT COUNTY: Discussion's with Scott County, Sikeston DPS and Scott City regarding their current 911 sales tax implementation and go-forward options for the county. (Scott, Brian and MCP) **Update:** Scott, Brian and MCP met with Scott County 911, Scott City PD and Sikeston DPS. There is good go forward progress being made and I can discuss further if needed. There are still some issues being worked out with the Sheriff.

MISSISSIPPI COUNTY: Discussions with Bob Hearnese and Emily Pullen reference NG911 grants and current quotes they received for equipment. A go-forward plan has been established. (Scott, Brian and MCP)

BOLLINGER COUNTY: Discussion with Sheriff Casey Graham reference NG911 grant PSAP survey and next steps discussion. Note: Bollinger is also interested in full consolidation with St. Francois County. (Scott) **Update:** further discussions have taken place with St. Francois County and Perry county to assume full consolidation efforts. Scott will be setting up on-going meetings and building a road map for this to happen.

MADISON COUNTY: Discussion with Tessa Rehkop chamber of commerce and E-911 director Kyle Rogers reference NG911 Grant funding for equipment and the process. Also, virtual consolidation was discussed with St. Francois County. (Scott and Brian) **Update:** further discussions in-person with Scott, Brian and MCP with the director and presiding commissioner. Equipment quotes and further discussions are on-going.

STONE COUNTY: Discussion with Director Keith Kinnard who was asked to coordinate looking into a group virtual ESInet for the following counties: STONE, BARRY, CHRISTIAN, DADE, DALLAS AND TANEY COUNTIES TO ALSO INCLUDE BRANSON PD AND TANEY COUNTY AMBULANCE DISTRICT (TCAD). Vendors were contacted by Scott to set up meetings and demos for this group to look at options. (Scott) **Update:** Multiple vendors have been contacted and are sending quotes to this group to make go-forward decisions.

BARTON COUNTY: Discussions with county commissioner David Johnson reference the NG911 grant process and needed equipment to apply for. Also discussed virtual consolidation options to join the Polk County ESInet. Go-forward meetings have been set. (Scott and Brian) **Update:** Scott has had multiple conversations with commissioner Johnson. They are currently exploring forming a 911 board with a sales tax revenue structure and have started this process with an advisory committee. I will be helping facilitate this process and meetings and advising best practices. They have also been working with their county attorney. I can go into further detail if requested.

POLK COUNTY/CEDAR COUNTY: Meeting set for discussion that took place to possibly virtually consolidate Eldorado Springs PD back into the Polk County ESInet. (Scott) **Update:** Scott and Sarah Newell met with the Eldorado Springs police chief and he will be moving forward with applying as an addition to the Polk County ESINET. Sarah Newell will also be assisting with this project.

FRANKLIN COUNTY: Discussion had with Franklin County, Pacific PD and Washington PD to discuss NG911 grant options and current funding issues within the county. Also discussed virtual consolidation options and vendor demos were set up for the county. (Scott and Brian) **Update:** Scott, Brian and MCP met with Franklin county and AT&T and Intrado for a product demonstration per director Abe Cooks request. Jefferson County was also in the demo. Multiple quotes for equipment and ESINET proposals have been sent to Franklin county to decide next steps with.

DENT COUNTY/SALEM PD: Discussions had with the sheriff, police chief and city and county officials to bring Dent County up NG911 capabilities. Next steps will be the MCP report and meetings will be set for further discussions. (Scott, Brian and MCP) **Update:** Scott will be meeting with Dent county this week to give them a progress report with MCP.

PHELPS COUNTY: Initial phone conversation has taken place with Director Stacy Smith to set up a meeting to discuss the NG911 grant. (Scott) **Update:** 6/18 Phelps added to a proposed ESINET with Gasconade.

GASCONADE COUNTY: Discussion has been had with Director Lisa Schlottach to see if we can engage with MARIES AND OSAGE Counties to start looking into a possible virtual consolidation between the three counties. (Scott ) **Update:** 6/18 Crawford, Phelps and Pulaski have entered into possible ESINET virtual consolidation meetings along with Maries and Osage and Gasconade.

WASHINGTON COUNTY: Discussion with Director Donnie Sanderson reference NG911 grant funding for upgraded equipment as well as meeting regarding a possible virtual consolidation with St. Francois County. ATOS is putting together a quote currently to see what that would look like. (Scott) **Update:** 6/14 Washington County has an ATOS quote and is putting together grant equipment needs.

WARREN AND MONTGOMERY COUNTIES: Discussions had with both directors reference NG911 grant funding and possible ESInet virtual consolidation and shift sharing. Both directors will be discussing these options with their perspective boards and meetings to discuss further will be set going forward. (Scott and Brian) **Update:** Both boards have had discussions, Virtual consolidation quotes have been put together and short term staffing issues are still being discussed for Warren.

COOPER COUNTY: Phone conversations with Ron McCord reference the NG911 grant and the ability to enhance 911 capabilities and GIS capabilities for their county. Meetings have not been set yet. (Scott and Brian)

NEW MADRID AND PEMISCOT COUNTIES: Initial phone conversations have been had with Kallie Turner regarding both counties NG911 capabilities and grant options. Further meetings have not been set yet. (Scott) **Update:** Scott will be meeting with Kallie Turner this week.

DUNKLIN COUNTY: Initial phone conversation between Scott and director Mike McCammon have been had discussing the NG911 grant and his counties needs. A next steps meeting has not been set yet. **Update:** Scott met with director Mike McCammon who was asking what the grant funds could be used for. he also has interest in working on some virtual consolidation efforts with surrounding counties.

CRAWFORD COUNTY: Scott met with Director Brad England to discuss possible qualifying equipment upgrades for the upcoming NG911 Grant cycle. (Scott)

HOWELL AND WRIGHT COUNTIES: Discussion with both Nate Franks and Jeff Holman regarding the currently grant funded NG911 project they are working on. Questions answered to this point and information sent to Nate Franks. (Scott)

MONROE COUNTY: Phone messages sent to Director Blair Joiner for a call back reference NG911 needs and the possibility of joining the NE Missouri ESInet. (Scott)

**NEW:**

CLARK COUNTY: Scott met in person with Sheriff Shawn Webster and his dispatch supervisor along with MCP who was virtual. There was in-depth discussion regarding their current infrastructure as well as what steps can be taken to move to NG911 capability. Clark is currently filling out a PSAP survey and we also have a go-forward meeting with the vendor A&W communications to ensure the quote that was given to Clark County will be compatible with NG911 standards. This is currently a red county but, at this time the Sheriff and commissioners have a better understanding of NG911 and are wanting to move forward with grant assistance. They also would like to join the NW Missouri ESINET going forward.

SHELBY COUNTY: Scott met with Stacy Helmick, 911 director and the county commissioners in their commissioners meeting. Scott was asked to review several quotes they have received as well as help them move forward with Joining the NW Missouri ESINET. This meeting went very well and they will be moving forward with grant application asks.

SULLIVAN COUNTY: Scott met with Cindy Allen, 911 director. Cindy asked for help filling out the PSAP survey and had questions about what an ESINET was and how she could get involved with the progress in her surrounding counties. Scott explained how the grant process worked and looked at her current 911 environment. Scott will be doing some vendor introductions for her and helping her with multiple NG911 upgrades going forward.



# Missouri 911 Service Board

## Profit and Loss YTD Comparison

July 2022 - May 2023

	TOTAL			
	JUL 2022 - MAY 2023	JUL 2021 - MAY 2022 (PY)	CHANGE	% CHANGE
<b>Income</b>				
911 Service Income	3,799,507.69	4,021,086.96	-221,579.27	-5.51 %
988 (DMH Consulting)	4,932.25		4,932.25	
Federal Grant		188,052.91	-188,052.91	-100.00 %
<b>Investments</b>				
Interest-Savings, Short-term CD		4,235.20	-4,235.20	-100.00 %
<b>Total Investments</b>		<b>4,235.20</b>	<b>-4,235.20</b>	<b>-100.00 %</b>
MO DOR Funds for System Updates		312,675.00	-312,675.00	-100.00 %
<b>Other Types of Income</b>				
Interest Income-Checking	9,010.77		9,010.77	
Miscellaneous Revenue	1,395.74	40.00	1,355.74	3,389.35 %
Rebate-Business Credit Card	72.70		72.70	
<b>Total Other Types of Income</b>	<b>10,479.21</b>	<b>40.00</b>	<b>10,439.21</b>	<b>26,098.03 %</b>
<b>Total Income</b>	<b>\$3,814,919.15</b>	<b>\$4,526,090.07</b>	<b>\$ -711,170.92</b>	<b>-15.71 %</b>
<b>GROSS PROFIT</b>	<b>\$3,814,919.15</b>	<b>\$4,526,090.07</b>	<b>\$ -711,170.92</b>	<b>-15.71 %</b>
<b>Expenses</b>				
<b>Board Expense</b>				
Conferences	250.00	1,705.10	-1,455.10	-85.34 %
Meals	99.56	410.73	-311.17	-75.76 %
Mileage		751.41	-751.41	-100.00 %
Travel	401.25	2,729.67	-2,328.42	-85.30 %
<b>Total Board Expense</b>	<b>750.81</b>	<b>5,596.91</b>	<b>-4,846.10</b>	<b>-86.59 %</b>
<b>Board Priorities</b>				
Grants		2,475,794.69	-2,475,794.69	-100.00 %
Support Systems		500.00	-500.00	-100.00 %
<b>Total Board Priorities</b>		<b>2,476,294.69</b>	<b>-2,476,294.69</b>	<b>-100.00 %</b>
<b>Contract Services</b>				
911 Campaign Expenses	6,450.38		6,450.38	
Telecommunicator Job Marketing	42,730.60		42,730.60	
<b>Total 911 Campaign Expenses</b>	<b>49,180.98</b>		<b>49,180.98</b>	
Accounting Fees	2,885.05	9,364.06	-6,479.01	-69.19 %
Attorney fees	18,738.00	14,665.50	4,072.50	27.77 %
Auditor		3,760.00	-3,760.00	-100.00 %
Government Affairs	77,000.00		77,000.00	
Insurance - Crime	1,952.00	5,819.00	-3,867.00	-66.45 %
Management Services	105,600.00	154,800.00	-49,200.00	-31.78 %
Outside Contract Services	13,273.28	12,050.00	1,223.28	10.15 %
Regional Coordination	47,300.00	55,900.00	-8,600.00	-15.38 %
Travel	1,513.27		1,513.27	
<b>Total Contract Services</b>	<b>317,442.58</b>	<b>256,358.56</b>	<b>61,084.02</b>	<b>23.83 %</b>





# Missouri 911 Service Board

## Profit and Loss YTD Comparison

July 2022 - May 2023

	TOTAL			
	JUL 2022 - MAY 2023	JUL 2021 - MAY 2022 (PY)	CHANGE	% CHANGE
Emergency Telephone Number Fund	-0.05		-0.05	
1st Class Counties				
Jackson County	191,072.48	200,631.73	-9,559.25	-4.76 %
St. Charles County	75,399.41	92,087.64	-16,688.23	-18.12 %
St. Louis City	97,843.49	131,609.93	-33,766.44	-25.66 %
St. Louis County	185,744.40	250,165.86	-64,421.46	-25.75 %
<b>Total 1st Class Counties</b>	<b>550,059.78</b>	<b>674,495.16</b>	<b>-124,435.38</b>	<b>-18.45 %</b>
Other Counties				
Adair County	6,524.91	7,377.84	-852.93	-11.56 %
Andrew County	2,694.49	3,453.24	-758.75	-21.97 %
Atchison County	1,010.32	1,130.44	-120.12	-10.63 %
Audrain County	3,987.08	2,410.85	1,576.23	65.38 %
Barry County	9,862.18	3,905.75	5,956.43	152.50 %
Barton County	7,196.63	8,145.65	-949.02	-11.65 %
Bates County	12,021.56	12,712.54	-690.98	-5.44 %
Benton County	12,595.74	14,469.66	-1,873.92	-12.95 %
Bollinger County	6,731.95	8,764.28	-2,032.33	-23.19 %
Boone County	40,183.17	46,496.72	-6,313.55	-13.58 %
Buchanan County	27,285.77	31,450.01	-4,164.24	-13.24 %
Butler County	24,529.70	29,046.19	-4,516.49	-15.55 %
Caldwell County	4,699.15	8,350.36	-3,651.21	-43.73 %
Callaway County	13,720.68	16,695.01	-2,974.33	-17.82 %
Camden County	19,926.85	22,645.30	-2,718.45	-12.00 %
Cape Girardeau	27,464.36	32,907.42	-5,443.06	-16.54 %
Carroll County	1,080.34	927.09	153.25	16.53 %
Carter County	2,176.67	2,663.88	-487.21	-18.29 %
Cass County	6,697.67	8,253.08	-1,555.41	-18.85 %
Cedar County	11,649.11	14,004.92	-2,355.81	-16.82 %
Chariton County	1,294.30	2,097.21	-802.91	-38.28 %
Christian County	12,168.81	12,172.29	-3.48	-0.03 %
City of Sikeston	2,800.51	3,796.83	-996.32	-26.24 %
Clark County	745.52	726.12	19.40	2.67 %
Clay County	36,621.73	45,639.13	-9,017.40	-19.76 %
Clinton County	4,450.48	5,051.28	-600.80	-11.89 %
Cole County	15,466.81	18,602.76	-3,135.95	-16.86 %
Cooper County	7,729.55	9,664.37	-1,934.82	-20.02 %
Crawford 911	10,598.58	12,593.98	-1,995.40	-15.84 %
Dade County	2,233.93	1,392.69	841.24	60.40 %
Dallas County	2,539.36	1,861.33	678.03	36.43 %
Daviness County	466.16	495.85	-29.69	-5.99 %
DeKalb County	7,727.87	6,145.31	1,582.56	25.75 %



# Missouri 911 Service Board

## Profit and Loss YTD Comparison

July 2022 - May 2023

	TOTAL			
	JUL 2022 - MAY 2023	JUL 2021 - MAY 2022 (PY)	CHANGE	% CHANGE
Dent County	7,581.40	9,376.59	-1,795.19	-19.15 %
Douglas County	12,911.16	14,644.85	-1,733.69	-11.84 %
Dunklin County	17,035.33	19,276.40	-2,241.07	-11.63 %
Franklin County	34,015.95	42,299.68	-8,283.73	-19.58 %
Gasconade 911	6,160.07	6,737.17	-577.10	-8.57 %
Gentry County	1,518.99	1,850.40	-331.41	-17.91 %
Greene County	116,347.18	134,689.64	-18,342.46	-13.62 %
Grundy County	5,078.48	6,295.19	-1,216.71	-19.33 %
Harrison County	5,376.56	5,485.16	-108.60	-1.98 %
Henry County	5,664.59	3,407.89	2,256.70	66.22 %
Hickory County	7,207.42	7,953.09	-745.67	-9.38 %
Holt County	739.73	844.63	-104.90	-12.42 %
Howard County	3,102.41	3,725.75	-623.34	-16.73 %
Howell County	7,505.65	3,884.23	3,621.42	93.23 %
Iron County	3,555.62	4,615.25	-1,059.63	-22.96 %
Jasper County	49,188.34	53,570.07	-4,381.73	-8.18 %
Jefferson County	22,748.35	23,308.46	-560.11	-2.40 %
Johnson County	4,363.89	2,368.60	1,995.29	84.24 %
Knox County	347.30	433.58	-86.28	-19.90 %
Laclede County	22,673.65	24,812.30	-2,138.65	-8.62 %
Lafayette County	11,339.87	13,070.86	-1,730.99	-13.24 %
Lawrence 911	32,706.86	36,113.98	-3,407.12	-9.43 %
Lewis County E911	2,759.72	3,133.89	-374.17	-11.94 %
Lincoln County	11,992.54	14,729.67	-2,737.13	-18.58 %
Linn County E 911	3,011.94	3,188.63	-176.69	-5.54 %
Livingston County	9,115.17	9,386.96	-271.79	-2.90 %
Macon County	3,867.80	3,846.32	21.48	0.56 %
Madison County	5,966.28	7,021.28	-1,055.00	-15.03 %
Maries County	2,178.76	2,596.27	-417.51	-16.08 %
Marion County 911	6,494.01	7,902.91	-1,408.90	-17.83 %
McDonald County	5,232.69	2,257.96	2,974.73	131.74 %
Mercer County	2,228.52	1,960.18	268.34	13.69 %
Miller	10,600.16	12,387.17	-1,787.01	-14.43 %
Mississippi County	4,281.65	4,604.66	-323.01	-7.01 %
Moniteau 911	4,863.02	5,477.77	-614.75	-11.22 %
Monroe County	1,095.38	1,166.04	-70.66	-6.06 %
Montgomery County	4,290.81	5,085.52	-794.71	-15.63 %
Morgan County	9,476.00	9,882.77	-406.77	-4.12 %
New Madrid County	13,119.41	14,987.80	-1,868.39	-12.47 %
Newton County	41,636.81	47,107.59	-5,470.78	-11.61 %
Nodaway County	2,965.67	3,547.47	-581.80	-16.40 %



# Missouri 911 Service Board

## Profit and Loss YTD Comparison

July 2022 - May 2023

	TOTAL			
	JUL 2022 - MAY 2023	JUL 2021 - MAY 2022 (PY)	CHANGE	% CHANGE
Oregon County	4,872.38	5,442.48	-570.10	-10.48 %
Osage County	271.48	302.22	-30.74	-10.17 %
Ozark County	7,320.52	8,280.74	-960.22	-11.60 %
Pemiscot County	7,214.91	8,608.53	-1,393.62	-16.19 %
Perry County	8,172.45	9,283.73	-1,111.28	-11.97 %
Pettis County	21,727.07	23,397.66	-1,670.59	-7.14 %
Phelps County 911	15,827.58	17,867.20	-2,039.62	-11.42 %
Pike County 911	7,396.25	8,612.99	-1,216.74	-14.13 %
Platte County	0.00	514.67	-514.67	-100.00 %
Polk 911	24,762.98	25,371.10	-608.12	-2.40 %
Pulaski County 911	13,996.05	16,815.63	-2,819.58	-16.77 %
Putnam County	1,359.37	1,598.65	-239.28	-14.97 %
Ralls County 911	3,158.24	3,587.89	-429.65	-11.98 %
Randolph County	4,994.98	5,169.79	-174.81	-3.38 %
Ray County 911	15,105.33	16,368.98	-1,263.65	-7.72 %
Reynolds County	1,821.51	2,337.53	-516.02	-22.08 %
Ripley County	7,309.10	7,539.98	-230.88	-3.06 %
Saline County	2,626.18	1,770.25	855.93	48.35 %
Schuyler County	722.83	771.58	-48.75	-6.32 %
Scotland County	748.92	835.37	-86.45	-10.35 %
Scott County	7,019.87	8,285.40	-1,265.53	-15.27 %
Shannon County	2,035.63	2,540.87	-505.24	-19.88 %
Shelby County	371.25	371.66	-0.41	-0.11 %
St. Clair County	6,465.55	7,224.60	-759.05	-10.51 %
St. Francois County 911	22,484.08	27,066.62	-4,582.54	-16.93 %
Ste. Genevieve County	4,301.46	5,262.08	-960.62	-18.26 %
Stoddard County	18,152.90	20,852.16	-2,699.26	-12.94 %
Stone County	5,664.77	2,701.05	2,963.72	109.72 %
Sullivan County	641.57	871.41	-229.84	-26.38 %
Taney County	31,869.34	35,784.54	-3,915.20	-10.94 %
Texas County	15,336.11	16,690.22	-1,354.11	-8.11 %
Vernon County	18,726.41	20,408.26	-1,681.85	-8.24 %
Warren County 911	5,787.20	5,206.24	580.96	11.16 %
Warrenton County	716.15	780.86	-64.71	-8.29 %
Washington County 911	9,127.54	11,131.12	-2,003.58	-18.00 %
Wayne County	7,012.34	8,251.55	-1,239.21	-15.02 %
Webster County	3,186.38	2,353.61	832.77	35.38 %
Worth County	491.97	565.89	-73.92	-13.06 %
Wright County 911	3,303.82	2,521.71	782.11	31.02 %
<b>Total Other Counties</b>	<b>1,181,329.55</b>	<b>1,318,430.83</b>	<b>-137,101.28</b>	<b>-10.40 %</b>
<b>Total Emergency Telephone Number Fund</b>	<b>1,731,389.28</b>	<b>1,992,925.99</b>	<b>-261,536.71</b>	<b>-13.12 %</b>



# Missouri 911 Service Board

## Profit and Loss YTD Comparison

July 2022 - May 2023

	TOTAL			
	JUL 2022 - MAY 2023	JUL 2021 - MAY 2022 (PY)	CHANGE	% CHANGE
Employee Expenses				
Cell Phone	1,246.05	1,107.60	138.45	12.50 %
Employee Mileage	2,605.33		2,605.33	
Insurance - Work Comp	3,763.00	1,575.00	2,188.00	138.92 %
Payroll Taxes	9,343.54	8,052.77	1,290.77	16.03 %
Salary Expense	115,500.00	102,000.00	13,500.00	13.24 %
Travel & Meetings	5,512.59		5,512.59	
<b>Total Employee Expenses</b>	<b>137,970.51</b>	<b>112,735.37</b>	<b>25,235.14</b>	<b>22.38 %</b>
NG911 Federal Grant Expenses	4,480.25	390,998.83	-386,518.58	-98.85 %
Lodging		1,712.86	-1,712.86	-100.00 %
Meals		1,638.25	-1,638.25	-100.00 %
Travel		5,399.84	-5,399.84	-100.00 %
<b>Total NG911 Federal Grant Expenses</b>	<b>4,480.25</b>	<b>399,749.78</b>	<b>-395,269.53</b>	<b>-98.88 %</b>
Office Expense				
Dues & Fees	210.90		210.90	
Postage	156.00	118.00	38.00	32.20 %
Printing and Copying	918.02	400.25	517.77	129.36 %
Supplies	2,704.42	517.82	2,186.60	422.27 %
Website & Technology	12,888.54	3,751.17	9,137.37	243.59 %
<b>Total Office Expense</b>	<b>16,877.88</b>	<b>4,787.24</b>	<b>12,090.64</b>	<b>252.56 %</b>
Other Types of Expenses				
Bank Charges	2,070.72	406.75	1,663.97	409.09 %
<b>Total Other Types of Expenses</b>	<b>2,070.72</b>	<b>406.75</b>	<b>1,663.97</b>	<b>409.09 %</b>
Training & Education				
Scholarships		2,000.00	-2,000.00	-100.00 %
Training	97,768.00	54,066.00	43,702.00	80.83 %
<b>Total Training &amp; Education</b>	<b>97,768.00</b>	<b>56,066.00</b>	<b>41,702.00</b>	<b>74.38 %</b>
<b>Total Expenses</b>	<b>\$2,308,750.03</b>	<b>\$5,304,921.29</b>	<b>\$ -2,996,171.26</b>	<b>-56.48 %</b>
NET OPERATING INCOME	<b>\$1,506,169.12</b>	<b>\$ -778,831.22</b>	<b>\$2,285,000.34</b>	<b>293.39 %</b>
Other Income				
MO Discount	97.23	104.20	-6.97	-6.69 %
<b>Total Other Income</b>	<b>\$97.23</b>	<b>\$104.20</b>	<b>\$ -6.97</b>	<b>-6.69 %</b>
Other Expenses				
Reserve Transfer	627,521.19		627,521.19	
<b>Total Other Expenses</b>	<b>\$627,521.19</b>	<b>\$0.00</b>	<b>\$627,521.19</b>	<b>0.00%</b>
NET OTHER INCOME	<b>\$ -627,423.96</b>	<b>\$104.20</b>	<b>\$ -627,528.16</b>	<b>-602,234.32 %</b>
<b>NET INCOME</b>	<b>\$878,745.16</b>	<b>\$ -778,727.02</b>	<b>\$1,657,472.18</b>	<b>212.84 %</b>



# Missouri 911 Service Board

## Budget vs. Actuals: FY2023 Budget - FY23 P&L

July 2022 - June 2023

	TOTAL			
	ACTUAL	BUDGET	OVER BUDGET	% OF BUDGET
<b>Income</b>				
911 Service Income	3,799,507.69	4,100,000.00	-300,492.31	92.67 %
988 (DMH Consulting)	4,932.25	146,000.00	-141,067.75	3.38 %
<b>Investments</b>				
Interest-Savings, Short-term CD		7,000.00	-7,000.00	
<b>Total Investments</b>		<b>7,000.00</b>	<b>-7,000.00</b>	
<b>Other Types of Income</b>				
Interest Income-Checking	9,010.77		9,010.77	
Miscellaneous Revenue	1,395.74		1,395.74	
Rebate-Business Credit Card	72.70		72.70	
<b>Total Other Types of Income</b>	<b>10,479.21</b>		<b>10,479.21</b>	
<b>Total Income</b>	<b>\$3,814,919.15</b>	<b>\$4,253,000.00</b>	<b>\$ -438,080.85</b>	<b>89.70 %</b>
<b>GROSS PROFIT</b>	<b>\$3,814,919.15</b>	<b>\$4,253,000.00</b>	<b>\$ -438,080.85</b>	<b>89.70 %</b>
<b>Expenses</b>				
<b>Board Expense</b>				
Conferences	250.00		250.00	
Interpreter		2,000.00	-2,000.00	
Meals	99.56		99.56	
Mileage		5,000.00	-5,000.00	
Travel	401.25		401.25	
<b>Total Board Expense</b>	<b>750.81</b>	<b>7,000.00</b>	<b>-6,249.19</b>	<b>10.73 %</b>
<b>Board Priorities</b>				
Grants		3,000,000.00	-3,000,000.00	
Improve Basic 911 Services		40,000.00	-40,000.00	
Learning Management System		36,000.00	-36,000.00	
<b>Total Board Priorities</b>		<b>3,081,000.00</b>	<b>-3,081,000.00</b>	
<b>Contract Services</b>				
911 Campaign Expenses	6,450.38		6,450.38	
Telecommunicator Job Marketing	43,230.40		43,230.40	
<b>Total 911 Campaign Expenses</b>	<b>49,680.78</b>		<b>49,680.78</b>	
Accounting Fees	2,936.05	3,500.00	-563.95	83.89 %
Attorney fees	18,738.00	45,000.00	-26,262.00	41.64 %
Auditor		5,000.00	-5,000.00	
Government Affairs	77,000.00	65,000.00	12,000.00	118.46 %
Insurance - Crime	1,952.00	2,200.00	-248.00	88.73 %
Insurance - D&O ELP		2,000.00	-2,000.00	
Management Services	105,600.00	115,200.00	-9,600.00	91.67 %
Outside Contract Services	13,273.28		13,273.28	
Regional Coordination	47,300.00	51,600.00	-4,300.00	91.67 %
Travel	1,513.27		1,513.27	
<b>Total Contract Services</b>	<b>317,993.38</b>	<b>289,500.00</b>	<b>28,493.38</b>	<b>109.84 %</b>



# Missouri 911 Service Board

## Budget vs. Actuals: FY2023 Budget - FY23 P&L

July 2022 - June 2023

	TOTAL			
	ACTUAL	BUDGET	OVER BUDGET	% OF BUDGET
Emergency Telephone Number Fund	-0.05	2,269,411.41	-2,269,411.46	0.00 %
1st Class Counties				
Jackson County	191,072.48		191,072.48	
St. Charles County	75,399.41		75,399.41	
St. Louis City	97,843.49		97,843.49	
St. Louis County	185,744.40		185,744.40	
<b>Total 1st Class Counties</b>	<b>550,059.78</b>		<b>550,059.78</b>	
Other Counties				
Adair County	6,524.91		6,524.91	
Andrew County	2,694.49		2,694.49	
Atchison County	1,010.32		1,010.32	
Audrain County	3,987.08		3,987.08	
Barry County	9,862.18		9,862.18	
Barton County	7,196.63		7,196.63	
Bates County	12,021.56		12,021.56	
Benton County	12,595.74		12,595.74	
Bollinger County	6,731.95		6,731.95	
Boone County	40,183.17		40,183.17	
Buchanan County	27,285.77		27,285.77	
Butler County	24,529.70		24,529.70	
Caldwell County	4,699.15		4,699.15	
Callaway County	13,720.68		13,720.68	
Camden County	19,926.85		19,926.85	
Cape Girardeau	27,464.36		27,464.36	
Carroll County	1,080.34		1,080.34	
Carter County	2,176.67		2,176.67	
Cass County	6,697.67		6,697.67	
Cedar County	11,649.11		11,649.11	
Chariton County	1,294.30		1,294.30	
Christian County	12,168.81		12,168.81	
City of Sikeston	2,800.51		2,800.51	
Clark County	745.52		745.52	
Clay County	36,621.73		36,621.73	
Clinton County	4,450.48		4,450.48	
Cole County	15,466.81		15,466.81	
Cooper County	7,729.55		7,729.55	
Crawford 911	10,598.58		10,598.58	
Dade County	2,233.93		2,233.93	
Dallas County	2,539.36		2,539.36	
Daviess County	466.16		466.16	
DeKalb County	7,727.87		7,727.87	
Dent County	7,581.40		7,581.40	
Douglas County	12,911.16		12,911.16	



# Missouri 911 Service Board

## Budget vs. Actuals: FY2023 Budget - FY23 P&L

July 2022 - June 2023

	TOTAL			% OF BUDGET
	ACTUAL	BUDGET	OVER BUDGET	
Dunklin County	17,035.33		17,035.33	
Franklin County	34,015.95		34,015.95	
Gasconade 911	6,160.07		6,160.07	
Gentry County	1,518.99		1,518.99	
Greene County	116,347.18		116,347.18	
Grundy County	5,078.48		5,078.48	
Harrison County	5,376.56		5,376.56	
Henry County	5,664.59		5,664.59	
Hickory County	7,207.42		7,207.42	
Holt County	739.73		739.73	
Howard County	3,102.41		3,102.41	
Howell County	7,505.65		7,505.65	
Iron County	3,555.62		3,555.62	
Jasper County	49,188.34		49,188.34	
Jefferson County	22,748.35		22,748.35	
Johnson County	4,363.89		4,363.89	
Knox County	347.30		347.30	
Laclede County	22,673.65		22,673.65	
Lafayette County	11,339.87		11,339.87	
Lawrence 911	32,706.86		32,706.86	
Lewis County E911	2,759.72		2,759.72	
Lincoln County	11,992.54		11,992.54	
Linn County E 911	3,011.94		3,011.94	
Livingston County	9,115.17		9,115.17	
Macon County	3,867.80		3,867.80	
Madison County	5,966.28		5,966.28	
Maries County	2,178.76		2,178.76	
Marion County 911	6,494.01		6,494.01	
McDonald County	5,232.69		5,232.69	
Mercer County	2,228.52		2,228.52	
Miller	10,600.16		10,600.16	
Mississippi County	4,281.65		4,281.65	
Moniteau 911	4,863.02		4,863.02	
Monroe County	1,095.38		1,095.38	
Montgomery County	4,290.81		4,290.81	
Morgan County	9,476.00		9,476.00	
New Madrid County	13,119.41		13,119.41	
Newton County	41,636.81		41,636.81	
Nodaway County	2,965.67		2,965.67	
Oregon County	4,872.38		4,872.38	
Osage County	271.48		271.48	
Ozark County	7,320.52		7,320.52	
Pemiscot County	7,214.91		7,214.91	



# Missouri 911 Service Board

## Budget vs. Actuals: FY2023 Budget - FY23 P&L

July 2022 - June 2023

	TOTAL			
	ACTUAL	BUDGET	OVER BUDGET	% OF BUDGET
Perry County	8,172.45		8,172.45	
Pettis County	21,727.07		21,727.07	
Phelps County 911	15,827.58		15,827.58	
Pike County 911	7,396.25		7,396.25	
Platte County	0.00		0.00	
Polk 911	24,762.98		24,762.98	
Pulaski County 911	13,996.05		13,996.05	
Putnam County	1,359.37		1,359.37	
Ralls County 911	3,158.24		3,158.24	
Randolph County	4,994.98		4,994.98	
Ray County 911	15,105.33		15,105.33	
Reynolds County	1,821.51		1,821.51	
Ripley County	7,309.10		7,309.10	
Saline County	2,626.18		2,626.18	
Schuyler County	722.83		722.83	
Scotland County	748.92		748.92	
Scott County	7,019.87		7,019.87	
Shannon County	2,035.63		2,035.63	
Shelby County	371.25		371.25	
St. Clair County	6,465.55		6,465.55	
St. Francois County 911	22,484.08		22,484.08	
Ste. Genevieve County	4,301.46		4,301.46	
Stoddard County	18,152.90		18,152.90	
Stone County	5,664.77		5,664.77	
Sullivan County	641.57		641.57	
Taney County	31,869.34		31,869.34	
Texas County	15,336.11		15,336.11	
Vernon County	18,726.41		18,726.41	
Warren County 911	5,787.20		5,787.20	
Warrenton County	716.15		716.15	
Washington County 911	9,127.54		9,127.54	
Wayne County	7,012.34		7,012.34	
Webster County	3,186.38		3,186.38	
Worth County	491.97		491.97	
Wright County 911	3,303.82		3,303.82	
<b>Total Other Counties</b>	<b>1,181,329.55</b>		<b>1,181,329.55</b>	
<b>Total Emergency Telephone Number Fund</b>	<b>1,731,389.28</b>	<b>2,269,411.41</b>	<b>-538,022.13</b>	<b>76.29 %</b>
Employee Expenses				
Cell Phone	1,338.35	1,200.00	138.35	111.53 %
Employee Mileage	3,457.52	3,500.00	-42.48	98.79 %
Insurance - Work Comp	3,763.00	1,500.00	2,263.00	250.87 %
Payroll Taxes	10,005.59	9,721.24	284.35	102.93 %





# Missouri 911 Service Board

## Budget vs. Actuals: FY2023 Budget - FY23 P&L

July 2022 - June 2023

	TOTAL			
	ACTUAL	BUDGET	OVER BUDGET	% OF BUDGET
Salary Expense	124,250.00	127,075.00	-2,825.00	97.78 %
Travel & Meetings	5,697.42	9,000.00	-3,302.58	63.30 %
<b>Total Employee Expenses</b>	<b>148,511.88</b>	<b>151,996.24</b>	<b>-3,484.36</b>	<b>97.71 %</b>
NG911 Federal Grant Expenses	4,480.25	500,000.00	-495,519.75	0.90 %
Office Expense		2,000.00	-2,000.00	
Dues & Fees	210.90		210.90	
Postage	156.00	2,500.00	-2,344.00	6.24 %
Printing and Copying	918.02		918.02	
Supplies	2,704.42	4,000.00	-1,295.58	67.61 %
Website & Technology	12,888.54	8,500.00	4,388.54	151.63 %
<b>Total Office Expense</b>	<b>16,877.88</b>	<b>17,000.00</b>	<b>-122.12</b>	<b>99.28 %</b>
Other Types of Expenses				
Bank Charges	2,070.72		2,070.72	
<b>Total Other Types of Expenses</b>	<b>2,070.72</b>		<b>2,070.72</b>	
Training & Education				
Training	97,768.00		97,768.00	
<b>Total Training &amp; Education</b>	<b>97,768.00</b>		<b>97,768.00</b>	
<b>Total Expenses</b>	<b>\$2,319,842.20</b>	<b>\$6,315,907.65</b>	<b>\$ -3,996,065.45</b>	<b>36.73 %</b>
NET OPERATING INCOME	<b>\$1,495,076.95</b>	<b>\$ -2,062,907.65</b>	<b>\$3,557,984.60</b>	<b>-72.47 %</b>
Other Income				
MO Discount	97.23		97.23	
<b>Total Other Income</b>	<b>\$97.23</b>	<b>\$0.00</b>	<b>\$97.23</b>	<b>0.00%</b>
Other Expenses				
Reserve Transfer	627,521.19	349,757.65	277,763.54	179.42 %
<b>Total Other Expenses</b>	<b>\$627,521.19</b>	<b>\$349,757.65</b>	<b>\$277,763.54</b>	<b>179.42 %</b>
NET OTHER INCOME	<b>\$ -627,423.96</b>	<b>\$ -349,757.65</b>	<b>\$ -277,666.31</b>	<b>179.39 %</b>
NET INCOME	<b>\$867,652.99</b>	<b>\$ -2,412,665.30</b>	<b>\$3,280,318.29</b>	<b>-35.96 %</b>



# Missouri 911 Service Board

Balance Sheet  
As of May 31, 2023

	TOTAL
<b>ASSETS</b>	
Current Assets	
Bank Accounts	
Central Bank Account	3,488,196.41
Hawthorn Bank Account	0.00
<b>Total Bank Accounts</b>	<b>\$3,488,196.41</b>
Accounts Receivable	
A/R - State of Missouri	307,397.28
<b>Total Accounts Receivable</b>	<b>\$307,397.28</b>
Other Current Assets	
Receivable from State of MO	0.00
Undeposited Funds	0.00
<b>Total Other Current Assets</b>	<b>\$0.00</b>
<b>Total Current Assets</b>	<b>\$3,795,593.69</b>
<b>TOTAL ASSETS</b>	<b>\$3,795,593.69</b>
<b>LIABILITIES AND EQUITY</b>	
Liabilities	
Current Liabilities	
Accounts Payable	
A/P - Counties	-0.03
Accounts Payable	322,264.88
Grants Payable	78,972.17
MO DOR Returned Funding	514.69
<b>Total Accounts Payable</b>	<b>\$401,751.71</b>
Credit Cards	
Central Bank Credit Card	-2,657.70
Cason -7853	310.54
Maydwell -0044	1,903.57
<b>Total Central Bank Credit Card</b>	<b>-443.59</b>
<b>Total Credit Cards</b>	<b>\$ -443.59</b>
Other Current Liabilities	
Accrued Vacation	7,516.48
County Payable @ 40% (deleted)	
Bollinger Payable	0.00



# Missouri 911 Service Board

Balance Sheet  
As of May 31, 2023

	TOTAL
<b>Total County Payable @ 40% (deleted)</b>	<b>0.00</b>
Credit Card Payable	0.00
Direct Deposit Liabilities	0.00
Missouri Department of Revenue Payable	0.00
MO DOR Overpayment	0.00
Payroll Liabilities	0.00
Payroll Taxes Payable	0.00
Salaries Payable	0.00
<b>Total Payroll Liabilities</b>	<b>0.00</b>
<b>Total Other Current Liabilities</b>	<b>\$7,516.48</b>
<b>Total Current Liabilities</b>	<b>\$408,824.60</b>
<b>Total Liabilities</b>	<b>\$408,824.60</b>
Equity	
Board Appt'd Loans/Grants - RE	0.00
Opening Balance Equity	2,727.70
Operating Funds	627,521.19
Retained Earnings	1,877,775.04
Net Income	878,745.16
<b>Total Equity</b>	<b>\$3,386,769.09</b>
<b>TOTAL LIABILITIES AND EQUITY</b>	<b>\$3,795,593.69</b>