ATTACHMENT C

TECHNICAL SPECIFICATIONS

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# INTRODUCTION

## Overview

The Alabama 911 Board has implemented 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 provides the framework for all Public Safety Answering Points (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 guide GIS efforts from the GIS Program Office into a multifaceted approach to statewide GIS. Separate projects will be executed simultaneously while combining to serve the greater needs of NG911 implementation and the GIS driven components of the Board’s ESInet and core services. These projects include on-going GIS data validation and remediation, GIS database administration, Development of a Spatial Interface (SI), an Emergency Call Routing Function (ECRF), a Location Validation Function (LVF), as well as supporting the Board’s 85 Emergency Communication Districts (ECDs) and the 106 PSAPs contained within those districts with their GIS needs.

**GIS Program efforts made to date:**

At the time of issuance of this document, the Board’s GIS Program will have existed for just over 3 years. The Program has achieved several objectives outlined in the original RFP during that period. The Program Office has collected, at a minimum, the seven mandatory GIS data layers outlined in the NENA standards documents for all 85 of its ECDs. The Board has chosen to adopt the NENA Standard for NG911 GIS Data Model (NENA-STA-006.2-2022) as it’s GIS data standard. Board staff, ECD employed GIS professionals, and independent GIS contractors have worked to make significant progress in remediating the collected GIS datasets to be compliant with the NENA GIS Data Model format. The Board is also implementing its geospatial call routing platform. To enable this implementation, the GIS Program Office is conducting statewide boundary facilitation. This process will allow the ECDs to determine where there are spatial gaps and overlaps in their respective PSAP boundaries. Districts then amend these boundaries to generate a topologically seamless statewide PSAP boundary layer.

**GIS Data Validation and Remediation:**

The Board is seeking a GIS data validation solution that will assess the current state of an ECD’s GIS data as compared to NENA’s multiple standards and informational documents pertaining to the provisioning and maintenance of GIS data in a fully complaint NG911 environment. This solution should be internet based, run both internal and cross-jurisdictional validations, and provide validation mark-ups for data remediation.

**Impact**

The impact of this project is to continue the Board’s mission of remediating the entirety of the statewide collected GIS datasets into a seamless deliverable capable of meeting the needs of the Board and the ECRF/LVF as part of ANGEN's core functions/services and all other NG911 functions deployed by the Board.

**Timeline**

This project will begin immediately as by the time of the awarding of the RFP the Board will be geo-routing all wireless calls through their ECRF. It is imperative that the vendor’s solution be ready to implement at the signing of the contract to support the immediate needs of any boundary shifts that may arise, potentially impacting call routing. This project will run through the extent of the contract period.

**GIS Database Administration:**

This project 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 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 to the PSAP GIS manager for correction.

The second stage will be the implementation of a Statewide GIS System for all PSAPs. The GIS files will be 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 ECRF/LVF 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**

These projects will run through the extent of the contract period. This project will begin immediately as by the time of the awarding the needs of the core services and geo-routing will be well under way.

**Development of a Spatial Interface (SI), Emergency Call Routing Function (ECRF), and Location Validation Function (LVF):**

The Board envisions migrating fully to a NG911 system in the next year. Critical to that vison is the development and operation of a SI/ECRF/LVF. Each of these individual functions works interdependently to perform the major operations of a NG911 system. Therefore, it is critical to the Board that these component functions are developed.

**Impact**

The Board’s remediated and aggregated GIS dataset will be the primary authoritative source for location-based call routing and location validation information. This data will be passed though the SI into the ECRF/LVF for the explicit purpose of driving NG911 operations in the State of Alabama. Development of these services in conjunction with Board staff, and the ANGEN service provider is vital for these operations to be successful. While the chosen GIS vendor may not operate or maintain any of these component functions, they will be critical in the contributing to the development stages.

**Timeline**

This project will commence at the signing of the contract and is expected to take 6-12 months.

**Supporting GIS Needs:**

The Board has seen a rise in the need for ancillary GIS services both in-house and on behalf of the ECDs it serves. This is due mainly to a lack of professional GIS personnel staffed at the 106 PSAPs around the State.

**Impact**

The chosen GIS vendor may be an extension of the Board’s GIS program office. This role would be in servicing the professional GIS needs of both the Program office and the ECDs. These needs are wide ranging in scope from consulting guidance on standardizing operations to direct GIS work to include data remediation, data creation, and data maintenance. The Board has also seen the need for software support for the ECDs in the form of GIS editing and data collection software. This software must be ESRI compatible and allow for full remediation of any validation discrepancy reporting outlined in the pervious section.

**Timeline**

These needs would commence at the signing of the contract and would be used as needed on an a la carte basis.

## Scope of Services

The Board’s projects as outlined 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 include a method and workflow to validate and remediate the collected state-wide GIS data to enable the development of a geographic database used for traffic routing and location validation within the NG911 core.
2. Vendors must provide a solution to develop and administer a centralized GIS database capable of replacing the current ALI database to achieve full NG911 readiness.
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.
5. Vendors must provide a method for supporting the development and administration of an Emergency Call Routing Function and a Location Validation Function.
6. Vendors must describe the GIS support services they can provide as options to the Board and its ECD stakeholders. This description must include all available services itemized with associated costs.

The Board desires that transition to NG911 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 NG911 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 developing all the component projects in Section 1.1 and to ensure that the Scope of Work includes:

* Assessment of existing ECD/PSAP GIS database information
	+ ALI to Centerline error identification and assistance to the ECDs/PSAPs to make corrections
	+ MSAG to Centerline error identification and assistance to the ECDs/PSAPs to make corrections
	+ Address Point (Site / Structure) error identification and assistance to the ECDs/PSAPs to make corrections
	+ Boundary gap analysis and review of gaps and overlaps with ECDs/PSAPs to make corrections
	+ Development of a single Statewide NG911 dataset to meet the NENA NG911 GIS Data Model
	+ Implementation of NG911 GIS system in cooperation with the NG911 System Service Provider (SSP)
	+ Process and workflow development and implementation for ECDs/PSAPs to ensure data remains current
	+ Update receipt and integration of geospatial data from each 911 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 NG911 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-006.2-2022
* 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 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.

## 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 an 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.

## 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.

## 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-006.2-2022). 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
* Primary PSAP Boundary
* Primary 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 ECDs/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 ECD/PSAP or Authority responsible for addressing or Board staff. As outlined in Section 1.1, where an ECD cannot perform such tasks, the Board may engage the chosen vendor to perform this remediation on behalf of the ECD. The contractor shall provide sufficient information and guidance to the local entities during the remediation of their data.

# GIS Layer Specifications

## 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 NENA NG9-1-1 GIS Data Model structure (NENA STA-015.10-2018 and NENA-STA-006.2-2022).

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

### Layer Specifications

* Adherence to the NENA-STA-006.2-2022 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 NG911 United States Civic Location Data Exchange Format (CLDXF) Standard, NENA-STA-004.1.1-2014, details street naming requirements for NG911 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 NG911 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 NG911 GIS Data Model.

## 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 NG911 GIS Data Model.

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

### Layer Specifications

* Adherence to the NENA-STA-006.2-2022 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.
* The Vendor shall identify all errors and discrepancies associated with the address point placement in relation to the associated road centerline address range.

Vendors shall describe their process for ensuring that site/structure address points meet the criteria defined within the NG911 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 NG911 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 the 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-006.2-2022 unless they’re self-explanatory or in the case of street name elements based on NENA-STA-004.1.1-2014.

## Primary PSAP Services Boundary

Per NENA-STA-006.2-2022, in an NG911 deployment, the initial routing of a 911 call cannot happen without Primary PSAP boundaries. The PSAP Polygon 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 primary 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 primary PSAP boundary information Statewide into a GIS boundary data layer containing State, County and Municipal boundaries. The methodology must meet the NENA standard for NG911 GIS Data Model.

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

### Layer Specifications

* Adherence to the NENA-STA-006.2-2022 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 primary PSAP boundaries meet the criteria defined within the NG911 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 primary PSAP boundary information Statewide into a GIS boundary data layer containing State, County and Municipal boundaries.

## Primary Emergency Services Boundary

Per NENA-STA-006.2-2022, in an NG911 deployment, the selective transfer of 911 calls and Emergency Incident Data Objects (EIDOs) to another PSAP or downstream agency uses service boundary layers, all with the same data structure.

The following layers (formally known as Emergency Service Boundaries), which may be maintained as separate or combined, are the next highest priority for NG911 deployment. Primary Emergency Services MUST include the following:

* Police
* Fire
* Emergency Medical Services

Each of these layers is used by the ECRF to perform a geographic query to determine which agencies are responsible for providing service to a location in the event a selective transfer is desired, or to direct an EIDO to an agency for dispatch, or to display the responsible agencies at the PSAP. In addition, service boundary layers are used by PSAPs to identify the appropriate entities/first responders to be dispatched. Each layer representing a primary emergency service may contain one or more polygon boundaries that define the primary emergency services for that geographic area.

The Vendor must aggregate Statewide primary 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 NG911 GIS Data Model.

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

### Layer Specifications

* Adherence to the NENA-STA-006.2-2022 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 each individual ESB boundary or between each ESB boundary and neighboring ESB boundaries. Each individual ESB boundary is separate in this consideration for the other 2 boundary types.

Vendors shall describe their process for ensuring that primary emergency service boundaries meet the criteria defined within the NG911 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 primary 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 NG911 GIS Data Model.

## Provisioning Boundaries

Per NENA-STA-006.2-2022, Provisioning Boundaries data is maintained as a polygon layer for representing the area of GIS data provisioning responsibility, with no unintentional gaps or overlaps. The Provisioning Boundary must align with data from all adjoining GIS data providers. A Provisioning Boundary can take on a variety of shapes; for example, it may represent that extent of a city, the extent of a county, a region with multiple cities and counties, or possibly the extent of all areas served by a particular PSAP.

### 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.

## Street Name Alias Table

Per NENA-STA-006.2-2022, the street name as assigned by the local addressing authority MUST be the name associated with the Road Centerline layer. 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 911 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 NG911 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 4.1.2 of NENA-STA-006.2-2022 prior to creating the alias table.

### Layer Specifications

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

# GIS Services

The Vendor may be responsible for GIS management and maintenance of 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 NG911 service provider (ESInet vendor) to integrate the operation of the ECRF and the LVF with the complete NG911 system for the purpose of call routing.

The ECRF/LVF functionality will provide a fully developed GIS change detection/update process including a Spatial Interface (SI) function capable of addressing data updates and discrepancy inquiries from the local 911 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 NG911 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 911 entities, provide for QA/QC auditing functions prior to provisioning the GIS data into the ECRF/LVF, and implement and manage a NG911 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.

## 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.

The Vendor shall provide a GIS data editing solution that is ESRI compatible and allow for full remediation of any validation discrepancy reporting outlined in the previous section.

## 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 NG911 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 capability to return the GIS data to an ECD in its legacy schema is paramount so as not to potentially hinder any current CAD operations.

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.

## GIS Managed Services

* The Vendor shall provide for a secure web portal for ECDs 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 911 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 provide the means for returning normalized GIS data to the submitting ECD in its submitted legacy schema.

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.

## GIS Technical Service Requirements

* The Vendor’s solution must provide a ready-to-use software solution and shall not require any custom configuration, development, and be fully compatible with ESRI technology.
* The Vendor’s solution must provide a fully cloud-native solution without requirements for additional hardware, software, licenses, add-ons, or plug-ins.
* The Vendor’s solution must be accessible through all common web browsers
* The Vendor’s solution must provide statewide and regional data aggregation capabilities, within one deployment model.
* The Vendor’s solution must allow for the ability to download/export GIS data in the current NENA NG9-1-1 data model schema, and the previous NENA NG911 data model schema on demand
* The Vendor’s solution must provide the ability to perform unlimited quality control validations, on demand, and provide end users with the ability to automate and schedule validations.
* The Vendor’s solution must include a mobile application for field data collection and verification. Mobile application must be offered in multiple operating systems and include versioned editing capabilities.
* The Vendor’s solution must web-based map with GIS data editing capabilities.
* The Vendor’s solution must provide validation mark-ups, and include validation anomalies as points line and polygons.
* The Vendor’s solution must provide validations for both intra and inter-jurisdictional data.
* The Vendor’s solution must include communication and collaboration tools to resolve inter-jurisdictional gaps, overlaps, and discrepancies.
* The Vendor’s solution must provide an automated geospatial MSAG on demand
* The Vendor must demonstrate a technical bench capable of providing geospatial support service to every ECD, without project or data delivery delay.

# 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 Board, and the Board’s GIS Program Office as well as the NG911 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:

## 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 Board and the Board’s designees. The SPOC will coordinate and work as needed with the NG911 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 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.

## Project Kick-off Meeting

The Vendor shall coordinate a project kick-off meeting with 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.

## Project Planning

The Vendor shall develop a project management plan that will be tailored to the specifications for NG911 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: Work Breakdown Structure (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

## 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.