Digital Data
Technologies Inc

RESPONSE TO NEBRASKA SOLICITATION NUMBER RFP 5882 Z1

Quality Assurance/Quality Control (QA/QC) services with respect to Geographic Information Systems (GIS) data intended for use by Public Safety Answering Points (PSAPs) to facilitate the delivery of Next Generation 911 (NG9-1-1 services at a competitive and reasonable cost.

ORIGINAL

Buyer(s):	Annette Walton / Jennifer Eloge
Agency:	State Purchasing Bureau
Address:	1526 K Street, Suite 130
	Lincoln, NE 68508
Telephone:	402-471-6500
E-Mail:	as.materielpurchasing@nebraska.gov

State of Nebraska State Purchasing Bureau
REQUEST FOR PROPOSAL FOR CONTRACTUAL SERVICES

RETURN TO:
Name: State Purchasing Bureau
Address: 1526 K St. Suite 130
City/State/Zip: Lincoln, NE 68508
Phone: 402-471-6500

SOLICITATION NUMBER	RELEASE DATE
RFP 5882 Z1	July 20, 2018
OPENING DATE AND TIME	**PROCUREMENT CONTACT**
July 30, 2018 2:00 P.M. Central Time	Annette Walton / Jennifer Eloge

PLEASE READ CAREFULLY!

SCOPE OF SERVICE

The State of Nebraska (State), Department of Administrative Services (DAS), Materiel Division, State Purchasing Bureau (SPB), is issuing this Request for Proposal (RFP) Number 5882 Z1 for the purpose of selecting a qualified bidder to provide Quality Assurance/Quality Control (QA/QC) services with respect to Geographic Information Systems (GIS) data intended for use by Public Safety Answering Points (PSAPs) to facilitate the delivery of Next Generation 911 (NG9-1-1 services at a competitive and reasonable cost. A more detailed description can be found in Section V. The resulting contract may not be an exclusive contract as the State reserves the right to contract for the same or similar services from other sources now or in the future.

The term of the contract will be two (2) years commencing upon notice to proceed. The contract includes the option to renew for two (2) additional one (1) year periods upon mutual agreement of the Parties. The State reserves the right to extend the period of this contract beyond the termination date when mutually agreeable to the Parties.

ALL INFORMATION PERTINENT TO THIS REQUEST FOR PROPOSAL CAN BE FOUND ON THE INTERNET AT: http://das.nebraska.gov/materiel/purchasing.html.

IMPORTANT NOTICE: Pursuant to Neb. Rev. Stat. § 84-602.04, State contracts in effect as of January 1, 2014, and contracts entered into thereafter, must be posted to a public website. The resulting contract, the RFP, and the successful bidder's proposal or response will be posted to a public website managed by DAS, which can be found at http://statecontracts.nebraska.gov.

In addition and in furtherance of the State's public records Statute (Neb. Rev. Stat. § 84-712 et seq.), all proposals or responses received regarding this RFP will be posted to the State Purchasing Bureau public website.

These postings will include the entire proposal or response. Bidders must request that proprietary information be excluded from the posting. The bidder must identify the proprietary information, mark the proprietary information according to state law, and submit the proprietary information in a separate container or envelope marked conspicuously in black ink with the words "PROPRIETARY INFORMATION". The bidder must submit a detailed written document showing that the release of the proprietary information would give a business advantage to named business competitor(s) and explain how the named business competitor(s) will gain an actual business advantage by disclosure of information. The mere assertion that information is proprietary or that a speculative business advantage might be gained is not sufficient. (See Attorney General Opinion No. 92068, April 27, 1992) THE BIDDER MAY NOT ASSERT THAT THE ENTIRE PROPOSAL IS PROPRIETARY. COST PROPOSALS WILL NOT BE CONSIDERED PROPRIETARY AND ARE A PUBLIC RECORD IN THE STATE OF NEBRASKA. The State will then determine, in its discretion, if the interests served by nondisclosure outweighs any public purpose served by disclosure. (See Neb. Rev. Stat. § 84-712.05(3)) The bidder will be notified of the agency's decision. Absent a State determination that information is proprietary, the State will consider all information a public record subject to release regardless of any assertion that the information is proprietary.

If the agency determines it is required to release proprietary information, the bidder will be informed. It will be the bidder's responsibility to defend the bidder's asserted interest in non-disclosure.

To facilitate such public postings, with the exception of proprietary information, the State of Nebraska reserves a royalty-free, nonexclusive, and irrevocable right to copy, reproduce, publish, post to a website, or otherwise use any contract, proposal, or response to this RFP for any purpose, and to authorize others to use the documents. Any individual or entity awarded a contract, or who submits a proposal or response to this RFP, specifically waives any copyright or other protection the contract, proposal, or response to the RFP may have; and, acknowledges that they have the ability and authority to enter into such waiver. This reservation and waiver is a prerequisite for submitting a proposal or response to this RFP, and award of a contract. Failure to agree to the reservation and waiver will result in the proposal or response to the RFP being found non-responsive and rejected.

TABLE OF CONTENTS

GLOSSARY OF TERMS

Acceptance Test Procedure: Benchmarks and other performance criteria, developed by the State of Nebraska or other sources of testing standards, for measuring the effectiveness of products or services and the means used for testing such performance.

Addendum: Something to be added or deleted to an existing document; a supplement.

After Receipt of Order (ARO): After Receipt of Order

Agency: Any state agency, board, or commission other than the University of Nebraska, the Nebraska State colleges, the courts, the Legislature, or any other office or agency established by the Constitution of Nebraska.

Agent/Representative: A person authorized to act on behalf of another.

ALI – Automatic Location Information.

Amend: To alter or change by adding, subtracting, or substituting.

Amendment: A written correction or alteration to a document.

Appropriation: Legislative authorization to expend public funds for a specific purpose. Money set apart for a specific use.

Award: All purchases, leases, or contracts which are based on competitive proposals will be awarded according to the provisions in the RFP. The State reserves the right to reject any or all proposals, wholly or in part, or to award to multiple bidders in whole or in part. The State reserves the right to waive any deviations or errors that are not material, do not invalidate the legitimacy of the proposal, and do not improve the bidder's competitive position. All awards will be made in a manner deemed in the best interest of the State.

Best and Final Offer (BAFO): In a competitive bid, the final offer submitted which contains the bidder's (vendor's) most favorable terms for price.

Bid/Proposal: The offer submitted by a vendor in a response to a written solicitation.

Bid Bond: An insurance agreement, accompanied by a monetary commitment, by which a third party (the surety) accepts liability and guarantees that the vendor will not withdraw the bid.

Bidder: A vendor who submits an offer bid in response to a written solicitation.

Business: Any corporation, partnership, individual, sole proprietorship, joint-stock company, joint venture, or any other private legal entity.

Business Day: Any weekday, except State-recognized holidays.

Calendar Day: Every day shown on the calendar including Saturdays, Sundays, and State/Federal holidays.

Cancellation: To call off or revoke a purchase order without expectation of conducting or performing it at a later time.

Central Processing Unit (CPU): Any computer or computer system that is used by the State to store, process, or retrieve data or perform other functions using Operating Systems and applications software.

Change Order: Document that provides amendments to an executed purchase order or contract.

Collusion: An agreement or cooperation between two or more persons or entities to accomplish a fraudulent, deceitful, or unlawful purpose.

Commodities: Any equipment, material, supply or goods; anything movable or tangible that is provided or sold.

Commodities Description: Detailed descriptions of the items to be purchased; may include information necessary to obtain the desired quality, type, color, size, shape, or special characteristics necessary to perform the work intended to produce the desired results.

Competition: The effort or action of two or more commercial interests to obtain the same business from third parties.

Confidential Information: Unless otherwise defined below, "Confidential Information" shall also mean proprietary trade

secrets, academic and scientific research work which is in progress and unpublished, and other information which if released would give advantage to business competitors and serve no public purpose (see Neb. Rev. Stat. §84-712.05(3)). In accordance with Nebraska Attorney General Opinions 92068 and 97033, proof that information is proprietary requires identification of specific, named competitor(s) who would be advantaged by release of the information and the specific advantage the competitor(s) would receive.

Contract: An agreement between two or more parties creating obligations that are enforceable or otherwise recognizable at law; the writing that sets forth such an agreement.

Contract Administration: The management of the contract which includes and is not limited to; contract signing, contract amendments and any necessary legal actions.

Contract Award: Occurs upon execution of the State document titled "Service Contract Award" by the proper authority.

Contract Management: The management of day to day activities at the agency which includes and is not limited to ensuring deliverables are received, specifications are met, handling meetings and making payments to the Contractor.

Contract Period: The duration of the contract.

Contractor: Any individual or entity having a contract to furnish commodities or services.

Cooperative Purchasing: The combining of requirements of two or more political entities to obtain advantages of volume purchases, reduction in administrative expenses or other public benefits.

Copyright: A property right in an original work of authorship fixed in any tangible medium of expression, giving the holder the exclusive right to reproduce, adapt and distribute the work.

Critical Program Error: Any Program Error, whether or not known to the State, which prohibits or significantly impairs use of the Licensed Software as set forth in the documentation and intended in the contract.

Customer Service: The process of ensuring customer satisfaction by providing assistance and advice on those products or services provided by the Contractor.

Default: The omission or failure to perform a contractual duty.

Deviation: Any proposed change(s) or alteration(s) to either the terms and conditions or deliverables within the scope of the written solicitation or contract.

Discrepancy Report: A report delivered by the Contractor to the local agency responsible for uploading GIS data describing errors and discrepancies in a GIS dataset that must be corrected before the dataset will be accepted for inclusion in the GIS repository.

ECRF: Emergency Call Routing Function.

EMS: Emergency Medical Services.

ESZ: Emergency Service Zone.

ESRI: Environmental Systems Research Institute, an international supplier of GIS software, web GIS and geodatabase management applications.

Evaluation: The process of examining an offer after opening to determine the vendor's responsibility, responsiveness to requirements, and to ascertain other characteristics of the offer that relate to determination of the successful award.

Evaluation Committee: Committee(s) appointed by the requesting agency that advises and assists the procuring office in the evaluation of bids/proposals (offers made in response to written solicitations).

Extension: Continuance of a contract for a specified duration upon the agreement of the parties beyond the original Contract Period. Not to be confused with "Renewal Period".

FDGC: The Federal Geographic Data Committee.

FID Number: Feature Identification Number.

GIS: Geographic Information Systems.

GIS Dataset: GIS data uploaded to the Contractor's portal for QA/QC review.

GIS Repository: A database maintained by the Commission which includes the most-recently uploaded GIS datasets from each PSAP in the State of Nebraska.

Free on Board (F.O.B.) Destination: The delivery charges are included in the quoted price and prepaid by the vendor. Vendor is responsible for all claims associated with damages during delivery of product.

Free on Board (F.O.B.) Point of Origin: The delivery charges are not included in the quoted price and are the responsibility of the agency. Agency is responsible for all claims associated with damages during delivery of product.

Foreign Corporation: A foreign corporation that was organized and chartered under the laws of another state, government, or country.

Installation Date: The date when the procedures described in "Installation by Contractor", and "Installation by State", as found in the RFP, or contract, are completed.

Interested Party: A person, acting in their personal capacity, or an entity entering into a contract or other agreement creating a legal interest therein.

Late Bid/Proposal: An offer received after the Opening Date and Time.

Licensed Software Documentation: The user manuals and any other materials in any form or medium customarily provided by the Contractor to the users of the Licensed Software which will provide the State with sufficient information to operate, diagnose, and maintain the Licensed Software properly, safely, and efficiently.

LVF: Location Validation Function.

Mandatory/Must: Required, compulsory, or obligatory.

May: Discretionary, permitted; used to express possibility.

Module (see System): A collection of routines and data structures that perform a specific function of software.

MSAG: Master Street Address Guide.

Must: See Mandatory/ Must and Shall/Will/Must.

National Institute for Governmental Purchasing (NIGP): National Institute of Governmental Purchasing – Source used for assignment of universal commodity codes to goods and services.

NENA: National Emergency Number Association.

Next Generation 911 (NG9-1-1): an Internet protocol-based system (1) comprised of networks, functional elements, and data bases that replicate basic 911 service and enhanced-911 service features and functions and provide additional capabilities and (2) designed to provide access to emergency services from all connected communications sources and to provide multimedia data capabilities for public safety answering points and other emergency services organizations. (Neb. Rev. Stat. §

NITC: Nebraska Information Technology Council.

Open Market Purchase: Authorization may be given to an agency to purchase items above direct purchase authority due to the unique nature, price, quantity, location of the using agency, or time limitations by the AS Materiel Division, State Purchasing Bureau.

Opening Date and Time: Specified date and time for the public opening of received, labeled, and sealed formal proposals.

Operating System: The control program in a computer that provides the interface to the computer hardware and peripheral devices, and the usage and allocation of memory resources, processor resources, input/output resources, and security resources.

Outsourcing: The contracting out of a business process which an organization may have previously performed internally or has a new need for, to an independent organization from which the process is purchased back.

Payroll & Financial Center (PFC): Electronic procurement system of record.

Performance Bond: An insurance agreement, accompanied by a monetary commitment, by which a third party (the surety) accepts liability and guarantees that the Contractor fulfills any and all obligations under the contract.

Platform: A specific hardware and Operating System combination that is different from other hardware and Operating System combinations to the extent that a different version of the Licensed Software product is required to execute properly in the environment established by such hardware and Operating System combination.

Point of Contact (POC): The person designated to receive communications and to communicate.

Portal: A dedicated website operated by the Contractor through which GIS datasets are uploaded by local PSAPs for QA/QC review.

Pre-Bid/Pre-Proposal Conference: A meeting scheduled for the purpose of clarifying a written solicitation and related expectations.

Product: Something that is distributed commercially for use or consumption and that is usually (1) tangible personal property, (2) the result of fabrication or processing, and (3) an item that has passed through a chain of commercial distribution before ultimate use or consumption.

Program Error: Code in Licensed Software which produces unintended results or actions, or which produces results or actions other than those described in the specifications. A program error includes, without limitation, any Critical Program Error.

Program Set: The group of programs and products, including the Licensed Software specified in the RFP, plus any additional programs and products licensed by the State under the contract for use by the State.

Project: The total scheme, program, or method worked out for the accomplishment of an objective, including all documentation, commodities, and services to be provided under the contract.

Proposal: See Bid/Proposal.

Proprietary Information: Proprietary information is defined as trade secrets, academic and scientific research work which is in progress and unpublished, and other information which if released would give advantage to business competitors and serves no public purpose (see Neb. Rev. Stat. § 84-712.05(3)). In accordance with Attorney General Opinions 92068 and 97033, proof that information is proprietary requires identification of specific named competitor(s) advantaged by release of the information and the demonstrated advantage the named competitor(s) would gain by the release of information.

Protest/Grievance: A complaint about a governmental action or decision related to a RFP or resultant contract, brought by a vendor who has timely submitted a bid response in connection with the award in question, to AS Materiel Division or another designated agency with the intention of achieving a remedial result.

PSAP: Public Safety Answering Point.

Public Proposal Opening: The process of opening correctly submitted offers at the time and place specified in the written solicitation and in the presence of anyone who wished to attend.

Quality Assurance/Quality Control (QA/QC): A combination of quality assurance, the process or set of processes used to measure and assure the quality of a product; and quality control, the process of meeting products and services to public safety standards. (NENA-REQ-002.1-2016, p. 11).

Recommended Hardware Configuration: The data processing hardware (including all terminals, auxiliary storage, communication, and other peripheral devices) to the extent utilized by the State as recommended by the Contractor.

Release Date: The date of public release of the written solicitation to seek offers.

Renewal Period: Optional contract periods subsequent to the original Contract Period for a specified duration with previously agreed to terms and conditions. Not to be confused with Extension.

Request for Information (RFI): A general invitation to vendors requesting information for a potential future solicitation. The RFI is typically used as a research and information gathering tool for preparation of a solicitation.

Request for Proposal (RFP): A written solicitation utilized for obtaining competitive offers.

Responsible Bidder: A bidder who has the capability in all respects to perform fully and lawfully all requirements with integrity and reliability to assure good faith performance.

Responsive Bidder: A bidder who has submitted a bid which conforms to all requirements of the solicitation document.

Shall/Will/Must: An order/command; mandatory.

Should: Expected; suggested, but not necessarily mandatory.

Software License: Legal instrument with or without printed material that governs the use or redistribution of licensed software.

Sole Source – Commodity: When an item is available from only one source due to the unique nature of the requirement, its supplier, or market conditions.

Sole Source – Services: A service of such a unique nature that the vendor selected is clearly and justifiably the only practical source to provide the service. Determination that the vendor selected is justifiably the sole source is based on either the uniqueness of the service or sole availability at the location required.

Specifications: The detailed statement, especially of the measurements, quality, materials, and functional characteristics, or other items to be provided under a contract.

Statutory: These clauses are controlled by state law and are not subject to negotiation.

Subcontractor: Individual or entity with whom the Contractor enters a contract to perform a portion of the work awarded to the contractor.

System (see Module): Any collection or aggregation of two (2) or more Modules that is designed to function, or is represented by the Contractor as functioning or being capable of functioning, as an entity.

Termination: Occurs when either Party, pursuant to a power created by agreement or law, puts an end to the contract prior to the stated expiration date. All obligations which are still executory on both sides are discharged but any right based on prior breach or performance survives.

Third Party: Any person or entity, including but not limited to fiduciaries, shareholders, owners, officers, managers, employees, legally disinterested persons, and subcontractors or agents, and their employees. It shall not include any entity or person who is an interested Party to the contract or agreement.

Trade Secret: Information, including, but not limited to, a drawing, formula, pattern, compilation, program, device, method, technique, code, or process that (a) derives independent economic value, actual or potential, from not being known to, and not being ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use; and (b) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy (see Neb. Rev. Stat. §87-502(4)).

Trademark: A word, phrase, logo, or other graphic symbol used by a manufacturer or vendor to distinguish its product from those of others, registered with the U.S. Patent and Trademark Office.

Upgrade: Any change that improves or alters the basic function of a product or service.

Vendor: An individual or entity lawfully conducting business in the State of Nebraska, or licensed to do so, who seeks to provide goods or services under the terms of a written solicitation.

Vendor Performance Report: A report issued to the Contractor by State Purchasing Bureau when products or services delivered or performed fail to meet the terms of the purchase order, contract, and/or specifications, as reported to State Purchasing Bureau by the agency. The State Purchasing Bureau shall contact the Contractor regarding any such report. The vendor performance report will become a part of the permanent record for the Contractor. The State may require vendor to cure. Two such reports may be cause for immediate termination.

Will: See Shall/Will/Must.

Work Day: See Business Day.

I. PROCUREMENT PROCEDURE

A. GENERAL INFORMATION

The RFP is designed to solicit proposals from qualified bidders who will be responsible for providing Quality Assurance/Quality Control (QA/QC) services cost with respect to Geographic Information Systems (GIS) data intended for use by Public Safety Answering Points (PSAPs) to facilitate the delivery of Next Generation 911 (NG9-1-1) services at a competitive and reasonable cost.

Proposals shall conform to all instructions, conditions, and requirements included in the RFP. Prospective bidders are expected to carefully examine all documents, schedules, and requirements in this RFP, and respond to each requirement in the format prescribed. Proposals may be found non-responsive if they do not conform to the RFP.

B. PROCURING OFFICE AND COMMUNICATION WITH STATE STAFF AND EVALUATORS

Procurement responsibilities related to this RFP reside with the State Purchasing Bureau. The point of contact (POC) for the procurement is as follows:

Name:	Buyer(s) Annette Walton / Jennifer Eloge
Agency:	State Purchasing Bureau
Address:	1526 K Street, Suite 130
	Lincoln, NE 68508
Telephone:	402-471-6500
E-Mail:	as.materielpurchasing@nebraska.gov

From the date the RFP is issued until the Intent to Award is issued, communication from the bidder is limited to the POC listed above. After the Intent to Award is issued, the bidder may communicate with individuals the State has designated as responsible for negotiating the contract on behalf of the State. No member of the State Government, employee of the State, or member of the Evaluation Committee is empowered to make binding statements regarding this RFP. The POC will issue any clarifications or opinions regarding this RFP in writing. Only the buyer can modify the RFP, answer questions, render opinions, and only the SPB or awarding agency can award a contract. Bidders shall not have any communication with, or attempt to communicate or influence any evaluator involved in this RFP.

The following exceptions to these restrictions are permitted:

1. Contact made pursuant to pre-existing contracts or obligations;
2. Contact required by the schedule of events or an event scheduled later by the RFP POC; and
3. Contact required for negotiation and execution of the final contract.

The State reserves the right to reject a bidder's proposal, withdraw an Intent to Award, or terminate a contract if the State determines there has been a violation of these procurement procedures.

C. **SCHEDULE OF EVENTS**

The State expects to adhere to the procurement schedule shown below, but all dates are approximate and subject to change.

ACTIVITY		DATE/TIME
1.	Release RFP	June 20, 2018
2.	Last day to submit written questions	July 8, 2018
3.	State responds to written questions through RFP "Addendum" and/or "Amendment" to be posted to the Internet at: http://das.nebraska.gov/materiel/purchasing.html	July 16, 2018
4.	Proposal opening Location: State Purchasing Bureau 1526 K Street, Suite 130 Lincoln, NE 68508	July 30, 2018 2:00 PM Central Time
5.	Review for conformance to RFP requirements	July 30, 2018
6.	Evaluation period	July 31, 2018 Through August 15, 2018
7.	"Oral Interviews/Presentations and/or Demonstrations" (if required)	TBD
8.	Post "Intent to Award" to Internet at: http://das.nebraska.gov/materiel/purchasing.html	August 22, 2018
9.	Contract finalization period	August 22, 2018 Through September 20, 2018
10.	Contract award	September 21, 2018
11.	Contractor start date	October 1, 2018

D. **WRITTEN QUESTIONS AND ANSWERS**

Questions regarding the meaning or interpretation of any RFP provision must be submitted in writing to the State Purchasing Bureau and clearly marked "RFP Number 5882 Z1; QA/QC for GIS datasets Questions". The POC is not obligated to respond to questions that are received late per the Schedule of Events.

Bidders should present, as questions, any assumptions upon which the bidder's proposal is or might be developed. Proposals will be evaluated without consideration of any known or unknown assumptions of a bidder. The contract will not incorporate any known or unknown assumptions of a bidder.

It is preferred that questions be sent via e-mail to as.materielpurchasing@nebraska.gov, but may be delivered by hand or by U.S. Mail. It is recommended that bidders submit questions using the following format.

RFP Section Reference	RFP Page Number	Question

Written answers will be posted at http://das.nebraska.gov/materiel/purchasing.html per the Schedule of Events.

E. **PRICES**

All prices, costs, and terms and conditions submitted in the proposal shall remain fixed and valid commencing on the opening date of the proposal until the contract terminates or expires.

The State reserves the right to deny any requested price increase. No price increases are to be billed to any State Agencies prior to written amendment of the contract by the parties.

F. **SECRETARY OF STATE/TAX COMMISSIONER REGISTRATION REQUIREMENTS (Statutory)**

All bidders must be authorized to transact business in the State of Nebraska and comply with all Nebraska Secretary of State Registration requirements. The bidder who is the recipient of an Intent to Award will be required to certify that it has complied and produce a true and exact copy of its current (within ninety (90) calendar days of the intent to award) Certificate or Letter of Good Standing, or in the case of a sole proprietorship, provide written documentation of sole proprietorship and complete the United States Citizenship Attestation Form, available on the Department of Administrative Services website at http://das.nebraska.gov/materiel/purchasing.html. This must be accomplished prior to execution of the contract.

G. **ETHICS IN PUBLIC CONTRACTING**

The State reserves the right to reject bids, withdraw an intent to award or award, or terminate a contract if a bidder commits or has committed ethical violations, which include, but are not limited to:

1. Offering or giving, directly or indirectly, a bribe, fee, commission, compensation, gift, gratuity, or anything of value to any person or entity in an attempt to influence the bidding process;
2. Utilize the services of lobbyists, attorneys, political activists, or consultants to influence or subvert the bidding process;
3. Being considered for, presently being, or becoming debarred, suspended, ineligible, or excluded from contracting with any state or federal entity:
4. Submitting a proposal on behalf of another Party or entity; and
5. Collude with any person or entity to influence the bidding process, submit sham proposals, preclude bidding, fix pricing or costs, create an unfair advantage, subvert the bid, or prejudice the State.

The bidder shall include this clause in any subcontract entered into for the exclusive purpose of performing this contract.

Bidder shall have an affirmative duty to report any violations of this clause by the bidder throughout the bidding process, and throughout the term of this contract for the successful bidder and their subcontractors.

H. **DEVIATIONS FROM THE REQUEST FOR PROPOSAL**

The requirements contained in the RFP become a part of the terms and conditions of the contract resulting from this RFP. Any deviations from the RFP in Sections II through VI must be clearly defined by the bidder in its proposal and, if accepted by the State, will become part of the contract. Any specifically defined deviations must not be in conflict with the basic nature of the RFP, requirements, or applicable state or federal laws or statutes. "Deviation", for the purposes of this RFP, means any proposed changes or alterations to either the contractual language or deliverables within the scope of this RFP. The State discourages deviations and reserves the right to reject proposed deviations.

I. **SUBMISSION OF PROPOSALS**

Bidders should submit one proposal marked on the first page: "ORIGINAL". If multiple proposals are submitted, the State will retain one copy marked "ORIGINAL" and destroy the other copies. The bidder is solely responsible for any variance between the copies submitted. Proposal responses should include the completed Form A, "Bidder Contact Sheet". Proposals must reference the RFP number and be sent to the specified address. Please note that the address label should appear as specified in Section I B. on the face of each container or bidder's bid response packet. If a recipient phone number is required for delivery purposes, 402-471-6500 should be used. The RFP number should be included in all correspondence.

Emphasis should be concentrated on conformance to the RFP instructions, responsiveness to requirements, completeness, and clarity of content. If the bidder's proposal is presented in such a fashion that makes evaluation difficult or overly time consuming the State reserves the right to reject the proposal as non-conforming.

By signing the "Request for Proposal for Contractual Services" form, the bidder guarantees compliance with the provisions stated in this RFP.

The State shall not incur any liability for any costs incurred by bidders in replying to this RFP, in the demonstrations and/or oral presentations, or in any other activity related to bidding on this RFP.

The Technical and Cost Proposals Template should be presented in separate sections (loose-leaf binders are preferred) on standard 8 ½" x 11" paper, except that charts, diagrams and the like may be on fold-outs which, when folded, fit into the 8 ½" by 11" format. Pages may be consecutively numbered for the entire proposal, or may be numbered consecutively within sections. Figures and tables should be numbered consecutively within sections. Figures and tables should be numbered and referenced in the text by that number. They should be placed as close as possible to the referencing text.

J. **BID PREPARATION COSTS**

The State shall not incur any liability for any costs incurred by bidders in replying to this RFP, including any activity related to bidding on this RFP.

K. **FAILURE TO COMPLY WITH REQUEST FOR PROPOSAL**

Violation of the terms and conditions contained in this RFP or any resultant contract, at any time before or after the award, shall be grounds for action by the State which may include, but is not limited to, the following:

1. Rejection of a bidder's proposal;
2. Withdrawal of the Intent to Award;
3. Withdrawal of the Award;
4. Termination of the resulting contract;
5. Legal action; and
6. Suspension of the bidder from further bidding with the State for the period of time relative to the seriousness of the violation, such period to be within the sole discretion of the State.

L. **BID CORRECTIONS**

A bidder may correct a mistake in a bid prior to the time of opening by giving written notice to the State of intent to withdraw the bid for modification or to withdraw the bid completely. Changes in a bid after opening are acceptable only if the change is made to correct a minor error that does not affect price, quantity, quality, delivery, or contractual conditions. In case of a mathematical error in extension of price, unit price shall govern.

M. **LATE PROPOSALS**

Proposals received after the time and date of the proposal opening will be considered late proposals. Late proposals will be returned unopened, if requested by the bidder and at bidder's expense. The State is not responsible for proposals that are late or lost regardless of cause or fault.

N. **PROPOSAL OPENING**

The opening of proposals will be public and the bidders will be announced. Proposals **WILL NOT** be available for viewing by those present at the proposal opening. Vendors may contact the State to schedule an appointment for viewing proposals after the Intent to Award has been posted to the website. Once proposals are opened, they become the property of the State of Nebraska and will not be returned.

O. **REQUEST FOR PROPOSAL/PROPOSAL REQUIREMENTS**

The proposals will first be examined to determine if all requirements listed below have been addressed and whether further evaluation is warranted. Proposals not meeting the requirements may be rejected as non-responsive. The requirements are:

1. Original Request for Proposal for Contractual Services form signed using an indelible method;
2. Clarity and responsiveness of the proposal;
3. Completed Corporate Overview;
4. Completed Sections II through VI;
5. Completed Technical Approach; and
6. Completed State Cost Proposal Template.

P. EVALUATION COMMITTEE

Proposals are evaluated by members of an Evaluation Committee(s). The Evaluation Committee(s) will consist of individuals selected at the discretion of the State. Names of the members of the Evaluation Committee(s) will not be published prior to the intent to award.

Any contact, attempted contact, or attempt to influence an evaluator that is involved with this RFP may result in the rejection of this proposal and further administrative actions.

Q. EVALUATION OF PROPOSALS

All proposals that are responsive to the RFP will be evaluated. Each evaluation category will have a maximum point potential. The State will conduct a fair, impartial, and comprehensive evaluation of all proposals in accordance with the criteria set forth below. Areas that will be addressed and scored during the evaluation include:

1. Corporate Overview should include but is not limited to:
   a. the ability, capacity, and skill of the bidder to deliver and implement the system or project that meets the requirements of the RFP;
   b. the character, integrity, reputation, judgment, experience, and efficiency of the bidder;
   c. whether the bidder can perform the contract within the specified time frame;
   d. the quality of bidder performance on prior contracts;
   e. such other information that may be secured and that has a bearing on the decision to award the contract;
2. Technical Approach; and,
3. Cost Proposal.

Neb. Rev. Stat. §73-107 allows for a preference for a resident disabled veteran or business located in a designated enterprise zone. When a state contract is to be awarded to the lowest responsible bidder, a resident disabled veteran or a business located in a designated enterprise zone under the Enterprise Zone Act shall be allowed a preference over any other resident or nonresident bidder, if all other factors are equal.

Resident disabled veterans means any person (a) who resides in the State of Nebraska, who served in the United States Armed Forces, including any reserve component or the National Guard, who was discharged or otherwise separated with a characterization of honorable or general (under honorable conditions), and who possesses a disability rating letter issued by the United States Department of Veterans Affairs establishing a service-connected disability or a disability determination from the United States Department of Defense and (b)(i) who owns and controls a business or, in the case of a publicly owned business, more than fifty percent of the stock is owned by one or more persons described in subdivision (a) of this subsection and (ii) the management and daily business operations of the business are controlled by one or more persons described in subdivision(a) of this subsection. Any contract entered into without compliance with this section shall be null and void.

Therefore, if a resident disabled veteran or business located in a designated enterprise zone submits a proposal in accordance with Neb. Rev. Stat. §73-107 and has so indicated on the RFP cover page under "Bidder must complete the following" requesting priority/preference to be considered in the award of this contract, the following will need to be submitted by the vendor within ten (10) business days of request:

1. Documentation from the United States Armed Forces confirming service;
2. Documentation of discharge or otherwise separated characterization of honorable or general (under honorable conditions);
3. Disability rating letter issued by the United States Department of Veterans Affairs establishing a service-connected disability or a disability determination from the United States Department of Defense; and
4. Documentation which shows ownership and control of a business or, in the case of a publicly owned business, more than fifty percent of the stock is owned by one or more persons described in subdivision (a) of this subsection; and the management and daily business operations of the business are controlled by one or more persons described in subdivision (a) of this subsection.

Failure to submit the requested documentation within ten (10) business days of notice will disqualify the bidder from consideration of the preference.

Evaluation criteria will be released with the RFP.

R. ORAL INTERVIEWS/PRESENTATIONS AND/OR DEMONSTRATIONS

The State may determine after the completion of the Technical and Cost Proposal evaluation that oral interviews/presentations and/or demonstrations are required. Every bidder may not be given an opportunity to interview/present and/or give demonstrations; the State reserves the right, in its discretion, to select only the top scoring bidders to present/give oral interviews. The scores from the oral interviews/presentations and/or demonstrations will be added to the scores from the Technical and Cost Proposals. The presentation process will allow the bidders to demonstrate their proposal offering, explaining and/or clarifying any unusual or significant elements related to their proposals. Bidders' key personnel, identified in their proposal, may be requested to participate in a structured interview to determine their understanding of the requirements of this proposal, their authority and reporting relationships within their firm, and their management style and philosophy. Only representatives of the State and the presenting bidder will be permitted to attend the oral interviews/presentations and/or demonstrations. A written copy or summary of the presentation, and demonstrative information (such as briefing charts, et cetera) may be offered by the bidder, but the State reserves the right to refuse or not consider the offered materials. Bidders shall not be allowed to alter or amend their proposals.

Once the oral interviews/presentations and/or demonstrations have been completed, the State reserves the right to make an award without any further discussion with the bidders regarding the proposals received.

Any cost incidental to the oral interviews/presentations and/or demonstrations shall be borne entirely by the bidder and will not be compensated by the State.

S. BEST AND FINAL OFFER

If best and final offers (BAFO) are requested by the State and submitted by the bidder, they will be evaluated (using the stated BAFO criteria), scored, and ranked by the Evaluation Committee. The State reserves the right to conduct more than one Best and Final Offer. The award will then be granted to the highest scoring bidder. However, a bidder should provide its best offer in its original proposal. Bidders should not expect that the State will request a best and final offer.

T. REFERENCE AND CREDIT CHECKS

The State reserves the right to conduct and consider reference and credit checks. The State reserves the right to use third parties to conduct reference and credit checks. By submitting a proposal in response to this RFP, the bidder grants to the State the right to contact or arrange a visit in person with any or all of the bidder's clients. Reference and credit checks may be grounds to reject a proposal, withdraw an intent to award, or rescind the award of a contract.

U. AWARD

The State reserves the right to evaluate proposals and award contracts in a manner utilizing criteria selected at the State's discretion and in the State's best interest. After evaluation of the proposals, or at any point in the RFP process, the State of Nebraska may take one or more of the following actions:

1. Amend the RFP;
2. Extend the time of or establish a new proposal opening time;
3. Waive deviations or errors in the State's RFP process and in bidder proposals that are not material, do not compromise the RFP process or a bidder's proposal, and do not improve a bidder's competitive position;
4. Accept or reject a portion of or all of a proposal;
5. Accept or reject all proposals;
6. Withdraw the RFP;
7. Elect to rebid the RFP;
8. Award single lines or multiple lines to one or more bidders; or,
9. Award one or more all-inclusive contracts.

The RFP does not commit the State to award a contract. Once intent to award decision has been determined, it will be posted to the Internet at:
http://das.nebraska.gov/materiel/purchasing.html

Grievance and protest procedure is available on the Internet at:
http://das.nebraska.gov/materiel/purchasing.html

Any protests must be filed by a bidder within ten (10) business days after the intent to award decision is posted to the Internet.

II. TERMS AND CONDITIONS

Bidders should complete Sections II through VI as part of their proposal. Bidder is expected to read the Terms and Conditions and should initial either accept, reject, or reject and provide alternative language for each clause. The bidder should also provide an explanation of why the bidder rejected the clause or rejected the clause and provided alternate language. By signing the RFP, bidder is agreeing to be legally bound by all the accepted terms and conditions, and any proposed alternative terms and conditions submitted with the proposal. The State reserves the right to negotiate rejected or proposed alternative language. If the State and bidder fail to agree on the final Terms and Conditions, the State reserves the right to reject the proposal. The State of Nebraska is soliciting proposals in response to this RFP. The State of Nebraska reserves the right to reject proposals that attempt to substitute the bidder's commercial contracts and/or documents for this RFP.

The bidders should submit with their proposal any license, user agreement, service level agreement, or similar documents that the bidder wants incorporated in the contract. The State will not consider incorporation of any document not submitted with the bidder's proposal as the document will not have been included in the evaluation process. These documents shall be subject to negotiation and will be incorporated as addendums if agreed to by the Parties.

If a conflict or ambiguity arises after the Addendum to Contract Award have been negotiated and agreed to, the Addendum to Contract Award shall be interpreted as follows:

1. If only one Party has a particular clause then that clause shall control;
2. If both Parties have a similar clause, but the clauses do not conflict, the clauses shall be read together;
3. If both Parties have a similar clause, but the clauses conflict, the State's clause shall control.

A. GENERAL

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

The contract resulting from this RFP shall incorporate the following documents:

1. Request for Proposal and Addenda;
2. Amendments to the RFP;
3. Questions and Answers;
4. Contractor's proposal (RFP and properly submitted documents);
5. The executed Contract and Addendum One to Contract, if applicable ; and,
6. Amendments/Addendums to the Contract.

These documents constitute the entirety of the contract.

Unless otherwise specifically stated in a future contract amendment, in case of any conflict between the incorporated documents, the documents shall govern in the following order of preference with number one (1) receiving preference over all other documents and with each lower numbered document having preference over any higher numbered document: 1) Amendment to the executed Contract with the most recent dated amendment having the highest priority, 2) executed Contract and any attached Addenda, 3) Amendments to RFP and any Questions and Answers, 4) the original RFP document and any Addenda, and 5) the Contractor's submitted Proposal.

Any ambiguity or conflict in the contract discovered after its execution, not otherwise addressed herein, shall be resolved in accordance with the rules of contract interpretation as established in the State of Nebraska.

B. **NOTIFICATION**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

Contractor and State shall identify the contract manager who shall serve as the point of contact for the executed contract.

Communications regarding the executed contract shall be in writing and shall be deemed to have been given if delivered personally or mailed, by U.S. Mail, postage prepaid, return receipt requested, to the parties at their respective addresses set forth below, or at such other addresses as may be specified in writing by either of the parties. All notices, requests, or communications shall be deemed effective upon personal delivery or three (3) calendar days following deposit in the mail.

C. **GOVERNING LAW (Statutory)**

Notwithstanding any other provision of this contract, or any amendment or addendum(s) entered into contemporaneously or at a later time, the parties understand and agree that, (1) the State of Nebraska is a sovereign state and its authority to contract is therefore subject to limitation by the State's Constitution, statutes, common law, and regulation; (2) this contract will be interpreted and enforced under the laws of the State of Nebraska; (3) any action to enforce the provisions of this agreement must be brought in the State of Nebraska per state law; (4) the person signing this contract on behalf of the State of Nebraska does not have the authority to waive the State's sovereign immunity, statutes, common law, or regulations; (5) the indemnity, limitation of liability, remedy, and other similar provisions of the final contract, if any, are entered into subject to the State's Constitution, statutes, common law, regulations, and sovereign immunity; and, (6) all terms and conditions of the final contract, including but not limited to the clauses concerning third party use, licenses, warranties, limitations of liability, governing law and venue, usage verification, indemnity, liability, remedy or other similar provisions of the final contract are entered into specifically subject to the State's Constitution, statutes, common law, regulations, and sovereign immunity.

The Parties must comply with all applicable local, state and federal laws, ordinances, rules, orders, and regulations.

D. **BEGINNING OF WORK**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

The bidder shall not commence any billable work until a valid contract has been fully executed by the State and the successful Contractor. The Contractor will be notified in writing when work may begin.

E. **CHANGE ORDERS**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

The State and the Contractor, upon the written agreement, may make changes to the contract within the general scope of the RFP. Changes may involve specifications, the quantity of work, or such other items as the State may

find necessary or desirable. Corrections of any deliverable, service, or work required pursuant to the contract shall not be deemed a change. The Contractor may not claim forfeiture of the contract by reasons of such changes.

The Contractor shall prepare a written description of the work required due to the change and an itemized cost sheet for the change. Changes in work and the amount of compensation to be paid to the Contractor shall be determined in accordance with applicable unit prices if any, a pro-rated value, or through negotiations. The State shall not incur a price increase for changes that should have been included in the Contractor's proposal, were foreseeable, or result from difficulties with or failure of the Contractor's proposal or performance.

No change shall be implemented by the Contractor until approved by the State, and the contract is amended to reflect the change and associated costs, if any. If there is a dispute regarding the cost, but both parties agree that immediate implementation is necessary, the change may be implemented, and cost negotiations may continue with both Parties retaining all remedies under the contract and law.

F. NOTICE OF POTENTIAL CONTRACTOR BREACH

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

If Contractor breaches the contract or anticipates breaching the contract, the Contractor shall immediately give written notice to the State. The notice shall explain the breach or potential breach, a proposed cure, and may include a request for a waiver of the breach if so desired. The State may, in its discretion, temporarily or permanently waive the breach. By granting a waiver, the State does not forfeit any rights or remedies to which the State is entitled by law or equity, or pursuant to the provisions of the contract. Failure to give immediate notice, however, may be grounds for denial of any request for a waiver of a breach.

G. BREACH

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

Either Party may terminate the contract, in whole or in part, if the other Party breaches its duty to perform its obligations under the contract in a timely and proper manner. Termination requires written notice of default and a thirty (30) calendar day (or longer at the non-breaching Party's discretion considering the gravity and nature of the default) cure period. Said notice shall be delivered by Certified Mail, Return Receipt Requested, or in person with proof of delivery. Allowing time to cure a failure or breach of contract does not waive the right to immediately terminate the contract for the same or different contract breach which may occur at a different time. In case of default of the Contractor, the State may contract the service from other sources and hold the Contractor responsible for any excess cost occasioned thereby.

The State's failure to make payment shall not be a breach, and the Contractor shall retain all available statutory remedies and protections.

H. NON-WAIVER OF BREACH

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			Understood and agreed.

The acceptance of late performance with or without objection or reservation by a Party shall not waive any rights of the Party nor constitute a waiver of the requirement of timely performance of any obligations remaining to be performed.

I. SEVERABILITY

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			Understood and agreed.

If any term or condition of the contract is declared by a court of competent jurisdiction to be illegal or in conflict with any law, the validity of the remaining terms and conditions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the contract did not contain the provision held to be invalid or illegal.

J. INDEMNIFICATION

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			Understood and agreed.

1. GENERAL

The Contractor agrees to defend, indemnify, and hold harmless the State and its employees, volunteers, agents, and its elected and appointed officials ("the indemnified parties") from and against any and all third party claims, liens, demands, damages, liability, actions, causes of action, losses, judgments, costs, and expenses of every nature, including investigation costs and expenses, settlement costs, and attorney fees and expenses ("the claims"), sustained or asserted against the State for personal injury, death, or property loss or damage, arising out of, resulting from, or attributable to the willful misconduct, negligence, error, or omission of the Contractor, its employees, subcontractors, consultants, representatives, and agents, resulting from this contract, except to the extent such Contractor liability is attenuated by any action of the State which directly and proximately contributed to the claims.

2. INTELLECTUAL PROPERTY

The Contractor agrees it will, at its sole cost and expense, defend, indemnify, and hold harmless the indemnified parties from and against any and all claims, to the extent such claims arise out of, result from, or are attributable to, the actual or alleged infringement or misappropriation of any patent, copyright, trade secret, trademark, or confidential information of any third party by the Contractor or its employees, subcontractors, consultants, representatives, and agents; provided, however, the State gives the Contractor prompt notice in writing of the claim. The Contractor may not settle any infringement claim that will affect the State's use of the Licensed Software without the State's prior written consent, which consent may be withheld for any reason.

If a judgment or settlement is obtained or reasonably anticipated against the State's use of any intellectual property for which the Contractor has indemnified the State, the Contractor shall, at the Contractor's sole cost and expense, promptly modify the item or items which were determined to be infringing, acquire a license or

licenses on the State's behalf to provide the necessary rights to the State to eliminate the infringement, or provide the State with a non-infringing substitute that provides the State the same functionality. At the State's election, the actual or anticipated judgment may be treated as a breach of warranty by the Contractor, and the State may receive the remedies provided under this RFP.

3. **PERSONNEL**

The Contractor shall, at its expense, indemnify and hold harmless the indemnified parties from and against any claim with respect to withholding taxes, worker's compensation, employee benefits, or any other claim, demand, liability, damage, or loss of any nature relating to any of the personnel, including subcontractors and their employees, provided by the Contractor.

4. **SELF-INSURANCE**

The State of Nebraska is self-insured for any loss and purchases excess insurance coverage pursuant to Neb. Rev. Stat. § 81-8,239.01 (Reissue 2008). If there is a presumed loss under the provisions of this agreement, Contractor may file a claim with the Office of Risk Management pursuant to Neb. Rev. Stat. §§ 81-8,829 – 81-8,306 for review by the State Claims Board. The State retains all rights and immunities under the State Miscellaneous (Section 81-8,294), Tort (Section 81-8,209), and Contract Claim Acts (Section 81-8,302), as outlined in Neb. Rev. Stat. § 81-8,209 et seq. and under any other provisions of law and accepts liability under this agreement to the extent provided by law.

5. The Parties acknowledge that Attorney General for the State of Nebraska is required by statute to represent the legal interests of the State, and that any provision of this indemnity clause is subject to the statutory authority of the Attorney General.

K. ATTORNEY'S FEES

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

In the event of any litigation, appeal, or other legal action to enforce any provision of the contract, the Parties agree to pay all expenses of such action, as permitted by law and if order by the court, including attorney's fees and costs, if the other Party prevails.

L. ASSIGNMENT, SALE, OR MERGER

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

Either Party may assign the contract upon mutual written agreement of the other Party. Such agreement shall not be unreasonably withheld.

The Contractor retains the right to enter into a sale, merger, acquisition, internal reorganization, or similar transaction involving Contractor's business. Contractor agrees to cooperate with the State in executing amendments to the contract to allow for the transaction. If a third party or entity is involved in the transaction, the Contractor will remain responsible for performance of the contract until such time as the person or entity involved in the transaction agrees in writing to be contractually bound by this contract and perform all obligations of the contract.

M. CONTRACTING WITH OTHER NEBRASKA POLITICAL SUB-DIVISIONS

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			Understood and agreed.

The Contractor may, but shall not be required to, allow agencies, as defined in Neb. Rev. Stat. §81-145, to use this contract. The terms and conditions, including price, of the contract may not be amended. The State shall not be contractually obligated or liable for any contract entered into pursuant to this clause. A listing of Nebraska political subdivisions may be found at the website of the Nebraska Auditor of Public Accounts.

N. FORCE MAJEURE

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			Understood and agreed.

Neither Party shall be liable for any costs or damages, or for default resulting from its inability to perform any of its obligations under the contract due to a natural or manmade event outside the control and not the fault of the affected Party ("Force Majeure Event"). The Party so affected shall immediately make a written request for relief to the other Party, and shall have the burden of proof to justify the request. The other Party may grant the relief requested; relief may not be unreasonably withheld. Labor disputes with the impacted Party's own employees will not be considered a Force Majeure Event.

O. CONFIDENTIALITY

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			Understood and agreed.

All materials and information provided by the Parties or acquired by a Party on behalf of the other Party shall be regarded as confidential information. All materials and information provided or acquired shall be handled in accordance with federal and state law, and ethical standards. Should said confidentiality be breached by a Party, the Party shall notify the other Party immediately of said breach and take immediate corrective action.

It is incumbent upon the Parties to inform their officers and employees of the penalties for improper disclosure imposed by the Privacy Act of 1974, 5 U.S.C. 552a. Specifically, 5 U.S.C. 552a (i)(1), which is made applicable by 5 U.S.C. 552a (m)(1), provides that any officer or employee, who by virtue of his/her employment or official position has possession of or access to agency records which contain individually identifiable information, the disclosure of which is prohibited by the Privacy Act or regulations established thereunder, and who knowing that disclosure of the specific material is prohibited, willfully discloses the material in any manner to any person or agency not entitled to receive it, shall be guilty of a misdemeanor and fined not more than $5,000.

P. EARLY TERMINATION

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

The contract may be terminated as follows:

1. The State and the Contractor, by mutual written agreement, may terminate the contract at any time.
2. The State, in its sole discretion, may terminate the contract for any reason upon thirty (30) calendar day's written notice to the Contractor. Such termination shall not relieve the Contractor of warranty or other service obligations incurred under the terms of the contract. In the event of termination the Contractor shall be entitled to payment, determined on a pro rata basis, for products or services satisfactorily performed or provided.
3. The State may terminate the contract immediately for the following reasons:
   - **a.** if directed to do so by statute;
   - **b.** Contractor has made an assignment for the benefit of creditors, has admitted in writing its inability to pay debts as they mature, or has ceased operating in the normal course of business;
   - **c.** a trustee or receiver of the Contractor or of any substantial part of the Contractor's assets has been appointed by a court;
   - **d.** fraud, misappropriation, embezzlement, malfeasance, misfeasance, or illegal conduct pertaining to performance under the contract by its Contractor, its employees, officers, directors, or shareholders;
   - **e.** an involuntary proceeding has been commenced by any Party against the Contractor under any one of the chapters of Title 11 of the United States Code and (i) the proceeding has been pending for at least sixty (60) calendar days; or (ii) the Contractor has consented, either expressly or by operation of law, to the entry of an order for relief; or (iii) the Contractor has been decreed or adjudged a debtor;
   - **f.** a voluntary petition has been filed by the Contractor under any of the chapters of Title 11 of the United States Code;
   - **g.** Contractor intentionally discloses confidential information;
   - **h.** Contractor has or announces it will discontinue support of the deliverable; and,
   - **i.** In the event funding is no longer available.

Q. CONTRACT CLOSEOUT

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

Upon contract closeout for any reason the Contractor shall within 30 days, unless stated otherwise herein:

1. Transfer all completed or partially completed deliverables to the State;
2. Transfer ownership and title to all completed or partially completed deliverables to the State;
3. Return to the State all information and data, unless the Contractor is permitted to keep the information or data by contract or rule of law. Contractor may retain one copy of any information or data as required to comply with applicable work product documentation standards or as are automatically retained in the course of Contractor's routine back up procedures;
4. Cooperate with any successor Contactor, person or entity in the assumption of any or all of the obligations of this contract;
5. Cooperate with any successor Contactor, person or entity with the transfer of information or data related to this contract;
6. Return or vacate any state owned real or personal property; and,
7. Return all data in a mutually acceptable format and manner.

Nothing in this Section should be construed to require the Contractor to surrender intellectual property, real or personal property, or information or data owned by the Contractor for which the State has no legal claim.

III. CONTRACTOR DUTIES

A. INDEPENDENT CONTRACTOR / OBLIGATIONS

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

It is agreed that the Contractor is an independent contractor and that nothing contained herein is intended or should be construed as creating or establishing a relationship of employment, agency, or a partnership.

The Contractor is solely responsible for fulfilling the contract. The Contractor or the Contractor's representative shall be the sole point of contact regarding all contractual matters.

The Contractor shall secure, at its own expense, all personnel required to perform the services under the contract. The personnel the Contractor uses to fulfill the contract shall have no contractual or other legal relationship with the State; they shall not be considered employees of the State and shall not be entitled to any compensation, rights or benefits from the State, including but not limited to, tenure rights, medical and hospital care, sick and vacation leave, severance pay, or retirement benefits.

By-name personnel commitments made in the Contractor's proposal shall not be changed without the prior written approval of the State. Replacement of these personnel, if approved by the State, shall be with personnel of equal or greater ability and qualifications.

All personnel assigned by the Contractor to the contract shall be employees of the Contractor or a subcontractor, and shall be fully qualified to perform the work required herein. Personnel employed by the Contractor or a subcontractor to fulfill the terms of the contract shall remain under the sole direction and control of the Contractor or the subcontractor respectively.

With respect to its employees, the Contractor agrees to be solely responsible for the following:

1. Any and all pay, benefits, and employment taxes and/or other payroll withholding;
2. Any and all vehicles used by the Contractor's employees, including all insurance required by state law;
3. Damages incurred by Contractor's employees within the scope of their duties under the contract;
4. Maintaining Workers' Compensation and health insurance that complies with state and federal law and submitting any reports on such insurance to the extent required by governing law; and
5. Determining the hours to be worked and the duties to be performed by the Contractor's employees.
6. All claims on behalf of any person arising out of employment or alleged employment (including without limit claims of discrimination alleged against the Contractor, its officers, agents, or subcontractors or subcontractor's employees)

If the Contractor intends to utilize any subcontractor, the subcontractor's level of effort, tasks, and time allocation should be clearly defined in the bidder's proposal. The Contractor shall agree that it will not utilize any subcontractors not specifically included in its proposal in the performance of the contract without the prior written authorization of the State.

The State reserves the right to require the Contractor to reassign or remove from the project any Contractor or subcontractor employee.

Contractor shall insure that the terms and conditions contained in any contract with a subcontractor does not conflict with the terms and conditions of this contract.

The Contractor shall include a similar provision, for the protection of the State, in the contract with any subcontractor engaged to perform work on this contract.

B. **EMPLOYEE WORK ELIGIBILITY STATUS**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

The Contractor is required and hereby agrees to use a federal immigration verification system to determine the work eligibility status of employees physically performing services within the State of Nebraska. A federal immigration verification system means the electronic verification of the work authorization program authorized by the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, 8 U.S.C. 1324a, known as the E-Verify Program, or an equivalent federal program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility status of an employee.

If the Contractor is an individual or sole proprietorship, the following applies:

1. The Contractor must complete the United States Citizenship Attestation Form, available on the Department of Administrative Services website at http://das.nebraska.gov/materiel/purchasing.html

   The completed United States Attestation Form should be submitted with the RFP response.

2. If the Contractor indicates on such attestation form that he or she is a qualified alien, the Contractor agrees to provide the US Citizenship and Immigration Services documentation required to verify the Contractor's lawful presence in the United States using the Systematic Alien Verification for Entitlements (SAVE) Program.

3. The Contractor understands and agrees that lawful presence in the United States is required and the Contractor may be disqualified or the contract terminated if such lawful presence cannot be verified as required by Neb. Rev. Stat. §4-108.

C. **COMPLIANCE WITH CIVIL RIGHTS LAWS AND EQUAL OPPORTUNITY EMPLOYMENT / NONDISCRIMINATION (Statutory)**

The Contractor shall comply with all applicable local, state, and federal statutes and regulations regarding civil rights laws and equal opportunity employment. The Nebraska Fair Employment Practice Act prohibits Contractors of the State of Nebraska, and their subcontractors, from discriminating against any employee or applicant for employment, with respect to hire, tenure, terms, conditions, compensation, or privileges of employment because of race, color, religion, sex, disability, marital status, or national origin (Neb. Rev. Stat. §48-1101 to 48-1125). The Contractor guarantees compliance with the Nebraska Fair Employment Practice Act, and breach of this provision shall be regarded as a material breach of contract. The Contractor shall insert a similar provision in all subcontracts for services to be covered by any contract resulting from this RFP.

D. **COOPERATION WITH OTHER CONTRACTORS**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

Contractor may be required to work with or in close proximity to other contractors or individuals that may be working on same or different projects. The Contractor shall agree to cooperate with such other contractors or individuals, and shall not commit or permit any act which may interfere with the performance of work by any other contractor or individual. Contractor is not required to compromise Contractor's intellectual property or proprietary information unless expressly required to do so by this contract.

E. PERMITS, REGULATIONS, LAWS

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

The contract price shall include the cost of all royalties, licenses, permits, and approvals, whether arising from patents, trademarks, copyrights or otherwise, that are in any way involved in the contract. The Contractor shall obtain and pay for all royalties, licenses, and permits, and approvals necessary for the execution of the contract. The Contractor must guarantee that it has the full legal right to the materials, supplies, equipment, software, and other items used to execute this contract.

F. OWNERSHIP OF INFORMATION AND DATA / DELIVERABLES

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

The State shall have the unlimited right to publish, duplicate, use, and disclose all information and data developed or obtained by the Contractor on behalf of the State pursuant to this contract.

The State shall own and hold exclusive title to any deliverable developed as a result of this contract. Contractor shall have no ownership interest or title, and shall not patent, license, or copyright, duplicate, transfer, sell, or exchange, the design, specifications, concept, or deliverable.

G. INSURANCE REQUIREMENTS

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

The Contractor shall throughout the term of the contract maintain insurance as specified herein and provide the State a current Certificate of Insurance/Acord Form (COI) verifying the coverage. The Contractor shall not commence work on the contract until the insurance is in place. If Contractor subcontracts any portion of the Contract the Contractor must, throughout the term of the contract, either:

1. Provide equivalent insurance for each subcontractor and provide a COI verifying the coverage for the subcontractor;
2. Require each subcontractor to have equivalent insurance and provide written notice to the State that the Contractor has verified that each subcontractor has the required coverage; or,
3. Provide the State with copies of each subcontractor's Certificate of Insurance evidencing the required coverage.

The Contractor shall not allow any subcontractor to commence work until the subcontractor has equivalent insurance. The failure of the State to require a COI, or the failure of the Contractor to provide a COI or require subcontractor insurance shall not limit, relieve, or decrease the liability of the Contractor hereunder.

In the event that any policy written on a claims-made basis terminates or is canceled during the term of the contract or within (two (2) years of termination or expiration of the contract, the Contractor shall obtain an extended discovery or reporting period, or a new insurance policy, providing coverage required by this contract for the term of the contract and two (2) years following termination or expiration of the contract.

If by the terms of any insurance a mandatory deductible is required, or if the Contractor elects to increase the mandatory deductible amount, the Contractor shall be responsible for payment of the amount of the deductible in the event of a paid claim.

Notwithstanding any other clause in this contract, the State may recover up to the liability limits of the insurance policies required herein.

1. **WORKERS' COMPENSATION INSURANCE**

The Contractor shall take out and maintain during the life of this contract the statutory Workers' Compensation and Employer's Liability Insurance for all of the contactors' employees to be engaged in work on the project under this contract and, in case any such work is sublet, the Contractor shall require the subcontractor similarly to provide Worker's Compensation and Employer's Liability Insurance for all of the subcontractor's employees to be engaged in such work. This policy shall be written to meet the statutory requirements for the state in which the work is to be performed, including Occupational Disease. **The policy shall include a waiver of subrogation in favor of the State. The COI shall contain the mandatory COI subrogation waiver language found hereinafter**. The amounts of such insurance shall not be less than the limits stated hereinafter. For employees working in the State of Nebraska, the policy must be written by an entity authorized by the State of Nebraska Department of Insurance to write Workers' Compensation and Employer's Liability Insurance for Nebraska employees.

2. **COMMERCIAL GENERAL LIABILITY INSURANCE AND COMMERCIAL AUTOMOBILE LIABILITY INSURANCE**

The Contractor shall take out and maintain during the life of this contract such Commercial General Liability Insurance and Commercial Automobile Liability Insurance as shall protect Contractor and any subcontractor performing work covered by this contract from claims for damages for bodily injury, including death, as well as from claims for property damage, which may arise from operations under this contract, whether such operation be by the Contractor or by any subcontractor or by anyone directly or indirectly employed by either of them, and the amounts of such insurance shall not be less than limits stated hereinafter.

The Commercial General Liability Insurance shall be written on an **occurrence basis**, and provide Premises/Operations, Products/Completed Operations, Independent Contractors, Personal Injury, and Contractual Liability coverage. **The policy shall include the State, and others as required by the contract documents, as Additional Insured(s). This policy shall be primary, and any insurance or self-insurance carried by the State shall be considered secondary and non-contributory. The COI shall contain the mandatory COI liability waiver language found hereinafter.** The Commercial Automobile Liability Insurance shall be written to cover all Owned, Non-owned, and Hired vehicles.

REQUIRED INSURANCE COVERAGE	
COMMERCIAL GENERAL LIABILITY	
General Aggregate	$2,000,000
Products/Completed Operations Aggregate	$2,000,000
Personal/Advertising Injury	$1,000,000 per occurrence
Bodily Injury/Property Damage	$1,000,000 per occurrence
Medical Payments	$10,000 any one person
Damage to Rented Premises (Fire)	$300,000 each occurrence
Contractual	Included
Independent Contractors	Included
If higher limits are required, the Umbrella/Excess Liability limits are allowed to satisfy the higher limit.	
WORKER'S COMPENSATION	
Employers Liability Limits	$500K/$500K/$500K
Statutory Limits- All States	Statutory - State of Nebraska
Voluntary Compensation	Statutory
COMMERCIAL AUTOMOBILE LIABILITY	
Bodily Injury/Property Damage	$1,000,000 combined single limit
Include All Owned, Hired & Non-Owned Automobile liability	Included
Motor Carrier Act Endorsement	Where Applicable
UMBRELLA/EXCESS LIABILITY	
Over Primary Insurance	$5,000,000 per occurrence
PROFESSIONAL LIABILITY	
All Other Professional Liability (Errors & Omissions)	$1,000,000 Per Claim / Aggregate
COMMERCIAL CRIME	
Crime/Employee Dishonesty Including 3rd Party Fidelity	$1,000,000
CYBER LIABILITY	
Breach of Privacy, Security Breach, Denial of Service, Remediation, Fines and Penalties	$10,000,000
MANDATORY COI SUBROGATION WAIVER LANGUAGE	
"Workers' Compensation policy shall include a waiver of subrogation in favor of the State of Nebraska."	
MANDATORY COI LIABILITY WAIVER LANGUAGE	
"Commercial General Liability & Commercial Automobile Liability policies shall name the State of Nebraska as an Additional Insured and the policies shall be primary and any insurance or self-insurance carried by the State shall be considered secondary and non-contributory as additionally insured."	

If the mandatory COI subrogation waiver language or mandatory COI liability waiver language on the COI states that the waiver is subject to, condition upon, or otherwise limit by the insurance policy, a copy of the relevant sections of the policy must be submitted with the COI so the State can review the limitations imposed by the insurance policy.

3. **EVIDENCE OF COVERAGE**

The Contractor shall furnish the Contract Manager, with a certificate of insurance coverage complying with the above requirements prior to beginning work at:

911 Director
Nebraska Public Service Commission
300 The Atrium, 1200 N Street
P.O. Box 94927
Lincoln, NE 68509

These certificates or the cover sheet shall reference the RFP number, and the certificates shall include the name of the company, policy numbers, effective dates, dates of expiration, and amounts and types of coverage afforded. If the State is damaged by the failure of the Contractor to maintain such insurance, then the Contractor shall be responsible for all reasonable costs properly attributable thereto.

Reasonable notice of cancellation of any required insurance policy must be submitted to the contract manager as listed above when issued and a new coverage binder shall be submitted immediately to ensure no break in coverage.

4. **DEVIATIONS**

The insurance requirements are subject to limited negotiation. Negotiation typically includes, but is not necessarily limited to, the correct type of coverage, necessity for Workers' Compensation, and the type of automobile coverage carried by the Contractor.

H. ANTITRUST

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

The Contractor hereby assigns to the State any and all claims for overcharges as to goods and/or services provided in connection with this contract resulting from antitrust violations which arise under antitrust laws of the United States and the antitrust laws of the State.

I. CONFLICT OF INTEREST

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

By submitting a proposal, bidder certifies that there does not now exist a relationship between the bidder and any person or entity which is or gives the appearance of a conflict of interest related to this RFP or project.

The bidder certifies that it shall not take any action or acquire any interest, either directly or indirectly, which will conflict in any manner or degree with the performance of its services hereunder or which creates an actual or an appearance of conflict of interest.

The bidder certifies that it will not knowingly employ any individual known by bidder to have a conflict of interest.

The Parties shall not knowingly, for a period of two years after execution of the contract, recruit or employ any employee or agent of the other Party who has worked on the RFP or project, or who had any influence on decisions affecting the RFP or project.

J. STATE PROPERTY

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

The Contractor shall be responsible for the proper care and custody of any State-owned property which is furnished for the Contractor's use during the performance of the contract. The Contractor shall reimburse the State for any loss or damage of such property; normal wear and tear is expected.

K. SITE RULES AND REGULATIONS

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			Understood and agreed.

The Contractor shall use its best efforts to ensure that its employees, agents, and subcontractors comply with site rules and regulations while on State premises. If the Contractor must perform on-site work outside of the daily operational hours set forth by the State, it must make arrangements with the State to ensure access to the facility and the equipment has been arranged. No additional payment will be made by the State on the basis of lack of access, unless the State fails to provide access as agreed to in writing between the State and the Contractor.

L. ADVERTISING

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			Understood and agreed.

The Contractor agrees not to refer to the contract award in advertising in such a manner as to state or imply that the company or its services are endorsed or preferred by the State. Any publicity releases pertaining to the project shall not be issued without prior written approval from the State.

M. NEBRASKA TECHNOLOGY ACCESS STANDARDS (Statutory)

Contractor shall review the Nebraska Technology Access Standards, found at http://nitc.nebraska.gov/standards/2-201.html and ensure that products and/or services provided under the contract are in compliance or will comply with the applicable standards to the greatest degree possible. In the event such standards change during the Contractor's performance, the State may create an amendment to the contract to request the contract comply with the changed standard at a cost mutually acceptable to the parties.

N. DISASTER RECOVERY/BACK UP PLAN

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			Understood and agreed.

The Contractor shall have a disaster recovery and back-up plan, of which a copy should be provided upon request to the State, which includes, but is not limited to equipment, personnel, facilities, and transportation, in order to continue services as specified under the specifications in the contract in the event of a disaster.

O. DRUG POLICY

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			Understood and agreed.

Contractor certifies it maintains a drug free work place environment to ensure worker safety and workplace integrity. Contractor agrees to provide a copy of its drug free workplace policy at any time upon request by the State.

IV. PAYMENT

A. PROHIBITION AGAINST ADVANCE PAYMENT (Statutory)

Payments shall not be made until contractual deliverable(s) are received and accepted by the State.

B. TAXES (Statutory)

The State is not required to pay taxes and assumes no such liability as a result of this solicitation. Any property tax payable on the Contractor's equipment which may be installed in a state-owned facility is the responsibility of the Contractor.

C. INVOICES

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

Invoices for payments must be submitted by the Contractor to the Commission with sufficient detail to support payment at the following address: Nebraska Public Service Commission, Attention: Business Manager, P.O. Box 94927, Lincoln, NE 68509. The terms and conditions included in the Contractor's invoice shall be deemed to be solely for the convenience of the parties. No terms or conditions of any such invoice shall be binding upon the State, and no action by the State, including without limitation the payment of any such invoice in whole or in part, shall be construed as binding or estopping the State with respect to any such term or condition, unless the invoice term or condition has been previously agreed to by the State as an amendment to the contract.

D. INSPECTION AND APPROVAL

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

Final inspection and approval of all work required under the contract shall be performed by the designated State officials.

E. PAYMENT

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

State will render payment to Contractor when the terms and conditions of the contract and specifications have been satisfactorily completed on the part of the Contractor as solely determined by the State. (Neb. Rev. Stat. Section 73-506(1)) Payment will be made by the responsible agency in compliance with the State of Nebraska Prompt Payment Act (See Neb. Rev. Stat. §81-2401 through 81-2408). The State may require the Contractor to accept payment by electronic means such as ACH deposit. In no event shall the State be responsible or liable to pay for any services provided by the Contractor prior to the Effective Date of the contract, and the Contractor hereby waives any claim or cause of action for any such services.

F. **LATE PAYMENT (Statutory)**

The Contractor may charge the responsible agency interest for late payment in compliance with the State of Nebraska Prompt Payment Act (See Neb. Rev. Stat. §81-2401 through 81-2408).

G. **SUBJECT TO FUNDING / FUNDING OUT CLAUSE FOR LOSS OF APPROPRIATIONS**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

The State's obligation to pay amounts due on the Contract for fiscal years following the current fiscal year is contingent upon legislative appropriation of funds. Should said funds not be appropriated, the State may terminate the contract with respect to those payments for the fiscal year(s) for which such funds are not appropriated. The State will give the Contractor written notice thirty (30) calendar days prior to the effective date of termination. All obligations of the State to make payments after the termination date will cease. The Contractor shall be entitled to receive just and equitable compensation for any authorized work which has been satisfactorily completed as of the termination date. In no event shall the Contractor be paid for a loss of anticipated profit.

H. **RIGHT TO AUDIT (First Paragraph is Statutory)**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within RFP Response (Initial)	NOTES/COMMENTS:
MW			**Understood and agreed.**

The State shall have the right to audit the Contractor's performance of this contract upon a 30 days' written notice. Contractor shall utilize generally accepted accounting principles, and shall maintain the accounting records, and other records and information relevant to the contract (Information) to enable the State to audit the contract. The State may audit and the Contractor shall maintain, the Information during the term of the contract and for a period of five (5) years after the completion of this contract or until all issues or litigation are resolved, whichever is later. The Contractor shall make the Information available to the State at Contractor's place of business or a location acceptable to both Parties during normal business hours. If this is not practical or the Contractor so elects, the Contractor may provide electronic or paper copies of the Information. The State reserves the right to examine, make copies of, and take notes on any Information relevant to this contract, regardless of the form or the Information, how it is stored, or who possesses the Information. Under no circumstance will the Contractor be required to create or maintain documents not kept in the ordinary course of Contractor's business operations, nor will Contractor be required to disclose any information, including but not limited to product cost data, which is confidential or proprietary to Contractor.

The Parties shall pay their own costs of the audit unless the audit finds a previously undisclosed overpayment by the State. If a previously undisclosed overpayment exceeds one percent (.1%) of the total contract billings, or if fraud, material misrepresentations, or non-performance is discovered on the part of the Contractor, the Contractor shall reimburse the State for the total costs of the audit. Overpayments and audit costs owed to the State shall be paid within ninety days of written notice of the claim. The Contractor agrees to correct any material weaknesses or condition found as a result of the audit.

V. PROJECT DESCRIPTION AND SCOPE OF WORK

The bidder should provide the following information in response to this RFP

A. PROJECT OVERVIEW

The Commission is seeking a Contractor to provide Quality Assurance/Quality Control (QA/QC) services with respect to Geographic Information Systems (GIS) datasets in order to verify that GIS data used by Public Safety Answering Points (PSAPs) in Nebraska complies with the National Emergency Number Association (NENA) NG9-1-1 data model.

As more fully described below, the Contractor's role will be to analyze GIS data uploaded by local agencies in order to confirm compliance with Nebraska Information Technology Council (NITC) and NENA standards for use in NG9-1-1 applications.

B. PROJECT ENVIRONMENT

The Commission is the statewide implementation and coordinating authority for 911 service in the State of Nebraska, with the statutory responsibility to plan, implement, coordinate, manage, maintain, and provide funding assistance for a cost-efficient 911 service system pursuant to the Nebraska 911 Service System Act, Local governing bodies are responsible for the dispatch and provision of emergency services within their respective jurisdictions. However, the Commission provides funding and other assistance to PSAPs across the state.

Some Nebraska PSAPs serve a single city or county, while others serve multiple counties or parts of counties. Some PSAPs are governed by local boards, while others are operated by local law enforcement. Some PSAPs operate independently, while others are organized into cooperative regions to share resources and provide mutual back-up. Currently, the local governing bodies that operate the PSAPs throughout the State are responsible to maintain GIS data for each PSAP at the local level. Although a few Nebraska PSAPs use in-house personnel to maintain GIS data, most PSAPs contract for 911-related GIS services from approved "vendors of choice" selected through an earlier RFP process. Nebraska PSAPs are responsible for uploading copies of their most recent GIS datasets on a monthly basis to an online GIS repository maintained by the Commission. Presently, there is no single authoritative statewide 9-1-1 GIS dataset.

To prepare for next generation 911, the Commission is undertaking a quality assurance/quality control project to confirm that the GIS data used by Nebraska PSAPs comply with NITC and NENA standards and is appropriate to support the spatial routing of 911 calls in the NG9-1-1 environment.

C. PROJECT REQUIREMENTS

The Contractor will be required to maintain a secure web portal through which Nebraska PSAPs or their representatives will upload GIS data to be analyzed by the Contractor. Access to the portal must be limited to authorized users via login and password or other similar secure authentication. The portal must require each person authorized to upload GIS datasets to identify the applicable jurisdiction, geographic area and type of dataset before a file will be accepted for uploading.

The portal must be capable of accepting GIS data in any ESRI format. The portal should automatically reject GIS datasets that are incomplete or defective and immediately notify the local agency if an attempted upload was unsuccessful. The portal should return, prior to QA/QC review, GIS datasets having any of the following characteristics, and provide notice to the uploading party to correct any such errors:

1. No data in the file
2. Incompatible dataset due to improper or missing field names
3. Lack of defining information, e.g., county name, dataset
4. Improper file format
5. MSAG not included with Street Centerline file
6. Missing or improperly formatted FDGC metadata
7. Incorrect data naming convention

Datasets that do not have any of the above-referenced errors should automatically be accepted for QA/QC review by the Contractor's secure portal.

D. SCOPE OF WORK

The Contractor will analyze each GIS dataset uploaded to the portal to identify any errors and discrepancies based on NITC and NENA standards. After review, the Contractor will return datasets that are shown to have errors and/or discrepancies to the uploading agency, along with a discrepancy report listing the items that need to be corrected in order to achieve compliance with the standards. Each such discrepancy report must be accompanied by a shapefile of areas where the topology is incorrect. The local PSAP or its representatives will be responsible to correct all the items listed in the discrepancy report. After correction, the local PSAP or its representative will be expected to resubmit the revised GIS dataset via the Contractor's dedicated portal for further QA/QC review.

GIS data that is confirmed by the Contractor to meet all required standards will be accepted for provisioning to the NG9-1-1 environment and uploaded by the Contractor to the Commission's GIS repository. The Contractor will also notify the Commission's GIS Specialist and the PSAP responsible for uploading the file that the dataset meets all required standards and is ready for use.

E. TECHNICAL REQUIREMENTS

The specific NITC and NENA standards that apply to this project are the following:

1. NITC Standards & Guidelines
   - **a.** 3-201. Geospatial Metadata Standard
   - **b.** 3-202. Land Record Information and Mapping Standard
   - **c.** 3-205. Street Centerline Standard
   - **d.** 3-206. Address Standard

2. NENA Standards
   - **a.** NENA 02-014
   - **b.** NENA 71-501
   - **c.** NENA REQ-002.1-2016
   - **d.** NENA STA-005.1.1-2017
   - **e.** NENA STA-006 NG9-1-1 Data Model

In the event of any conflict between NITC standards and NENA standards, NITC standards shall control.

3. The GIS datasets to be reviewed by Contractor after being uploaded by to the secure portal will consist of the following GIS layers:
   - **a.** Street Centerlines (with accompanying MSAG);
   - **b.** Street/Structure address points (with accompanying ALI);
   - **c.** PSAP boundaries;
   - **d.** Emergency service zones (police, fire, EMS); and,
   - **e.** Political boundaries (used to define the provisioning of GIS data).

4. The Contractor shall review Street Centerline Layer data to identify, at a minimum, the following items:
   - **a.** Comparison of MSAG vs. Street Centerline segments to minimum 98% match;
   - **b.** Comparison of ALI to Street Centerline to minimum 98% match with road name;
   - **c.** Overlapping address ranges between jurisdictions;
     - **i.** Region free of overlaps: 98% unique ranges;
   - **d.** Misalignments;
     - **i.** Overlaps
     - **ii.** Gaps
     - **iii.** Overhangs
     - **iv.** Duplicate features
     - **v.** Incorrectly named road segments
   - **e.** Road segments running the wrong direction;
   - **f.** Road segments not broken at intersections and/or ESZ boundaries;
   - **g.** Road name consistency;
   - **h.** Misaligned road segments at county and jurisdictional boundaries;
   - **i.** Required metadata; and,
   - **j.** General compliance with applicable NITC and NENA standards.

5. The Contractor shall review jurisdictional boundary Polygon Layers to identify, at a minimum, the following items:

a. Redundancy, misalignment and other errors in topology;
   i. Overlaps
   ii. Gaps
b. Duplication of features between PSAPs;
   i. ESZ numbers match
   ii. ESZ numbers do not match
c. County boundaries alignment to neighboring counties;
d. Correct boundaries (police, fire, EMS) included in the ESZ boundary;
e. Fields within each layer conform to NITC and NENA standards for names, content, and format;
f. Required metadata; and,
g. General compliance with applicable NITC and NENA standards.

6. The Contractor shall review Address Point Layers to identify, at a minimum, the following items:

a. Placement of Address Points on Street Centerline address ranges;
b. Comparison of ALI to Address Points to minimum 98 percent match to full address;
c. Discrepancies between the telephone number (TN) list and site/structure address point layer;
d. Multi-address structure address formats;
e. Fields within each layer conform to NITC and NENA standards for names, content, and format;
f. Required metadata; and,
g. General compliance with applicable NITC and NENA standards.

In addition to the foregoing, the Contractor will also review each uploaded dataset to determine compatibility with GIS data provided by adjoining counties. Adjoining county data will be reviewed to identify any overlaps and gaps, Street Centerline alignments, stacked roads and inconsistent road names. Resolution of inconsistencies in adjoining counties' datasets will be the responsibility of the counties involved.

Please describe how your company will meet all of the above requirements.

Bidder Response:

Project Requirements

DDTI will maintain a secure web portal through which Nebraska PSAPs, or their representatives, will upload Esri shapefile of file geodatabase GIS data to be analyzed. Access to the Data Import Service (DIS) portal will be limited to authorized users via login and password authentication. The portal will require each person authorized to upload GIS datasets, to identify the applicable jurisdiction, geographic area and type of dataset before a file will be accepted for uploading.

The portal will automatically reject GIS datasets that are incomplete or defective and immediately notify the local agency if an attempted upload was unsuccessful. The portal will return, prior to QA/QC review, GIS datasets having any of the characteristics presented below. Email notifications will be sent to the uploading party to correct any such errors.

1. No Data in the file
2. Improper or missing field names
3. Lack of defining information
4. Improper file format
5. MSAG not included with the Street Centerline file.
6. Missing or improperly formatted FGDC metadata
7. Incorrect data naming convention.

DDTI has several other QCs that happen in the Data Import Service that can be configured to stop the process.

TECHNICAL REQUIREMENTS COMPLIANCE REVIEW				
Technical Requirements in this RFP			**Complies with RFP Requirements**	**DDTI Comments**
1.		**NITC Standards & Guidelines**		
a.		3-201. Geospatial Metadata Standard	Yes	As part of Data Assessment DDTI will determine if the metadata: • Exists for a layer • All fields in the layer are covered by the metadata • Variable type matches metadata • If there is a domain constraint in the metadata, the submitted data will be checked if it meets the constraint
b.		3-202. Land Record Information and Mapping Standard	Yes	Compare layer with NITC standard to determine conformance
c.		3-205. Street Centerline Standard	Yes	Compare layer with NITC standard to determine conformance
d.		3-206. Address Standard	Yes	Compare layer with NITC standard to determine conformance
2.		**NENA Standards**		
a.		NENA 02-014	Yes	DDTI conforms to NENA 02-014 v1 - GIS Data Collection and Maintenance.
b.		NENA 71-501	Yes	DDTI conforms to NENA 71-501 v1 - Synchronizing GIS with MSAG and ALI.
c.		NENA REQ-002.1-2016	Yes	DDTI conforms to NENA REQ-002.1-2016 - Next Generation 9-1-1 Data Management Requirements
d.		NENA STA-005.1.1-2017	Yes	DDTI conforms to NENA STA-005.1.1-2017- NENA Standards for the Provisioning and Maintenance of GIS data to ECRF and LVFs
e.		NENA STA-006 NG9-1-1 Data Model	Yes	DDTI conforms to NENA STA-0056.1-2018 – NG9-1-1 GIS Data Model
3.		**The GIS datasets to be reviewed by Contractor after being uploaded by to the secure portal will consist of the following GIS layers:**		
a.		Street Centerlines (with accompanying MSAG);	Yes	DDTI's Secure FTP site can accept Street Centerline data. The following data is required: • An integer unique ID. • Name fields, including prefix, name, type, and suffix. • Political division fields, include state, county (or equivalent), and incorporated municipality (if applicable), each for both left and right sides of the road. • Address range to/from values for both left and right sides of the road. • MSAG
b.		Street/Structure address points (with accompanying ALI);	Yes	DDTI's Secure FTP site can accept Street/Structure address points with ALI information. The following data is required: • An integer unique ID.

				• An integer house number with one of the following: o Name and political division fields, including street prefix, name, type, and suffix, state, county (or equivalent), and incorporated municipality (if applicable), OR o A reference unique ID and side field, indicating a road centerline from which to inherit the name and political division fields. • ALI Database
c.		PSAP boundaries;	Yes	DDTI's Secure FTP site can accept PSAP Boundary in shapefile or file geodatabase format.
d.		Emergency service zones (police, fire, EMS);	Yes	DDTI's Secure FTP site can accept Emergency Service Zones in shapefile or file geodatabase format.
e.		Political boundaries (used to define the provisioning of GIS data).	Yes	DDTI's Secure FTP site can accept political boundaries in shapefile or file geodatabase format.
4.		**Street Centerline Layer Review**		
a.		Comparison of MSAG vs. Street Centerline segments to minimum 98% match	Yes	Appendix A - Table 1- Road Centerlines Tests (1.23 – 1.26)
b.		Comparison of ALI to Street Centerline to minimum 98% match with road name	Yes	Appendix A - Table 1- Road Centerlines Tests (1.27)
c.		Overlapping address ranges between jurisdictions		
	i.	Region free of overlaps: 98% unique ranges	Yes	Table 1- Road Centerlines Tests (1.27)
d.		Misalignments		
	i.	Overlaps	Yes	Appendix A - Table 1- Road Centerlines Tests (1.10)
	ii.	Gaps	Yes	Appendix A - Table 1- Road Centerlines Tests (1.11)
	iii.	Overhangs	Yes	Appendix A - Table 1- Road Centerlines Tests (1.15 & 1.17)
	iv.	Duplicate features	Yes	Appendix A - Table 1- Road Centerlines Tests (1.2, 1.15 & 1.17)
	v.	Incorrectly named road segments	Yes	Appendix A - Table 1- Road Centerlines Tests (1.1, 1.3- 1.5)
e.		Road segments running the wrong direction	Yes	Appendix A - Table 1- Road Centerlines Tests (1.16)
f.		Road segments not broken at intersections and/or ESZ boundaries	Yes	Appendix A - Table 1- Road Centerlines Tests (1.21 & 1.22)
g.		Road name consistency	Yes	Appendix A - Table 1- Road Centerlines Tests (1.15, 1.16, 1.21 & 1.22)
h.		Misaligned road segments at county and jurisdictional boundaries	Yes	Appendix A - Table 1- Road Centerlines Tests (1.15, 1.16, 1.21 & 1.22)
i.		Required metadata	Yes	Project specific, no defined NENA requirements.
j.		General compliance with applicable NITC and NENA standards	Yes	Appendix A - Table 1- Road Centerlines Tests (1.1, 1.3 – 1.6))
5.		**The Contractor shall review jurisdictional boundary Polygon Layers to identify, at a minimum, the following items:**		

a.		Redundancy, misalignment and other errors in topology		
	i.	Overlaps	Yes	Appendix A - Table 3 – Administrative Boundaries (3.2) Appendix A - Table 4 – Emergency Service Boundaries (4.2)
	ii.	Gaps	Yes	Appendix A - Table 3 – Administrative Boundaries (3.3) Appendix A - Table 4 – Emergency Service Boundaries (4.3)
b.		Duplication of features between PSAPs		
	i.	ESZ numbers match	Yes	Polygons are uniquely identified and if values are registered against the MSAG ESN domain.
	ii.	ESZ numbers do not match	Yes	Polygons are uniquely identified and if values are registered against the MSAG ESN domain.
c.		County boundaries alignment to neighboring counties	Yes	Appendix A - Table 3 – Administrative Boundaries (3.5 – 3.6) Appendix A - Table 4 – Emergency Service Boundaries (4.8 – 4.9)
d.		Correct boundaries (police, fire, EMS) included in the ESZ boundary	Yes	Appendix A - Table 4 – Emergency Service Boundaries (4.4 – 4.5)
e.		Fields within each layer conform to NITC and NENA standards for names, content, and format	Yes	Appendix A - Table 3 – Administrative Boundaries (3.1) Appendix A - Table 4 – Emergency Service Boundaries (4.1)
f.		Required metadata	Yes	Project specific (no NENA requirement)
g.		General compliance with applicable NITC and NENA standards	Yes	Appendix A - Table 3 – Administrative Boundaries (3.1) Appendix A - Table 4 – Emergency Service Boundaries (4.1)
6.		**The Contractor shall review Address Point Layers to identify, at a minimum, the following items:**		
a.		Placement of Address Points on Street Centerline address ranges	Yes	Appendix A - Table 2 – Site Structure/Address Points (2.22)
b.		Comparison of ALI to Address Points to minimum 98 percent match to full address	Yes	Appendix A - Table 2 – Site Structure/Address Points (2.22)
c.		Discrepancies between the telephone number (TN) list and site/structure address point layer	Yes	Appendix A - Table 2 – Site Structure/Address Points (2.23)
d.		Multi-address structure address formats	Yes	We test for the uniqueness of civic address values including sub-address.
e.		Fields within each layer conform to NITC and NENA standards for names, content, and format	Yes	A component of the GIS Data Assessment process and ongoing quality control.
f.		Required metadata	Yes	Project specific, no defined NENA requirements.
g.		General compliance with applicable NITC and NENA standards	Yes	Appendix A - Table 2 – Site Structure/Address Points (2.22)

Data Aggregation

DDTI will review each uploaded dataset to determine compatibility with GIS data provided by adjoining counties. Adjoining county data will be reviewed to identify any overlaps and gaps, Street Centerline alignments, stacked roads and inconsistent road names. Resolution of inconsistencies in adjoining counties' datasets will be the responsibility of the counties involved.

This process will begin with the evaluation of each source layer for completeness and compliance to the standard. The data owners will be provided a gap analysis based on the comparison between the local model and the standard. Once the source data structure/schema has met the standard, quality control will be performed at the individual layer level and quality control across the datasets. Where possible, each error will be reported using X and Y locations to aid in remediation by placing the error location on a map.

After local datasets meet the NG9-1-1 structure, they will be combined into a statewide dataset. When the coordinate systems and schemas are in alignment, the datasets will be merged together to form a statewide dataset. QCs will take place to identify topology errors in the dataset (e.g., no gaps or overlaps in the boundary data, roads broken at boundaries, roads broken at intersections, etc.) and those errors will be provided to the agency responsible for remediation. Topology rules are enforced at both the local dataset level and at a statewide level. When all levels of QC and synchronization have been achieved to the agreed upon levels, the data will be considered suitable for NG9-1-1 spatial call routing.

F. CONTRACTOR REQUIREMENTS

1. QA / QC PROJECT METHODOLOGY

Contractor shall deliver a QA/QC Project Plan proposing Contractor's methodology for accomplishing the Project and satisfying all requirements in this RFP.

Bidder Response

Quality Control Overview

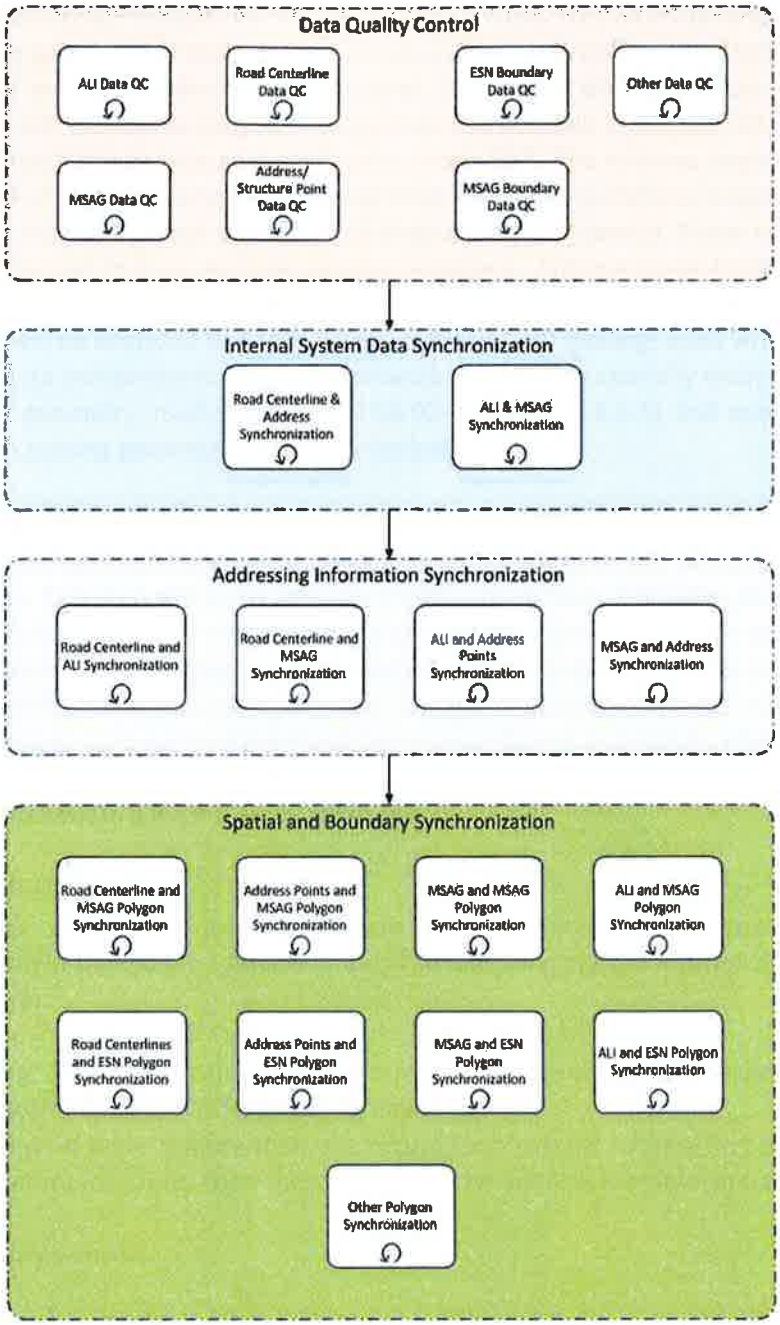
Appendix A details the quality control tests for Road Centerlines, Site/Structure Address Points, Administrative Boundaries, Emergency Services Boundaries, Road Name Alias Table and Cell Sector Locations.

DDTI's Technical Response section details our methodology for accomplishing the Project and satisfying all requirements in this RFP. The section related to QA/QC processes included in that section is repeated below:

Quality Control and Synchronization Overview

Process Diagram

Each component of the diagram is a closed loop (Test → Correct → Test) that will iterate until the data meet specified requirements



GIS Data Quality Control

Road Centerlines

The road centerline layer will be evaluated on naming, address range, and community fields. The naming fields shall adhere to NENA 71-501, with conformance to USPS Publication No. 28 – Appendix C1 naming. Special attention to punctuation and format of street spellings (1st vs. First) will be noted. State jurisdiction roadways and other primary carrier roadway naming will also be

noted for future reference as they may require modification. The data must have clear and consistent street naming fields including a designated Left/Right area. The Street Name field must be populated for each record. If these fields are not correctly populated then some civic addresses may not be located, hence the call will not be properly routed. The address ranges must correspond to the geometry of the polylines (polylines have a direction; therefore the ranges must match the "From" and "To" nodes of the geometry). This type of error will cause the location estimate for the civic address to be poorly estimated. It is possible that it will fall into the incorrect Service Boundary polygon and cause the call to be misrouted. The address ranges for segments with the same set of street naming fields cannot have overlapping address ranges. The left and right ranges for a segment cannot overlap (including overlapping parity). These errors can cause a prospective landline call to have multiple possible locations. Address range fields shall not be in character format but rather be in numeric format with no special characters. Finally, the community field will be analyzed to see if unique entries or misspellings exist which may be inconsistent for data comparisons. The road network will then be spatially analyzed for duplicate geometry, invalid geometry, road direction (NENA 02-014 section 4.3.5), and overpass underpass situations where crossing geometry shall not intersect.

ESN and MSAG Boundary Files

Since the PSAP, Fire, Law, and Emergency Medical Services polygons can be derived from the ESN boundary data, the first step will be to compare ESNs to the MSAG. Following this analysis ESB polygon layers can be created by the jurisdiction and the boundary files will be analyzed for spatial integrity and to identify multi-polygons, gaps, and overlaps. These boundaries are then compared to the road centerlines for topology comparison. Unique boundary attributes can indicate possible road topology changes and the Road Centerlines should accurately reflect these attributes. The SIP URLS associated with the ESBs must be valid and working URIs for the ESInet call handling equipment in a NG9-1-1 environment.

Addresses Multi-Point Layer

The addresses points are an optional layer but are highly recommended to ensure accurate call location estimation in the NG9-1-1 environment. The following are the internal data consistency checks for this layer.

- *Geocoding:* To support call location determination, the street naming fields must pass the same requirements as the Road Centerlines.
- *Uniqueness:* If there is more than one record for a specific address and these records have different locations, then the location for the address is indeterminate.

E9-1-1 Data Quality Control

MSAG

The MSAG will be analyzed based on naming, address range and community fields. The naming fields shall adhere to NENA 71-501 with conformance to USPS Publication No. 28 – Appendix C1 for naming consistency with the Road Centerline layer. Address range fields shall not be in character format but rather be in numeric format with no special characters. The address range values must meet the minimum requirements for accurate geocoding. The ranges must be greater than zero. The high value must be greater than the low value. The values must match the parity field. The MSAG records with the same street name field values must not overlap with other records. The MSAG records must uniquely define a range of addresses. Emergency Service

Number (ESN) fields will be analyzed for outliers and unique values. Finally, the community field will be analyzed to identify whether it is represented by a city naming community style or community based on zip code.

ALI

The ALI data is not directly used in the NG9-1-1 environment. It will be used to prepare the NG9-1-1 layers to ensure that the data reflects the legacy system for call routing determination (i.e. Data Synchronization). Any errors detected during the testing for internal data consistency will be reported for resolution. When possible, DDTI will provide recommendations for the proper resolution of specific errors. Additionally, there may be data inconsistencies that will need to be arbitrated by a central data authority. An example of this would be two service boundaries that do not agree and may involve multiple local data authorities.

GIS, ALI, MSAG Data Synchronization

Once the data has been combined and has passed the data requirements for each layer, the next step will be to synchronize and test the various data layers for global consistency. The goal of the Data Synchronization process is to ensure that all the separate 9-1-1 layers are consistent with each other. In addition, the NG9-1-1 data must be augmented by and agree with the legacy E9-1-1 system layers, the ALI and MSAG data. The following table illustrates the relationships that will be tested.

	Road Centerlines	Address Points	ALI	MSAG	ESB Polygons	PSAP Polygons
Road Centerlines	X	Address Points to Centerlines	ALI to Centerlines	Valid MSAG Addresses to Centerlines	X	X
Address Points	X	X	X	X	X	X
ALI	X	Address Points to ALI	X	X	ESB Polygons Attributes to ALI	PSAP Polygons Attributes to ALI
MSAG	Road Centerlines to MSAG	Address Points to MSAG	ALI to MSAG	X	ESB Polygons Attributes to MSAG	PSAP Polygons Attributes to MSAG
ESB Polygons	Road Centerlines to ESB Polygons	Address Points to ESB Polygons	Geocoded ALI to ESB Polygons	Geocoded Valid MSAG Addresses to ESB Polygons	X	PSAP Polygons to ESB Polygons
PSAP Polygons	Road Centerlines to PSAP Polygons	Address Points to PSAP Polygon	Geocoded ALI to PSAP Polygons	Geocoded Valid MSAG Addresses to PSAP Polygons	ESB Polygons to PSAP Polygons	X

ALI, MSAG and Centerline Tests	
ALI to Road Centerlines	Each ALI record should geocode to a unique road segment. In other words, there must a unique road segment with matching street name fields that contains the house number of the ALI record. If there is no matching record, the data must be corrected to bring it into synchronization. The case where there are multiple matches should not occur.
Valid MSAG Addresses to Road Centerlines	The MSAG records will be converted into a set of valid MSAG addresses. For example, an MSAG record for N,Main,St,Madison,100,200,B (N Main St Madison from 100 to 200 all integers) will be converted to a list of addresses 100 N Main St Madison, 101 N Main St Madison, ... , 200 N Main St Madison. Each valid MSAG Address should have a unique geocoding match in the Road Centerlines data. If the Road Centerlines data has passed the internal check concerning overlaps, no multiple matches should exist. This leaves two outcomes: no matches and 1 match. The valid MSAG address records with no matches would need to be reviewed and the appropriate correction applied.
Road Centerlines to MSAG	The Street Name elements and MSAG community are used to compare the Road Centerlines and MSAG information. In general, for every MSAG record there must exist at least one Road Centerline record where the Street Name elements for both records match (the ECRF is not permitted to have partial matches) and the MSAG Community matches for both records. These tests will help verify that the Street Name elements and MSAG values are in fact synchronized with each other.
ALI to MSAG	Each ALI record should match a unique MSAG record. The matching technique is very similar to the geocoding process, but since the MSAG is not spatial in nature, no location is estimated for the ALI record. If there is no matching record, the data must be corrected to bring it into synchronization. There should be no cases where multiple matches occur. While it is usually assumed that this relationship is by default true, most data sets will exhibit some differences.
Address Point Tests	
Address Points to Road Centerlines	For each address point there should be a unique road centerline record that matches the street name fields and whose address range contains that address point. There can be exceptions to this and each case will be examined. Once a unique match has been found, the spatial relationship between the address point and the corresponding road segment can be tested.
Address Points to ALI	Each ALI record should match to a unique Address Point record. If there is no matching record, the data must be corrected to bring it into synchronization. The case where there are multiple matches can occur due to the non-standard encoding of extra address information (Lot 52, Suite 101, etc.) in the ALI data.
Address Points to MSAG	Each Address Point should match a unique MSAG record. If there is no matching record, the data must be corrected to bring it into synchronization. The matching technique is very similar to the geocoding process, but since the MSAG is not spatial, no location is estimated for the Address Point record. If there is no matching record, the data must be corrected to bring it into synchronization. Multiple matches should not occur because the MSAG data has passed internal consistency tests.
Polygon Tests	
Road Centerlines to ESB Polygons (spatial)	Road Centerlines will need to be spatially synchronized to the ESB Polygons. Each segment will be compared to the ESB Polygons. Segments can only be contained in one Polygon (ignoring boundary conditions). If the two layers share attributes, they can be compared.
Road Centerlines to PSAP Polygons	Road Centerlines will need to be spatially synchronized to the PSAP Polygons. Each segment will be compared to the PSAP Polygons. Segments can only be

	contained in one Polygon (ignoring boundary conditions). If the two layers share attributes, they can be compared also.
Address Points to ESB Polygons	If the Address Points and the ESB Polygons share attributes, these attributes can be checked by using the spatial relationship between the Address Points and the ESB Polygons. Each Address Point will be compared to ESB Polygon that contains it.
Address Points to PSAP Polygons	If the Address Points and the PSAP Polygons share attributes, these attributes can be checked by using the spatial relationship between the Address Points and the PSAP Polygons. Each Address Point will be compared to PSAP Polygon that contains it.
Geocoded ALI to ESB Polygons	This test can be performed if there are attributes that are shared between the ALI records and the ESB Polygons, for example MSAG Community. The ALI records will be geocoded to the Road Centerlines and then will be compared to the ESB Polygon that contains it.
Geocoded ALI to PSAP Polygons	This test can be performed if there are attributes that are shared between the ALI records and the PSAP Polygons, for example MSAG Community. The ALI records will be geocoded to the Road Centerlines and then will be compared to the PSAP Polygon that contains it.
Geocoded Valid MSAG Addresses to ESB Polygons	This test can be performed if there are attributes that are shared between the MSAG records and the ESB Polygons, for example MSAG Community. The MSAG records will be converted to the set of all valid MSAG addresses. These addresses will be geocoded to the Road Centerlines and then will be compared to the ESB Polygon that contains it.
Geocoded Valid MSAG Addresses to PSAP Polygons	This test can be performed if there are attributes that are shared between the MSAG records and the PSAP Polygons, for example MSAG Community. The MSAG records will be converted to the set of all valid MSAG addresses. These addresses will be geocoded to the Road Centerlines and then will be compared to the PSAP Polygon that contains it.
ESB Polygon Attributes to ALI	This is a simple attribute domain check. If the two layers share attribute information, the domains can be compared.
ESB Polygon Attributes to MSAG	This is a simple attribute check. If the two layers share attribute information, the domains can be compared. For example, if the MSAG records contain a MSAG Community that does not occur in the ESB Polygon data then this will generate a warning.
ESB Polygons to PSAP Polygons	This is a simple attribute domain check. If the two layers share attribute information, the domains can be compared.
PSAP Polygon Attributes to ALI:	This is a simple attribute domain check. If the two layers share attribute information, the domains can be compared.
PSAP Polygon Attributes to MSAG	This is a simple attribute check. If the two layers share attribute information, the domains can be compared. For example, if the MSAG records contain a MSAG Community that does not occur in the PSAP Polygon data then this will generate a warning.
PSAP Polygons to ESB Polygons	This is a simple attribute domain check. If the two layers share attribute information, the domains can be compared.

2. **DETAILED ACTION PLAN**
Please provide a detailed action plan that includes specifics on how implementation will be accomplished.

Bidder Response:

CATEGORY	TASK	START DATE	DURATION	END DATE	WORK DAYS
Planning	Contract award and execution	9/28/18	0	9/28/18	1
Planning	Contractor start date	10/8/18	0	10/8/18	1
Planning	Kick-Off Meeting	10/15/18	4	10/19/18	5
Planning	Discuss required layers, fields and accuracy requirements	10/15/18	4	10/19/18	5
Planning	Obtain jurisdiction contact information	10/15/18	4	10/19/18	5
Planning	Obtain State Authorization Letter for jurisdictions	10/15/18	4	10/19/18	5
Planning	Email Authorization Letters	10/15/18	4	10/19/18	5
Planning	Outline format/content for on-site GIS meetings	10/15/18	4	10/19/18	5
Planning	Establish schedule for regular status meetings	10/15/18	4	10/19/18	5
Planning	Refine project plan	10/15/18	4	10/19/18	5
Data Acquisition	Finalize data transfer methods (pre-operational)	10/22/18	18	11/9/18	15
Data Acquisition	Setup Portal Accounts and Access for Data Submission	11/9/18	41	12/20/18	30
Data Acquisition	Obtain ALI and MASG for each jurisdiction	11/9/18	119	3/8/19	86
Data Acquisition	Obtain GIS data from jurisdictions	11/9/18	119	3/8/19	86
Local Customization & Training	Establish data management roles & workflow documentation	11/9/18	62	1/10/19	45
Local Customization & Training	Setup method to deliver QC reports	11/9/18	62	1/10/19	45
Data Assessment	Document layers provided	1/10/19	57	3/8/19	42
Data Assessment	Document fields per layer	1/10/19	57	3/8/19	42
Data Assessment	Field mapping to NG Data Model	1/10/19	57	3/8/19	42
Data Assessment	Document all fields (Mandatory, Conditional or Optional)	1/10/19	57	3/8/19	42
Data Assessment	Identify and report gaps	1/10/19	57	3/8/19	42
Data Assessment	Confirm transformations	1/10/19	57	3/8/19	42
Data Synchronization	Import GIS data into QC database	3/8/19	455	6/5/20	326
Data Synchronization	Load MSAG & ALI into QC database	3/8/19	455	6/5/20	326
Data Synchronization	Run internal & external QCs	3/8/19	455	6/5/20	326
Data Synchronization	Generate reports	3/8/19	455	6/5/20	326
Data Synchronization	Deliver results	3/8/19	455	6/5/20	326
Data Synchronization	Repeat iterations as needed	3/8/19	455	6/5/20	326
Data Sustainment	Configure service to consume GIS data and publish QCs	10/1/19	244	6/1/20	175
Data Sustainment	Import data into DataManager	10/1/19	244	6/1/20	175
Data Sustainment	Run DataManager content QCs	10/1/19	244	6/1/20	175
Data Sustainment	Publish data passing QCs to ECRF	10/1/19	244	6/1/20	175
Data Aggregation & Testing	Aggregate data from jurisdictions	1/1/20	152	6/1/20	109
Data Aggregation & Testing	Compliance testing for gaps & overlaps	1/1/20	152	6/1/20	109
Data Aggregation & Testing	Error reporting & remediation	1/1/20	152	6/1/20	109
ECRF/LVF Simulation	ECRF publishing test	3/2/20	943	10/1/22	675
ECRF/LVF Simulation	ECRF/LVF simulation & testing	3/2/20	943	10/1/22	675
ECRF/LVF Simulation	Review discrepancies	3/2/20	943	10/1/22	675

NOTE: The following information is also presented in the Technical Response Section of DDTI's response to this RFP.

A key objective of the project is to design, implement and maintain the Emergency Call Routing Function (ECRF) dataset as an aggregation of local data sources. This ECRF dataset should meet the accuracy requirements necessary to support the ECRF call route determination functionality in a Next Generation 9-1-1 (NG9-1-1) system. There are four primary processes that are necessary to reach this objective:

1. Dataset Definition
2. Process Design for Each Jurisdiction
3. Statewide Dataset Aggregation
4. ECRF/LVF Simulation

One of the major concerns with any data focused project is how to maintain the data at a functional level. The documentation and integration of the local jurisdiction's standard operating procedures is a primary aspect of the project.

Dataset Definition

ECRF/LVF Datasets

It is necessary to define the schema and metadata for the ECRF dataset. DDTI will work in conjunction with the primary project stakeholders to determine the required layers, fields, and accuracy requirements for this dataset.

NENA Standards for the Provisioning and Maintenance of GIS data to ECRFs and LVFs (NENA-STA-005.1.1) defines the ECRF/LVF provisioning data model. The ECRF/LVF requires service area boundaries, and address location data. The ECRF/LVF does not require a wide variety of other GIS data layers that are useful for tactical dispatch mapping, such as aerial or satellite imagery, hydrography, topographic maps, fire hydrant locations, infrastructure maps, and so on. The ECRF/LVF should be thought of as using a subset of available GIS layers, and not all GIS layers used for other 9-1-1 functions.

For each layer, the schema will need to be defined. The NENA Standard for NG9-1-1 GIS Data Model (NENA-STA-006.1 DRAFT) is the primary GIS data structure guideline. Consideration towards Appendix B (SI Provisioning Data Model) of the NENA Detailed Functional and Interface Standards for the NENA i3 Solution (NENA-STA-010.2), and the NENA Next Generation 9-1-1 (NG9-1-1) United States Civic Location Data Exchange Format (CLDXF) Standard (NENA-STA-004.1) to determine which spatial layers are used and which fields are required, conditional, and optional. Finally, the target accuracy statistics should be set for both MSAG/ALI data synchronization and the Next Generation simulation quality tests. In our experience, it is critical to the success of any data project to clearly define the data model and accuracy expectations.

Auxiliary Datasets

Auxiliary Datasets can be defined as optional GIS layers that support the business practice of 9-1-1 call routing and other downstream elements (e.g., Map Database Service, MSAG Conversion Service, Geocoding Service, PSAP Map Display, etc.).

The starting point of data identification will be the Request for Proposal's Attachment B with effort toward the NENA Standard for NG9-1-1 GIS Data Model (NENA-STA-006.1

DRAFT) in its current state.

Typically, Dataset Definition will cover following information:

Suggested Data Assessment Task	Description
Document Layers Provided	List all Layers and Source
Verify that there is data source for each Mandatory Layer	Mandatory Layer in ECRF dataset
Document Optional Layers that have a data source	Optional NG9-1-1 Layers
Document the Fields in Each Layer	List all fields and data type
Map the provided fields to the NENA GIS Data Model	Map the provided Layers and Fields to the ECRF dataset
Verify All Mandatory Fields are present	Mandatory fields in the ECRF dataset
Verify All Mandatory Fields contain data	Not <Null>
Verify Metadata	Existence and compliance
Map the provided fields to the NITC GIS Data Model	Compliance
Verify All Mandatory Fields are present	Compliance
Verify All Mandatory Fields contain appropriate data	Compliance
Document all Conditional Fields	Conditional fields in the ECRF dataset
Verify that Conditional Fields meet the conditions	Review data content to ensure that the conditions are fulfilled
Document all Optional Fields	Fields not used in the ECRF
For each layer review all fields (Mandatory/Conditional/Required) to identify necessary data transformations	Example: Street Type element is abbreviated in Data Source vs. spelled out in data model
Identify and Report Data Source vs. Data Model gaps	Review the Data Requirements for the Project and possible gaps in the various Data Sources
Verify Data Transformations with Data Source	Confirm Data Transformations are correct
Work with Data Source to Identify Data Creation/Upgrade/Clean-up Needs	Review needs and select action for Data Remediation; document Data Source needs for Data Remediation
Review Data Maintenance Processes and Tools with Data Source	Review that the Data Source can maintain the fields required for the project
Work with Data Source to Identify Training Needs	Identify training needs about Data Remediation and Maintenance
Document Data Requirements to Support Existing Systems	Document the data requirements (layers, fields, and formats) that may generate constraints on the data transformations

Process Design for Each Jurisdiction

Data Integration Design

Each local dataset will need to be reviewed, documented, and the Local Data to ECRF transformations designed and tested. DDTI will meet with each local entity to define the source for each of the required layers. Once this has been determined, the GIS Analyst will work with individual sources to document the layer metadata and design the specific data transformations for the layer. Any gaps between the local data and the ECRF dataset model will be documented and reported for resolution.

Process Customization, Setup, and Training

Each local data source will need to have the processes customized and setup to integrate as

smoothly as possible into their existing methodology. The components that can be customized are: data editing, data submission, and discrepancy reporting. DDTI will work directly with the people responsible for the layer to identify the options that make the most sense for them. The selected options will be setup and the end users will be trained to work with the provided services and tools. We have extensive experience with a diverse set of client capabilities ranging from no existing GIS system to sophisticated autonomous GIS departments.

Discrepancy Testing and Remediation

The discrepancy testing and remediation process is an iterative cycle of data updates, testing, and remediation. In the long term, this cycle is the core of the maintenance process and is continuous to ensure discrepancies are reviewed and corrected as necessary to maintain the proper functionality in the Next Generation system.

DDTI will support the client as necessary to facilitate the data discrepancy resolution. Our clients have a broad spectrum of GIS and Next Generation 9-1-1 experience and knowledge. In many cases, DDTI goes beyond simply reporting discrepancies and works directly with the client to ensure it is clear why it is a discrepancy, how it can affect the ECRF functionality, and review remediation options available.

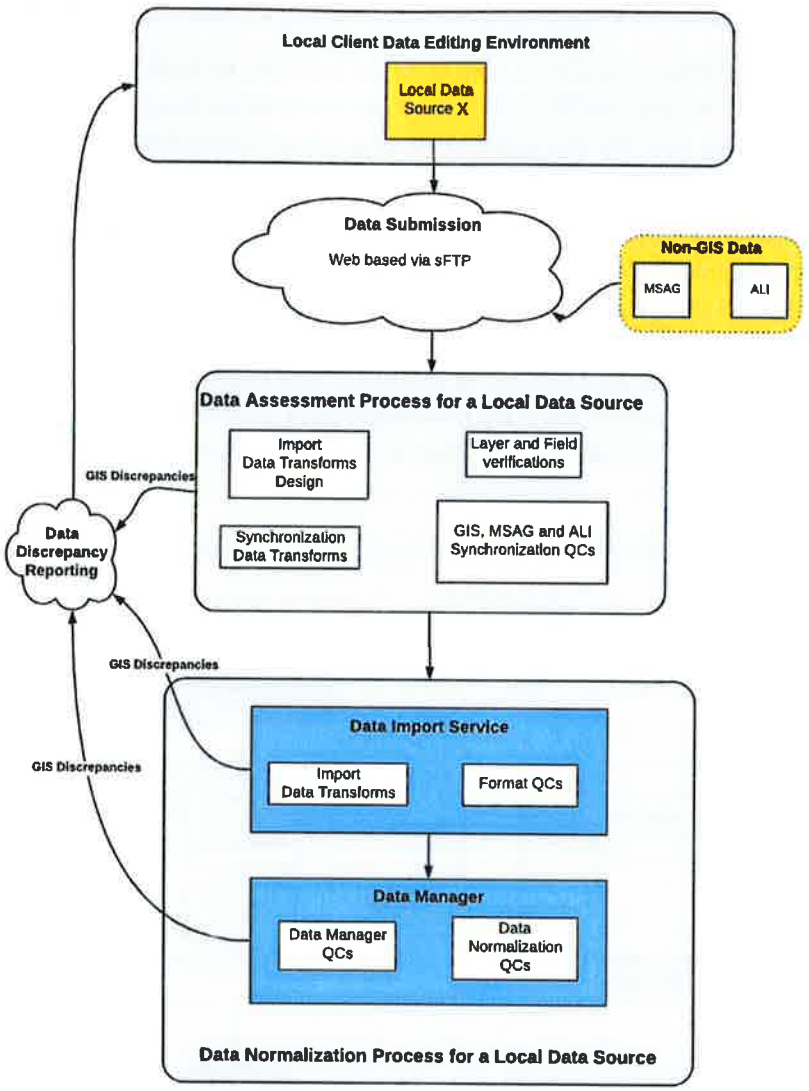
As expressed in the NENA GIS Data Collection and Maintenance Standards document (NENA 02-014), the use of property tax information, ALI, MSAG, Utility databases, and other source information that has address information for use in QA/QC, will greatly aid in resolving discrepancies by cross auditing multiple datasets.

The integration of additional data sources at this stage provides the benefit of cross-audits to aid in decision making where gap analysis requires a decision for resolution. Results from those decisions may allow incorporation from the additional datasets to strengthen the completeness and accuracy of the 9-1-1 datasets.

Local Process Tuning

Another important aspect of the project is to integrate the process as closely and painlessly as possible with the local user's standard operating procedures. We will work with the end user to tune the process to fit their needs. The key to this in our experience is to be as flexible as possible concerning the components that integrate local systems with the DataManager. This includes the data transformations, editing, submission, and reporting. In addition, the local users may require specific custom exports to support external systems like CAD, Dispatch Mapping, and non-9-1-1 systems.

Diagram A - Local Data Sets



Statewide Dataset Aggregation

For each local GIS dataset, the MSAG/ALI/GIS data have been tested for synchronization, individual layers have been tested for consistency and GIS layers were tested for cross-consistency. Finally, all layers and fields have been accounted for and can be transformed into the statewide schema. What has not been tested f is how the local data set fits into the statewide data set.

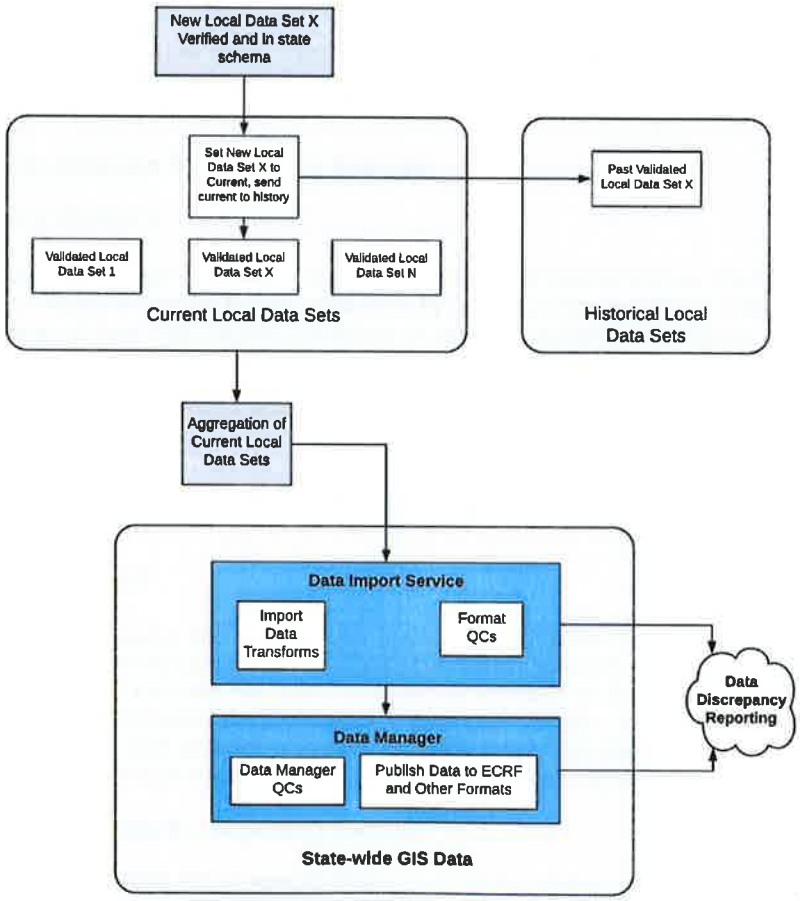
Each transformed local data set will be aggregated into the statewide data set. The polygon layers are tested for any gaps or overlaps in their statewide coverage. At the state's discretion, gaps and overlaps in the aggregated statewide dataset that fall within a predefined tolerance can be auto corrected. Gaps and overlaps that fall outside of the predefined tolerance will be reported back to each local data source for resolution. Each local data source will be able to see the gap/overlap by adding the map layer to their local GIS editing environment to resolve the issue. In those cases where cooperation with the adjacent local data source may be required, DDTI can help facilitate this process.

The roads are tested to see if there are any duplicated roads, or if the road network is not intersected properly at the jurisdictional boundaries. The addresses are tested to see if there are any duplicated addresses. In addition, all the other DataManager QCs are evaluated for the statewide data set to ensure that no transformational errors were introduced.

All issues will be reported back to the relevant local data sources for clarification or remediation. The individual agencies should come to an agreement about their polygon borders and who will submit shared roads on borders to resolve any issues there are with the conflation of their two data sets. Once the revisions have been made the data sets can be resubmitted.

Although polygon overlaps and gaps are critical errors for the ECRF functionality (i.e., the presence of significant gaps and overlaps will cause degradation in the ECRF functionality), proper road segmentation is not a critical violation for ECRF data requirements. Roads need to be "geocodable" so the correct polygon is identified and call routing information can be determined. Proper road segmentation may be a requirement that is outside of the ECRF for the state and needs to be enforced for other reasons. Typically, road segmentation is not completely checked for ECRF data publishing in the NG 9-1-1 environment, but the data can be used for other purposes and may require proper segmentation.

Diagram B - Integration and testing of Local Data Set in Statewide Data Set



ECRF/LVF Simulation

The key objective of the project is to create a dataset that can be used in the ECRF and LVF services and the best way to test the dataset is to simulate a NG9-1-1 environment. Because MSAG and ALI formats differ from the Next Generation CLDXF standard, the comparison of the ECRF/LVF dataset to ALI records is problematic. As part of the normalization process, DDTI will convert and load ALI records into a Location Information Server/Location Database (LIS/LDB), which is the equivalent of an ALI record conforming to the CLDXF specification, and then compare these records to the ECRF/LVF.

If Nebraska desires to continue the simulation process beyond the initial aggregation tasks, the ECRF/LVF will be populated by the DataManager and The LDB data can be updated as a full or partial update. A full update will require an updated full ALI data set and a partial update can be accomplished using SOI data from the service providers. Only add, modify, and delete SOI records are required (DDTI will not process lock, unlock, and migrate SOI records).

During the continued simulation, any LVF validation discrepancies will be stored as LDB discrepancy records in the LDB system. These can be reviewed using the LDB website, or they can be exported as a .csv file for distribution to end users if desired.

3. CONTRACTOR REPORTS TO PSAPs

Upon completion of its review of any GIS dataset uploaded by a PSAP or its representative, the Contractor will create and deliver a report in electronic format to both the PSAP responsible for uploading the file and the Commission's GIS Specialist.

Please refer to Appendix B – Reporting Example

4. DISCREPANCY REPORT

In the case of an uploaded GIS dataset that contains errors or discrepancies, the Contractor's report shall be a Discrepancy Report in tabular format, organized by unique object identifiers, listing all errors, discrepancies and other items of note that require correction in order to achieve compliance with applicable NITC and NENA standards. Each Discrepancy Report shall also be accompanied by a shapefile of any areas where the topology in the related dataset is incorrect. In addition, the Discrepancy Report for each dataset that includes a Street Centerline layer shall state the match rate percentage between the Street Centerline layer and the MSAG.

Please refer to Appendix B – Reporting Example

5. COMPLIANCE REPORT

In the case of an uploaded GIS dataset that is determined by the Contractor to be in compliance with all applicable NITC and NENA standards, the Contractor shall deliver to the related PSAP a report stating that the dataset is ready for use and has been accepted for inclusion in the Commission's GIS Repository, along with any additional information the Contractor deems appropriate. In addition, the Compliance Report for each accepted dataset that includes a Street Centerline layer shall state the match rate percentage between (i) the Street Centerline layer and the MSAG and (ii) the Address Points layer and the ALI.

Please refer to Appendix B – Reporting Example

6. CONTRACTOR REPORTS TO COMMISSION

The Contractor shall provide the Commission with a copy of each Discrepancy Report, Compliance Report, and a monthly summary of other communications the Contractor delivers to any PSAP. In addition, The Contractor will be required to deliver periodic reports to the Commission's GIS Specialist on a monthly basis,

listing by jurisdiction each GIS dataset reviewed by the Contractor in the prior period, including the results of each review. Each periodic report shall also include a list of all GIS datasets currently undergoing QA/QC review, organized by PSAP. In addition, each periodic report shall also include the completion date of the most recent QA/QC review conducted for each PSAP in Nebraska, along with a list of each PSAP, if any, for which no GIS dataset was submitted to the Contractor for review. The Commission must also be notified in the event any PSAP fails to make necessary changes within thirty (30) days to a GIS dataset that has been rejected for uploading or has been the subject of a Discrepancy Report.

Please refer to Appendix B – Reporting Example

7. PERIODIC REMINDERS TO UPLOAD GIS DATA

Local agencies will be expected to upload revised GIS datasets to the secure portal for review on at least a monthly basis. The Contractor will be required to send reminder notices via e-mail to each PSAP that has gone 85 or more days without uploading a new or revised dataset for QA/QC review. Each such reminder must include a hyperlink to the Contractor's secure portal, along with the dates and a general description of the PSAP's previous uploads to the portal.

8. CUSTOMER SERVICE RESPONSIBILITIES

The Contractor must support various methods by which local agencies and the Commission can raise questions and concerns or access information about the Contractor's QA/QC process. At a minimum, such methods must include a dedicated customer service telephone number and e-mail address. The Contractor must also maintain a User Guide and Frequently Asked Questions page dedicated to the GIS QA/QC portal on its website.

The Contractor must also provide a designated person for the Commission to contact in the event of system problems or operational questions from Commission staff. In addition, the Contractor must maintain a responsive trouble ticket system designed to direct system issues to the person who can most efficiently obtain a resolution.

a. Please describe how you will meet the requirements for customer service.

Bidder Response:

DDTI assigns a PMP certified project manager who will retain responsibility addressing issues or questions from local entities and Commission staff. Other individuals assigned to the project, as well as the project manager, provide detailed contact information to all involved parties.

DDTI provides 24x7x365 customer support and employs an integrated customer support system (Zendesk) to direct and manage trouble tickets.

Because our project kick-offs, training and PSAP integrations are in person, there are typically very few ongoing questions or issues. It is important to note that DDTI strives to keep current data schemas and processes as close to normal as possible (e.g., we provide data translates as opposed to forcing local GIS data providers to alter their schemas).

Training must also be made available to local agencies and designated Commission personnel on the Contractor's QA/QC process.

b. Please describe how you will approach and accomplish training local agencies and Commission personnel.

Bidder Response:

In DDTI's experience, onsite meetings to answer the question "Why NG9-1-1?" is the essential starting point to ensure stakeholder engagement. It is very easy to get lost in new NG9-1-1 terminology, new schemas, workflows, and processes, so our approach is to distill the core aspects and present them in an easy to understand format. Equally important is to bridge the knowledge gap between those familiar with 9-1-1 and those that work with GIS daily. Laying out a step by step process that prioritizes the most important aspects of NG9-1-1 lays the foundation for an eventual full migration to the new system.

Each local data source will need to have the processes customized and set up to integrate as smoothly as possible into their existing methodology. The components that can be customized are: data editing, data submission, and discrepancy reporting. DDTI will work directly with the people responsible for the layer to identify the options that make the most sense for them. The selected options will be set up and the end users will be trained to work with the provided services and tools. We have extensive experience with a diverse set of client capabilities and systems that varies from clients with no existing GIS system to sophisticated autonomous GIS systems.

Another area that can cause confusion is data discrepancies. The relationship between a data discrepancy and its effect on the ECRF service is not always clear. For this reason, local jurisdiction training will include clear definitions how the ECRF functions and what each discrepancy will mean. In addition, our personnel have extensive experience in creating data for E9-1-1 and NG9-1-1. We have developed strategies for our data discrepancy resolution that focus on addressing corrections that can resolve many discrepancies with simple changes to the data. For example, looking at the patterns in the discrepancies can identify a Street Name issue that can be resolved by either fixing a transformation of a small set of road segments.

Local Data Integration Design

Each local dataset will need to be reviewed, documented, and the Local Data to ECRF transformations designed and tested. DDTI will meet with each local entity to define the source for each of the required layers. Once this has been determined, the GIS Analyst will work with individual sources to document the layer metadata and design the specific data transformations for the layer. Any gaps between the local data and the ECRF dataset model will be documented and reported for resolution.

Process Customization, Setup, and Training

Each local data source will need to have the processes customized and setup to integrate as smoothly as possible into their existing methodology. The components that can be customized are: data editing, data submission, and discrepancy reporting. DDTI will work directly with the people responsible for the layer to identify the options that make the most sense for them. The selected options will be setup and the end users will be trained to work with the provided services and tools. We have extensive experience with a diverse set of client capabilities ranging from no existing GIS system to sophisticated autonomous GIS departments.

Discrepancy Testing and Remediation

The discrepancy testing and remediation process is an iterative cycle of data updates, testing, and remediation. In the long term, this cycle is the core of the maintenance process and is continuous to ensure discrepancies are reviewed and corrected as necessary to maintain the proper functionality in the Next Generation system.

DDTI will support the client as necessary to facilitate the data discrepancy resolution. Our clients have a broad spectrum of GIS and Next Generation 9-1-1 experience and knowledge. In many cases, DDTI goes beyond simply reporting discrepancies and works directly with the client to ensure it is clear why it is a discrepancy, how it can affect the ECRF functionality, and review remediation options available.

As expressed in the NENA GIS Data Collection and Maintenance Standards document (NENA 02-014), the use of property tax information, ALI, MSAG, Utility databases, and other source information that has address information for use in QA/QC, will greatly aid in resolving discrepancies by cross auditing multiple datasets.

The integration of additional data sources at this stage provides the benefit of cross-audits to aid in decision making where gap analysis requires a decision for resolution. Results from those decisions may allow incorporation from the additional datasets to strengthen the completeness and accuracy of the 9-1-1 datasets.

Local process tuning

Another important aspect of the project is to integrate the process as closely and painlessly as possible with the local user's standard operating procedures. We will work with the end user to tune the process to fit their needs. The key to this in our experience is to be as flexible as possible concerning the components that integrate local systems with the DataManager. This includes the data transformations, editing, submission, and reporting. In addition, the local users may require specific custom exports to support external systems like CAD, Dispatch Mapping, and non-9-1-1 systems.

G. DELIVERABLES

Please see Cost Proposal Template.

VI. PROPOSAL INSTRUCTIONS

This section documents the requirements that should be met by bidders in preparing the Technical and Cost Proposal. Bidders should identify the subdivisions of "Project Description and Scope of Work" clearly in their proposals; failure to do so may result in disqualification. Failure to respond to a specific requirement may be the basis for elimination from consideration during the State's comparative evaluation.

Proposals are due by the date and time shown in the Schedule of Events. Content requirements for the Technical and Cost Proposal are presented separately in the following subdivisions; format and order:

A. PROPOSAL SUBMISSION

1. REQUEST FOR PROPOSAL FORM

By signing the "RFP for Contractual Services" form, the bidder guarantees compliance with the provisions stated in this RFP, agrees to the Terms and Conditions stated in this RFP unless otherwise agreed to, and certifies bidder maintains a drug free work place environment.

The RFP for Contractual Services form must be signed using an indelible method (not electronically) and returned per the schedule of events in order to be considered for an award.

Sealed proposals must be received in the State Purchasing Bureau by the date and time of the proposal opening per the Schedule of Events. No late proposals will be accepted. No electronic, e-mail, fax, voice, or telephone proposals will be accepted.

It is the responsibility of the bidder to check the website for all information relevant to this solicitation to include addenda and/or amendments issued prior to the opening date. Website address is as follows: http://das.nebraska.gov/materiel/purchasing.html

Further, Sections II through VII must be completed and returned with the proposal response.

2. CORPORATE OVERVIEW

The Corporate Overview section of the Technical Proposal should consist of the following subdivisions:

a. BIDDER IDENTIFICATION AND INFORMATION

The bidder should provide the full company or corporate name, address of the company's headquarters, entity organization (corporation, partnership, proprietorship), state in which the bidder is incorporated or otherwise organized to do business, year in which the bidder first organized to do business and whether the name and form of organization has changed since first organized.

b. FINANCIAL STATEMENTS

The bidder should provide financial statements applicable to the firm. If publicly held, the bidder should provide a copy of the corporation's most recent audited financial reports and statements, and the name, address, and telephone number of the fiscally responsible representative of the bidder's financial or banking organization.

If the bidder is not a publicly held corporation, either the reports and statements required of a publicly held corporation, or a description of the organization, including size, longevity, client base, areas of specialization and expertise, and any other pertinent information, should be submitted in such a manner that proposal evaluators may reasonably formulate a determination about the stability and financial strength of the organization. Additionally, a non-publicly held firm should provide a banking reference.

The bidder must disclose any and all judgments, pending or expected litigation, or other real or potential financial reversals, which might materially affect the viability or stability of the organization, or state that no such condition is known to exist.

The State may elect to use a third party to conduct credit checks as part of the corporate overview evaluation.

c. CHANGE OF OWNERSHIP

If any change in ownership or control of the company is anticipated during the twelve (12) months following the proposal due date, the bidder should describe the circumstances of such change and

indicate when the change will likely occur. Any change of ownership to an awarded vendor(s) will require notification to the State.

d. OFFICE LOCATION

The bidder's office location responsible for performance pursuant to an award of a contract with the State of Nebraska should be identified.

e. RELATIONSHIPS WITH THE STATE

The bidder should describe any dealings with the State over the previous five (5) years. If the organization, its predecessor, or any Party named in the bidder's proposal response has contracted with the State, the bidder should identify the contract number(s) and/or any other information available to identify such contract(s). If no such contracts exist, so declare.

f. BIDDER'S EMPLOYEE RELATIONS TO STATE

If any Party named in the bidder's proposal response is or was an employee of the State within the past eighteen (18) months, identify the individual(s) by name, State agency with whom employed, job title or position held with the State, and separation date. If no such relationship exists or has existed, so declare.

If any employee of any agency of the State of Nebraska is employed by the bidder or is a subcontractor to the bidder, as of the due date for proposal submission, identify all such persons by name, position held with the bidder, and position held with the State (including job title and agency). Describe the responsibilities of such persons within the proposing organization. If, after review of this information by the State, it is determined that a conflict of interest exists or may exist, the bidder may be disqualified from further consideration in this proposal. If no such relationship exists, so declare.

g. CONTRACT PERFORMANCE

If the bidder or any proposed subcontractor has had a contract terminated for default during the past five (5) years, all such instances must be described as required below. Termination for default is defined as a notice to stop performance delivery due to the bidder's non-performance or poor performance, and the issue was either not litigated due to inaction on the part of the bidder or litigated and such litigation determined the bidder to be in default.

It is mandatory that the bidder submit full details of all termination for default experienced during the past five (5) years, including the other Party's name, address, and telephone number. The response to this section must present the bidder's position on the matter. The State will evaluate the facts and will score the bidder's proposal accordingly. If no such termination for default has been experienced by the bidder in the past five (5) years, so declare.

If at any time during the past five (5) years, the bidder has had a contract terminated for convenience, non-performance, non-allocation of funds, or any other reason, describe fully all circumstances surrounding such termination, including the name and address of the other contracting Party.

h. SUMMARY OF BIDDER'S CORPORATE EXPERIENCE

The bidder should provide a summary matrix listing the bidder's previous projects similar to this RFP in size, scope, and complexity. The State will use no more than three (3) narrative project descriptions submitted by the bidder during its evaluation of the proposal.

The bidder should address the following:

i. Provide narrative descriptions to highlight the similarities between the bidder's experience and this RFP. These descriptions should include:

- **a)** The time period of the project;
- **b)** The scheduled and actual completion dates;
- **c)** The Contractor's responsibilities;
- **d)** For reference purposes, a customer name (including the name of a contact person, a current telephone number, a facsimile number, and e-mail address); and
- **e)** Each project description should identify whether the work was performed as the prime Contractor or as a subcontractor. If a bidder performed as the prime

Contractor, the description should provide the originally scheduled completion date and budget, as well as the actual (or currently planned) completion date and actual (or currently planned) budget.

ii. Contractor and subcontractor(s) experience should be listed separately. Narrative descriptions submitted for subcontractors should be specifically identified as subcontractor projects.

iii. If the work was performed as a subcontractor, the narrative description should identify the same information as requested for the Contractors above. In addition, subcontractors should identify what share of contract costs, project responsibilities, and time period were performed as a subcontractor.

i. SUMMARY OF BIDDER'S PROPOSED PERSONNEL/MANAGEMENT APPROACH

The bidder should present a detailed description of its proposed approach to the management of the project.

The bidder should identify the specific professionals who will work on the State's project if their company is awarded the contract resulting from this RFP. The names and titles of the team proposed for assignment to the State project should be identified in full, with a description of the team leadership, interface and support functions, and reporting relationships. The primary work assigned to each person should also be identified.

The bidder should provide resumes for all personnel proposed by the bidder to work on the project. The State will consider the resumes as a key indicator of the bidder's understanding of the skill mixes required to carry out the requirements of the RFP in addition to assessing the experience of specific individuals.

Resumes should not be longer than three (3) pages. Resumes should include, at a minimum, academic background and degrees, professional certifications, understanding of the process, and at least three (3) references (name, address, and telephone number) who can attest to the competence and skill level of the individual. Any changes in proposed personnel shall only be implemented after written approval from the State.

j. SUBCONTRACTORS

If the bidder intends to subcontract any part of its performance hereunder, the bidder should provide:

i. name, address, and telephone number of the subcontractor(s);
ii. specific tasks for each subcontractor(s);
iii. percentage of performance hours intended for each subcontract; and
iv. total percentage of subcontractor(s) performance hours.

3. TECHNICAL APPROACH

The technical approach section of the Technical Proposal should consist of the following subsections:

a. Understanding of the project requirements;
b. Proposed development approach;
c. Technical requirements;
d. Contractor requirements and
e. Deliverables.

COST PROPOSAL REQUIREMENTS

This section describes the requirements to be addressed by bidders in preparing the State's Cost Proposal template. The bidder must use the State's Cost Proposal template. The bidder should submit the State's Cost Proposal template in accordance with Section I Submission of Proposal.

THE STATE'S COST PROPOSAL TEMPLATE AND ANY OTHER COST DOCUMENT SUBMITTED WITH THE PROPOSAL SHALL NOT BE CONSIDERED CONFIDENTIAL OR PROPRIETARY AND IS CONSIDERED A PUBLIC RECORD IN THE STATE OF NEBRASKA AND WILL BE POSTED TO A PUBLIC WEBSITE.

B. COST PROPOSAL

This summary shall present the total fixed price to perform all of the requirements of the RFP. The bidder must include details in the State's Cost Proposal supporting any and all costs.

The State reserves the right to review all aspects of cost for reasonableness and to request clarification of any proposal where the cost component shows significant and unsupported deviation from industry standards or in areas where detailed pricing is required.

C. PRICES

Prices quoted shall be net, including transportation and delivery charges fully prepaid by the bidder, F.O.B. destination named in the RFP. No additional charges will be allowed for packing, packages, or partial delivery costs. When an arithmetic error has been made in the extended total, the unit price will govern.

Form A
Bidder Contact Sheet
Request for Proposal Number 5882 Z1

Form A should be completed and submitted with each response to this RFP. This is intended to provide the State with information on the bidder's name and address, and the specific person(s) who are responsible for preparation of the bidder's response.

Preparation of Response Contact Information	
Bidder Name:	Digital Data Technologies, Inc.
Bidder Address:	2323 W. Fifth Ave., Suite 210 Columbus, OH 43204
Contact Person & Title:	Ron Cramer, President
E-mail Address:	rcramer@DDTI.net
Telephone Number (Office):	(614) 429-3384 ext. 222
Telephone Number (Cellular):	(614) 738-4426
Fax Number:	(614) 429-3385

Each bidder should also designate a specific contact person who will be responsible for responding to the State if any clarifications of the bidder's response should become necessary. This will also be the person who the State contacts to set up a presentation/demonstration, if required.

Communication with the State Contact Information	
Bidder Name:	Digital Data Technologies, Inc.
Bidder Address:	2323 W. Fifth Ave., Suite 210 Columbus, OH 43204
Contact Person & Title:	Daniel Casey, CBDO
E-mail Address:	dcasey@DDTI.net
Telephone Number (Office):	(614) 429-3384 ext. 223
Telephone Number (Cellular):	(614) 571-9683
Fax Number:	(614) 429-3385

REQUEST FOR PROPOSAL FOR CONTRACTUAL SERVICES FORM

BIDDER MUST COMPLETE THE FOLLOWING

By signing this Request for Proposal for Contractual Services form, the bidder guarantees compliance with the procedures stated in this Request for Proposal, and agrees to the terms and conditions unless otherwise indicated in writing and certifies that bidder maintains a drug free work place.

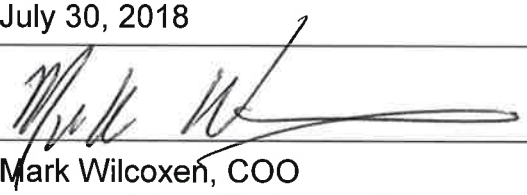
Per Nebraska's Transparency in Government Procurement Act, Neb. Rev Stat § 73-603 DAS is required to collect statistical information regarding the number of contracts awarded to Nebraska Contractors. This information is for statistical purposes only and will not be considered for contract award purposes.

_____ NEBRASKA CONTRACTOR AFFIDAVIT: Bidder hereby attests that bidder is a Nebraska Contractor. "Nebraska Contractor" shall mean any bidder who has maintained a bona fide place of business and at least one employee within this state for at least the six (6) months immediately preceding the posting date of this RFP.

_____I hereby certify that I am a Resident disabled veteran or business located in a designated enterprise zone in accordance with Neb. Rev. Stat. § 73-107 and wish to have preference, if applicable, considered in the award of this contract.

_____ I hereby certify that I am a blind person licensed by the Commission for the Blind & Visually Impaired in accordance with Neb. Rev. Stat. §71-8611 and wish to have preference considered in the award of this contract.

FORM MUST BE SIGNED USING AN INDELIBLE METHOD (NOT ELECTRONICALLY)

FIRM:	Digital Data Technologies, Inc.
COMPLETE ADDRESS:	2323 W. Fifth Ave., Suite 210 Columbus, OH 43204
TELEPHONE NUMBER:	(614) 429-3384
FAX NUMBER:	(614) 429-3385
DATE:	July 30, 2018
SIGNATURE:	
TYPED NAME & TITLE OF SIGNER:	Mark Wilcoxen, COO

Technical Responses

2. CORPORATE OVERVIEW

a. Bidder Identification and Information

Digital Data Technologies, Inc. (DDTI)
Headquarters:
2323 W. Fifth Avenue, Suite 210
Columbus, OH 43204

Telephone: (614) 429-3384
Fax: (614) 429-3385

Year Incorporated:	1998
State of Incorporation:	Ohio
Ownership:	S Corporation. Name and form of the organization has remained unchanged since inception.
Certified Public Accountants:	Payne & Company CPAs, LLC 4530 Sawmill Road Columbus, OH 43220 **Kent Payne**, CPA (614) 458-1101
Banking Contact:	Chase Bank 460 Polaris Parkway Westerville, OH 43082 **Gregory M. Battisti**, Vice President (614) 523-5007

Background Information:

Since 1998, Digital Data Technologies, Inc. (DDTI) has been providing state-of-the-art Geographic Information System (GIS) services, including:

- Data collection, processing and delivery of precise and complete GIS datasets. Our field teams utilized our custom Voice and Information Recording Data Acquisition (VIRDA) system (comprised of digital voice recording, survey-grade GPS receivers, inertial navigation and distance measuring equipment) to collect and verify all public roadway centerline information and addresses.
- Over 300 comprehensive data validation analyses to discover and reconcile discrepancies between ALI, MSAG and GIS data and facilitate NG9-1-1 migrations. Our processes ensure uniformity, accuracy and adherence to NENA standards.
- Providing NG9-1-1 GIS data normalization services for the Commonwealth of Massachusetts, the County of St. Louis and the National Capital Region (over 12 million citizens) in preparation of NG9-1-1 deployments.
- Support for the creation of the Location Based Response System (LBRS) road inventory for the State of Ohio. The U.S. Department of Transportation specifically noted that the

accuracy of LBRS data and the collaboration of organizations required to build Ohio's LBRS could serve as a model for the nation.

In addition, DDTI has developed and installed key components ensuring reliable and timely emergency call routing. Our i3 compliant software includes an Emergency Call Routing Function (ECRF), Location Validation Function (LVF), Location Database (LDB), Spatial Interface (SI) and MSAG Conversion Service (MCS). We also provide map display software providing location awareness for 9-1-1 dispatchers in over 1,000 PSAPs nationwide.

Our products are currently supporting NG9-1-1 deployments in the Commonwealth of Massachusetts, St. Louis County and several counties in Ohio. We have worked with multiple CPE vendors (e.g., Airbus, Motorola and WestTel) to ensure our software interfaces effectively.

DDTI continues to work closely with the National Emergency Number Association (NENA) to develop standards and protocols for NG9-1-1 and has participated in multiple NENA Industry Collaboration Events (ICE). DDTI is proud to have been recognized by NENA with a certificate of appreciation for our outstanding contribution to the development of ECRF/LVF i3 standards.

b. Financial Statements

DDTI does not have any judgements, pending or expected litigation, or other real or potential financial reversals which might materially affect the viability or stability of the organization.

c. Change of Ownership

No change in ownership or control of the company is anticipated during the twelve (12) month period following the proposal due date.

d. Office Location

DDTI's headquarter location (Columbus, Ohio) will be responsible for performance pursuant to an award from the State.

e. Relationships with the State

DDTI has no direct customers in Nebraska, however DDTI's channel partners may have DDTI's imbedded map display software installed in Cass County Sheriff's Office and Clay County Sheriff's Office.

f. Bidder's Employee Relations to State

DDTI has no parties (employees or subcontractors) that are, or were, employees of the State of Nebraska within the last eighteen (18) months.

g. Contract Performance

DDTI and any subcontractors utilized, have not had any contract terminated for default during the past five (5) years, nor has DDTI or any of its subcontractors had any contract terminated for convenience, non-performance, non-allocation of funds, or any other reason.

h. Summary of Bidder's Corporate Experience

National Capital Region

Key Information

- Project began in March 2016 and concluded in April 2018
- 1,893,985 addresses
- 270,539 road miles
- 21 GIS polygons
- 5,466,456 ALI records
- 18 PSAPs in 16 jurisdictions
- Population of 5.5 million
- Project included NG9-1-1 simulation for 12 months after GIS Data Normalization work was completed. An ECRF/LVF was populated and an LDB was provisioned with ALI data converted to CLDXF and compared to the LVF.

Project Description

DDTI was contracted by the National Capital Region (NCR) to assist with the creation of a regional NG9-1-1 ready GIS dataset. The NCR encompasses 16 jurisdictions (City of Alexandria VA, Arlington VA, Fairfax VA, City of Falls Church VA, Fauquier VA, Loudoun VA, City of Manassas VA, City of Manassas Park VA, Prince William VA, Stafford VA, Charles MD, Frederick MD, Montgomery MD, Prince Georges MD, Metropolitan Washington Airports Authority (MWAA), and Washington DC).

DDTI met with each jurisdiction and analyzed each field in their GIS road centerline and address layers to determine which fields would be mapped to the NG9-1-1 dataset. If mandatory data needed for NG9-1-1 was not represented in the jurisdiction's GIS data, DDTI worked with the client to develop missing information. DDTI provided a secure file transfer service where jurisdictions could upload their data to facilitate GIS/MSAG/ALI comparisons. Accounts were set up in ArcMap where each jurisdiction could easily access discrepancy reports and make the necessary corrections. Through multiple iterations, a refined regional GIS dataset was created that would seamlessly fit into a NG9-1-1 system.

Contact

Judy Lamey-Doldorf, CSP
Fairfax County GIS
Office: 703-324-2981
Cell: 571-247-1826
Email: Judy.Doldorf@fairfaxcounty.gov

Commonwealth of Massachusetts

Key Information

- Project timeframe from August 2014 to July 2016
- Population of 6.8 million
- 3,380,799 addresses
- 445,290 road miles
- 1,589 GIS polygons
- 4,580,469 ALI records
- 290 PSAPs
- Worked with the Commonwealth's GIS Department to coordinate GIS, ALI and MSAG data for 14 counties
- Massachusetts geospatially routes all calls to 9-1-1 (ALI has been replaced with an LDB with land line records in CLDXF format and LVF validated)
- DDTI has deployed the following products in Massachusetts:
  - ECRF/LVF
  - DataManager (SI)
  - Location Database (LDB)
  - 819 seats of tactical map display software (ResponseAssist)

Project Description

The Commonwealth of Massachusetts was one of the first states to deploy an i3 compliant NG9-11 system. As a subcontractor to General Dynamics Information Technology (GDIT), DDTI worked collaboratively with Massachusetts GIS Department (MassGIS) to normalize all GIS data to be used within the NG 9-1-1 system. DDTI provided GIS datasets required to meet required schemas and data structures. DDTI worked with MassGIS to develop extract, transform and load routines to populate system tables from existing datasets.

In addition, DDTI provided quality assurance and control services that included:

- 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 GIS Data Model, NENA Site Structure Address Point
- Synchronization of GIS data with MSAG and ALI (NENA 71-501 v1)
- Address range parity in centerlines, as well as relating to site/structure location points and centerlines
- Duplicate address ranges
- Direction and flow errors
- Gaps and overlaps in PSAP and service boundaries and edge matching
- Centerline breaks at intersections and boundaries

Contact

Massachusetts State 911 Department
151 Campanelli Drive, Suite A
Middleborough MA 02346

Frank Pozniak, Executive Director
508-821-7215
Email: frank.pozniak@state.ma.us

Norm Fournier, Deputy Executive Director
508-821-7209
Email: norm.fournier@state.ma.us

Ohio Department of Transportation (ODOT) Location Based Response System (LBRS)

Key Information

- Project began in March of 2018 with expected completion in late 2020
- Ohio population is 11.66 million
- 262,851 road miles
- 88 counties
- Includes custom programs to provide data to Esri Roads and Highways
- The project receives and normalizes GIS data from local sources and provides ongoing maintenance for the LBRS Data Store, the Next Generation GIS database and the appropriate ECRF database(s).

Project Description

In this multi-million, multi-year project, DDTI is reviewing the road and address data for all 88 Ohio Counties and defining the data transformation(s) necessary to map the data to the Location Based Response System (LBRS) schema and spatial requirements (e.g., all roads are segmented at the necessary boundaries, jurisdictional edges are spatially matched to other County data sets and roads are not unnecessarily segmented). Missing source fields or other data deficiencies are reported to the County and ODOT.

The final data sets will be provided in the proper map projection to ODOT, Ohio Geographically Referenced Information Program (OGRIP) and the Counties. As a component of this work, DDTI will create a state-wide GIS data store that will support Ohio's NG9-1-1 implementation providing improved emergency services for 11.6 million people and 235 PSAPs.

Contacts

Jeff Smith
OSDI Manager, Ohio Geographically Referenced Information Program
DAS/OIT
Office: (614) 466-8862
Email: Jeff.Smith@das.ohio.gov

David L. Blackstone
Executive Director
Ohio Geographically Referenced Information Program
Office of Information Technology
Office: (614) 728-0890
Email: David.Blackstone@das.ohio.gov

Additional GIS Data Normalization Projects

The State of Montana

DDTI has recently been selected by Montana to perform a statewide data assessment providing information and guidance to 58 local entities (PSAPs) for the remediation of their data, which may include ALI modifications, MSAG updates and correction of streets, boundaries and address points. It is DDTI's responsibility to verify the completeness of the attribute information gathered and to identify the proposed solution to meet the intent of these specifications. DDTI will work directly with all 58 PSAPs in the state. The project is scheduled to begin in June 2018 and conclude in November 2018.

The County of St. Louis

DDTI began this project in December 2015 and concluded normalization in February 2017. The County of St. Louis has 21 PSAPs serving one million citizens. GIS data normalization tasks associated with this NG9-1-1 deployment with General Dynamics Information Technology included:

- Topology Data Cleanup, Address Range Editing, and Additional Attributions
- GIS Data Quality Control and Synchronization Services (Data Consistency Testing)
- DataManager QC process

DDTI is providing and ECRF/LVF, Spatial Interface, LDB and LDB Services as part of this deployment.

i. Summary of Bidder's Proposed Personnel/Management Approach

DDTI shall designate a DDTI Project Manager who will provide a single point of contact for management and coordination of DDTI's work. All work performed pursuant to the Agreement shall be coordinated between the State's designated Project Manager and the DDTI Project Manager.

DDTI anticipates assigning Tony Collura, PMP and ENP, as Project Manager. Mr. Collura has been with DDTI since 2000 and is a veteran member of the DDTI Data Creation and Production Team. He has contributed to over 50 LBRS mapping and GIS data normalization projects. He has assisted in the development of methods and standards for data collection and is well versed in project preparation, GPS processing, network adjustment, data reduction, data integration, and project management. Tony holds a Bachelor of Arts, Urban and Regional Geography, from The Ohio State University

References for Mr. Collura include:

Lauren Voelker, GIS Coordinator
St Louis County ECC
1150 Hanna Road
Ballwin, MO 63021
314-615-9561
lvoelker@stlouisco.com

Summary of Work Performed:

- Topology Data Cleanup, Address Range Editing, and Additional Attributions -March of 2015 to November of 2015.
- GIS Data Quality Control and Synchronization Services (Data Consistency Testing) - December of 2015 to February of 2017.
- Data Manager QC process - February of 2017 to Present.

Adam Fricke, P.E., P.S. Deputy Engineer
Clinton County Engineer
1326 Fife Avenue
Wilmington, OH 45177
937-382-2078
africke@clintoncountyengineer.org

Summary of Work Performed:

- Addition of new address points to the existing GIS - March of 2015 to March of 2016.
- Adjustment of road centerline intersections and associated milepost logs in the GIS to match updated Municipal boundaries - March of 2015 to March of 2016.

Karla K. Streharsky, M.A., GISP GIS Technical Applications Administrator
Division of Planning & GIS
175 S. Main St., Rm. 206
Akron, OH 44308
330-643-2679
kstreharsky@summitoh.net

Summary of Work Performed:

- GIS Data Collection and delivery of a Countywide LBRS Dataset – December of 2013 to October of 2015.

DDTI understands the assigned individual will remain engaged for the life of the project and will only be replaced upon written approval from the State.

DDTI's project manager will coordinate a project kick-off meeting with the appropriate State representatives and additional stakeholders as necessary. The objective of the project kick-off meeting is to outline the project action plan, assign areas of responsibilities, and create a common understanding of the project outcomes and schedules.

Project planning will follow the practices and techniques reflected in the Project Management Body of Knowledge (PMBOK Guide) from the Project Management Institute. We follow the defined process groups (Initiating, Planning, Executing, Monitoring and Controlling and Closing). At a minimum, DDTI will provide the following:

- Work Breakdown Structure (WBS) representing a top-down hierarchical description of the work required to produce what is called for in the Project Scope, achieve the mission and satisfy stakeholders.
- Communications Management Plan defining the communication requirements for the project and how information will be distributed.
- Schedule Management Plan that includes the methodology used to create the schedule, measurement guidelines, the duration for each activity and the efforts required for those activities.
- Risk Management Plan to define anticipated risks and provide a plan to resolve them if they occur. It includes risk management planning, risk identification, the qualitative and quantitative analysis of risks, risk response planning, monitoring and controlling the risk responses
- Change Management Plan defining activities and roles to manage and control change during the execute and control stage of the project.

Other DDTI employees that may be selected for this project include:

AJ WALTER, PMP		
Experience		
Digital Data Technologies, Inc	Project Manager, Data Services	2012 - Present
	GIS/GPS Analyst	2007 - 2012
Ohio Department of Transportation	GIS Specialist	2006 - 2007
Vogt Williams & Bowen	GIS Specialist	2004 - 2006
Education		
The Ohio State University	Bachelor of Science in Geography	2004
Qualifications		
Mr. Walter is a veteran member of the DDTI Data Creation and Production Team. He has participated in GIS Mapping Projects for over 40 counties in Ohio, Tennessee, Arizona, New Mexico and Wisconsin. He has assisted in the development of methods and standards for data collection. Mr. Walter is experienced in field data verification, collection, and reduction. Mr. Walter is a certified Project Management Professional (PMP).		

JIMMIE FOUT		
Experience		
Digital Data Technologies, Inc	Project Manager, Data Services	2008 - Present
Education		
Ohio University	Bachelor of Science in Geography	2007
Qualifications		
As a key member of the DDTI Data Creation and Production Team, Mr. Fout has participated in GIS Mapping Projects for over 30 counties in Ohio, Michigan, Pennsylvania, and Florida. He has assisted in the development of methods and standards for data collection. Mr. Fout is well versed and seasoned in field data verification, collection, and reduction.		

JOEL ALTFATER		
Experience		
Digital Data Technologies, Inc	GIS/GPS Analyst	2013 - Present
	GIS Task Supervisor	2008 - 2013
Ohio EPA	GIS Intern	2006
Education		
The Ohio State University	Bachelor of Arts and Social & Behavior Sciences	2007
Qualifications		
Mr. Altfater has experience mapping GIS projects in the US as well as Europe, Asia, Africa and South America. He contributed to the verification process of data collection and attribution from various GIS Technicians from all over the world. Mr. Altfater is well versed and seasoned in field data verification, collection, and reduction. Mr. Altfater has experience with managing GIS databases and utilizing ArcGIS to create end products. He also has experience with map data layer updates for county and municipal entities to meet Ohio's Location Based Response System (LBRS) specifications.		

JOSEPH GNAT		
Experience		
Digital Data Technologies, Inc	GIS/GPS Analyst	2014 - Present
Education		
Kent State University	Bachelor of Arts, Geographic Information Science/Environmental Geography	2008
Qualifications		
Mr. Gnat is a member of the DDTI Data Creation and Production Team. In the four years at DDTI, he has been active in the process of accurately and efficiently collecting and processing GIS data. He has worked on the last five Ohio LBRS projects and has assisted in yearly LBRS updates for counties in the State of Ohio.		

j. Subcontractors

DDTI does not anticipate the use of subcontractors for this engagement.

3. TECHNICAL APPROACH

a. Understanding of the Project Requirements

Requirements

DDTI will maintain a secure web portal through which Nebraska PSAPs, or their representatives, will upload GIS data to be analyzed. Access to the Data Import Service (DIS) portal will be limited to authorized users via login and password authentication. The portal will require each person authorized to upload GIS datasets, to identify the applicable jurisdiction, geographic area and type of dataset before a file will be accepted for uploading.

DDTI's secure portal can accept GIS data in any ESRI format. The portal will automatically reject GIS datasets that are incomplete or defective and immediately notify the local agency if an attempted upload was unsuccessful. The portal will return, prior to QA/QC review, GIS datasets having any of the characteristics presented below. Email notifications will be sent to the uploading party to correct any such errors.

1. No Data in the file
2. Improper or missing field names
3. Lack of defining information
4. Improper file format
5. MSAG not included with the Street Centerline file.
6. Missing or improperly formatted FGDC metadata
7. Incorrect data naming convention.

DDTI has several other QCs that happen in the Data Import Service that can be configured to stop the process.

Scope of Work

DDTI understands its role will be to analyze GIS data uploaded by local agencies in order to confirm compliance with Nebraska Information Technology Council (NITC) and NENA standards for use in NG9-1-1 applications.

DDTI will analyze each GIS dataset uploaded to the portal to identify any errors and discrepancies based on NITC and NENA standards. After review, DDTI will return datasets that are shown to have errors and/or discrepancies to the uploading agency, along with a discrepancy report listing the items that need to be corrected to achieve compliance with the standards. Each such discrepancy report will be accompanied by a shapefile of areas where the topology is incorrect. The local PSAP, or its representatives, will be responsible to correct all the items listed in the discrepancy report. After correction, the local PSAP or its representative will be expected to resubmit the revised GIS dataset via DDTI's dedicated portal for further QA/QC review.

GIS data that is confirmed by DDTI to meet all required standards will be accepted for provisioning to the NG9-1-1 environment and uploaded by DDTI to the Commission's GIS repository. DDTI will also notify the Commission's GIS Specialist and the PSAP responsible for uploading the file that the dataset meets all required standards and is ready for use.

TECHNICAL REQUIREMENTS COMPLIANCE REVIEW				
Technical Requirements in this RFP			**Complies with RFP Requirements**	**DDTI Comments**
1.		**NITC Standards & Guidelines**		
a.		3-201. Geospatial Metadata Standard	**Yes**	As part of Data Assessment DDTI will determine if the metadata: • Exists for a layer • All fields in the layer are covered by the metadata • Variable type matches metadata • If there is a domain constraint in the metadata the submitted data will be checked if it meets the constraint
b.		3-202. Land Record Information and Mapping Standard	**Yes**	Compare layer with NITC standard to determine conformance
c.		3-205. Street Centerline Standard	**Yes**	Compare layer with NITC standard to determine conformance
d.		3-206. Address Standard	**Yes**	Compare layer with NITC standard to determine conformance
2.		**NENA Standards**		
a.		NENA 02-014	**Yes**	DDTI conforms to NENA 02-014 v1 - GIS Data Collection and Maintenance.
b.		NENA 71-501	**Yes**	DDTI conforms to NENA 71-501 v1 - Synchronizing GIS with MSAG and ALI.
c.		NENA REQ-002.1-2016	**Yes**	DDTI conforms to NENA REQ-002.1-2016 - Next Generation 9-1-1 Data Management Requirements
d.		NENA STA-005.1.1-2017	**Yes**	DDTI conforms to NENA STA-005.1.1-2017- NENA Standards for the Provisioning and Maintenance of GIS data to ECRF and LVFs
e.		NENA STA-006 NG9-1-1 Data Model	**Yes**	DDTI conforms to NENA STA-0056.1-2018 – NG9-1-1 GIS Data Model
3.		**The GIS datasets to be reviewed by Contractor after being uploaded by to the secure portal will consist of the following GIS layers:**		
a.		Street Centerlines (with accompanying MSAG);	**Yes**	DDTI's Secure FTP site can accept Street Centerline data. The following data is required: • An integer unique ID • Name fields, including prefix, name, type, and suffix • Political division fields, include state, county (or equivalent), and incorporated municipality (if applicable), each for both left and right sides of the road • Address range to/from values for both left and right sides of the road • MSAG
b.		Street/Structure address points (with accompanying ALI);	**Yes**	DDTI's Secure FTP site can accept Street/Structure address points with ALI information. The following data is required: • An integer unique ID

				• An integer house number with one of the following:
				  ○ Name and political division fields, including street prefix, name, type, and suffix, state, county (or equivalent), and incorporated municipality (if applicable), OR
				  ○ A reference unique ID and side field, indicating a road centerline from which to inherit the name and political division fields
				• ALI Database

c.		PSAP boundaries;	**Yes**	DDTI's Secure FTP site can accept PSAP Boundary in shapefile or file geodatabase format
d.		Emergency service zones (police, fire, EMS);	**Yes**	DDTI's Secure FTP site can accept Emergency Service Zones in shapefile or file geodatabase format
e.		Political boundaries (used to define the provisioning of GIS data).	**Yes**	DDTI's Secure FTP site can accept political boundaries in shapefile or file geodatabase format
4.		**Street Centerline Layer Review**		
a.		Comparison of MSAG vs. Street Centerline segments to minimum 98% match	**Yes**	Appendix A - Table 1- Road Centerlines Tests (1.23 – 1.26)
b.		Comparison of ALI to Street Centerline to minimum 98% match with road name	**Yes**	Appendix A - Table 1- Road Centerlines Tests (1.27)
c.		Overlapping address ranges between jurisdictions		
	i.	Region free of overlaps: 98% unique ranges	**Yes**	Table 1- Road Centerlines Tests (1.27)
d.		Misalignments		
	i.	Overlaps	**Yes**	Appendix A - Table 1- Road Centerlines Tests (1.10)
	ii.	Gaps	**Yes**	Appendix A - Table 1- Road Centerlines Tests (1.11)
	iii.	Overhangs	**Yes**	Appendix A - Table 1- Road Centerlines Tests (1.15 & 1.17)
	iv.	Duplicate features	**Yes**	Appendix A - Table 1- Road Centerlines Tests (1.2, 1.15 & 1.17)
	v.	Incorrectly named road segments	**Yes**	Appendix A - Table 1- Road Centerlines Tests (1.1, 1.3- 1.5)
e.		Road segments running the wrong direction	**Yes**	Appendix A - Table 1- Road Centerlines Tests (1.16)
f.		Road segments not broken at intersections and/or ESZ boundaries	**Yes**	Appendix A - Table 1- Road Centerlines Tests (1.21 & 1.22)
g.		Road name consistency	**Yes**	Appendix A - Table 1- Road Centerlines Tests (1.15, 1.16, 1.21 & 1.22)
h.		Misaligned road segments at county and jurisdictional boundaries	**Yes**	Appendix A - Table 1- Road Centerlines Tests (1.15, 1.16, 1.21 & 1.22)
i.		Required metadata	**Yes**	Project specific, no defined NENA requirements.
j.		General compliance with applicable NITC and NENA standards	**Yes**	Appendix A - Table 1- Road Centerlines Tests (1.1, 1.3 – 1.6))

5.		**The Contractor shall review jurisdictional boundary Polygon Layers to identify, at a minimum, the following items:**		
a.		Redundancy, misalignment and other errors in topology		
	i.	Overlaps	**Yes**	Appendix A - Table 3 – Administrative Boundaries (3.2) Appendix A - Table 4 – Emergency Service Boundaries (4.2)
	ii.	Gaps	**Yes**	Appendix A - Table 3 – Administrative Boundaries (3.3) Appendix A - Table 4 – Emergency Service Boundaries (4.3)
b.		Duplication of features between PSAPs		
	i.	ESZ numbers match	**Yes**	Polygons are uniquely identified and if values are registered against the MSAG ESN domain.
	ii.	ESZ numbers do not match	**Yes**	Polygons are uniquely identified and if values are registered against the MSAG ESN domain.
c.		County boundaries alignment to neighboring counties	**Yes**	Appendix A - Table 3 – Administrative Boundaries (3.5 – 3.6) Appendix A - Table 4 – Emergency Service Boundaries (4.8 – 4.9)
d.		Correct boundaries (police, fire, EMS) included in the ESZ boundary	**Yes**	Appendix A - Table 4 – Emergency Service Boundaries (4.4 – 4.5)
e.		Fields within each layer conform to NITC and NENA standards for names, content, and format	**Yes**	Appendix A - Table 3 – Administrative Boundaries (3.1) Appendix A - Table 4 – Emergency Service Boundaries (4.1)
f.		Required metadata	**Yes**	Project specific (no NENA requirement)
g.		General compliance with applicable NITC and NENA standards	**Yes**	Appendix A - Table 3 – Administrative Boundaries (3.1) Appendix A - Table 4 – Emergency Service Boundaries (4.1)
6.		**The Contractor shall review Address Point Layers to identify, at a minimum, the following items:**		
a.		Placement of Address Points on Street Centerline address ranges	**Yes**	Appendix A - Table 2 – Site Structure/Address Points (2.22)
b.		Comparison of ALI to Address Points to minimum 98 percent match to full address	**Yes**	Appendix A - Table 2 – Site Structure/Address Points (2.22)
c.		Discrepancies between the telephone number (TN) list and site/structure address point layer	**Yes**	Appendix A - Table 2 – Site Structure/Address Points (2.23)
d.		Multi-address structure address formats	**Yes**	We test for the uniqueness of civic address values including sub-address.
e.		Fields within each layer conform to NITC and NENA standards for names, content, and format	**Yes**	A component of the GIS Data Assessment process and ongoing quality control.
f.		Required metadata	**Yes**	Project specific, no defined NENA requirements.
g.		General compliance with applicable NITC and NENA standards	**Yes**	Appendix A - Table 2 – Site Structure/Address Points (2.22)

Data Aggregation

DDTI will review each uploaded dataset to determine compatibility with GIS data provided by adjoining counties. Adjoining county data will be reviewed to identify any overlaps and gaps,

Street Centerline alignments, stacked roads and inconsistent road names. Resolution of inconsistencies in adjoining counties' datasets will be the responsibility of the counties involved.

This process will begin with the evaluation of each source layer for completeness and compliance to the standard. The data owners will be provided a gap analysis based on the comparison between the local model and the standard. Once the source data structure/schema has met the standard, quality control will be performed at the individual layer level and quality control across the datasets. Where possible, each error will be reported using X and Y locations to aid in remediation by placing the error location on a map.

After local datasets meet the NG9-1-1 structure, they will be combined into a statewide dataset. When the coordinate systems and schemas are in alignment, the datasets will be merged together to form a statewide dataset. QCs will take place to identify topology errors in the dataset (e.g., no gaps or overlaps in the boundary data, roads broken at boundaries, roads broken at intersections, etc.) and those errors will be provided to the agency responsible for remediation. Topology rules are enforced at both the local dataset level and at a statewide level. When all levels of QC and synchronization have been achieved to the agreed upon levels, the data will be considered suitable for NG9-1-1 spatial call routing.

b. Proposed Development Approach

A key objective of the project is to design, implement and maintain the Emergency Call Routing Function (ECRF) dataset as an aggregation of local data sources. This ECRF dataset should meet the accuracy requirements necessary to support the ECRF call route determination functionality in a Next Generation 9-1-1 (NG9-1-1) system. There are four primary processes that are necessary to reach this objective:

1. Dataset Definition
2. Process Design for Each Jurisdiction
3. Statewide Dataset Aggregation
4. ECRF/LVF Simulation

One of the major concerns with any data focused project is how to maintain the data at a functional level. The documentation and integration of the local jurisdiction's standard operating procedures is a primary aspect of the project.

Dataset Definition

ECRF/LVF Datasets

It is necessary to define the schema and metadata for the ECRF dataset. DDTI will work in conjunction with the primary project stakeholders to determine the required layers, fields, and accuracy requirements for this dataset.

NENA Standards for the Provisioning and Maintenance of GIS data to ECRFs and LVFs (NENA-STA-005.1.1) defines the ECRF/LVF provisioning data model. The ECRF/LVF requires service area boundaries, and address location data. The ECRF/LVF does not require a wide variety of other GIS data layers that are useful for tactical dispatch mapping, such as aerial or satellite imagery, hydrography, topographic maps, fire hydrant locations, infrastructure

maps, and so on. The ECRF/LVF should be thought of as using a subset of available GIS layers, and not all GIS layers used for other 9-1-1 functions.

For each layer, the schema will need to be defined. The NENA Standard for NG9-1-1 GIS Data Model (NENA-STA-006.1 DRAFT) is the primary GIS data structure guideline. Consideration towards Appendix B (SI Provisioning Data Model) of the NENA Detailed Functional and Interface Standards for the NENA i3 Solution (NENA-STA-010.2), and the NENA Next Generation 9-1-1 (NG9-1-1) United States Civic Location Data Exchange Format (CLDXF) Standard (NENA-STA-004.1) to determine which spatial layers are used and which fields are required, conditional, and optional. Finally, the target accuracy statistics should be set for both MSAG/ALI data synchronization and the Next Generation simulation quality tests. In our experience, it is critical to the success of any data project to clearly define the data model and accuracy expectations.

Auxiliary Datasets

Auxiliary Datasets can be defined as optional GIS layers that support the business practice of 9-1-1 call routing and other downstream elements (e.g., Map Database Service, MSAG Conversion Service, Geocoding Service, PSAP Map Display, etc.).

The starting point of data identification will be the Request for Proposal's Attachment B with effort toward the NENA Standard for NG9-1-1 GIS Data Model (NENA-STA-006.1 DRAFT) in its current state.

Typically, Dataset Definition will cover following information:

Suggested Data Assessment Task	Description
Document Layers Provided	List all Layers and Source
Verify that there is data source for each Mandatory Layer	Mandatory Layer in ECRF dataset
Document Optional Layers that have a data source	Optional NG9-1-1 Layers
Document the Fields in Each Layer	List all fields and data type
Map the provided fields to the NENA GIS Data Model	Map the provided Layers and Fields to the ECRF dataset
Verify All Mandatory Fields are present	Mandatory fields in the ECRF dataset
Verify All Mandatory Fields contain data	Not <Null>
Verify Metadata	Existence and compliance
Map the provided fields to the NITC GIS Data Model	Compliance
Verify All Mandatory Fields are present	Compliance
Verify All Mandatory Fields contain appropriate data	Compliance
Document all Conditional Fields	Conditional fields in the ECRF dataset
Verify that Conditional Fields meet the conditions	Review data content to ensure that the conditions are fulfilled
Document all Optional Fields	Fields not used in the ECRF
For each layer review all fields (Mandatory/Conditional/Required) to identify necessary data transformations	Example: Street Type element is abbreviated in Data Source vs. spelled out in data model
Identify and Report Data Source vs. Data Model gaps	Review the Data Requirements for the Project and possible gaps in the various Data Sources
Verify Data Transformations with Data Source	Confirm Data Transformations are correct

Suggested Data Assessment Task	Description
Work with Data Source to Identify Data Creation/Upgrade/Clean-up Needs	Review needs and select action for Data Remediation; document Data Source needs for Data Remediation
Review Data Maintenance Processes and Tools with Data Source	Review that the Data Source can maintain the fields required for the project
Work with Data Source to Identify Training Needs	Identify training needs about Data Remediation and Maintenance
Document Data Requirements to Support Existing Systems	Document the data requirements (layers, fields, and formats) that may generate constraints on the data transformations

Process Design for Each Jurisdiction

Data Integration Design

Each local dataset will need to be reviewed, documented, and the Local Data to ECRF transformations designed and tested. DDTI will meet with each local entity to define the source for each of the required layers. Once this has been determined, the GIS Analyst will work with individual sources to document the layer metadata and design the specific data transformations for the layer. Any gaps between the local data and the ECRF dataset model will be documented and reported for resolution.

Process Customization, Setup, and Training

Each local data source will need to have the processes customized and setup to integrate as smoothly as possible into their existing methodology. The components that can be customized are: data editing, data submission, and discrepancy reporting. DDTI will work directly with the people responsible for the layer to identify the options that make the most sense for them. The selected options will be setup and the end users will be trained to work with the provided services and tools. We have extensive experience with a diverse set of client capabilities ranging from no existing GIS system to sophisticated autonomous GIS departments.

Discrepancy Testing and Remediation

The discrepancy testing and remediation process is an iterative cycle of data updates, testing, and remediation. In the long term, this cycle is the core of the maintenance process and is continuous to ensure discrepancies are reviewed and corrected as necessary to maintain the proper functionality in the Next Generation system.

DDTI will support the client as necessary to facilitate the data discrepancy resolution. Our clients have a broad spectrum of GIS and Next Generation 9-1-1 experience and knowledge. In many cases, DDTI goes beyond simply reporting discrepancies and works directly with the client to ensure it is clear why it is a discrepancy, how it can affect the ECRF functionality, and review remediation options available.

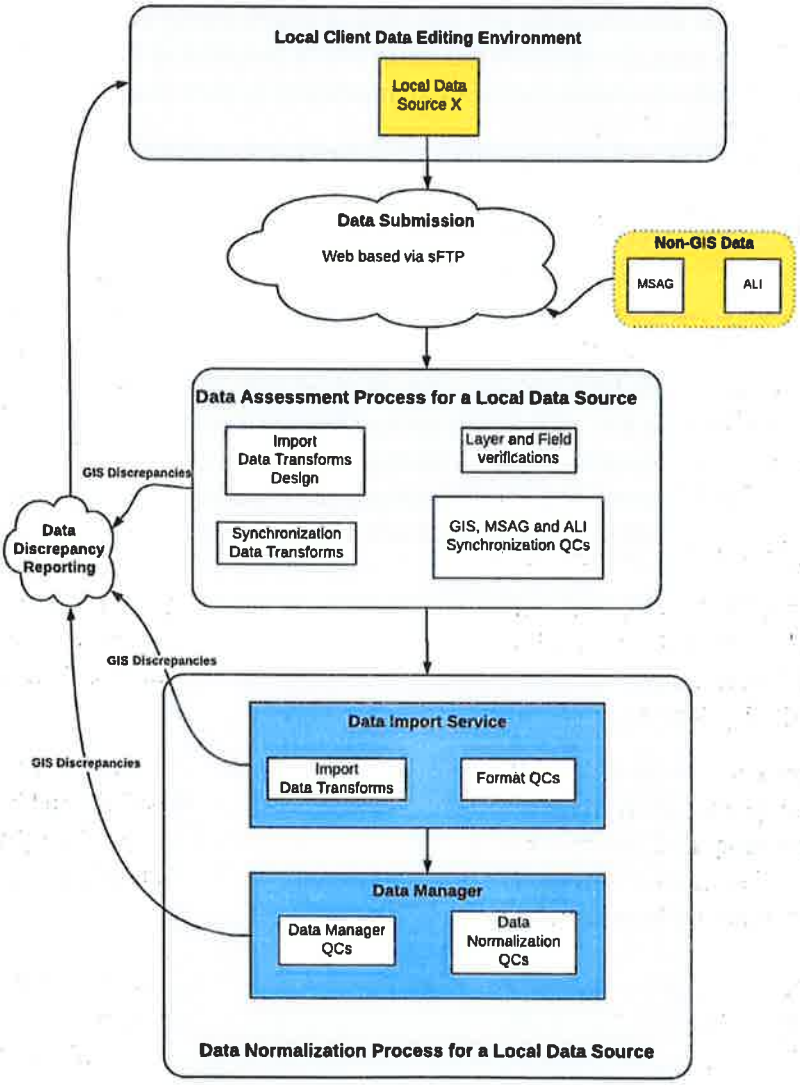
As expressed in the NENA GIS Data Collection and Maintenance Standards document (NENA 02-014), the use of property tax information, ALI, MSAG, Utility databases, and other source information that has address information for use in QA/QC, will greatly aid in resolving discrepancies by cross auditing multiple datasets.

The integration of additional data sources at this stage provides the benefit of cross-audits to aid in decision making where gap analysis requires a decision for resolution. Results from those decisions may allow incorporation from the additional datasets to strengthen the completeness and accuracy of the 9-1-1 datasets.

Local Process Tuning

Another important aspect of the project is to integrate the process as closely and painlessly as possible with the local user's standard operating procedures. We will work with the end user to tune the process to fit their needs. The key to this in our experience is to be as flexible as possible concerning the components that integrate local systems with the DataManager. This includes the data transformations, editing, submission, and reporting. In addition, the local users may require specific custom exports to support external systems like CAD, Dispatch Mapping, and non-9-1-1 systems.

Diagram A - Local Data Sets



Statewide Dataset Aggregation

For each local GIS dataset, the MSAG/ALI/GIS data have been tested for synchronization, individual layers have been tested for consistency and GIS layers were tested for cross-consistency. Finally, all layers and fields have been accounted for and can be transformed into the statewide schema. What has not been tested f is how the local data set fits into the statewide data set.

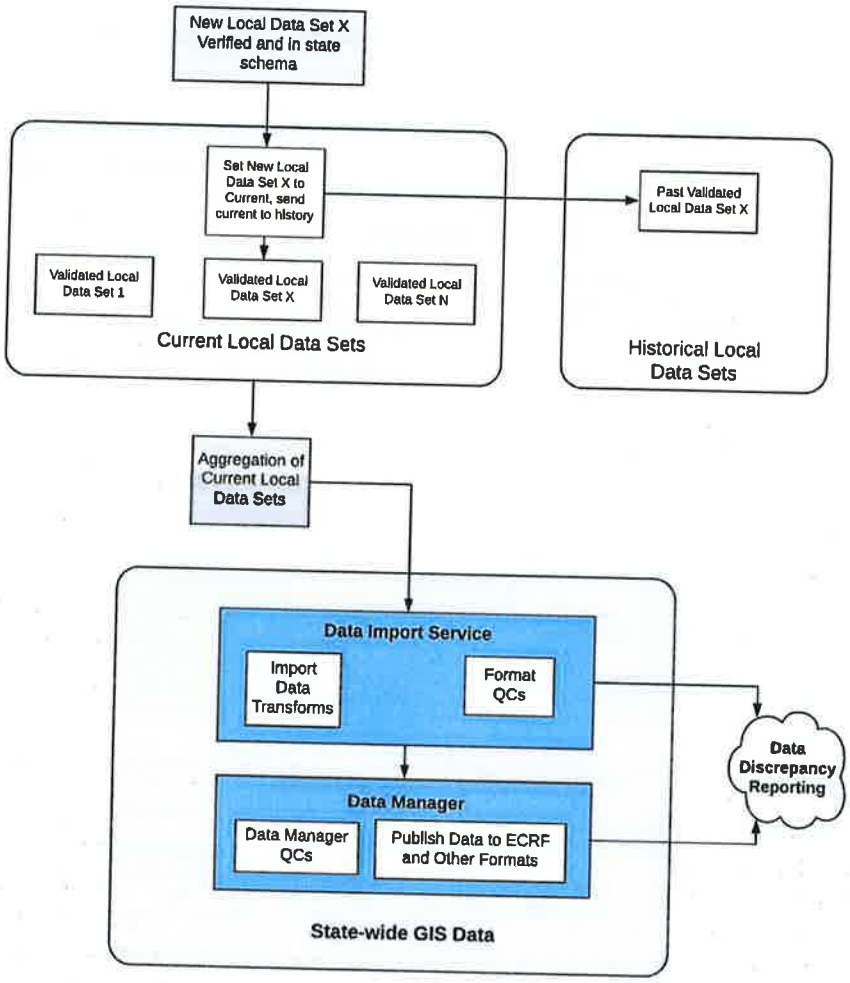
Each transformed local data set will be aggregated into the statewide data set. The polygon layers are tested for any gaps or overlaps in their statewide coverage. At the state's discretion, gaps and overlaps in the aggregated statewide dataset that fall within a predefined tolerance can be auto corrected. Gaps and overlaps that fall outside of the predefined tolerance will be reported back to each local data source for resolution. Each local data source will be able to see the gap/overlap by adding the map layer to their local GIS editing environment to resolve the issue. In those cases where cooperation with the adjacent local data source may be required, DDTI can help facilitate this process.

The roads are tested to see if there are any duplicated roads, or if the road network is not intersected properly at the jurisdictional boundaries. The addresses are tested to see if there are any duplicated addresses. In addition, all the other DataManager QCs are evaluated for the statewide data set to ensure that no transformational errors were introduced.

All issues will be reported back to the relevant local data sources for clarification or remediation. The individual agencies should come to an agreement about their polygon borders and who will submit shared roads on borders to resolve any issues there are with the conflation of their two data sets. Once the revisions have been made the data sets can be resubmitted.

Although polygon overlaps and gaps are critical errors for the ECRF functionality (i.e., the presence of significant gaps and overlaps will cause degradation in the ECRF functionality), proper road segmentation is not a critical violation for ECRF data requirements. Roads need to be "geocodable" so the correct polygon is identified and call routing information can be determined. Proper road segmentation may be a requirement that is outside of the ECRF for the state and needs to be enforced for other reasons. Typically, road segmentation is not completely checked for ECRF data publishing in the NG 9-1-1 environment, but the data can be used for other purposes and may require proper segmentation.

Diagram B - Integration and testing of Local Data Set in Statewide Data Set



ECRF/LVF Simulation

The key objective of the project is to create a dataset that can be used in the ECRF and LVF services and the best way to test the dataset is to simulate a NG9-1-1 environment. Because MSAG and ALI formats differ from the Next Generation CLDXF standard, the comparison of the ECRF/LVF dataset to ALI records is problematic. As part of the normalization process, DDTI will convert and load ALI records into a Location Information Server/Location Database (LIS/LDB), which is the equivalent of an ALI record conforming to the CLDXF specification, and then compare these records to the ECRF/LVF.

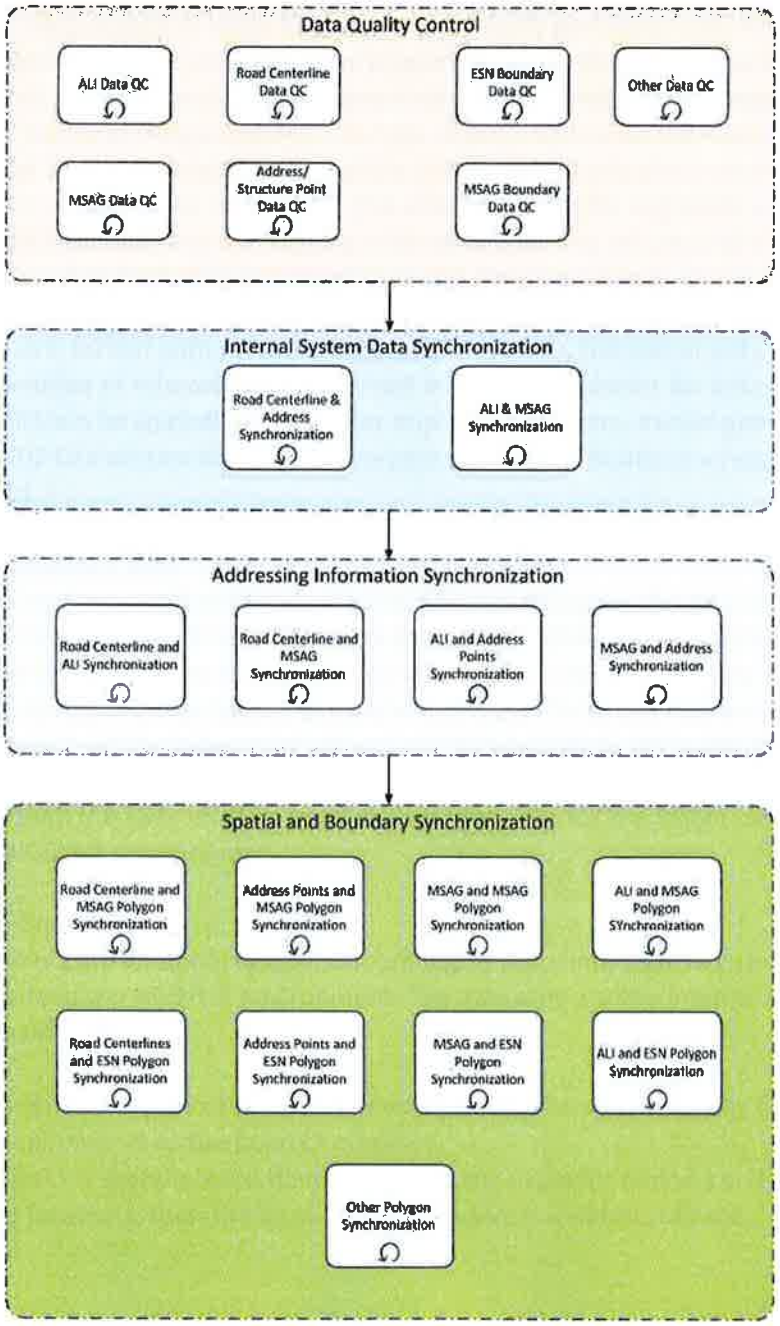
If Nebraska desires to continue the simulation process beyond the initial aggregation tasks, the ECRF/LVF will be populated by the DataManager and The LDB data can be updated as a full or partial update. A full update will require an updated full ALI data set and a partial update can be accomplished using SOI data from the service providers. Only add, modify, and delete SOI records are required (DDTI will not process lock, unlock, and migrate SOI records).

During the continued simulation, any LVF validation discrepancies will be stored as LDB discrepancy records in the LDB system. These can be reviewed using the LDB website, or they can be exported as a .csv file for distribution to end users if desired.

Quality Control and Synchronization Overview

Process Diagram

Each component of the diagram is a closed loop (Test → Correct → Test) that will iterate until the data meet specified requirements



GIS Data Quality Control

Road Centerlines

The road centerline layer will be evaluated on naming, address range, and community fields. The naming fields shall adhere to NENA 71-501, with conformance to USPS Publication No. 28 – Appendix C1 naming. Special attention to punctuation and format of street spellings (1st vs. First) will be noted. State jurisdiction roadways and other primary carrier roadway naming will also be noted for future reference as they may require modification. The data must have clear and consistent street naming fields including a designated Left/Right area. The Street Name field must be populated for each record. If these fields are not correctly populated then some civic addresses may not be located, hence the call will not be properly routed. The address ranges must correspond to the geometry of the polylines (polylines have a direction; therefore the ranges must match the "From" and "To" nodes of the geometry). This type of error will cause the location estimate for the civic address to be poorly estimated. It is possible that it will fall into the incorrect Service Boundary polygon and cause the call to be misrouted. The address ranges for segments with the same set of street naming fields cannot have overlapping address ranges. The left and right ranges for a segment cannot overlap (including overlapping parity). These errors can cause a prospective landline call to have multiple possible locations. Address range fields shall not be in character format but rather be in numeric format with no special characters. Finally, the community field will be analyzed to see if unique entries or misspellings exist which may be inconsistent for data comparisons. The road network will then be spatially analyzed for duplicate geometry, invalid geometry, road direction (NENA 02-014 section 4.3.5), and overpass underpass situations where crossing geometry shall not intersect.

ESN and MSAG Boundary Files

Since the PSAP, Fire, Law, and Emergency Medical Services polygons can be derived from the ESN boundary data, the first step will be to compare ESNs to the MSAG. Following this analysis ESB polygon layers can be created by the jurisdiction and the boundary files will be analyzed for spatial integrity and to identify multi-polygons, gaps, and overlaps. These boundaries are then compared to the road centerlines for topology comparison. Unique boundary attributes can indicate possible road topology changes and the Road Centerlines should accurately reflect these attributes. The SIP URLS associated with the ESBs must be valid and working URIs for the ESInet call handling equipment in a NG9-1-1 environment.

Addresses Multi-Point Layer

The addresses points are an optional layer but are highly recommended to ensure accurate call location estimation in the NG9-1-1 environment. The following are the internal data consistency checks for this layer:

- Geocoding: To support call location determination, the street naming fields must pass the same requirements as the Road Centerlines.
- Uniqueness: If there is more than one record for a specific address and these records have different locations, then the location for the address is indeterminate.

E9-1-1 Data Quality Control

MSAG

The MSAG will be analyzed based on naming, address range and community fields. The naming fields shall adhere to NENA 71-501 with conformance to USPS Publication No. 28 – Appendix C1 for naming consistency with the Road Centerline layer. Address range fields shall not be in character format but rather be in numeric format with no special characters. The address range values must meet the minimum requirements for accurate geocoding. The ranges must be greater than zero. The high value must be greater than the low value. The values must match the parity field. The MSAG records with the same street name field values must not overlap with other records. The MSAG records must uniquely define a range of addresses. Emergency Service Number (ESN) fields will be analyzed for outliers and unique values. Finally, the community field will be analyzed to identify whether it is represented by a city naming community style or community based on zip code.

ALI

The ALI data is not directly used in the NG9-1-1 environment. It will be used to prepare the NG9-1-1 layers to ensure that the data reflects the legacy system for call routing determination (i.e. Data Synchronization). Any errors detected during the testing for internal data consistency will be reported for resolution. When possible, DDTI will provide recommendations for the proper resolution of specific errors. Additionally, there may be data inconsistencies that will need to be arbitrated by a central data authority. An example of this would be two service boundaries that do not agree and may involve multiple local data authorities.

GIS, ALI, MSAG Data Synchronization

Once the data has been combined and has passed the data requirements for each layer, the next step will be to synchronize and test the various data layers for global consistency. The goal of the Data Synchronization process is to ensure that all the separate 9-1-1 layers are consistent with each other. In addition, the NG9-1-1 data must be augmented by and agree with the legacy E9-1-1 system layers, the ALI and MSAG data. The following table illustrates the relationships that will be tested.

	Road Centerlines	Address Points	ALI	MSAG	ESB Polygons	PSAP Polygons
Road Centerlines	X	Address Points to Centerlines	ALI to Centerlines	Valid MSAG Addresses to Centerlines	X	X
Address Points	X	X	X	X	X	X
ALI	X	Address Points to ALI	X	X	ESB Polygons Attributes to ALI	PSAP Polygons Attributes to ALI
MSAG	Road Centerlines to MSAG	Address Points to MSAG	ALI to MSAG	X	ESB Polygons Attributes to MSAG	PSAP Polygons Attributes to MSAG
ESB Polygons	Road Centerlines to ESB Polygons	Address Points to ESB Polygons	Geocoded ALI to ESB Polygons	Geocoded Valid MSAG Addresses to ESB Polygons	X	PSAP Polygons to ESB Polygons
PSAP Polygons	Road Centerlines to PSAP Polygons	Address Points to PSAP Polygon	Geocoded ALI to PSAP Polygons	Geocoded Valid MSAG Addresses to PSAP Polygons	ESB Polygons to PSAP Polygons	X

ALI, MSAG and Centerline Tests	
ALI to Road Centerlines	Each ALI record should geocode to a unique road segment. In other words, there must a unique road segment with matching street name fields that contains the house number of the ALI record. If there is no matching record, the data must be corrected to bring it into synchronization. The case where there are multiple matches should not occur.
Valid MSAG Addresses to Road Centerlines	The MSAG records will be converted into a set of valid MSAG addresses. For example, an MSAG record for N,Main,St,Madison,100,200,B (N Main St Madison from 100 to 200 all integers) will be converted to a list of addresses 100 N Main St Madison, 101 N Main St Madison, ... , 200 N Main St Madison. Each valid MSAG Address should have a unique geocoding match in the Road Centerlines data. If the Road Centerlines data has passed the internal check concerning overlaps, no multiple matches should exist. This leaves two outcomes: no matches and 1 match. The valid MSAG address records with no matches would need to be reviewed and the appropriate correction applied.
Road Centerlines to MSAG	The Street Name elements and MSAG community are used to compare the Road Centerlines and MSAG information. In general, for every MSAG record there must exist at least one Road Centerline record where the Street Name elements for both records match (the ECRF is not permitted to have partial matches) and the MSAG Community matches for both records. These tests will help verify that the Street Name elements and MSAG values are in fact synchronized with each other.
ALI to MSAG	Each ALI record should match a unique MSAG record. The matching technique is very similar to the geocoding process, but since the MSAG is not spatial in nature, no location is estimated for the ALI record. If there is no matching record, the data must be corrected to bring it into synchronization. There should be no cases where multiple matches occur. While it is usually assumed that this relationship is by default true, most data sets will exhibit some differences.
Address Point Tests	
Address Points to Road Centerlines	For each address point there should be a unique road centerline record that matches the street name fields and whose address range contains that address point. There can be exceptions to this and each case will be examined. Once a unique match has been found, the spatial relationship between the address point and the corresponding road segment can be tested.
Address Points to ALI	Each ALI record should match to a unique Address Point record. If there is no matching record, the data must be corrected to bring it into synchronization. The case where there are multiple matches can occur due to the non-standard encoding of extra address information (Lot 52, Suite 101, etc.) in the ALI data.
Address Points to MSAG	Each Address Point should match a unique MSAG record. If there is no matching record, the data must be corrected to bring it into synchronization. The matching technique is very similar to the geocoding process, but since the MSAG is not spatial, no location is estimated for the Address Point record. If there is no matching record, the data must be corrected to bring it into synchronization. Multiple matches should not occur because the MSAG data has passed internal consistency tests.
Polygon Tests	
Road Centerlines to ESB Polygons (spatial)	Road Centerlines will need to be spatially synchronized to the ESB Polygons. Each segment will be compared to the ESB Polygons. Segments can only be contained in one Polygon (ignoring boundary conditions). If the two layers share attributes, they can be compared.

Road Centerlines to PSAP Polygons	Road Centerlines will need to be spatially synchronized to the PSAP Polygons. Each segment will be compared to the PSAP Polygons. Segments can only be contained in one Polygon (ignoring boundary conditions). If the two layers share attributes, they can be compared also.
Address Points to ESB Polygons	If the Address Points and the ESB Polygons share attributes, these attributes can be checked by using the spatial relationship between the Address Points and the ESB Polygons. Each Address Point will be compared to ESB Polygon that contains it.
Address Points to PSAP Polygons	If the Address Points and the PSAP Polygons share attributes, these attributes can be checked by using the spatial relationship between the Address Points and the PSAP Polygons. Each Address Point will be compared to the PSAP Polygon that contains it.
Geocoded ALI to ESB Polygons	This test can be performed if there are attributes that are shared between the ALI records and the ESB Polygons, for example MSAG Community. The ALI records will be geocoded to the Road Centerlines and then will be compared to the ESB Polygon that contains it.
Geocoded ALI to PSAP Polygons	This test can be performed if there are attributes that are shared between the ALI records and the PSAP Polygons, for example MSAG Community. The ALI records will be geocoded to the Road Centerlines and then will be compared to the PSAP Polygon that contains it.
Geocoded Valid MSAG Addresses to ESB Polygons	This test can be performed if there are attributes that are shared between the MSAG records and the ESB Polygons, for example MSAG Community. The MSAG records will be converted to the set of all valid MSAG addresses. These addresses will be geocoded to the Road Centerlines and then will be compared to the ESB Polygon that contains it.
Geocoded Valid MSAG Addresses to PSAP Polygons	This test can be performed if there are attributes that are shared between the MSAG records and the PSAP Polygons, for example MSAG Community. The MSAG records will be converted to the set of all valid MSAG addresses. These addresses will be geocoded to the Road Centerlines and then will be compared to the PSAP Polygon that contains it.
ESB Polygon Attributes to ALI	This is a simple attribute domain check. If the two layers share attribute information, the domains can be compared.
ESB Polygon Attributes to MSAG	This is a simple attribute check. If the two layers share attribute information, the domains can be compared. For example, if the MSAG records contain a MSAG Community that does not occur in the ESB Polygon data then this will generate a warning.
ESB Polygons to PSAP Polygons	This is a simple attribute domain check. If the two layers share attribute information, the domains can be compared.
PSAP Polygon Attributes to ALI:	This is a simple attribute domain check. If the two layers share attribute information, the domains can be compared.
PSAP Polygon Attributes to MSAG	This is a simple attribute check. If the two layers share attribute information, the domains can be compared. For example, if the MSAG records contain a MSAG Community that does not occur in the PSAP Polygon data then this will generate a warning.
PSAP Polygons to ESB Polygons	This is a simple attribute domain check. If the two layers share attribute information, the domains can be compared.

c. **Technical/Contractor Requirements**

DDTI expects the providers of the GIS data to be capable of the following:

- Ability to FTP GIS data to DDTI in an Esri format
- Ability to FTP ALI and MSAG data in NENA format
- Ability to consume error files in Esri and tabular formats
- Provide expertise to resolve questions and issues with submitted data

GIS Data should include the following information:

- Road centerlines are required, and must include the following minimum attributes:
  - An integer unique ID.
  - Name fields, including prefix, name, type, and suffix.
  - For both left and right sides of the road, political division fields, including state, county (or equivalent) and incorporated municipality (if applicable).
  - Address range to/from values for both left and right sides of the road.

- Address site/structure points must include the following minimum attributes:
  - An integer unique ID.
  - An integer house number with either the name and political division fields, including street prefix, name, type, and suffix, state, county (or equivalent), and incorporated municipality (if applicable), OR a reference unique ID and side field, indicating a road centerline from which to inherit the name and political division fields.

- A service boundary layer (polygons) is required for each service that is to be used. Attributes required for NG9-1-1 include:
  - Display name
  - Service number
  - SIP URI

- Attributes required for E9-1-1:
  - Emergency Service Number
  - Fire
  - EMS
  - Law
  - Other Responding Agency

A project committee should be established at the State level to coordinate and resolve issues between jurisdictions and approve deliverables.

d. **Project Deliverables**

DDTI understands that the purpose of this RFP is to provide Quality Assurance/Quality Control (QA/QC) services with respect to Geographic Information Systems (GIS) data intended for use by

Public Safety Answering Points (PSAPs) to facilitate the delivery of Next Generation 911 (NG9-1-1 services at a competitive and reasonable cost.

DDTI will be responsible for:

- The collection of GIS street files, boundaries and 9-1-1 data currently used by all PSAPs through SFTP.
- The collection of ALI information from all PSAPs.
- The collection of MSAP information from all PSAPs.
- Data synchronization of ALI, MSAG and GIS provided files. Synchronization will include support for discrepancy and error correction with the PSAPs.
- Creation of GIS workflows for establishing GIS as the primary data management tool to maintain the NG9-1-1 database.
- Ongoing geodatabase management support for the specified contract term to manage the GIS, data and spatial interface function.
- Provide a NG9-1-1 simulation capability.

DDTI will analyze each GIS dataset uploaded to the portal to identify any errors and discrepancies based on NITC and NENA standards. After review, DDTI will return datasets that are shown to have errors and/or discrepancies to the uploading agency, along with a discrepancy report listing the items that need to be corrected to achieve compliance with the standards. Each such discrepancy report must be accompanied by a shapefile of areas where the topology is incorrect. The local PSAP or its representatives will be responsible to correct all the items listed in the discrepancy report. After correction, the local PSAP or its representative will be expected to resubmit the revised GIS dataset via the Contractor's dedicated portal for further QA/QC review.

GIS data that is confirmed by DDTI to meet all required standards will be accepted for provisioning to the NG9-1-1 environment and uploaded by the Contractor to the Commission's GIS repository. The Contractor will also notify the Commission's GIS Specialist and the PSAP responsible for uploading the file that the dataset meets all required standards and is ready for use.

DDTI will aggregate the specified GIS data layers and their representative database attributes into a seamless statewide dataset synchronized with 9-1-1 call routing data (ALI and MSAG) to transition from legacy to NG9-1-1 call routing. The basis of this aggregated dataset will come from a combination of available source data (ALI, GIS, MSAG and other appropriate files) from local PSAPs, County and Municipal governments, state agencies, and any specific or unique data capabilities and resources that may be available.

DDTI understands it is the State's expectation that the actual remediation of the identified errors and discrepancies will be conducted by the local entities. DDTI shall provide sufficient information and guidance to the local entities (PSAPs) for the remediation of their data (remediation may include ALI modifications, MSAG updates and correction of streets, boundaries and address points). It is DDTI's responsibility to verify the completeness of the attribute information gathered and to identify the proposed solution to meet the intent of these specifications.

Appendix A - Quality Control Test Details

Road Centerlines

The following table highlights a selection of the quality control tests that are performed on the road centerline layer. An "Internal Layer Test" is a quality control test internal to the road centerline layer and does not use any other datasets in the test (for example, MSAG, and the site structure address point layer). A "Multi-Layer Test" involves quality control tests that require additional layers beyond the road centerlines. For example, the road names might be compared between the road centerlines and the site structure address points.

	Table 1 – Road Centerlines		
	QC Test	**Description**	**Type**
1.1	NENA mandatory field not populated	At least one of the NENA mandatory fields is not populated	Internal Layer Test
1.2	Repeated Geometry	Segments that have duplicate geometry (including inversed duplicates)	Internal Layer Test
1.3	Invalid Suffix	NENA Standard	Internal Layer Test
1.4	Invalid Prefix	NENA Standard	Internal Layer Test
1.5	Invalid Street Type	NENA Standard	Internal Layer Test
1.6	Address Range Value Too Large	NENA Standard	Internal Layer Test
1.7	Empty Street Name	Segments should have the Street Name field populated	Internal Layer Test
1.8	Null Geometry	Database record with no geometry	Internal Layer Test
1.9	Invalid Geometry	Geometry is not valid	Internal Layer Test
1.10	Address Range Overlap	2 or more segments with the same name fields and overlapping address ranges	Internal Layer Test
1.11	Address Range Gaps	The segments that make up a given street have an address range gap	Internal Layer Test
1.12	Address Range Parity	The address ranges have mixed parities on the same side.	Internal Layer Test
1.13	Zero Address Ranges	This is a warning that the segment has zero in at least one of the 4 address range fields.	Internal Layer Test
1.14	Decreasing Address Range	Optional: At least one side has the TO Address less than the FROM address. This is also dependent on the geometry of the segment.	Internal Layer Test
1.15	Centerlines not Intersected	Road Centerlines are not intersected at a physical intersection	Internal Layer Test
1.16	Conflicting Centerline Direction	The segments that make up a road do not have a consistent direction for the geometry	Internal Layer Test
1.17	Dangling Nodes	Dangling nodes within the Right of Way (i.e. Dangling nodes within 30 feet of another segment (Configurable)	Internal Layer Test
1.18	Jagged Road Centerline	The segment has an interior sequence of vertices that generate large changes in the direction of the segment. These are usually due to digitization errors.	Internal Layer Test

	Table 1 – Road Centerlines		
	QC Test	**Description**	**Type**
1.19	Segment Length	The segment length is lower than a configurable tolerance.	Internal Layer Test
1.20	Address Range does not Match Address Points	The address ranges do not reflect the address points: parity, address flow, etc.	Multi-Layer Test
1.21	Segment is not contained within one Emergency Service Boundary	Segment is either in more than one polygon or is not contained by any polygon	Multi-Layer Test
1.22	Segment is not contained within one Political Jurisdiction Boundary	Segment is either in more than one polygon or is not contained by any polygon	Multi-Layer Test
1.23	Segment does not have at least one MSAG Name Match	The Road Centerline does not have a matching MSAG record when comparing the Street Name fields and Community field	MSAG Test
1.24	MSAG record does not have at least one segment with a Name Match	The MSAG record does not have a matching Road Centerline record when comparing the Street Name fields and Community field.	MSAG Test
1.25	A valid MSAG Address does not have a unique Road Centerline segment match	For every valid MSAG address, find a unique Road Centerline segment that matches the Street Name fields, Community and is contained within the Address Ranges.	MSAG Test (Optional)
1.26	A Valid Centerline Address does not have a unique MSAG record Match	For every valid Road Centerline address, find a unique MSAG record that matches the Street Name fields, Community, and MSAG Address Range.	MSAG Test (Optional)
1.27	A valid ALI address record does not have a unique Road Centerline Segment Match	For every valid ALI address	ALI Test
1.28	A segment that is common to more than one Local Entity does not have matching geometry	These are Road Centerline segments that are on the boundary of two Local Entities.	Global Topology Test
1.29	A segment that intersects with another segment from a different Local Entity does not intersect.	These are Road Centerline segments that should intersect at the boundary of two Local Entities.	Global Topology Test

Notes:

- A valid MSAG address is generated from the MSAG records by exploding the MSAG range into all possible Addresses in that range. For example, W, Main, St, Columbus, 100, 200 will generate Valid MSAG Addresses {100 W Main ST Columbus, 101 W Main St Columbus, … , 199 W Main St Columbus, 200 W Main St Columbus}.
- A valid Road Centerline address is generated in a similar manner but is done by decomposing a Road Centerline segment into all integer addresses represented by its range.
- The Road Centerline tests that involve the valid MSAG addresses and valid Road Centerline addresses can be run to synchronize the Address Ranges in the MSAG and Road Centerline data sets. Once, these two data sets are synchronized, the QC can be turned off. These QC tests can generate many records that fail the test.

- A valid ALI address is an ALI record that has valid Street Name fields and a valid House Number field. Typically, these are VOIP and Wireless ALI records.

Site/Structure Address Points

Each Local Entity will provide a Site /Structure Address Point layer (if available). The data will be assessed and tested to ensure compliance to the NENA standards and other requirements as set forth by the customer. Once the local data set has been verified to meet the requirements, a data transformation will be set up to transform and load the data into the NENA specified Site/Structure Address Points statewide data structure. Once the data has been aggregated, our quality control processes provide another test to ensure internal consistency.

An "Internal Layer Test" is a quality control test internal to the site structure address point layer. This means it does not use any other datasets in the test (for example, MSAG, and the road centerline layer). A "Multi-Layer Test" involves quality control tests that require additional layers beyond the site structure address points. For example, the road names might be compared between the road centerlines and the site structure address points.

The Site / Structure Address points will be tested for compliance to the NENA standard for both the fields and the domains of these fields.

The Address layer will also be checked against the other data information to ensure GIS, ALI, MSAG Data Synchronization.

1. Road Centerlines
2. ALI
3. MSAG
4. Administrative Jurisdictions

	Table 2 – Site Structure/Address Points		
	QC Test	**Description**	**Type**
2.1	NENA mandatory field not populated	At least one of the NENA mandatory fields is not populated	Internal Layer Test
2.2	Repeated Geometry	Points that have duplicate geometry (including inversed duplicates)	Internal Layer Test
2.3	Invalid Suffix	NENA Standard	Internal Layer Test
2.4	Invalid Prefix	NENA Standard	Internal Layer Test
2.5	Invalid Street Type	NENA Standard	Internal Layer Test
2.6	Address House Number Value too Large	NENA Standard	Internal Layer Test
2.7	Empty Street Name	Segments should have the Street Name field populated	Internal Layer Test
2.8	Null Geometry	Database record with no geometry	Internal Layer Test
2.9	Invalid Geometry	Geometry is not valid	Internal Layer Test
2.10	Address value is not unique	There is more than one address record with the same address value	Internal Layer Test

	Table 2 – Site Structure/Address Points		
	QC Test	**Description**	**Type**
2.11	Address does not have a matching Road Segment	There are no Road Segments where the Street Name fields, Community match and the address falls within the Address Range of the segment.	Multi-Layer Test
2.12	Address parity does not match Road Centerline segment	The Address parity does not the side parity of the Road Centerline segment.	Multi-Layer Test
2.13	Address is too far from matching Road Centerline segment	Optional: configurable distance	Multi-Layer Test
2.14	Address House Number does not fit into matching Road Centerline segment	The house number is not contained in the appropriate Address Range	Multi-Layer Test
2.15	Address sequence error	Compared to neighboring addresses (on the same side) the house number is out of order	Multi-Layer Test
2.16	Address side	Optional: The Address record side attribute does not match the geometric side (compared to the Road Centerline segment)	Multi-Layer Test
2.17	Address not contained in a Emergency Service polygon	The Address record is not contained in any Emergency Service polygon	Multi-Layer Test
2.18	Address on an Emergency Service polygon boundary	The Address record falls directly on an Emergency Service boundary	Multi-Layer Test
2.19	Address is not contained in County Boundary	Optional: If County layer is provided	Multi-Layer Test
2.10	Address on a Country polygon boundary	Optional: If County layer is provided	Multi-Layer Test
2.21	A valid Address record does not have a unique MSAG Match	There are zero or more than one MSAG records that have matching Street Name fields, Community, and the house number is contained in the MSAG Address Range.	MSAG Test
2.22	A valid ALI address record does not have a unique matching Address Point record.	There are zero or more than one Address Point records that match the ALI record using the Street Name fields, Community, House Number, etc.	ALI Test
2.23	Non-ALI address	Non-ALI address information (i.e., telephone number list with addresses) compared to site/structure address layer	ALI Test

Administrative Boundary

DDTI will utilize several steps to aggregate the statewide administrative boundary GIS data layers containing State, County and Municipal boundaries. If available, DDTI requires that each Local Entity provide Administrative Jurisdiction layers. The data will be assessed and tested to ensure compliance to the NENA standards and other requirements as set forth by the customer.

Once the local data set has been verified to meet the requirements, a data transformation will be set up to transform and load the data into the NENA specified State, County, and Municipal

Boundary statewide data structure. Once the data has been aggregated, our quality control processes provide another test to ensure internal consistency.

Each of these GIS data layers will need to pass the NENA NG9-1-1 GIS Data Model and NITC requirements, as well as the following spatial requirements:

- **State:** The State Boundary Layer should cover the entire region of the state.
- **County:** The County Boundary layer should cover the entire region of the state (no gaps) and have no overlaps between different counties.
- **Municipalities:** The Municipality Boundary layer does not need to cover the state but it should have no overlapping Municipalities.

Finally, the data will be transformed and loaded into the statewide data set where it will be tested for internal consistency. At this point the Authoritative Boundary NENA layer(s) will need to be created. The Authoritative Boundary layer(s) will need to reflect the ECRF database(s) implementation. This layer will be generated once the ECRF implementation details have been finalized.

	Table 3 – Administrative Boundaries		
	QC Test	**Description**	**Type**
3.1	NENA mandatory field not populated	At least one of the NENA mandatory fields is not populated	Internal Layer Test
3.2	Gap in Polygons	The polygon layer has a gap	Internal Layer Test
3.3	Overlap in Polygons	The polygon layer has an overlap	Internal Layer Test
3.4	Layer does not cover the designated area	The polygon layer does not cover its designated area of coverage	Internal Layer Test
3.5	Gap in Polygons	There is a gap in the set of all polygons	Global Topology Test
3.6	Overlap in Polygons	There is an overlap in the set of all polygons	Global Topology Test

Emergency Services Boundary

The PSAP, Police, Fire, and EMS polygons will be submitted by the local entities. Each of these layers will be checked against the NENA data model for attributes and domains and checked for internal consistency (i.e., gaps and overlaps of the polygons within a specific layer). Finally, these layers will be compared to the other data layers to ensure that data is externally consistent. Once the data has been verified to meet the requirements, each of these layers will be transformed and populate the Emergency Services Boundary layer (NENA specifications). When the statewide data set is fully populated, each sub-layer (fire, police, emergency medical, and PSAP) will be tested for overlaps and gaps.

	Table 4 – Emergency Service Boundaries		
	QC Test	**Description**	**Type**
4.1	NENA mandatory field not populated	At least one of the NENA mandatory fields is not populated	Internal Layer Test

	Table 4 – Emergency Service Boundaries		
	QC Test	**Description**	**Type**
4.2	Gap in Polygons	The polygon layer has a gap.	Internal Layer Test
4.3	Overlap in Polygons	The polygon layer has an overlap	Internal Layer Test
4.4	Layer does not cover the designated area	The polygon layer does not cover its designated area of coverage	Internal Layer Test
4.5	Agency Name	The Agency Name for the polygon does not match one of the Agencies in the Valid Agency list	Internal Layer Test
4.6	URI	URI is not valid	Internal Layer Test
4.7	URN	URN is not valid	Internal Layer Test
4.8	Gap in Polygons	There is a gap in the set of all polygons	Global Topology Test
4.9	Overlap in Polygons	There is an overlap in the set of all polygons	Global Topology Test

Road Name Alias Table

Each local entity will provide a Road Name Alias data set (if available). The data will be assessed and tested to ensure compliance to the NENA standards and other requirements as set forth by the customer. Once the local data set has been verified to meet the requirements, a data transformation will be set up to transform and load the data into the NENA specified Road Name Alias statewide data structure. Once the data has been aggregated, our quality control processes provide another test to ensure internal consistency.

All QC reports will be made available to the local entity and, where possible, DDTI will assist with the correction(s). After corrections have been made, the data will go through another QC phase and the process will be repeated until the data meets the requirements.

	Table 5 – Road Name Alias Table		
	QC Test	**Description**	**Type**
5.1	NENA mandatory field not populated	At least one of the NENA mandatory fields is not populated	Internal Layer Test
5.2	Street Name Fields NENA Compliant	The Road Name Alias record meets requirements for the Street Name fields.	Internal Layer Test
5.3	RCL_Unique_ID Exists	There exists a Road Centerline record that has a matching RCL_Unique_ID.	Multi-Layer Test

Cell Sector Locations

Each local entity will provide a Cell Sector Locations data set (if available). The data will be assessed and tested to ensure compliance to the NENA standards and other requirements as set forth by the customer. Once the local data set has been verified to meet the requirements, a data transformation will be set up to transform and load the data into the NENA specified Cell Sector Locations statewide data structure. Once the data has been aggregated, our quality control processes provide another test to ensure internal consistency.

If the local entity does not have a cell sector location dataset, DDTI will be able to create a cell sector location layer by using the following information obtained from the wireless providers:

- Cell Sector information in a spatial data format. This will be translated and formatted to fit the aggregated Cell Sector Location layer.
- Cell Sector information provided by a paper map. The paper map will be used to create a digital spatial data layer.
- Cell Sector Information provided in a spreadsheet format. The wireless call routing spreadsheet/worksheet is a tabular file owned by the local governing agency to keep track of and maintain coverage areas for each cell tower. The information contained in the wireless routing spreadsheet/worksheet can be converted to a spatial point file by displaying the lat/long coordinates on a digital map of tower location whether it is omni or traditional tower. From there sector orientation, azimuth, beam width, sector compass orientation, sector radius range and other information could be used to create a polygon for the cell sector coverage regions if available.

	Table 6 – Cell Sector Locations		
	QC Test	**Description**	**Type**
6.1	NENA mandatory field not populated	At least one of the NENA mandatory fields is not populated	Internal Layer Test
6.2	Cell Sector Location record in more than one County polygons	More than One County polygon intersects with the Cell Sector Location record.	Multi-Layer Test
6.3	Cell Sector Location record in zero County polygons	No County polygons contain the Cell Sector Location record	Multi-Layer Test
6.4	Cell Sector Location Record County field does not match County polygon	The County field value does not match the County that contains the Cell Sector record	Multi-Layer Test

Appendix B – Reporting Example

Digital Data Technologies Inc

SECONDS COUNT | ACCURACY MATTERS™

NG9-1-1 GIS Data Report

July 13, 2017 Export

Source: EXPORT_PRODUCT.gdb

Version 2.1

Important Information

Technical Support
For technical support, please contact DDTI by one of the following methods:

- Telephone: (614) 429-3384 or 1-888-800-4003
- Email: support@DDTI.net
- Fax: (614) 429-3385

For other inquiries:

- Telephone: (614) 429-3384
- Sales: sales@DDTI.net
- General Information: info@DDTI.net
- Internet: http://www.DDTI.net

Mailing address:

2323 W. 5th Ave., Suite 210 | Columbus, Ohio 43204

Other Relevant Documents

- TBD

TABLE OF CONTENTS

Contents

Introduction

Purpose

Data Quality Control checks are designed and implemented to minimize or eliminate future discrepancies within the NG9-1-1 system. The DDTI data QA/QC is an independent report of data shortcomings where call routing and dispatching may be negatively impacted based on data quality. Reporting mechanisms in place within the system's Functional Elements will also report discrepancies; however, the awareness of these issues may only be indicated when the system is live or nearly live.

NG9-1-1 requires GIS data as one of the many components used in PSAP call routing and dispatching services. GIS data layers support functional elements of the system, such as ECRF, LVF, and others. The standards and requirements for development of functional elements are clearly defined which make interoperability across agencies very fluid.

GIS data has rules to follow, but by nature, the GIS data may have gone through more phases of development and maintenance based on deployment in E9-1-1 systems. The importance lies in upgrading data, rather than developing data, in most cases.

The goal is to identify existing GIS data gaps based on the new usage, modify what is needed, and deploy while avoiding completely overhauling the data.

Getting Started

Data Identification

NG9-1-1 functional elements use GIS data, which is described as required, strongly recommended, and recommended. Based on these, obtaining and analyzing those specific layers are the origin for the process of gap identification. Data format, on both the GIS side and Telco data side, must be consistent and follow standards for data schema.

Required GIS Data Layers

- **Road Centerlines**
- **Emergency Service Boundaries**
- **Authoritative Boundary**

Strongly Recommended Layers

Note: *Other Strongly Recommended Layers as well as Recommended Layers, as outlined in NENA document, NENA 71-003 < (not yet published) >[1], do not perform a function in the ECRF, but they may be useful in decision-making and map display purposes.*

Out of the non-required GIS layers, the layers listed below provide increased accuracy to the NG9-1-1 system and if used will be thoroughly quality checked based on team decisions of implementation.

- **Site/Structure Address Points**
- **Road Name Alias Table**

[1] NENA Standard for NG9-1-1 GIS Data Model

Data Schema

In order to prevent confusion or ambiguity, all data element values shall be fully spelled out except for the Country and State elements. No abbreviations are recognized for any other CLDXF data element. This may mean creating a program to convert an internal format to the national standard, or processing data through a conversion program hosted by some other entity.[2] The CLDXF standard requires that complete street names be parsed into their component simple elements.

Using the NENA standards for data schema as outlined in CLDXF for addressing and the NG9-1-1 GIS Data Model for other GIS layers, the base GIS data will have a gap analysis performed with recommendations made for consistent ETL.

Additional data fields are recommended that may enhance and improve the data and the functionality of the system. Contributing a puzzle-piece to a national seamless dataset, the coordinate system, data projection, and units have been decided. Based on locally used projections and the possibility of multiple projections used, team discussions should be clear on the working projections throughout the project.

[2] NENA Next Generation 9-1-1 (NG9-1-1) United States Civic Location Data Exchange Format (CLDXF) Standard

Source Layers

Below are the layers delivered to DDTI for this iteration of quality control checks based on team decisions.

GIS Data

EXPORT_PRODUCT.gdb

- 2015-07-13
  - 911_DATA_2015-07-13
    - EXPORT_PRODUCT.gdb
      - ADDRESS_POINTS
      - ALIAS_TABLE
      - AUTHORITATIVE_BOUNDS
      - EMERGENCY_SERVICE_BOUNDS
      - FIRE_SERVICE_BOUNDS
      - MEDICAL_SERVICE_BOUNDS
      - POLICE_SERVICE_BOUNDS
      - PSAP_BOUNDS
      - ROADS
    - STREET_NAME_CHANGES_20150713.xlsx
  - ALIAS_TABLE.gdb
    - ALIAS_TABLE

Reference Data

2015-06-10 ALI used for QCs.
MSAG – Received from Verizon April 13, 2017

GIS Received Date
Data received via DDTI FTP on 2017-07-13

Data QC Areas
MSAG COMMS used in Milestone 4.1 data used for Address and Road QC.

Community 1	Community 6	Community 11	Community 16	Community 21
Community 2	Community 7	Community 12	Community 17	Community 22
Community 3	Community 8	Community 13	Community 18	
Community 4	Community 9	Community 14	Community 19	
Community 5	Community 10	Community 15	Community 20	

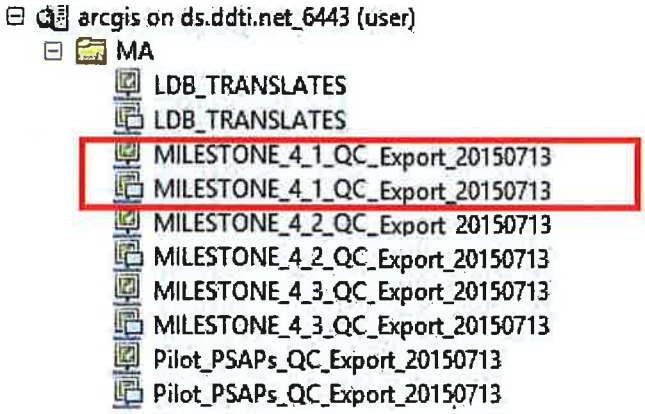
Data Projection
Projection – US State Plane 1983 Zone 2001 –Mainland. Meters.

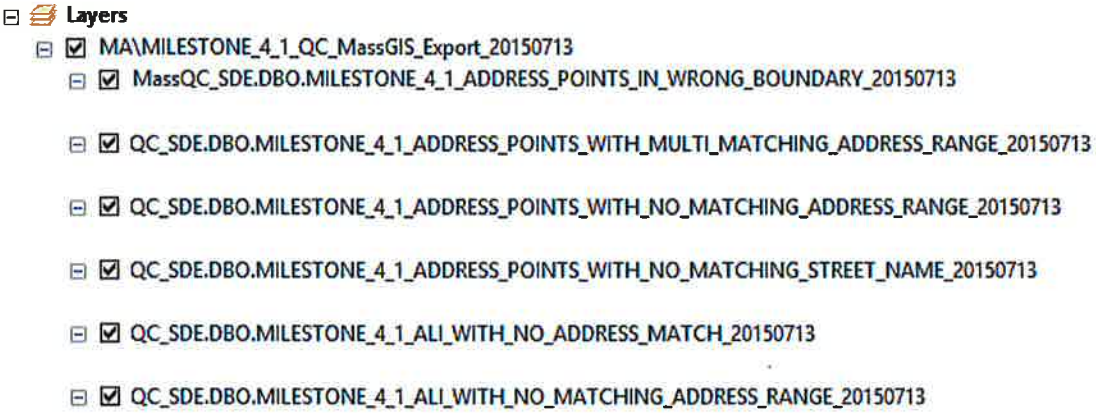
Delivered Layers

Below are the layers delivered for this iteration of quality control checks based on team decisions.

Esri Web Service: **arcgis on ds.DDTI.net_6443**

Spatial





Non-Spatial

- N/A

Notes:

- Data Delivered via ArcGIS Services published 2015-07-15
- Projection – US State Plane 1983 Zone 2001 – Mainland. Meters.

Ongoing Metrics

Phase 2 PSAPs Synchronization Test	ALI Records	SSAP Match %	RCL Match %
Community 1 Police	12729	99.27%	100.00%
Community 2 Police	1560	96.15%	100.00%
Community 3 Police	11370	96.73%	100.00%
Community 4 Police	5254	92.04%	100.00%
Community 5 Police	10248	97.88%	100.00%
Community 6 Police	855	99.18%	100.00%
Community 7 Police	24114	98.75%	100.00%
Community 8 Police	2960	97.36%	100.00%
Community 9 Police	1128	96.01%	100.00%
Community 10 Police	8223	96.62%	100.00%
Community 11 Police	11270	99.25%	100.00%
Community 12 Police	32187	95.78%	100.00%
Community 13 Police	13181	97.16%	100.00%
Community 14 Police	8647	98.25%	100.00%
Community 15 Police	20068	99.67%	100.00%
Community 16 Police	4825	95.73%	100.00%
Community 17 Police	2357	97.24%	100.00%
Community 18 Police	10420	93.70%	100.00%
Community 19 Police	31815	99.21%	100.00%
Community 20 Police	18707	99.27%	100.00%
Community 21 Police	35184	99.61%	100.00%
Community 22 Police	7247	97.25%	100.00%
TOTAL	274349	97.37%	100.000%

Synchronization Test	Last Match %	Current Match %
RCL Match	100.000%	100.000%
SSAP Match	97.37%	97.37%

High Internal SSAP Checks (160529 records)	Record Count
Duplicate addresses in different PSAPs	0

High External SSAP Checks (160529 records)	Record Count
Addresses in the wrong Comm	41

High Internal RCL Checks (24023 records)	Record Count
Overlapping Address Ranges	0

High External ESL/ALI Checks (274349 records)	Record Count
ALI records that route to the wrong PSAP with no address point	0
ALI records that route to the wrong PSAP with address locations	0

ALI/ESL Matching Results

QC20150713_4.1 (Phase 2)	ESL Records	No SSAP – Last QC Run (20150706)	No SSAP – Current QC Run (20150713)	Current SSAP % Match	No RCL – Last QC Run (20150706)	No RCL – Current QC Run (20150713)	Current RCL % Match
Community 1 Police	12729	93	93	99.27%	0	0	100.00%
Community 2 Police	1560	60	60	96.15%	0	0	100.00%
Community 3 Police	11370	372	373	96.72%	0	0	100.00%
Community 4 Police	5254	418	418	92.04%	0	0	100.00%
Community 5 Police	10248	217	215	97.90%	0	0	100.00%
Community 6 Police	855	7	7	99.18%	0	0	100.00%
Community 7 Police	24114	301	301	98.75%	0	0	100.00%
Community 8 Police	2960	78	78	97.36%	0	0	100.00%
Community 9 Police	1128	45	45	96.01%	0	0	100.00%
Community 10 Police	8223	278	278	96.62%	0	0	100.00%
Community 11 Police	11270	84	84	99.25%	0	0	100.00%
Community 12 Police	32187	1358	1358	95.78%	0	0	100.00%
Community 13 Police	13181	374	374	97.16%	0	0	100.00%
Community 14 Police	8647	151	150	98.27%	0	0	100.00%
Community 15 Police	20068	67	67	99.67%	0	0	100.00%
Community 16 Police	4825	206	206	95.73%	0	0	100.00%
Community 17 Police	2357	65	65	97.24%	0	0	100.00%
Community 18 Police	10420	656	656	93.70%	0	0	100.00%
Community 19 Police	31815	251	251	99.21%	0	0	100.00%
Community 20 Police	18707	137	137	99.27%	0	0	100.00%
Community 21 Police	35184	137	137	99.61%	0	0	100.00%
Community 22 Police	7247	199	199	97.25%	0	0	100.00%
Totals	274349	5554	5552	97.37%	0	0	100.000%

QA/QC Plan Development

Data Review

It is expected that 9-1-1 authorities will perform QA/QC processes prior to provisioning the data into the SIF thus minimizing the errors and resolution timeframe for the provisioning process.[3] With this in mind, a detailed QA/QC plan describing the approach and communicating the deliverables effectively with the client is important.

DDTI will perform a full data quality report of both internal and external checks or execute independent checks based on discussed desired output for remediation efficiency. For example, the topology test of roads that cross without the presence of an intersection is not a high impact error for PSAP call routing, were as overlapping address ranges are of higher immediate concern.

Internal Checks (Data Consistency)

Internal checks proactively reduce discrepancies produced from external checks by identifying and fixing bulk errors within each dataset themselves. For example, a total list of communities used in the road centerlines layer identify outliers due to misspellings. This is also true for identifying address range overlaps within the MSAG or GIS Roads layer that may later produce unambiguous mapping locations.

External Checks (Data Synchronization)

External quality control checks, or synchronization, identify gaps in relationships between data layers. These tests not only mimic the process of call routing, but also identify data gaps for map display and dispatching purposes where ALI records do not exist. For example, this process geocodes an ALI record to an address point, if available, then to a road centerline when no address point is available.

[3] NENA Next Generation 9-1-1 Data Management Requirements

Internal Data Checks

To test each layer for consistency, fist the required layers must be available and then each layer must fit the defined minimum requirements for data schema. If any part of this information is missing, the data layer should be remediated to perform meaningful internal and external quality control. The layer internal tests are denoted as 9-1-1 Call Display (RA – Response Assist) / ECRF / Other. These descriptors can be used to influence priorities for remediation based on team decisions.

Out of the entire dataset, the designated communities were extracted by community name. The report of QC's are only run on those selected areas. As more data is introduced per phase, SIF checks will be performed across the growing dataset and will be included in the report.

Site/Structure Address Points (SSAP)

RA / ECRF / Other	QC Description	Tested Y/N	Note
ECRF	Invalid address geometry	Y	
ECRF	Street name populated	N	
RA	Address geometry duplicate of another	N	
ECRF	Address attributes duplicate of another in ALI and in different PSAPs	Y	
ECRF	Required field [EffectiveDate]	N	
ECRF	Required field [Site_Unique_ID]	Y	
ECRF	Required field [SourceOfData]	Y	
ECRF	Required field [DateUpdated]	N	
ECRF	Required field [Country]	Y	
ECRF	Required field [County]	Y	
ECRF	Required field [State]	Y	
ECRF	Required field [IncorporatedMunicipality]	Y	

Road Centerlines

RA / ECRF / Other	QC Description	Tested Y/N	Note
ECRF	Invalid road geometry	Y	
RA	Address range flows against directional arrows	N	
ECRF	Overlap in address range	Y	
RA	Duplicate road geometry	N	
ECRF	Geometry is a MultiLineString	Y	
Other	Sharp Angle in line	N	
Other	Segment is too short	N	
ECRF	Required field [SourceOfData]	Y	
ECRF	Required field [DateUpdated]	N	
ECRF	Required field [EffectiveDate]	N	
ECRF	Required field [RCL_Unique_ID]	Y	
ECRF	Required field [CountryLeft]	Y	
ECRF	Required field [CountryRight]	Y	
ECRF	Required field [StateLeft]	Y	
ECRF	Required field [StateRight]	Y	
ECRF	Required field [CountyLeft]	Y	
ECRF	Required field [CountyRight]	Y	
ECRF	Required field [IncorporatedMunicipalityLeft]	Y	
ECRF	Required field [IncorporatedMunicipalityRight]	Y	
ECRF	Required field [LeftFromAddress]	Y	
ECRF	Required field [LeftToAddress]	Y	
ECRF	Required field [RightFromAddress]	Y	
ECRF	Required field [RightToAddress]	Y	
ECRF	Required field [ParityLeft]	N	
ECRF	Required field [ParityRight]	N	
ECRF	Required field [StreetName]	N	
RA	Intersection not snapped	N	
RA	Road cross with no intersection	N	

PSAP Service Boundary

RA / ECRF / Other	QC Description	Tested Y/N	Note
ECRF	Required field [SourceOfData]	N	
ECRF	Required field [DateUpdated]	N	
ECRF	Required field [EffectiveDate]	N	
ECRF	Required field [ES_Unique_ID]	N	
ECRF	Required field [Country]	N	
ECRF	Required field [State]	N	
ECRF	Required field [County]	N	
ECRF	Required field [AgencyID]	N	
ECRF	Required field [RouteURI]	N	
ECRF	Required field [ServiceURN]	N	
ECRF	Required field [AgencyVCard]	N	
ECRF	Required field [DisplayName]	N	
ECRF	Geometry overlaps another	N	
ECRF	Gap in geometry	N	

Police Service Boundary

RA / ECRF / Other	QC Description	Tested Y/N	Note
ECRF	Required field [SourceOfData]	N	
ECRF	Required field [DateUpdated]	N	
ECRF	Required field [EffectiveDate]	N	
ECRF	Required field [ES_Unique_ID]	N	
ECRF	Required field [Country]	N	
ECRF	Required field [State]	N	
ECRF	Required field [County]	N	
ECRF	Required field [AgencyID]	N	
ECRF	Required field [RouteURI]	N	
ECRF	Required field [ServiceURN]	N	
ECRF	Required field [AgencyVCard]	N	
ECRF	Required field [DisplayName]	N	
ECRF	Geometry overlaps another	N	
ECRF	Gap in geometry	N	

Fire Service Boundary

RA / ECRF / Other	QC Description	Tested Y/N	Note
ECRF	Required field [SourceOfData]	N	
ECRF	Required field [DateUpdated]	N	
ECRF	Required field [EffectiveDate]	N	
ECRF	Required field [ES_Unique_ID]	N	
ECRF	Required field [Country]	N	
ECRF	Required field [State]	N	
ECRF	Required field [County]	N	
ECRF	Required field [AgencyID]	N	
ECRF	Required field [RouteURI]	N	
ECRF	Required field [ServiceURN]	N	
ECRF	Required field [AgencyVCard]	N	
ECRF	Required field [DisplayName]	N	
ECRF	Geometry overlaps another	N	
ECRF	Gap in geometry	N	

EMS Service Boundary

RA / ECRF / Other	QC Description	Tested Y/N	Note
ECRF	Required field [SourceOfData]	N	
ECRF	Required field [DateUpdated]	N	
ECRF	Required field [EffectiveDate]	N	
ECRF	Required field [ES_Unique_ID]	N	
ECRF	Required field [Country]	N	
ECRF	Required field [State]	N	
ECRF	Required field [County]	N	
ECRF	Required field [AgencyID]	N	
ECRF	Required field [RouteURI]	N	
ECRF	Required field [ServiceURN]	N	
ECRF	Required field [AgencyVCard]	N	
ECRF	Required field [DisplayName]	N	
ECRF	Geometry overlaps another	N	
ECRF	Gap in geometry	N	

Authoritative Boundary

RA / ECRF / Other	QC Description	Tested Y/N	Note
ECRF	Required field [SourceOfData]	N	
ECRF	Required field [DateUpdated]	N	
ECRF	Required field [EffectiveDate]	N	
ECRF	Required field [ES_Unique_ID]	N	
ECRF	Required field [Country]	N	
ECRF	Required field [State]	N	
ECRF	Required field [County]	N	
ECRF	Required field [AgencyID]	N	
ECRF	Required field [RouteURI]	N	
ECRF	Required field [ServiceURN]	N	
ECRF	Required field [AgencyVCard]	N	
ECRF	Required field [DisplayName]	N	
ECRF	Geometry overlaps another	N	
ECRF	Gap in geometry	N	

MSAG

RA / ECRF / Other	QC Description	Tested Y/N	Note
Other	Duplicate record	N	
Other	House number range is invalid	N	
Other	Zero mix in range	N	
Other	Range low greater than high	N	
Other	Range overlap	N	
Other	Parity Invalid	N	
Other	Parity does not match range	N	
Other	Low high difference > 10,000	N	
Other	Range not numeric	N	

External Data Checks

External Data Checks (Data Synchronization) compare data sources to each other (Layer 1 to Layer 2) based on geocoding rules that reflect ECRF call routing capabilities.

Site/Structure Address Points (SSAP)

Layer 1	Layer 2	QC Description	Tested Y/N
SSAP	Road Centerlines	No matching Road Nameset	Y
SSAP	Road Centerlines	No matching Address Range	Y
SSAP	Road Centerlines	Multiple matching segments	Y
SSAP	MSAG	Address point only matches one MSAG Nameset	Y
SSAP	PSAP	Address falls in correct PSAP	Y

Road Centerlines

Layer 1	Layer 2	QC Description	Tested Y/N
RCL	ESB	Topology/intersections at boundaries	N
RCL	ESB	Left and Right Community match	N

Emergency Service Boundaries (ESB)

N/A – The ESB file is a base file for comparing other datasets against it.

ALI

Layer 1	Layer 2	QC Description	Tested Y/N
ALI	Road Centerlines	Nameset compare to road names	Y
ALI	Road Centerlines	Nameset compare to alias names	Y
ALI	Road Centerlines	House number contained by roads range	Y
ALI	MSAG	Has only one matching MSAG record	Y
ALI	SSAP	Matching address compare	Y
ALI	SSAP	Matching address falls within same PSAP polygon	Y

MSAG

Layer 1	Layer 2	QC Description	Tested Y/N
MSAG	Road Centerlines	Nameset compare to road nameset	Y
MSAG	Road Centerlines	Nameset compare to alias nameset	Y
MSAG	Road Centerlines	Range contained by roads	Y
MSAG	ESB	MSAG addresses fall in correct ESZ	Y

QC Prioritization & Workflow

The critical tests results that require prompt remediation to prevent possible delay in emergency response are, calls not plotting on the PSAP map, and routing an emergency call to the wrong PSAP should be the focal point for first efforts.

Notification and delivery of files are dependent on initial data load, remediation of past reports, and optimization.

Based on discussions and implementation plans, recommendations shall be carefully constructed to optimize efficiency. It is strongly recommended that discussions are clear for the QC plan development.

Site/Structure Address Points (SSAP)

Layer 1	Layer 2	QC Description
SSAP	Road Centerlines	No matching Road Nameset
SSAP	Road Centerlines	No matching Address Range
SSAP	Road Centerlines	Multiple matching segments
SSAP	MSAG	Address point only matches one MSAG Nameset
SSAP	ESB	Address falls in correct ESB

Road Centerlines

Layer 1	Layer 2	QC Description
RCL	ESB	Topology/intersections at boundaries
RCL	ESB	Left and Right Community match

Emergency Service Boundaries (ESB)

RA / ECRF / Other	QC Description
ECRF	Geometry overlaps another
ECRF	Gap in geometry

ALI

Layer 1	Layer 2	QC Description
ALI	Road Centerlines	Has only one matching RCL record
ALI	MSAG	Has only one matching MSAG record
ALI	SSAP	Matching address comparison

MSAG

Layer 1	Layer 2	QC Description
MSAG	Road Centerlines	Has one a matching RCL Nameset
MSAG	Road Centerlines	Has matching Alias Nameset if not Primary Nameset
MSAG	Road Centerlines	Range contained by roads
MSAG	ESB	MSAG addresses fall in correct ESN

Data Review Summary

DDTI has performed the applicable QCs checks based on team decisions and has reported these findings at this time. This summary may include current errors in digital spatial and digital tabular format. Remediation will be required before the next QC process.

Legend: Based on team decisions, severity levels will be customized and coded to indicate priority of remediation.

HIGH = will negatively influence the ECRF call routing and should be reviewed as an error.

MEDIUM = may cause secondary routing issues and can be reviewed as a warning.

LOW = no impact to ECRF call routing and can be reviewed as a warning. May negatively influence Map Display functions.

Internal Checks

Addresses

QC Test - SSAP	QC Description	QC File Type	Count	Severity
Global Tests				
SSAP_Unique_ID not unique	Verify Unique ID is Unique across dataset	Point	0	HIGH
Null Geometry Test	No geometry for an attribute	Non-Spatial	0	HIGH
Geometry Test	Multipart Geometry Test	Point	0	HIGH
High Priority Duplicate records	Duplicate attributes	Point	0	HIGH
Street Name Tests				
Blank Values	Conditional Data Missing - Street Name	Point	0	MEDIUM
Blank Values	Mandatory Field Blank – State	Point	0	HIGH

Road Centerlines

QC Test - Roads	QC Description	QC File Type	Count	Severity
Global Tests				
RCL_Unique_ID not unique	Verify Unique ID is Unique across dataset	Line	0	HIGH
Null Geometry Test	No geometry for an attribute	Non-Spatial	0	HIGH
Geometry is a Multiline String	Multipart Geometry Test	Line	0	HIGH
Duplicate Road Geometry	Duplicate geometry test (5 meter tolerance)	Line	NOT TESTED	LOW
Required Field Tests				
Blank Values	Test for Mandatory field Population – XXX	Line	0	HIGH
Address Range Tests				
Overlap in address range	Overlaps in Ranges	Line, Multi	0	HIGH
Address Range is Non Numeric	Null value or non-numeric	Line	0	HIGH
Address range flows against directional arrows	Arrow direction matches increasing address range	Line	NOT TESTED	LOW
Topology Tests				
Segment is too short	Test for intersection hops and short segments (5 meter tolerance)	Line	NOT TESTED	LOW
Sharp Angle in Line	Test for invalid geometry	Line	NOT TESTED	LOW
Road not intersected	Intersections within a specified Distance (5 meter tolerance)	Point	NOT TESTED	MEDIUM
Lines cross with no intersection	Crossing Segments with no Intersection	Point	NOT TESTED	MEDIUM

Emergency Service Boundaries

PSAP Boundary

QC Test – PSAP Boundary	QC Description	QC File Type	Count	Severity
Global Tests				
ES_Unique_ID not unique	Verify Unique ID is Unique across dataset	Polygon	NOT TESTED	HIGH
Topology Tests				
Overlap in geometry	Overlap in geometry	Polygon	NOT TESTED	HIGH
Gap in geometry	Gap in geometry	Polygon	NOT TESTED	HIGH
Self-Intersections	Boundary shares a single node or draws over itself	Point	NOT TESTED	HIGH
Attribute Tests				
Mandatory Fields	Mandatory Fields Populated	Polygon	NOT TESTED	HIGH

Police

QC Test – Police Boundary	QC Description	QC File Type	Count	Severity
Global Tests				
ES_Unique_ID not unique	Verify Unique ID is Unique across dataset	Polygon	NOT TESTED	HIGH
Topology Tests				
Overlap in geometry	Overlap in geometry	Polygon	NOT TESTED	HIGH
Gap in geometry	Gaps in geometry	Polygon	NOT TESTED	HIGH
Self-Intersections	Boundary shares a single node or draws over itself	Point	NOT TESTED	HIGH
Attribute Tests				
Mandatory Fields	Mandatory Field Missing - DateUpdated	Polygon	NOT TESTED	HIGH
Mandatory Fields	Mandatory Field Missing - AgengyID	Polygon	NOT TESTED	HIGH

Fire

QC Test – Fire Boundary	QC Description	QC File Type	Count	Severity
Global Tests				
ES_Unique_ID not unique	Verify Unique ID is Unique across dataset	Polygon	NOT TESTED	HIGH
Topology Tests				
Overlap in geometry	Overlap in geometry	Polygon	NOT TESTED	HIGH
Gap in geometry	Gaps in geometry	Polygon	NOT TESTED	HIGH
Self-Intersections	Boundary shares a single node or draws over itself	Point	NOT TESTED	HIGH
Attribute Tests				
Mandatory Fields	Mandatory Field Missing -	Polygon	NOT TESTED	HIGH

EMS

QC Test – EMS Boundary	QC Description	QC File Type	Count	Severity
Global Tests				
ES_Unique_ID not unique	Verify Unique ID is Unique across dataset	Polygon	NOT TESTED	HIGH
Topology Tests				
Overlap in geometry	Overlap in geometry	Polygon	NOT TESTED	HIGH
Gap in geometry	Gaps in geometry	Polygon	NOT TESTED	HIGH
Self-Intersections	Boundary shares a single node or draws over itself	Point	NOT TESTED	HIGH
Attribute Tests				
Mandatory Fields	Mandatory Field Missing - DateUpdated	Polygon	NOT TESTED	HIGH
Mandatory Fields	Mandatory Field Missing - AgengyID	Polygon	NOT TESTED	HIGH

Authoritative Boundary

QC Test – Authoritative Boundary	QC Description	QC File Type	Count	Severity
Global Tests				
AB_Unique_ID not unique	Verify Unique ID is Unique across dataset	Polygon	NOT TESTED	HIGH
Topology Tests				
Overlap in geometry	Overlap in geometry	Polygon	NOT TESTED	HIGH
Gap in geometry	Gaps in geometry	Polygon	NOT TESTED	HIGH
Self-Intersections	Boundary shares a single node or draws over itself	Point	NOT TESTED	HIGH
Attribute Tests				
Mandatory fields	Mandatory Fields Missing	Polygon	NOT TESTED	HIGH

MSAG (Not used in NG9-1-1 – Optional Tests)

QC Test – MSAG	QC Description	QC File Type	Count	Severity
Attribute Tests				
USPS	Conforms to USPS	Non-Spatial	NOT TESTED	LOW
Ranges – Text	Address ranges are numeric	Non-Spatial	NOT TESTED	LOW
Ranges – Numeric	High is larger than Low	Non-Spatial	NOT TESTED	LOW
Ranges – Parity	No duplicate parity on one record	Non-Spatial	NOT TESTED	LOW
Range – Overlap	No records have overlapping ranges with same Nameset	Non-Spatial	NOT TESTED	LOW
Ranges – Unique	Each record must be unique	Non-Spatial	NOT TESTED	LOW
ESN	Text test for ESN outliers of minimum occurrences	Non-Spatial	NOT TESTED	LOW
Comm	Text test for Comm outliers of minimum occurrences	Non-Spatial	NOT TESTED	LOW

ALI

QC Test – ALI	QC Description	QC File Type	Count	Severity
Attribute Tests				
*Dependent on input				
HNO	Non-Numeric in value	Non-Spatial	NOT TESTED	HIGH
USPS	Conforms to USPS	Non-Spatial	NOT TESTED	HIGH
ESN	Text test for ESN outliers of minimum occurrences	Non-Spatial	NOT TESTED	HIGH
Comm	Text test for Comm outliers of minimum occurrences	Non-Spatial	NOT TESTED	HIGH

External Checks

ALI to Addresses

QC Test – ALI to SSAP	QC Description	QC File Type	Count	Severity
Global Tests				
No Match	ALI Record geocoded but does not match any SSAP record	Point	5552	MEDIUM
Multi-Range Match	ALI Record has more than one matching segment and no matching SSAP	Point	0	HIGH
No Matching Name	ALI Record has no matching RCL/ALIAS or SSAP	Point	0	HIGH
No Match Range	ALI Record has matching RCL name but no matching address range and no SSAP	Point	3	HIGH
Address only Match	ALI record matches only an address point and no centerline	Point	0	MEDIUM

ALI to Road Centerlines

QC Test – ALI to RCL	QC Description	QC File Type	Count	Severity
Global Tests				
No Match Name/Alias Name	ALI Records does not match ONE RCL segment	Point	0	HIGH
Multi Range Match	ALI Record matches more than one segment (side)	Point	0	HIGH
Alias Name match only with no range match	ALI Record has ALIAS name match but no range match	Point	0	HIGH
No Match Range (with Primary name match)	ALI Record matches a primary street name but no matching range	Point	3	HIGH

ALI to PSAP Boundary

QC Test – ALI to PSAP	QC Description	QC File Type	Count	Severity
Global Tests				
Contained in wrong polygon (without address point)	ALI Record geocodes to wrong polygon and no SSAP	Point	0	High
Contained in wrong polygon (with address point)	ALI record and address record are in wrong PSAP	Point	0	High

ALI to MSAG

QC Test – ALI to MSAG	QC Description	QC File Type	Count	Severity
Global Tests				
No Match Name	ALI Record without MSAG name match	Point	254	LOW
No Range Match	ALI Record does not have matching MSAG range	Point	261	LOW

Addresses to Roads

QC Test – SSAP to RCL Global Tests	QC Description	QC File Type	Count	Severity
Parity mismatch	Address parity does not match Road Calculated Parity	Point	NOT TESTED	LOW
Direction mismatch	Road direction/address range does not match flow of address points	Point	NOT TESTED	LOW
No Match Name	No Matching road centerline nameset/alias for address point	Point	59	MEDIUM
No Matching Range	No Matching address range for address point	Point	255	MEDIUM
Multi Match	Address belongs to more than one segment (side)	Point	1	MEDIUM

Addresses to MSAG

QC Test – SSAP to MSAG	QC Description	QC File Type	Count	Severity
Global Tests				
No Match Name	Address Record does not match MSAG name	Point	249	LOW
No Matching Range	Address does not match MSAG range	Point	764	LOW

Addresses to PSAP Boundary

QC Test – SSAP to PSAP	QC Description	QC File Type	Count	Severity
Global Tests				
SSAP contained in wrong polygon	Address not located within proper boundary	Point	41	MEDIUM

Addresses to Authoritative Boundary

QC Test – SSAP to Authoritative	QC Description	QC File Type	Count	Severity
Global Tests				
SSAP contained within boundary	Addresses not contained within boundary	Point	NOT TESTED	High

Roads to PSAP Boundary

QC Test – RCL to PSAP	QC Description	QC File Type	Count	Severity
Global Tests				
RCL topology check	Road Centerlines broken at boundary geography	Line	NOT TESTED	High

Roads to Authoritative Boundary

QC Test – RCL to Authoritative	QC Description	QC File Type	Count	Severity
Global Tests				
RCL contained within boundary	Road Centerlines contained within boundary	Line	NOT TESTED	High

MSAG to Roads

QC Test – MSAG to RCL	QC Description	QC File Type	Count	Severity
Global Tests				
Nameset Match	MSAG nameset matches a RCL record	Non-Spatial	NOT TESTED	Low
Range Match	MSAG range contained by RCL	Non-Spatial	NOT TESTED	Low
ESN Match	MSAG Valid Addresses fall within the correct ESZ	Non-Spatial	NOT TESTED	Low

NG9-1-1 GIS Data Model - Roads

NENA FORMAT					NITC FORMAT						
Descriptive Name	Field Name	M/C/O	Type	Field Width	Field Name	Field Type	Field Length	Field Description	Domain Name	Required Level	Note
Discrepancy Agency ID	DiscrpAgID	M	P	75	SourceOfData	String	30	Entity that provided the data	N/A	R	
Date Updated	DateUpdate	M	D	-	Update_DT	Date	26	Date/time stamp when data segment geometry/attribution last modified	N/A	R	
Effective Date	Effective	O	D	-	ActiveDT	Date	26	Date when the segment is activated or becomes available for use.	N/A	R	
Expiration Date	Expire	O	D	-	UActiveDate	Date	26	Date when the segment becomes inactive or not available for use.	N/A	RC	
Road Centerline NENA Globally Unique ID	RCL_NGUID	M	P	254	NEStreetID	Number	20	Unique ID of corresponding street centerline segment	N/A	R	
Left Address Number Prefix	AdNumPre_L	C	P	15							
Right Address Number Prefix	AdNumPre_R	C	P	15							
Left FROM Address	FromAddr_L	M	N	6	LFrom	Number	6	Left low address range	N/A	R	
Left TO Address	ToAddr_L	M	N	6	LTo	Number	6	Left high address range	N/A	R	
Right FROM Address	FromAddr_R	M	N	6	Rfrom	Number	6	Right low address range	N/A	R	
Right TO Address	ToAddr_R	M	N	6	Rto	Number	6	Right high address range	N/A	R	
Parity Left	Parity_L	M	P	1	ParityLeft	String	1	Parity of address range on the left side of the road. E, O, B, Z for even, Odd, Both or Zero	N/A	R	
Parity Right	Parity_R	M	P	1	ParityRight	String	1	Parity of address range on the left side of the road. E, O, B, Z for even, Odd, Both or Zero	N/A	R	
Street Name Pre Modifier	St_PreMod	C	E	15	PreModifier	String	15	Prefix directional component of segment name	PreModifier	R	
Street Name Pre Directional	St_PreDir	C	P	9							May be mapped and translated from legacy fields
Street Name Pre Type	St_PreTyp	C	E	50	PreType	String	20	A street type that precedes the street name (i.e., AVE, RD, ST, CIR, PL, PKWY, LN, DR, BLVD, ALY)	StreetType	R	May need to be translated
Street Name Pre Type Separator	St_PreSep	C	E	20							Domain exists in standard, but no field represented
Street Name	St_Name	M	E	60	StreetName	String	30	Legal authoritative street name component of segment name	N/A	R	
Street Name Post Type	St_PosTyp	C	E	50							May be mapped and translated from legacy fields
Street Name Post Directional	St_PosDir	C	P	9							May be mapped and translated from legacy fields
Street Name Post Modifier	St_PosMod	C	E	25	PostModifier	String	12	A descriptor that follows the street name and is not a suffix or a direction (i.e., Access, Central, Crossover, Scenic, Terminal, Underpass)	PostModifier	R	
legacy Street Name Pre Directional*	LSt_PreDir	C	P	2	PreDirectional	String	2	A street direction that precedes the street name (i.e., N, S, E, W, NE, NW, SE, SW)	Direction	R	Map and translate values to Street Name Pre Directional
Legacy Street Name*	LSt_Name	C	P	75							May be the same as Street Name
Legacy Street Name Type*	LSt_Type	C	P	4	PostType	String	4	A street type that follows the street name (i.e., AVE, RD, ST, CIR, PL, PKWY, LN, DR, BLVD, ALY)	StreetType	R	Map and translate values to Street Name Post Type

Descriptive Name	Field Name	M/C/O	Type	Field Width	Field Name	Field Type	Field Length	Field Description	Domain Name	Required Level	Note
Legacy Street Name Post Directional*	LSt_PosDir	C	P	2	PostDirectional	String	2	A street direction that follows the street name (i.e., N, S, E, W, NE, NW, SE, SW)	Direction	R	Map and translate values to Street Name Post Directional
ESN Left*	ESN_L	C	P	5	ESNLeft**	String	5	Emergency Service Number on left side of road segment	N/A	R	
ESN Right*	ESN_R	C	P	5	ESNRight**	String	5	Emergency Service Number on right side of road segment	N/A	R	
MSAG Community Name Left*	MSAGComm_L	C	P	30	MSAGLeft**	String	30	MSAG on left side of road segment	N/A	R	Assume this means MSAG Community Value
MSAG Community Name Right*	MSAGComm_R	C	P	30	MSAGRight**	String	30	MSAG on right side of road segment	N/A	R	Assume this means MSAG Community Value
Country Left	Country_L	M	P	2							
Country Right	Country_R	M	P	2							
State Left	State_L	M	P	2	FIPS_LSTATE	String	2	State FIPS code for left side of segment	StateFIPS	R	Review domain for validity
State Right	State_R	M	P	2	FIPS_RSTATE	String	2	State FIPS code for right side of segment	StateFIPS	R	Review domain for validity
County Left	County_L	M	P	40	FIPS_LCOUNTY	String	3	County FIPS code of left side of segment	CountyFIPS	R	Review domain for validity
County Right	County_R	M	P	40	FIPS_RCOUNTY	String	3	County FIPS code of right side of segment	CountyFIPS	R	Review domain for validity
Additional Code Left	AddCode_L	C	P	6							
Additional Code Right	AddCode_R	C	P	6							
Incorporated Municipality Left	IncMuni_L	M	E	100	FIPS_LCity	String	5	City FIPS code of left side of segment	N/A	R	
Incorporated Municipality Right	IncMuni_R	M	E	100	FIPS_RCity	String	5	City FIPS code of right side of segment	N/A	R	
Unincorporated Community Left	UnincCom_L	O	E	100							
Unincorporated Community Right	UnincCom_R	O	E	100							
Neighborhood Community Left	NbrhdCom_L	O	E	100							
Neighborhood Community Right	NbrhdCom_R	O	E	100							
Postal Code Left	PostCode_L	O	P	7	LCityPostal	String	7	5-digit postal code on the left side of the road segment.	N/A	R	
Postal Code Right	PostCode_R	O	P	7	RCityPostal	String	7	5-digit postal code on the right side of the road segment.	N/A	R	
Postal Community Name Left	PostComm_L	O	P	40	LZIP	String	10	Area descriptor to aid in geocoding, left side of centerline	N/A	R	
Postal Community Name Right	PostComm_R	O	P	40	RZIP	String	10	Area descriptor to aid in geocoding, right side of centerline	N/A	R	
Road Class	RoadClass	O	P	15	RoadClass	String	15	This is the classification for the road segment as adopted from the MAF/TIGER Feature Classification Codes (MTFCC) Attachment D	RClass	O	
One-Way	OneWay	O	P	2	OneWay	String	2	Signifies if the segment is one way in direction	OneWay	O	
Speed Limit	SpeedLimit	O	N	3	SpeedLimit	Number	3	The speed limit of the road segment in miles per hour (mph)	N/A	R	
Validation Left	Valid_L	O	P	1							
Validation Right	Valid_R	O	P	1							
					FullStreet	String	150	Unique ID of corresponding street centerline segment	N/A	R	Duplicate Field Description of NEStreetID
					ESNCenter**	String	5	Responsible ESN responder at centerline	N/A	O	
					ZCoordS	String	Number	Elevation at the start of the segment node	N/A	R	
					ZCoordE	String	Number	Elevation at the end of the segment node	N/A	R	
					Travel	String	20	Direction of travel for divided roadways	N/A	O	
					SurfType	String	10	This is the surface type of the segment	SType	O	

Descriptive Name	Field Name	M/C/O	Type	Field Width	Field Name	Field Type	Field Length	Field Description	Domain Name	Required Level	Note
					StreetOwner	String	25	Current local entity responsible for creation of physical street segment	N/A	R	May be used as Discrepancy Agency ID
					StreetMaint	String	25	Current local entity responsible for maintenance of street segment data	N/A	R	May be used as Discrepancy Agency ID
					Create_DT	Date	26	Date/time stamp when data was first created	N/A	R	May be used as Date Updated
					UpdateBy	String	50	Person who made the last update to the record	N/A	R	
					Street_Status_CD	String	1	Status code indicating operational condition of street (1=open, 2=retired, 3=temporarily closed, 4=under construction)	StreetStatus	R	
					Interstate_Num	Number	2	Interstate Highway number of road segment, if appropriate	N/A	RC	
					US_Hwy_Num	Number	2	US Highway number of road segment, if appropriate	N/A	RC	
					State_Hwy_Num	Number	2	State Highway number of road segment, if appropriate	N/A	RC	
					Local_Rd_Num	Number	2	Local road number of road segment, if appropriate	N/A	RC	
					Alias1*	String	50	Alias name of road segment	N/A	RC	Is this a lookup number to a table or an ALSN?
					LOCAL_FUNC_CLASS	String	2	Functional Class assigned by road owner with possible suggestions guidelines for possible local classification schema	N/A	RC	
					STATE_FUNC_CLASS	String	2	Functional Class with classification schema define by standards TWG	N/A	RC	
					LRS_ID	String	20	ID associated to the road segment found in the NDOR Linear Referencing System	N/A	R	
					Length	Number	12	Calculated length in US Survey Feet	N/A	R	

* Can have multiple Alias numbers relationship table to infinite number..

** Not required in full NG9-1-1 implementation, used in legacy systems

NG9-1-1 GIS Data Model -Alias

NENA FORMAT					NITC FORMAT						
Descriptive Name	Field Name	M/C/O	Type	Field Width	Field Name	Field Type	Field Length	Field Description	Domain Name	Required Level	Note
Discrepancy Agency ID	DiscrpAgID	M	P	75	SourceOfData	String	75	Entity that provided the data	N/A	R	
Date Updated	DateUpdate	M	D	-							
Effective Date	Effective	O	D	-	ActiveDT	Date	26	Date when the alternate street name is activated or becomes available for use.	N/A	R	
Expiration Date	Expire	O	D	-	UActiveDate	Date	26	Date when the alternate street name becomes inactive or not available for use.	N/A	RC	
Alias Street Name NENA Globally Unique ID	ASt_NGUID	M	P	254	AltStreetID	Number	100	Unique ID of alternate street segment name	N/A	R	
Road Centerline NENA Globally Unique ID	RCL_NGUID	M	P	254	NEStreetID	Number	20	Unique ID of corresponding street centerline segment	N/A	R	
Alias Street Name Pre Modifier	ASt_PreMod	C	E	15	PreModifier	Alpha	15	Alternate street prefix type	PreModifier	R	
Alias Street Name Pre Directional	ASt_PreDir	C	P	9							
Alias Street Name Pre Type	ASt_PreTyp	C	E	50							
Alias Street Name Pre Type Separator	ASt_PreSep	C	E	20							
Alias Street Name	ASt_Name	M	E	60	AltStreetName	Alpha	30	Alternate street name. Example: Main, 2nd, Country Creek, Third	N/A	R	
Alias Street Name Post Type	ASt_PosTyp	C	E	50							
Alias Street Name Post Directional	ASt_PosDir	C	P	9							
Alias Street Name Post Modifier	ASt_PosMod	C	E	25	PostModifier	String	12	A descriptor that follows the alternate street name and is not a suffix or a direction (i.e., Access, Central, Crossover, Scenic, Terminal, Underpass)	PostModifier	R	
Alias Legacy Street Name Pre Directional	ALStPreDir	C	P	2							
Alias Legacy Street Name	ALStName	C	P	75							
Alias Legacy Street Name Type	ALStTyp	C	P	4	PostType	String	4	A street type that follows the street name (i.e., AVE, RD, ST, CIR, PL, PKWY, LN, DR, BLVD, ALY)	StreetType	R	Will need to be translated into STS
Alias Legacy Street Name Post Directional	ALStPosDir	C	P	2	PostDirectional	Alpha	2	Alternate street directional suffice. Example: N, S, E, W, NW, NE, SW, and SE	Direction	R	Will need to be translated into POD
					ASN	Alpha	75	Concatenated Alternate Street Name (STR_PRE+STR_NA ME+STR_TYPE+ST R_DIR)	N/A	O	

NG9-1-1 GIS Data Model -SSAP

NENA FORMAT					NITC FORMAT						
Descriptive Name	Field Name	M/C/O	Type	Field Width	Field Name	Field Type	Field Length	Field Description	Domain Name	Required Level	Note
Discrepancy Agency ID	DiscrpAgID	M	P	75	SourceOfData	String	30	Entity that provided the data	N/A	R	
Date Updated	DateUpdate	M	D	-	Update_DT	Date	26	Date/time stamp the record was last modified	N/A	R	
Effective Date	Effective	O	D	-	ActiveDT	Date	26	Date when the segment is activated or becomes available for use.	N/A	R	
Expiration Date	Expire	O	D	-	UActiveDate	Date	26	Date when the segment becomes inactive or not available for use.	N/A	RC	
Site NENA Globally Unique ID	Site_NGUID	M	P	254	NEAddressID	String	12	Unique ID of address point where first 4 characters are the first 4 letters of each County name. The remaining 8 characters of the number are provided by the local addressing authority.	N/A	R	
Country	Country	M	P	2							
State	State	M	P	2	State	String	2	State name abbreviation	N/A	R	
County	County	M	P	40							
Additional Code	AddCode	C	P	6							
Additional Data URI	AddDataURI	C	U	254	URIAddData	String	255	Route Uniform Resource Identifier for additional information about the location or building (eg, blueprints, contact information). This is usually in the form of http://{domain}.	N/A	O	
Incorporated Municipality	Inc_Muni	M	E	100	City	String	40	Name of the municipality where the site is located. Also the postal community name associated to the zip code or postal code.	N/A	R	May also qualify for Postal Community Name
Unincorporated Community	Uninc_Comm	O	E	100							
Neighborhood Community	Nbrhd_Comm	O	E	100	Subdivision	String	60	Subdivision name	N/A	C	
Address Number Prefix	AddNum_Pre	C	P	15	PrefixAddressNumber	String	10	An extension that precedes the address number	N/A	R	May need a hyphen
Address Number	Add_Number	C	N	6	AddressNumber	Integer	6	The numeric identifier of a location along a thoroughfare (i.e., 100, 2345, 31)	N/A	R	
Address Number Suffix	AddNum_Suf	C	P	15	SuffixAddressNumber	String	15	An extension that follows the address number (i.e., A through Z)	SuffixAddressNumber	R	
Street Name Pre Modifier	St_PreMod	C	E	15	PreModifier	String	15	A street name modifier that precedes the street name. (i.e., Alternate, bypass, loop, private, spur, etc.)	PreModifier	R	
Street Name Pre Directional	St_PreDir	C	P	9							May be mapped from Legacy field
Street Name Pre Type	St_PreTyp	C	E	50	PreType	String	4	A street type that precedes the street name (i.e., AVE, RD, ST, CIR, PL, PKWY, LN, DR, BLVD, ALY)	StreetType	R	May need translated

Descriptive Name	Field Name	M/C/O	Type	Field Width	Field Name	Field Type	Field Length	Field Description	Domain Name	Required Level	Note
Street Name Pre Type Separator	St_PreSep	C	E	20	SeparatorElement	String	10	An element that precedes the StreetName which separates the PreType and StreetName	SeparatorElement	R	
Street Name	St_Name	C	E	60	StreetName	String	30	Legal authoritative street name component of segment name	N/A	R	
Street Name Post Type	St_PosTyp	C	E	50							May be mapped from Legacy field
Street Name Post Directional	St_PosDir	C	P	9							May be mapped from Legacy field
Street Name Post Modifier	St_PosMod	C	E	25	PostModifier	String	12	A descriptor that follows the street name and is not a suffix or a direction (i.e., Access, Central, Crossover, Scenic, Terminal, Underpass)	PostModifier	R	
Legacy Street Name Pre Directional*	LSt_PreDir	C	P	2	PreDirectional	String	2	A street direction that precedes the street name (i.e., N, S, E, W, NE, NW, SE, SW)	Direction	R	May need mapped and translated to PRD
Legacy Street Name*	LSt_Name	C	P	75							may be the same as Street Name
Legacy Street Name Type*	LSt_Type	C	P	4	PostType	String	4	A street type that follows the street name (i.e., AVE, RD, ST, CIR, PL, PKWY, LN, DR, BLVD, ALY)	StreetType	R	May need mapped and translated to STS
Legacy Street Name Post Directional*	LSt_PosDir	C	P	2	PostDirectional	String	2	A street direction that follows the street name (i.e., N, S, E, W, NE, NW, SE, SW)	Direction	R	May need mapped and translated to POD
ESN*	ESN	C	P	5	ESN**	String	5	Emergency Service Number associated with the location of the address identified by MSAG.	N/A	R	
MSAG Community Name*	MSAGComm	C	P	30	MSAG**	String	30	Service community name associated with the location of the address.	N/A	R	
Postal Community Name	Post_Comm	O	P	40							
Postal Code	Post_Code	O	P	7	ZipCode	String	5	5 digit zip code	N/A	R	
ZIP Plus 4	Post_Code4	O	P	4	Ph_Zip4	String	4	Mailing post code +4 designation for the tax parcel	N/A	RC	
Building	Building	O	P	75	Building	String	60	The name of one among a group of buildings that have the same address number and street name, that are multiple independently named structures at the same address	N/A	R	
Floor	Floor	O	P	75	Floor	String	10	A floor, story, or level within a building	N/A	O	
Unit	Unit	O	P	75	Unit	String	4	A group or suite of rooms within a building that are under common ownership or tenancy, typically having a common primary entrance. (ie, A, 4, etc.)	N/A	R	
Room	Room	O	P	75	Room	String	10	A room identification in a building	N/A	RC	
Seat	Seat	O	P	75	Seat	String	5	The place where a person may be located within a room or building.	N/A	O	

Descriptive Name	Field Name	M/C/O	Type	Field Width	Field Name	Field Type	Field Length	Field Description	Domain Name	Required Level	Note
Additional Location Information	Addtl_Loc	O	E	225	Location	String	20	For sub-address, other than building, floor, unit, room or seat. For example, northeast corner of building.	N/A	O	
Complete Landmark Name	LandmkName	C	E	150	LandmarkName	String	60	Common Place Name such as library, town hall, Chimney Rock, stadium	N/A	R	
Mile Post	Mile_Post	C	P	150	MilePost	String	150	Mile marker or measurement at location	N/A	RC	
Place Type	Place_Type	O	P	50	UnitType	String	4	The unit type abbreviation. (ie, APT, BLDG, DEPT, FL, STE, UNIT	UnitType	C	Check for validity - may need translates
Placement Method	Placement	O	P	25	PointType	String	3	Address point type (primary structure, primary property entrance, secondary structure, secondary property entrance, parcel centroid, etc.)	PointType	R	
Longitude	Long	O	F	-	X_COORD	Numeric	15	Points X coordinate	N/A	R	
Latitude	Lat	O	F	-	Y_COORD	Numeric	15	Points Y coordinate	N/A	R	
Elevation	Elev	O	N	6	Z_COORD	Numeric	7	This is the US National Grid address up to 10 digits at 1 meter	N/A	O	May not be the required format
					NEStreetID	Integer	20	Unique ID of corresponding street centerline segment	N/A	R	
					State_PID	String	30	County FIPS code plus local government PID number (See Statewide Parcel Database ID requirements)	N/A	R	
					County_ID	String	3	County FIPS code of where address point resides	CountyFIPS	R	May need translated into a county value
					NumberFloors	String	4	Number of floors in building	N/A	O	
					NumberRooms	String	4	Number of rooms in building or structure.	N/A	O	
					FullAddress	String	75	Concatenated street address consisting of address number, pre direction, pre type, street name, street type, suffix direction, unit number, building, floor.	N/A	R	
					SubAddress	String	75	Entire sub-address string that consists of Building, Floor, Unit, and Location fields concatenated together	N/A	RC	
					PSAP	String	25	Public Service Access Point identifier number	N/A	R	
					PrimaryPoint	String	3	Is this the primary point? Yes or No. Distinguishes between Primary and SubAddress points	PrimaryPoint	R	
					PlaceType	String	75	Description of the type of feature for address (House, duplex, trailer, apartment, secondary structure, utility, school, hospital, commercial business, industrial, etc.)	N/A	RC	

Descriptive Name	Field Name	M/C/O	Type	Field Width	Field Name	Field Type	Field Length	Field Description	Domain Name	Required Level	Note
					AddOwner	String	25	Current local entity responsible for creation of address data	N/A	R	
					AddMaint	String	25	Current local entity responsible for maintenance of address data	N/A	R	
					AddressSource	String	30	The primary data source for the attributes used in this record	AddressSource	R	
					Create_DT	Date	26	Date/time stamp data was collected	N/A	R	
					UpdateBy	String	50	Person who made the last update to the r	N/A	R	
					RecentFieldEditor	String	30	Recent field editor of data	N/A	R	
					Add_Status__Code	String	2	Status code indicating operational condition of address point (1=active, 2=retired, 3=unknown)	N/A	R	
					Basement	String	3	Is there a basement? Yes, No	N/A	O	
					StrmShelter	String	25	The type of storm shelter	N/A	O	
					OccupTime	String	50	Time when the site/structure is typically occupied (7:00 – 6:00 pm)	N/A	O	
					NatGrid	String	15	This is the US National Grid address up to 10 digits at 1 meter	N/A	O	
					Comments	String	255	Comments or notes	N/A	O	

NG9-1-1 GIS Data Model - ESB

NENA FORMAT					NITC FORMAT						
Descriptive Name	Field Name	M/C/O	Type	Field Width	Field Name	Field Type	Field Length	Field Description	Domain Name	Required Level	Note
Discrepancy Agency ID	DiscrpAgID	M	P	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	P	254							
State	State	M	P	2							
Agency ID	Agency_ID	M	P	100							
Service URI	ServiceURI	M	U	254							
Service URN	ServiceURN	M	P	50							
Service Number	ServiceNum	O	P	15							
Agency vCard URI	AVcard_URI	M	U	254							
Display Name	DsplayName	M	P	60							