

ATTACHMENT D TECHNICAL SPECIFICATIONS

Table of Contents

1	INTRODUCTION	3
1.1	Overview.....	3
1.2	Scope of Services.....	5
1.3	Specifications.....	6
1.4	Ownership of Data.....	6
1.5	GIS Map Data Aggregation	7
2	GIS Layer Specifications	7
2.1	Road Centerlines.....	7
2.1.1	Layer Specifications.....	8
2.2	Site/Structure Address Points.....	8
2.2.1	Layer Specifications.....	9
2.3	PSAP Boundary	9
2.3.1	Layer Specifications.....	9
2.4	Emergency Services Boundary	10
2.4.1	Layer Specifications.....	10
2.5	Provisioning Boundary	11
2.5.1	Layer Specifications.....	11
2.6	Street Name Alias Table	11
2.6.1	Layer Specifications.....	11
3	GIS Services.....	11
3.1	GIS Data Management Tools.....	12
3.2	GIS Normalization Services.....	12
3.3	GIS Managed Services.....	13
4	Project Management	14
4.1	Single Point of Contact (SPOC).....	14
4.2	Project Kick-off Meeting	14
4.3	Project Planning	14
4.4	Project Status Reporting.....	15
5	Appendix A Standards References	16
6	Appendix B Attribute Table References	17
6.1	Road Centerlines.....	17
6.2	Site/Structure Address Points.....	19
6.3	PSAP Boundary	21
6.4	Emergency Service Boundary.....	22
6.5	Provisioning Boundary	23
6.6	Street Name Alias Table	24

1 INTRODUCTION

1.1 Overview

The Alabama 911 Board is in the process of implementing the Alabama Next Generation 911 Network (ANGEN), a fully functional and standards compliant Next Generation 911 (NG911) system comprised of an interconnected and interoperable system known as an Emergency Services IP Network (ESInet). The ESInet operates as a “system of systems” and once completed will provide the framework for all PSAPs to enable NG911 capabilities.

Geographic Information Systems (GIS) and the databases, attributes and spatial information within GIS are used in 911 primarily at the PSAP. These systems allow for the legacy call location information systems to query the local maps and present a location for the dispatcher. All of this locally developed and maintained GIS information is bound to a single PSAP or a single jurisdiction. The data is managed and maintained by local resources and can reside in many disparate systems and formats. While this current implementation worked in E911 and legacy systems, changes associated with ANGEN implementation have the potential to drastically change how GIS operations are handled.

A simple way to understand the difference is displayed below:

E911 (Legacy)	PSAP "finds" the caller by asking for location
NG911	Caller "finds" the PSAP by looking for the PSAP location

Taking the two factors above a step further, the impact of GIS on NG911 call delivery becomes a question of Call Routing and Call Dispatch.

- Call Routing is utilized by the NG911 system to use the location as the means of routing the call to the correct PSAP.
- Call Dispatch happens after the correct PSAP receives the call and uses the local tools to manage the response to the incident.

Alabama 911 Board GIS Strategy:

The Board is using this method (Call Routing / Call Dispatch) to allow GIS efforts to be split into phases during the implementation of ANGEN.

Phase 1: NG911 Call Routing Platform Implementation

During Phase 1, the Board will collect all Authoritative PSAP Boundaries and deliver those to the ANGEN Service Provider. Because ANGEN is designed to gather the location of a caller immediately as a call enters the network, these boundaries will be used by the system to select the proper PSAP boundary in which to route the call. Implementing this first Phase will allow for ANGEN to route all calls based upon location of any PSAP in the State. The ANGEN Service Provider will ensure that the routing system will align with the existing ALI database to present ALI at the workstation as it currently operates.

Impact

The impact of Phase 1 is that all calls will utilize ANGEN as the call routing platform throughout the State. The reliance on Selective Routing can be decreased and, in many areas, will be replaced. Additionally, calls will be routed according to the location of the caller not a pre-determined route based upon ANI or an approximation.

Timeline

This stage will begin immediately and the Board requests that all PSAPs share their primary PSAP boundary in GIS format with the Board and the ANGEN System Service Provider. NG911 call routing will initially be transparent to the PSAP since the ALI, CAD, MSAG and database management will remain unchanged.

Phase 2: NG911 GIS Database Administration

Phase 2 will be performed as two linked stages of development and administration. The first stage will focus on the development of the Location Information System (LIS) database(s) that will be used to replace the ALI system. Working with the ANGEN Service Provider, the Board will gather the ALI records and ensure that the format structure meets the appropriate standards. This effort will allow for the replacement of legacy ALI at the PSAPs and use ANGEN to perform the delivery of location to the PSAP with the call.

During this process the Board, ANGEN Service Provider and potentially a GIS contractor will conduct analysis of all of the data available from the PSAPs. This will involve the reconciliation of the ALI, MSAG and GIS files to develop the standardized format and data structure. Discrepancies that are identified due to errors of one of the systems (ALI, MSAG or GIS) will be referred back to the PSAP GIS manager for correction.

The second stage in Phase 2 will be the implementation of a Statewide GIS System for all PSAPs. The GIS files will be located in a centralized system that PSAPs can access to maintain and manage the data. The Board will ensure that training and support is provided to the PSAPs to allow ongoing database management of the location information.

Impact

The impact of developing the GIS platform ensures that all PSAPs utilize a consistent, standardized Statewide database. Furthermore, the management of the database will be centralized with common tools and processes. Once the GIS platform is completed, ANGEN can fully implement the Location Validation Function / Emergency Call Routing Function (LVF/ECRF) and NG911 call routing system. Additional impacts include the ability to access GIS information for all PSAPs across the State (with proper authorization) between PSAPs.

Timeline

This stage will commence in 2020 and it is anticipated that it will take roughly 12-24 months to complete.

1.2 Scope of Services

The GIS portion of the 911 Board's project as outlined here shall include the use of all existing and available source data, GIS files and the coordination and management necessary to complete the Statewide aggregation of the digital base map.

1. Vendors must describe the GIS services and/or database services within their proposed solution that may allow transition to geodatabase routing to all PSAPs in cooperation with the State of Alabama NG9-1-1 System Service Provider.
2. Vendors must include a method and workflow to collect all of the available GIS and database information from the PSAPs to enable the development of a geographic database used for traffic routing within the NG9-1-1 core.
3. Vendors must provide a method for delivering a Spatial Interface that can allow PSAPs to manage the data contained in the Location Information Server(s).
4. Vendors may include a Location Information Server(s) as appropriate for their solution.

The Board desires that transition to NG9-1-1 Call Routing occur as quickly as possible, understanding that PSAP GIS systems and databases may require normalization and synchronization. Tools and processes that facilitate a rapid transition to a Statewide, NG9-1-1 Call Routing are required.

The minimal expectation is that the GIS and database contractor will be responsible for providing support to assist in implementing the Board strategy for Phased NG9-1-1 GIS database implementation identified in Section 1.1 and to ensure that the Scope of Work includes:

- Assessment of existing PSAP GIS database information
 - ALI to Centerline error identification and assistance to the PSAPs to make corrections
 - MSAG to Centerline error identification and assistance to the PSAPs to make corrections
 - Address Point (Site / Structure) error identification and assistance to the PSAPs to make corrections
 - Boundary gap analysis and review of gaps and overlaps with PSAPs to make corrections
 - Development of a single Statewide NG9-1-1 dataset to meet the NENA NG Data Model
 - Implementation of NG-GIS system in cooperation with the NG9-1-1 System Service Provider (SSP)
 - Process and workflow development and implementation for PSAPs to ensure data remains current
 - Update receipt and integration of geospatial data from each 9-1-1 entity's GIS resource
 - Ability for authenticated users to upload GIS edits and changes through a secure browser-based portal
 - Implementation of a Spatial Interface (SI) to align with the NG9-1-1 SSP
 - Perform quality control and assurance on the data to meet accuracy standards

- Ability to facilitate, coordinate, and communicate resolution of conflicting geospatial datasets
 - Execute live provisioning of the GIS map data into the SSP ECRF/LVF system on a timely basis
 - Process and workflow to allow dynamic changes to routing geospatial data
 - Compliance with NENA Data Model standards NENA STA-015.10-2018 and NENA STA-006.1-2018
- Secondary Scope
 - Assistance and support for ALI replacement
 - Transition and migration to GIS data
 - Assistance and support for MSAG replacement
 - Transition and migration to GIS data

The Vendor shall verify the completeness of the attribute information gathered and to identify the proposed solution to meet the intent of these specifications.

Exceptions to any facet of the specifications must be clearly stated within the Vendor's proposal. Exceptions shall include an alternative where applicable. Any alternative must include a thorough description of the configuration, implementation and operation of the alternative to assist the evaluation team in understanding the purpose of the exception, and alternative.

The Board wishes to engage with one single vendor. The single Vendor will be responsible for all services provided by their proposed subcontractors if so utilized. All subcontractors and their roles, responsibilities and accountable tasks should be identified in the response.

1.3 Specifications

Vendors must respond as either COMPLY, NOT COMPLY or ALTERNATE to all of the specifications defined in this RFP. Vendors are required to provide detailed responses immediately following each specification.

If a Vendor provides an ALTERNATE to a specification, they must explain how they intend to meet the specification. This includes areas where a Vendor's proposal does not fully meet defined specifications. In such event, the Vendor must label the response as an ALTERNATE and present an alternative to meet the specification. **It is strongly recommended that all submitted proposals meet all specifications identified in this RFP.**

Responses to this Request for Proposal shall be limited to no more than 200 pages, including appendices, diagrams, tables, attachments or similar documents.

1.4 Ownership of Data

All data and information provided and collected in conjunction with the project shall be returned to the State upon completion of the project. The Vendor shall not, without written consent, copy

or use such records, except to carry out contracted work, and will not transfer such records to any other party not involved in the performance of the contract pursuant to this RFP.

1.5 GIS Map Data Aggregation

All GIS data layers aggregated for this project will be maintained as feature classes in an Environmental Systems Research Institute's (ESRI) file geodatabase in a WGS 84 Latitude/Longitude projection prior to provisioning and loading the data into the ECRF/LVF system.

The Vendor's geodatabase model must be in compliance with the NENA GIS Data Model (NENA STA-015.10-2018 and NENA STA-006.1-2018). Please refer to Appendix A and Appendix B. The GIS data layers listed below, and their associated attribute data represents the GIS map data to be aggregated and provisioned for the ECRF/LVF functions within the NG9-1-1 system.

- Road Centerlines
- Site/Structure Address Points
- PSAP Boundary
- Emergency Services Boundary
- Provisioning Boundary

Some municipalities or other PSAPs may have a need for additional GIS layers specific to their operation. In these situations, the Board would expect these layers to be required.

The GIS contractor will aggregate the specified GIS data layers and their representative attributes into a seamless Statewide dataset. The basis of this aggregated dataset will come from a combination of available source data from local PSAPs, County and Municipal governments, Alabama State agencies, and any specific or unique data capabilities and resources derived from the Vendor.

In the process of aggregating the Statewide GIS map dataset, the Vendor will conduct a gap analysis in which they shall identify errors and discrepancies within the various local datasets.

It is the Board's expectation that the actual remediation and normalization of the data and correction of discrepancies will be conducted by the PSAP or Authority responsible for addressing. The contractor shall provide sufficient information and guidance to the local entities during the remediation of their data.

2 GIS Layer Specifications

2.1 Road Centerlines

The contractor must lead the development of a Statewide GIS database platform for road centerlines. This layer shall include the GIS files collected by the contractor that have been synchronized with the ALI and MSAG and normalized into the new NENA NG Data Model structure (NENA STA-015.10-2018 and NENA STA-006.1-2018).

When aggregating the road centerlines layer, the following specifications shall be applied at a minimum:

2.1.1 Layer Specifications

- Adherence to the NENA NENA-STA-006.1-2018 standards.
- All road centerline segments shall be broken in the following circumstances:
 - At ESB, ESN, unincorporated town, municipal, PSAP, County, and State boundaries
 - All road centerline intersections with the exception of overpasses
 - At any change in primary street name
- A local 911 Authority may decide to break road centerlines in other instances at its discretion, however, unless there's a rational reason for breaking a line segment then no breaks will exist except at dead-ends or in the instances stated above.
- Road centerlines must not overlap with the exception of overpasses and must not have dangles with the exception of dead-ends.
- Address attributes will be compatible with the direction of digitizing for addressable road centerlines.
- Invalid dangle nodes shall be corrected.
- The Vendor shall identify all errors and discrepancies identified during the aggregation of this data layer and submit the identified errors and discrepancies to the local entity for remediation.
- The NENA NG9-1-1 United States Civic Location Data Exchange Format (CLDXF) Standard, NENA-STA-004.1.1-2014, details street naming requirements for NG9-1-1 and the NENA CLDXF Standard should be referred to for questions pertaining to anything street name related that's not directly covered by this document.

Vendors shall describe their process for ensuring that road centerlines meet the criteria defined within the NG9-1-1 data standard and ensure that the database is prepared to transition into geographic / location-based call routing.

The Vendor must describe their methodology used to aggregate a Statewide road centerlines GIS data layer. The description shall include how the Vendor will adhere to the NENA standard for NG9-1-1 GIS Data Model.

2.2 Site/Structure Address Points

The Vendor shall provide Statewide address structure points within the GIS data layers. The description shall present how the Vendor will adhere to the NENA standard for NG9-1-1 GIS Data Model.

When aggregating the site/structure address points layer, the following specifications shall be applied at a minimum:

2.2.1 Layer Specifications

- Adherence to the NENA NG9-1-1 GIS Data Model standards.
- The Vendor shall identify all errors and discrepancies identified during the aggregation of this data layer and submit the identified errors and discrepancies to the local entity for remediation.

Vendors shall describe their process for ensuring that site/structure address points meet the criteria defined within the NG9-1-1 data standard and ensure that the database is prepared to transition into geographic / location-based call routing.

The vendor shall include a methodology for aggregation of Statewide address structure points within the GIS data layers. The description shall present how the Vendor will adhere to the NENA standard for NG9-1-1 GIS Data Model.

The street naming standards used for road centerlines are applicable to address points. Vendors shall ensure the street names and addresses associated with address point correspond to the street name and address ranges of the street segment they fall on. Unless otherwise noted, definitions are taken directly from NENA-STA-006.1-2018 unless they're self-explanatory or in the case of street name elements based on NENA-STA-004.1.1-2014.PSAP Boundary

2.3 PSAP Boundary

Per NENA-STA-006.1-2018, the primary use for the PSAP Boundary is to route call/emergency requests for NG9-1-1. This layer depicts the polygon(s) and the related attribute information that defines the geographic area of all PSAP boundaries within a given 9-1-1 Authority's geographic coverage area. The PSAP Boundary layer may have one or many PSAP Boundaries contained in the layer. Each PSAP Boundary defines the geographic area of a PSAP that has primary responsibilities for an emergency request. This layer is used by the ECRF to perform a geographic query to determine the PSAP to which an emergency request is routed.

The Vendor shall aggregate the PSAP boundary information Statewide into a GIS boundary data layer containing State, County and Municipal boundaries. The Vendor shall describe the process for aggregating the PSAP boundary information Statewide into a GIS boundary data layer containing State, County and Municipal boundaries. The methodology must meet the NENA standard for NG9-1-1 GIS Data Model.

When aggregating the PSAP boundary layers, the following specifications shall be applied at a minimum:

2.3.1 Layer Specifications

- Adherence to the NENA NG9-1-1 GIS Data Model standards.
- The Vendor shall identify all errors and discrepancies identified during the aggregation of this data layer and submit the identified errors and discrepancies to the local entity for remediation.

- There shall be no unintentional gaps or overlaps within a PSAP boundary or between a PSAP boundary and neighboring PSAP boundaries.

Vendors shall describe their process for ensuring that PSAP boundaries meet the criteria defined within the NG9-1-1 data standard and ensure that the database is prepared to transition into geographic / location-based call routing.

The Vendor shall describe the process for aggregating the PSAP boundary information Statewide into a GIS boundary data layer containing State, County and Municipal boundaries.

2.4 Emergency Services Boundary

Per NENA-STA-006-1-2018, An Emergency Service Boundary (ESB) layer defines the geographic area for the primary providers of response services. Each of these layers is used by the ECRF to perform a geographic query to determine which Emergency Service Providers are responsible for providing service to a location in the event of a selective transfer is desired, to direct an Emergency Incident Data Document (EIDD) to a secondary PSAP for dispatch, or to display the responsible agencies at the PSAP. In addition, ESB's are used by PSAPs to identify the appropriate entities/first responders to be dispatched. Each ESB layer may contain one or more polygon boundaries that define the primary emergency services for that geographic area. There MUST be a separate ESB layer for each type of service.

- Law Enforcement
- Fire
- Emergency Medical Services

The Vendor must aggregate Statewide emergency services boundary GIS data layers containing PSAP service areas and Police, Fire, EMS service areas. The methodology shall include adherence to the NENA standards for NG9-1-1 GIS Data Model.

When aggregating the emergency services boundary layers, the following specifications shall be applied at a minimum:

2.4.1 Layer Specifications

- Adherence to the NENA NG9-1-1 GIS Data Model standards.
- The Vendor shall identify all errors and discrepancies identified during the aggregation of this data layer and submit the identified errors and discrepancies to the local entity for remediation.

Vendors shall describe their process for ensuring that emergency service boundaries meet the criteria defined within the NG9-1-1 data standard and ensure that the database is prepared to transition into geographic / location-based call routing.

Vendors shall describe how they will aggregate Statewide emergency services boundary GIS data layers containing PSAP service areas and Police, Fire, EMS service areas. The Vendor will

describe how the methodology shall include adherence to the NENA standards for NG9-1-1 GIS Data Model.

2.5 Provisioning Boundary

Per NENA-STA-006.1-2018, this polygon layer defines the area of GIS data provisioning responsibility, with no unintentional gaps or overlaps. The Provisioning Boundary must be agreed to by all adjoining data provisioning providers. This Provisioning Boundary layer can be used by an ECRF to facilitate exclusion of erroneous features that lie beyond the boundary, for geoprocessing purposes and can also be used by the Forest Guide to determine coverage for a data provisioning authority.

2.5.1 Layer Specifications

- There shall be no unintentional gaps or overlaps within a Provisioning Boundary or between a 911 Authorities Provisioning Boundary and the Provisioning Boundaries of other neighboring 911 Authorities.

2.6 Street Name Alias Table

Per NENA-STA-006-01-2018, the street name as assigned by the local addressing authority **MUST** be the name associated with the Road Centerlines. The street name assigned by the local addressing authority is the street name used for location validation and call routing. However, many roads are known by more than one street name and these are known as alias street names. Many 9-1-1 Authorities need to accommodate for alias street names during call taking and data sharing.

In legacy systems it wasn't uncommon to account for alias street names by creating multiple overlapping Road Centerlines with different street names. In NG9-1-1 this is unacceptable and will result in a discrepancy report. Instead, a table of alias street names is maintained that uses the NGUID of Road Centerline segments to associate alias names from the alias table with their respective Road Centerline segment. It's highly recommended that the GIS Provider review section 3.6 of NENA-STA-006.1-2018 prior to creating the alias table.

2.6.1 Layer Specifications

- The parsing of street name elements follows the CLDXF standard.

3 GIS Services

The Vendor shall be responsible for GIS management and maintenance and the Spatial Interface between the PSAPs and the Emergency Call Routing Function (ECRF) and the Location Validation Function (LVF) provided by ANGEN. This capability will be dependent upon coordination with the NG9-1-1 service provider (ESInet vendor) to integrate the operation of the ECRF with the complete NG9-1-1 system for the purpose of call routing.

The ECRF/LVF functionality will provide a fully developed GIS change detection/update process including a Spatial Interwork (SI) function capable of addressing data updates and discrepancy inquiries from the local 9-1-1 entities as a managed service. The system shall include the ability

to perform QA/QC audit checks and data analysis on an on-going basis prior to the provisioning of GIS data into the ECRF/LVF.

The Vendor shall provide the implementation and management services for provisioning GIS data to the NG9-1-1 ECRF and LVF as defined in the NENA STA-010.3 Detailed Functional and Interface Standards for the NENA i3 Solution.

The Vendor shall be responsible for the implementation, system tools and processes, by which it will manage GIS data updates from the local 9-1-1 entities, provide for QA/QC auditing functions prior to provisioning the GIS data into the ECRF/LVF, and implement and manage a NG9-1-1 compliant ECRF/LVF system.

Based upon their previous experience(s) Vendors will describe how ECRF/LVF integration including change detection/update processes have been performed.

Vendors will describe their process for completing ECRF/LVF integration for this project.

3.1 GIS Data Management Tools

- The Vendor shall provide the means for secure web-based portal for collection of all data required for Normalization activities:
 - PSAPs to submit GIS uploads
 - PSAPs to submit MSAG data
 - PSAPs to submit any additional layers relevant to their operation
- The Vendor shall provide process and usage training of the portal and the upload process.

3.2 GIS Normalization Services

The Vendor shall supply GIS data normalization services, GIS database management and maintenance and transition support to ensure that the location-based call routing capability meets the NENA i3 and NG9-1-1 standards.

The Alabama 9-1-1 Board recognizes that GIS data requires normalization with the preferred GIS data schema prior to replication to the ECRF. The GIS vendor shall establish the baseline schema, comparing the GIS data with the existing data sets, identifying the discrepancies and delegating the correction of discrepancies to the PSAP or local GIS authority.

The Alabama 9-1-1 Board will work with the vendor to determine the most appropriate strategy for normalization of GIS data with the PSAPs. The GIS vendor shall synchronize all GIS data to ensure that the schema is followed, and that the data can be used to transition into an NG9-1-1 system. The normalization will follow a workflow similar to the one below.

During normalization, the GIS vendor shall ensure that the data passes the QA/QC test for meeting the GIS schema. This workflow will continue each time that GIS data is modified by a PSAP. The GIS vendor will identify all discrepancies and follow the discrepancy workflow for error resolution. GIS normalization will review and report on the following, at a minimum:

- Missing data layers.

- Missing attribute information.
- Standardization of GIS data attributes in adherence to relevant national standards, both centerline and site/structure location points following the FGDC-STD-016-2011, NENA NG911 GIS Data Model, NENA Site Structure Address Point.
- Synchronization of GIS data with MSAG and ALI (NENA 71-501 v1).
- Address range parity in centerline, as well as relating to site/structure location points and centerline.
- Duplicate address ranges.
- Direction and flow errors.
- Gaps and overlaps in PSAP and service boundaries and edge matching.
- Centerline breaks at intersections and boundaries.

The GIS vendor shall describe its process that ensures timely and accurate error resolution of GIS data discrepancies. Only GIS data that passes the normalization stage will be provisioned to the ECRF. GIS data that does not pass normalization will be pushed back to the PSAP for error resolution. Discrepancy logs and reports will be delivered to the PSAP with a copy available for the 9-1-1 Board that identify the error and potential correction activities required to ensure that GIS data can be validated and normalized. The PSAP will be lead resource in the correction of the data.

Vendors shall describe the GIS normalization service and identify the workflow for ensuring that all GIS data is verified, QA/QC'ed and prepared for ECRF operation. The description shall include any reference documentation, diagrams or architecture supporting information that ensures that the GIS services meet the specification.

3.3 GIS Managed Services

- The Vendor shall provide for a secure web portal for PSAPs to submit GIS update/change requests and the Vendor to communicate error/discrepancy feedback.
- The Vendor shall provide the means for web-enabled reports, performance measurements, discrepancy tracking, for GIS quality assurance and system status.
- The Vendor shall provide the means for the State to view system and data metrics by means of a web-enabled viewer/dashboard.
- The Vendor shall provide process and usage training of the change management process to the local 9-1-1 entities.
- The Vendor shall provide 24x7x365 customer support
- Vendors shall ensure that GIS corrections are dynamically updated daily to the core routing platform.

Vendors shall describe the entire GIS service process. The description shall include any reference documentation, diagrams or architecture supporting information that ensures that the GIS services meet the specification.

4 Project Management

The Vendor shall provide project management and coordination to ensure the success of the overall project. The Vendor shall maintain regular contact with the 9-1-1 board, and the State project management office as well as the NG9-1-1 service provider to configure and implement the geographic (location based) call routing functionality.

In addition to any other necessary or suggested project management services, the Vendor will provide the following:

4.1 Single Point of Contact (SPOC)

The Vendor shall assign a single point of contact (SPOC) to serve as the vendor's primary project manager to coordinate all aspects of the project with the 911 Board and the Board's designees. The SPOC will coordinate and work as needed with the NG9-1-1 service provider to ensure deliverables can be utilized for call routing. The SPOC shall remain engaged for the duration of the contract period and only replaced with written approval by the 911 Board. The Board reserves the right of approval of the proposed project manager or any reallocation of project managers for the duration of the contract period.

The Vendor shall provide the name and background of the proposed individual and provide a brief description of the responsibilities of the SPOC. While not required a PMP certified PM is preferred.

Vendors shall include a named resource as the single point of contact and provide a description of their experience and responsibilities.

4.2 Project Kick-off Meeting

The Vendor shall coordinate a project kick-off meeting with 911 Board representatives and additional project stakeholders as necessary. The Vendor's project manager shall attend the kick-off meeting in person at the Boards designated meeting point.

The project kick-off meeting shall serve as a session with the entire team to communicate the project objectives and distribute a firm action plan.

Vendors shall conduct a project kick-off meeting to outline the project action plan, assign areas of responsibilities, and create a common understanding of the project outcomes and schedules. All potential stakeholders must be identified, and every effort made by the vendor to conduct the kick-off to accommodate the stakeholders. Based upon the vendor's prior experience, scope of work, and size of the State the vendor will provide a "best effort" action plan here.

4.3 Project Planning

The Vendor shall develop a project management plan that will be tailored to the specifications for NG9-1-1 implementation of this effort. With numerous stakeholders and parallel projects/activities in flight proper scoping, scheduling, communications and risk management will be paramount. At a minimum the vendor will provide the following management plans:

- **Scope Management Plan** (Includes: WBS development process, deliverable acceptance process)
- **Communications Management Plan** (Includes: Stakeholder Register, Stakeholder Communication Specifications, Communications Schedule)
- **Schedule Management Plan** (Includes: Performance Measurements Approach (i.e. Schedule Variance, Schedule Performance Index),
- **Change Management Plan**
- **Risk Management Plan** (Includes: Risk Assessment and Mitigation Methodology, Roles & Responsibility, and Timing of Risk Management activities)

In order to properly execute and control the project and in conjunction with the previous question the vendor shall address each bulleted plan above detailing the deliverables in each plan and explaining how they will be achieved. In addition, the vendor will provide the following project management documentation:

- Risk Register (Includes: Prioritized Risk List, Risk Response Strategies, and Risk Owners)
- Project Schedule with Critical Path(s) Identification
- Work Breakdown Structure

4.4 Project Status Reporting

The Vendor shall prepare weekly progress/milestone reports for the Board, until otherwise advised. To ensure on-going communications, project planning and overall awareness of progress, project status reports shall include project progress, milestone achievement and status updates. The project status reports shall include references to any Board responsibilities, upcoming major task elements, deliverables and applicable quality assurance/quality control (QA/QC) metrics. The Vendor shall include a final QC report at the conclusion of the project.

The vendor will participate in update status teleconferences at the discretion of the Board. The vendor will also provide update status oral reports to the Board in person up to 3 times during the span of the implementation.

Vendors shall describe the Project status reporting framework and provide any samples necessary to adequately assess the response.

5 Appendix A Standards References

DATA STRUCTURES DOCUMENTS (including NG9-1-1)	
NENA STA-015.10-2018 (Originally 02-010)	NENA Standard Data Formats for E9 1 1 Data Exchange & GIS Mapping
NENA-STA-006.1-2018	NENA Standard for NG9-1-1 GIS Data Model
02-501	Wireless (Pre-XML) Static and Dynamic ALI Data Content Information Document
02-503	XML Namespaces Information Document
04-005	ALI Query Service Standard
NENA-STA-012.2-2017 (originally 71-001)	NG9-1-1 Additional Data Standard
NENA-STA-004.1-2014	NENA Next Generation United States Civic Location Data Exchange Format (CLDXF)
NENA-STA-008.2-2014 (originally 70-001)	NENA Registry System (NRS) Standard
NENA/APCO-INF-005	NENA/APCO Emergency Incident Data Document (EIDD) Information Document
DATA MANAGEMENT DOCUMENT (including NG9-1-1)	
02-011	Data Standards For Local Exchange Carriers, ALI Service Providers & 9-1-1 Jurisdictions
02-013	Data Standards for the Provisioning and Maintenance of MSAG Files to VDBs and ERDBs
02-014	GIS Data Collection and Maintenance Standards
02-015	Standard for Reporting and Resolving ANI/ALI Discrepancies and No Records Found for Wireline, Wireless and VoIP Technologies
02-502	NENA Company ID Registration Service Information Document
06-001	Standards for Local Service Provider Interconnection Information Sharing
71-501	Synchronizing Geographic Information System Databases with MSAG & ALI Information Document
71-502	An Overview of Policy Rules for Call Routing and Handling in NG9-1-1 Information Document
NENA-INF-011.1-2014	NENA NG9-1-1 Policy Routing Rules Operations Guide
NENA-INF-014.1-2015	NENA Information Document for Development of Site/Structure Address Point GIS Data for 9-1-1
NENA-STA-003.1.1-2014	NENA Standard for NG9-1-1 Policy Routing Rules
NENA-REQ-002.1-2016	NENA Next Generation 9-1-1 Data Management Requirements
NENA-STA-005.1.1-2017	NENA Standards for the Provisioning and Maintenance of GIS data to ECRF and LVFs

6 Appendix B Attribute Table References

6.1 Road Centerlines

Descriptive Name	Field Name	M/C/O	Type	Field Width	Domain Field
Discrepancy Agency ID	DiscrpAgID	M	A	75	
Date Updated	DateUpdate	M	D	-	
Effective Date	Effective	O	D	-	
Expiration Date	Expire	O	D	-	
Road Centerline NENA Globally Unique ID	RCL_NGUID	M	A	254	
Left Address Number Prefix	AdNumPre_L	C	A	15	
Right Address Number Prefix	AdNumPre_R	C	A	15	
Left FROM Address	FromAddr_L	M	I	6	
Left TO Address	ToAddr_L	M	I	6	
Right FROM Address	FromAddr_R	M	I	6	
Right TO Address	ToAddr_R	M	I	6	
Parity Left	Parity_L	M	A	1	Parity
Parity Right	Parity_R	M	A	1	Parity
Street Name Pre Modifier	St_PreMod	C	A	15	
Street Name Pre Directional	St_Pre_Dir	M	A	9	StreetNameDirectional
Street Name Pre Type	St_PreTyp	M	A	50	StreetNameTypes
Street Name Pre Type Separator	St_PreSep	C	A	20	StreetNamePreTypeSeparators
Street Name	St_Name	M	A	60	
Street Name Post Type	St_PosTyp	M	A	50	StreetNameTypes
Street Name Post Directional	St_PosDir	M	A	9	StreetNameDirectional
Street Name Post Modifier	St_PosMod	M	A	25	
ESN Left	ESN_L	C	A	5	
ESN Right	ESN_R	C	A	5	
Geozone Left	Geozone_L	C	A	30	
Geozone Right	Geozone_R	C	A	30	
Country Left	Country_L	M	A	2	Country
Country Right	Country_R	M	A	2	Country
State Left	State_L	M	A	2	State
State Right	State_R	M	A	2	State
County Left	County_L	M	A	40	County
County Right	County_R	M	A	40	County
Incorporated Municipality Left	IncMuni_L	M	A	100	

Incorporated Municipality Right	IncMuni_R	M	A	100	
Unincorporated Community Left	UnincCom_L	C	A	100	
Unincorporated Community Right	UnincCom_R	C	A	100	
Neighborhood Community Left	NbrhdCom_L	O	A	100	
Neighborhood Community Right	NbrhdCom_R	O	A	100	
One-way	OneWay	M	A	2	OneWay
Speed Limit	Speedlimit	M	I	3	SpeedLimit
X Coordinate of Starting Vertex	Xstart	O	F	DD	
Y Coordinate of Starting Vertex	Ystart	O	F	DD	
X Coordinate of Ending Vertex	Xend	O	F	DD	
Y Coordinate of Ending Vertex	Yend	O	F	DD	
Submit Left	SubmitL	C	A	1	
Submit Right	SubmitR	C	A	1	
Left FROM Potential Address	FromAddr_L_PA	O	I	4	
Left TO Potential Address	ToAddr_L_PA	O	I	4	
Right FROM Potential Address	FromAddr_R_PA	O	I	4	
Right TO Potential Address	ToAddr_R_PA	O	I	4	
Legacy Street Name Pre Directional	LSt_PreDir	O	A	2	LegacyStreetName Directional
Legacy Street Name	LSt_Name	O	A	75	
Legacy Street Name Type	LSt_Type	O	A	4	
Legacy Street Name Post Directional	LSt_PostDir	O	A	2	LegacyStreetName Directional
MSAG Community Name Left	MSAGComm_L	O	A	30	
MSAG Community Name Right	MSAGComm_R	O	A	30	
Postal Code Left	PostCode_L	M	A	7	
Postal Code Right	PostCode_R	M	A	7	
Postal Community Name Left	PostComm_L	C	A	40	
Postal Community Name Right	PostComm_R	C	A	40	
Road Class	RoadClass	M	A	15	RoadClass
Validation Left	Valid_L	O	A	1	
Validation Right	Valid_R	O	A	1	

6.2 Site/Structure Address Points

Descriptive Name	Field Name	M/C/O	Type	Field Width	Domain Field
Discrepancy Agency ID	DiscrpAgID	M	A	75	
Date Updated	DateUpdate	M	D	-	
Effective Date	Effective	O	D	-	
Expiration Date	Expire	O	D	-	
Site NENA Globally Unique ID	Site_NGUID	M	A	254	
Address Number Prefix	AddNum_Pre	C	A	15	
Address Number	Add_Numer	M	I	4	
Address Number Suffix	AddNum_Suf	C	A	15	
Street Name Pre Modifier	St_PreMod	C	A	15	
Street Name Pre Directional	St_Pre_Dir	M	A	9	StreetNameDirectional
Street Name Pre Type	St_PreTyp	M	A	50	StreetNameTypes
Street Name Pre Type Separator	St_PreSep	C	A	20	StreetNamePreTypeSeparators
Street Name	St_Name	M	A	60	
Street Name Post Type	St_PosTyp	M	A	50	StreetNameTypes
Street Name Post Directional	St_PosDir	M	A	9	StreetNameDirectional
Street Name Post Modifier	St_PosMod	M	A	25	
ESN	ESN	C	A	5	
Country	Country	M	A	2	Country
State	Stat	M	A	2	State
County	County	M	A	40	County
Incorporated Municipality	IncMuni	M	A	100	
Unincorporated Community	UnincCom	C	A	100	
Neighborhood Community	NbrhdCom	O	A	100	
Legacy Street Name Pre Directional	LSt_PreDir	O	A	2	LegacyStreetNameDirectional
Descriptive Name	Field Name	M/C/O	Type	Field Width	Domain Field
Legacy Street Name	LSt_Name	O	A	75	
Legacy Street Name Type	LSt_Type	O	A	4	
Legacy Street Name Post Directional	LSt_PostDir	O	A	2	LegacyStreetNameDirectional
MSAG Community Name	MSAGComm	O	A	30	
Additional Code	AddCode	O	A	6	
Additional Data URI	AddDataURI	O	A	254	
Postal Code	PostCode	M	A	7	
Postal Code + 4	PostCode4	O	A	4	
Postal Community Name	PostComm	C	A	40	
Building	Building	O	A	75	

Floor	Floor	O	A	75	
Unit	Unit	O	A	75	
Room	Room	O	A	75	
Seat	Seat	O	A	75	
Additional Location Information	Addtl Loc	O	A	255	
Complete Landmark Name	LandmkName	O	A	150	
Mile Post	Mile Post	O	A	150	
Place Type	Place Type	O	A	50	PlaceType
Placement Method	Placement	O	A	25	PlacementMethod
Primary	Primary	C	A	1	
Longitude	Long	O	D	8	
Latitude	Lat	O	D	8	
Elevation	Elev	O	I	4	

6.3 PSAP Boundary

Descriptive Name	Field Name	M/C/O	Type	Field Width	Domain
Discrepancy Agency ID	DiscrpAgID	M	A	75	
Date Updated	DateUpdate	M	D		
Effective Date	Effective	O	D		
Expiration date	Expire	O	D		
Emergency Service Boundary NENA Globally Unique ID	ES_NGUID	M	A	254	
State	State	M	A	2	State
Agency ID	Agency_ID	M	A	100	
Service URI	ServiceURI	M	U	254	
Service URN	ServiceURN	M	A	50	
Service Number	ServiceNum	O	A	15	
Agency vCard URI	Avcard_URI	M	U	254	
Display Name	DsplayName	M	A	60	

6.4 Emergency Service Boundary

Descriptive Name	Field Name	M/C/O	Type	Field Width	Domain
Discrepancy Agency ID	DiscrpAgID	M	A	75	
Date Updated	DateUpdate	M	D		
Effective Date	Effective	O	D		
Expiration date	Expire	O	D		
Emergency Service Boundary NENA Globally Unique ID	ES_NGUID	M	A	254	
State	State	M	A	2	State
Agency ID	Agency ID	M	A	100	
Service URI	ServiceURI	M	U	254	
Service URN	ServiceURN	M	A	50	
Service Number	ServiceNum	O	A	15	
Agency vCard URI	Avcard URI	M	U	254	
Display Name	DsplayName	M	A	60	

6.5 Provisioning Boundary

Descriptive Name	Field Name	M/C/O	Type	Field Width	Domain
Discrepancy Agency ID	DiscrpAgID	M	A	75	
Date Updated	DateUpdate	M	D		
Effective Date	Effective	O	D		
Expiration date	Expire	O	D		
Provisioning Boundary NENA Globally Unique ID	PB_NGUID	M	A	254	

6.6 Street Name Alias Table

Descriptive Name	Field Name	M/C/O	Type	Field Width	Domain Field
Discrepancy Agency ID	DiscrpAgID	M	A	75	
Date Updated	DateUpdate	M	D	-	
Effective Date	Effective	O	D	-	
Expiration Date	Expire	O	D	-	
Alias Street Name NENA Globally Unique ID	ASt_NGUID	M	A	254	
Road Centerline NENA Globally Unique ID	RCL_NGUID	O	A	254	
Alias Street Name Pre Modifier	ASt_PreMod	O	A	15	
Alias Street Name Pre Directional	ASt_PreDir	O	A	9	StreetNameDirectional
Alias Street Name Pre Type	AStPreType	O	A	50	
Alias Street Name Pre Type Separator	ASt_PreSep	O	A	20	
Alias Street Name	ASt_Name	O	A	60	
Alias Street Name Post Type	ASt_PosType	O	A	50	
Alias Street Name Post Directional	ASt_PosDir	O	A	9	StreetNameDirectional
Alias Street Name Post Modifier	ASt_PosMod	O	A	25	
Alias Legacy Street Name Pre Directional	ALStPreDir	O	A	2	LegacyStreetNameDirectional
Alias Legacy Street Name	ALStName	O	A	75	
Alias Legacy Street Name Type	ALStType	O	A	4	
Alias Legacy Street Name Post Directional	ALStPosDir	O	A	2	LegacyStreetNameDirectional