

NENA

Recommended Data Standards

For Local Exchange Carriers, ALI Service Providers & 9-1-1 Jurisdictions

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Prepared by:
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Groups

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INTRODUCTION

1.1 Purpose

This document sets forth NENA standards for all Service Providers involved in providing dial tone to end users whether or not they are the 9-1-1 Data Base Management System Provider or a Service Provider in an Enhanced 9-1-1 area. It includes Data Base Maintenance, Quality measurements, INP, LNP and Number Pooling recommendations to be utilized for any 9-1-1 system that provides information for data display. It defines measurements that support meaningful computations to allow for a better understanding of data base quality and timeliness of data base updates.

1.2 Copyright and Responsibility

This practice was written by the NENA Data Standards Technical Committee in conjunction with specific issue Data Study Groups. The NENA Executive Board has recommended this practice for industry acceptance and use. For more information about this practice, contact:

National Emergency Number Association
Phone: 800-332-3911
Fax: 740-622-2090

1.3 Disclaimer

This document has been prepared solely for the voluntary use of ALI System Providers, 9-1-1 Equipment Vendors, and Service Providers.

By using this practice, the user agrees that the National Emergency Number Association (NENA) will have no liability for any consequential, incidental, special, or punitive damages that may result.

1.4 Overview

This document defines the provisioning requirements for E9-1-1 data integrity, content and call delivery regardless of dial tone provider. It is the goal of these standards to support current and future development consistent with the concept of "One Nation, One Number". It is assumed that Federal, State, or Local legislation will supersede these recommendations.

This document introduces the availability of NENA Data Base Administration software which may be downloaded from the NENA web page at www.nena9-1-1.org. There is no charge for this software which includes forms for MSAG Updates, E9-1-1 Inquires (ANI/ALI trouble resolution), and additional information. The software also allows the user to transmit the documents via various electronic methods. In addition this document defines recommendations for the data transmission of E9-1-1 updates by all Service providers providing dial tone within the boundaries of an Enhanced 9-1-1 jurisdiction. Utilization of these recommendations will provide for timely activation of emergency service data bases and help to minimize costs incurred by providing accurate and consistent provisioning of ALI data. Throughout the creation of these recommendations, the goal was to set standards that would allow the shortest amount of time a record would remain in an error condition. All entities must be aware of any time zone differences when discussing time frames such as one (1) business day.

1.5 Reason for Reissue

NENA reserves the right to modify this technical reference. Whenever it is reissued, the reason(s) will be provided in this paragraph.

March 2000 Issue. The following approved standards documents have been combined into this document:

- NENA 02-002, NENA Recommended Standard for Street Thoroughfare Abbreviation, approved 09/91
- NENA 02-002, NENA Recommended Standards for E9-1-1 Data Base Maintenance, approved 03/99
- NENA 02-004, NENA Recommended Measurements for Data Quality, approved 06/96
- NENBA 02-005, NENA Recommended Standards for Local Service Providers, approved 03/97
- NENA 02-006, Revised NENA Recommended Standards for Service Provider Local Number Portability, approved 06/97 and 03/2000.

1.6 Year 2000 Compliance

All systems or any part of a system that are associated with the 9-1-1 process shall be designed and engineered to ensure that no detrimental or other noticeable impact of any kind, will occur as a result of the date change to the year 2000 or any date subsequent thereto. This shall include embedded application, computer based or any other type application.

To ensure true compliance the manufacturer shall provide verifiable test results to an industry acceptable test plan such as BellCore GR-2945 or equivalent.

1.7 Acronyms/Terms (As defined in NENA 01-002 NENA Master Glossary of 9-1-1 Terminology)

<i>Term</i>	<i>Definition</i>
<i>Alternate Number</i>	Used in Interim Number Portability (INP), the caller's original telephone number which is call forwarded to the new carrier's telephone number. Also known as Call Forward Number.
<i>Automatic Location Identification (ALI)</i>	The automatic display at the PSAP of the caller's telephone number, the address/location of the telephone and supplementary emergency services information.
<i>Automatic Number Identification (ANI)</i>	Telephone number associated with the access line from which a call originates.
<i>Business Day</i>	A 24 hour period of time beginning at midnight which is established by the Data Base Management System Providers' and/or Service Providers' hours of operation. Business days do not normally include Saturday and Sunday or any Provider's recognized holidays.
<i>Company Identifier (Company ID)</i>	A 3-5 character identity chosen by the Service Provider that distinguishes the entity providing the dial tone to the end user. The Company Identifier is maintained by NENA in a nationally accessible data base.
<i>Completion Date</i>	Applies to the Service Providers service order process date that does the physical disconnection of dial tone by the Donor Company and the physical connection of dial tone by the Recipient Company to an end user. The expectation is that the completion date should be the due date on the service order.

<i>Contaminated Number Pooling</i>	The practice of recovering full NPA-NXX's or thousands blocks of NPA-NXX's from Local Exchange Carriers who do not utilize the majority of numbers with the NXX block of 10,000 numbers. The unused numbers are assigned to other LEC's. The numbers utilized within the pooled 1,000 blocks must be ported to the LEC which is the Service provider for the active numbers.
<i>Data Base</i>	An organized collection of information, typically stored in computer systems, comprised of fields, records (data) and indexes. In 9-1-1, such data bases include MSAG, telephone number/ESN and telephone number records.
<i>Data Base Management System Provider</i>	Entity providing Selective Routing (SR) and/or Automatic Location Identification (ALI) data services.
<i>Data Exchange</i>	The process of exchanging 9-1-1 data between Service Providers and the Data Base Management System Provider.
<i>Donor Company</i>	The Service Provider currently responsible for an end users telephone service prior to the migration of the telephone number to another Service Provider.
<i>Discrepancies</i>	A Service provider term used to describe subscriber records that do not match the MSAG and are referred to an error file or report for resolution.
<i>Emergency Service Number (ESN)/Emergency Service Zone (ESZ)</i>	An ESN is a three to five digit number representing a unique combination of emergency service agencies (Law Enforcement, Fire and Emergency Medical service) designated to serve a specific range of addresses within a particular geographical area, or Emergency Service Zone (ESZ). The ESN facilitates selective routing and selective transfer, if required, to the appropriate PSAP and the dispatching of the proper service agency (ies).
<i>End User</i>	The 9-1-1 caller.
<i>Enhanced 9-1-1 (E9-1-1)</i>	An emergency telephone system which includes network switching, database and CPE elements capable of providing Selective Routing, Selective Transfer, Fixed Transfer, ANI and ALI.
<i>Jurisdiction</i>	A government agency that has contracted for Enhanced 9-1-1 service. This may be a county, a city, a Council of Government, or a 9-1-1 Area.
<i>Local Exchange Carrier (LEC)</i>	A Telecommunications Carrier (TC) under the state/local Public Utilities Act that provides local exchange telecommunications services. Also known as Incumbent Local Exchange Carriers (ILECs), Alternate Local Exchange Carriers (ALECs), Competitive Local exchange Carriers (CLECs), Competitive Access Providers (CAPs), Certified Local Exchange Carriers (CLECs), and Local Service Providers (LSPs).
<i>Master Street Address Guide (MSAG)</i>	A data base of street names and house number ranges within their associated communities defining Emergency Service Zones (ESZs) and their associated Emergency Service Number (ESNs) to enable proper routing of 9-1-1 calls.
<i>Migrate</i>	The term used to describe the inward transaction the Recipient Company submits to the 9-1-1 Data Base Management System Provider that signifies movement of telephone service from a Donor Service Provider.
<i>National Emergency Number Association (NENA)</i>	The National Emergency Number Association is a not-for-profit corporation established in 1982 to further the goal of "One Nation - One Number." NENA is a networking source and promotes research, planning and training. NENA strives to educate, set standards and provide certification programs, legislative representation and technical

	assistance for implementing and managing 9-1-1 systems.
<i>Network Reliability Council</i>	A study group made up of experts in the field of network as they relate to Public Safety Systems charged with assessing the reliability of the network and to make recommendations concerning service quality.
<i>No Record Found (NRF)</i>	A condition where no ALI information is available for display at the PSAP.
<i>North American Numbering Plan</i>	Use of 10digit dialing in the format of a 3 digit NPA, followed by 3 digit NXX and 4 digit line number. NPA-NXX-XXXX.
<i>Number Plan Area (NPA)</i>	An established three-digit area code for a particular calling area. It takes the form of NXX, where N is any digit from 2 through 9 and X is any digit from 0 through 9.
<i>Number Pooling</i>	The current practice of assigning blocks of telephone numbers to Local Exchange Carriers in blocks of 1,000 instead of a full NPA-NXX with 10,000 telephone numbers.
<i>NNA/NXX</i>	A three digit code in which N is any digit 2 through 9 and X is any digit 0 through 9. They are the second set of three digits in the North American Numbering Plan.
<i>Private Branch Exchange (PBX)</i>	A private telephone system that is connected to the Public Switched Telephone Network.
<i>Public Safety Answering Point (PSAP)</i>	A facility equipped and staffed to receive 9-1-1 calls. A Primary PSAP receives the calls directly. If the call is relayed or transferred, the next receiving PSAP is designated a Secondary PSAP.
<i>Recipient Company</i>	The new Service Provider responsible for the end users telephone service and E9-1-1 data after the migration of the telephone number from a Donor Service Provider.
<i>Remote Call Forwarding</i>	As used within Interim Number Portability, a permanent call forwarding feature that allows a call to one Directory Number to be automatically advanced to a Directory Number of another Local Exchange Carrier.
<i>Selective Routing (SR)</i>	The routing of a 9-1-1 call to the proper PSAP based upon the location of the caller. Selective routing is controlled by the ESN which is derived from the customers location.
<i>Selective Routing Data Base (SRDB)</i>	The routing table that contains telephone number to ESN relationships which determines the routing of 9-1-1 calls.
<i>Service Order</i>	Local Exchange Carrier document used for additions, changes or removals of telephone service.
<i>Service Provider</i>	An entity providing one or more of the following 9-1-1 elements: Network, CPE, or Data Base Services.
<i>Source Data Base</i>	The data base maintained by each Service provider which provides customer telephone number and location information for the initial load and ongoing updates to the ALI data base held by the Data Base Management Service Provider.
<i>TN</i>	Telephone Number

<i>Unlock</i>	The action required by a 9-1-1 Data Base Management System Provider upon notification from a Donor Company that makes the end user's telephone number record available for the Recipient Company to replace the customer details and Company ID.
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1.8 Reasons to Implement and Benefits

Industry adoption of these standards will:

- Ensure timely and accurate ALI updates
- Ensure the consistent provision of ALI data
- Improve the overall quality of the data bases
- Facilitate official standards/guidelines for data base management
- Assist counties, vendors, Local Exchange Carriers and ALI Service providers with establishment of quality goals and creation of a common set of quality measurements for 9-1-1 systems
- Ensure reliable 9-1-1 call delivery
- Improve communications and remove barriers across entities
- Standardize data base maintenance processes
- Standardize data base maintenance error codes/messages
- Standardize data base maintenance forms
- Assist Local Exchange Carriers towards compliance with FCC order: CC Docket 95-116, complying with Local Number Portability

1.9 Implementation

How: Use of the standards will provide the basis for agreements between the 9-1-1 Jurisdictions, Service Providers and the 9-1-1 Data Base Management System Provider.

Quality Measurement reporting and measurement shall be by system, state and Service Provider as a minimum.

When: Should be used at the time that arrangements are being made between the 9-1-1 Jurisdictions, Service Providers and the 9-1-1 Data Base Management System Provider.

Many quality measurements will have two (2) figures associated with them. There will be a percentage at system cutover and a continuing percentage. Unless otherwise noted, measurements are to be made:

1. At 9-1-1 system cutover
2. A minimum of monthly thereafter

LNP standards should be completed prior to FCC mandated LNP conversion date schedule.

See related standards documents:

- NENA 02-010, NENA Recommended Formats and Protocols for Data Exchange
- NENA 06-001, NENA Recommended Standards for Local Service Provider Interconnection Information Sharing.

1.10 Acknowledgments

The standards have been created through the cooperative efforts of the following groups of volunteers:

E9-1-1 Data Base Maintenance Study Group			
Delaine Arnold	GTE {Chairperson}	Susan Johnston	MCI Metro
Marcus Andronici	SCC	Doug Kroupa	Lucent
Marcia Broman	Metro 9-1-1 Board	Jennifer Lynch	SCC
Marie Cabrera	GTE	Bill Marczak	BellSouth
Sylvia Cadena	Pacific Bell	Linda Mihaly	HBF
Bonnie Sue Foy	Sprint	Tom Muehleisen	ALLTEL
Karen Goldstein	ICG	Mary Sharp	SCC
Mark Hafley	TCG	Ann Vermilyea	TCG
Pam Horne	Southwestern Bell	Marilyn Waddell	North Pittsburg Tel

Multiple Local Service Providers Study Group			
Judy Cortiana	Pacific Bell {Chairperson}	Ron Huelsing	Southwestern Bell
Anne Berman	NYNEX	Bill Johnson	Contel
Terry Bradshaw	Sprint	Susan Johnston	Ameritech
Lynn Chancellor	BellSouth	Doug Kennedy	BellSouth
Dan Cowen	GTE South	Doug Kroupa	AT&T
Stan Czolowski	NYNEX	Carolyn Maddox	Sprint
Patti Fischer	Pacific Bell	Bill Marczak	BellSouth
Charley Foster	NYNEX	Enoch Morris	ALLTEL
Vickie Frymire	Pacific Bell	Scott Nickels	Plant Equipment
Joseph Gondek	NYNEX	Greg Schiller	NYNEX
Judy Graham	Time Warner Comm.	Thom Selleck	TCG
Shirley Grant	GTE	Tina Tsu	NYNEX
Phil Hollar	MCI	Barbara Thornburg	WinStar Tel. {Data Comm Chair}
Beverly Hood	Sprint	Steve Wisely	NYNEX

ALEC Database Issues Study Group			
Larry Ciesla	Lucent	Kenneth Lauria	KML
Judy Cortiana	Pacific Bell	Rebecca Leikheim	Trace Inc.
Stephen Fitzgerald	MFS	Carolyn Maddox	Sprint
Judy Graham	Time Warner Com.	Bert McDonald	Sprint
Shirley Grant	GTE	Jutta Roeder	HBF
Tom Hicks	GTE	Larry Thompson	GTE
Phil Hollar	MCI		

Quality Measurements Study Group			
Luther Bigby	BellSouth	Barb Thornburg	U S West {Chairperson}
Delaine Arnold	GTE	Mike Lucy	9-1-1 Solutions
Lynn Chancellor	BellSouth	Marcia Broman	Metro 9-1-1 Board
Judy Cortiana	Pacific Bell	John Elliott	Westchester Co, NY
Susan Johnston	Ameritech	Adelle Gottlieb	RAM Comm. Consultants, TX

Carolyn Maddox	Sprint	Beth Ozanich	Tarrant Co, TX
Dave Paterson	ALLTEL	Mike Vagnerini	Napa P.D. CA
Dave Pettit	Bell Atlantic	Judy Valentine	Sweetwater Co, WY
Pat Raulerson	U S West	Patricia Welte	Jacksonville, FL
Lyman Smith	GTE	Jack Zimmerman	Sweetwater Co, WY

Local Number Portability Study Group			
Judy Cortaina	Pacific Bell { Chairperson }	Linda Kerkam	NYNEX
Jacki Balto	TCG	Doug Kroupa	Lucent
Terri Beager	U S West	Mark Lancaster	AT&T
Anne Berman	NYNEX	Jennifer Lynch	SCC
Bernard Brabant	Bell Sygma	Laurie Lyons	Pacific Bell
Marcia Broman	Metro 9-1-1 Board	Carolyn Maddox	Sprint
Sylvia Cadena	Pacific Bell	Bill Marczak	BellSouth
Cher Cederquist	ALLTEL	Kurt Mast	ASCI
Stan Czolowski	NYNEX	Enoch Morris	ALLTEL
Nancy DeRoo	Ameritech	Maryellen Nee	NYNEX
Gary Ekwall	Ameritech	Diane O'Brochta	Southwestern Bell
Patti Fischer	Pacific Bell	David Pattillo	BellSouth
Karen Goldstein	ICG	John Schoppenhorst	GTE
Joseph Gondek	NYNEX	Greg Schiller	NYNEX
Judy Graham	Time Warner Comm.	Thom Selleck	TCG
Anna Hastings	Ameritech	Mary Sharp	SCC
Phil Hollar	MCI	Barb Thornburg	WinStar Telecom { Chairperson }
Beverly Hood	Sprint	Larry Vasquez	AT&T
Pam Horne	Southwestern Bell	Carol Wagner	CCI
Ron Huelsing	Southwestern Bell	Randy West	BellSouth
Rick Jones	Illinois NENA		

2. GENERAL DATA STANDARDS

- 2.1 9-1-1 data for Local Exchange Carriers (LECs) will be integrated into existing Automatic Location Identification / Selective Routing (ALI/SR) systems.
- 2.2 NENA-02-010 NENA Recommended Formats and Protocols for Data Exchange will be met for data exchange, format, content and transmission protocol.
- 2.3 All telephone number records must be Master Street Address Guide (MSAG) valid and meet all components of the recommended Measurements for Data Quality.
- 2.4 New services and features will not degrade the existing quality of the E9-1-1 System.
- 2.5 The LEC is responsible for directing 9-1-1 traffic from each of its end offices to the appropriate 9-1-1 selective router or PSAP as negotiated with the 9-1-1 Service Provider.
- 2.6 All LECs are responsible for network management of their network components in compliance with the Network Reliability Council Recommendations.
- 2.7 All LECs must meet the network standard of the E9-1-1 Service Provider for 9-1-1 call delivery.
- 2.8 The Local Exchange Carrier's numbering plan follows the North American numbering standard.
- 2.9 Date Changes submitted by the LEC will be processed by the ALI Service Provider's system following the recommended Measurements for Data Quality. "Processed" includes being capable of selective routing and PSAP display.
- 2.10 Any changes made to an MSAG i.e., ESN, Street, or Community name change, will be applied to all affected telephone number records within the ALI database.
- 2.11 When existing MSAGs are used to validate LEC telephone number records, the ALI Service Provider will negotiate the provision of a listing of valid street address information to the Local Exchange Carrier.
- 2.12 Addresses not recognized by the local addressing authority will be negotiated between the LEC and the addressing authority for MSAG inclusion.
- 2.13 To meet the needs of Interim Number Portability, service is provided via a Remote Call Forwarding arrangement. The Local Exchange Carriers will send both numbers in the data exchange to the ALI Service Provider for a labeled display at the PSAP. It is further recommended that the label "ALT#" be used for consistent display at the PSAP. The LEC will populate the Remote Call Forwarding number in the NENA-021001 NENA Recommended Formats for Data Exchange reserved field positions:
- Version 1 positions 227-236
 - Version 2 positions 356 through 365
- The ALI Service Provider will attach the label "ALT #" for the ALI display.
- 2.14 The LEC will send the actual ANI from their switch through the network, not the Remote Call Forwarded number.
- 2.15 The Company Identifier field in the NENA-02-010 NENA Recommended Formats for Data Exchange versions 1 and 2 should be used to identify the Local Exchange Carrier. Data in this field should be stored in the ALI database and be available for display at the PSAP. Display of this data should be

controlled by each 9-1-1 district with consideration given to the capability of the PSAP equipment to display the data.

- 2.16 LEC data should be transferred to the ALI Service Provider electronically, following the NENA-02-010 NENA Recommended Protocols for Data Exchange, with attention paid to network security to ensure data reliability.
- 2.17 It is the responsibility of the LEC to notify the ALI Service Provider of new or additional NPA NXX assignments prior to the establishment of 9-1-1 data exchange.
- 2.18 It is recommended that the ALI Service Provider in the area affected by an NPA split, lead and coordinate the 9-1-1 conversion effort. The capability of the ALI Service Provider will dictate the method for converting the ALI database, which may require reloads of telephone number data and/or ALI database conversion. All LECs in the affected area must participate in the planning process to provide lists of their prefixes and agree upon dates for the conversion of their databases and subsequent update requests. The ALI Service Provider should notify the PSAPs as well as coordinate required changes within the E9-1-1 tandem switches.
- 2.19 It is recommended that all LECs allow caller information to be retrieved based upon the ANI generated by the switch as well as the ported number. This will depend upon the capabilities of the ALI Service Provider's software and database where reverse lookups are permitted by regulatory entities.
- 2.20 9-1-1 data included for exchange or storage for ALI retrieval should not include telephone numbers for non-generating dial tone classes of service.
- 2.21 The LEC responsible for establishing telephone service and billing records for the end user is also responsible for providing the ALI data to the ALI Service Provider. Various methods may be employed to update the ALI data base and depend upon agreements between LECs and ALI Service Providers, with attention paid to state legislative requirements.
- 2.22 Periodic reconciliation of the 9-1-1 data base with the originator's data base is recommended as specified in the recommended Measurements for Data Quality.
- 2.23 Confirmation of data transactions from the LEC to the ALI Service Provider will be made available to the LEC. The confirmation will include the information from the populated fields of each specific transaction, the error code(s) if update was not successful, and statistical data of the total number of records received, processed, accepted and rejected.
- 2.24 The ALI Service Provider may provide data base extracts containing LEC telephone number data to PSAPs for inclusion in on-premise ALI databases or LEC address information for inclusion in CAD systems.
- 2.25 The ALI Service Provider shall restrict the usage of LEC data to emergency purposes as mandated by legislation. LEC data shall not be provided to other entities without the written permission of the LEC.

3. ELECTRONIC MAINTENANCE DOCUMENT

NOTE: See Exhibits C - G for screen prints.

- 3.1 It is recommended that the NENA 9-1-1 Data Base Administration Forms software be used to replace existing 9-1-1 manual maintenance forms. This optional software includes forms for MSAG Updates, E9-1-1 ANI/ALI Trouble Resolution Inquiries, and additional

information. *NOTE: It is not the intent of NENA to preempt any existing electronic communication that may exist today from your current Data Base Provider.*

- 3.2 9-1-1 Data Base Management System Providers, Service Providers and Jurisdictions may use the NENA 9-1-1 Database Administration Forms as a standard method for communicating ANI/ALI discrepancies, MSAG changes, and additional information.
- 3.3 This Electronic form provides a consistent means to exchange 9-1-1 data between 9-1-1 Data Base Management System Providers, Service Providers, and Jurisdictions for the purpose of maintaining accurate customer records and MSAG entries.
- 3.4 The Electronic form is a WINDOWS based application (Versions 3.1, 3.11, Win95' & NT are supported). The user screen resembles 3 file tabs. The first 'tab' is a form to enter ANI/ALI Trouble Reports, the second 'tab' is a form to enter MSAG related data and the 3rd 'tab' is a blank page for entering additional information in free form text.
- 3.5 The form can be saved in a file with the extension ".daf" (encrypted data file) or ".txt" (text file). This file may be encrypted for confidential transmission via Internet, modem or floppy disk.
- 3.6 The encrypted file may only be viewed using the NENA 9-1-1 Database Administration Forms software. If a hard copy is required, the records may be printed for filing and/or faxing.
- 3.7 Each record within a file has a system assigned control number and is date/time stamped to assist in tracking the progress of each record.
- 3.8 Each file produced by the software application may contain up to 50 sets of ANI/ALI Trouble Reports and/or MSAG records and/or Additional Information. Attached to each record are the name, address and contact information of the person originating the form and the last referral contact information.
- 3.9 The NENA 9-1-1 Database Administration Form may be obtained free of charge by accessing the NENA home page on the Internet (www.nena9-1-1.org) or may be ordered from NENA at a nominal processing charge.
- 3.10 The same considerations should be given to electronic files as with current paper records; i.e.; retention, security, backups, archiving.

4. 9-1-1 DATA BASE MANAGEMENT SYSTEM PROVIDER RESPONSIBILITIES

- 4.1 As a short-term solution, 9-1-1 Data Base Management System Providers will provide positive electronic confirmation of processing of 9-1-1 Data Management System updates to all Service Providers within one (1) business day. The confirmation will include the entire TN record processed, date and time processed, number of records processed, number of records, which erred, and the actual error records. This can be accomplished with NENA V3. As a long-term solution, Service Providers want confirmation of not only Data Management System updates, but also confirmation of ALI and selective router updates being processed.
- 4.2 9-1-1 Data Base Management System Providers will not correct a Service Provider's telephone number records without the Service Providers written authorization.
- 4.3 9-1-1 Data Base Management System Providers will work Function of Change (FOC) errors with written authorization and return the remaining errors to the appropriate Service Provider in an electronic format. FOC errors are:
 - Record Already Exists, Insert Not Allowed

- Record Does Not Exist for A Change
- Record Does Not Exist for A Delete
- Customer Code Does Not Match
- Unlock Attempted on a Non-existent TN
- Migrate Attempted on a Non-existent TN

- 4.4 9-1-1 Data Base Management System Providers will be responsible for loading ALI systems. Service Providers will not update ALI systems directly.
- 4.5 Where not restricted by local or state laws, it is recommended that 9-1-1 Data Base Management System Providers provide reverse ALI lookup capabilities during an actual 9-1-1 call. Some types of service (multi-party lines, DID lines) do not generate ANI, which in turn will not request an ALI lookup. Manual query capability by the jurisdiction may assist with dispatching emergency services.
- 4.6 When a telephone subscriber disconnects their telephone service, the number should be deleted from the 9-1-1 ALI and data base management system.
- 4.7 It is recommended that 9-1-1 Data Base Management System Providers allow at a minimum 'browse/read only' access for all Service Providers to review their own data.
- 4.8 In order to maintain data base accuracy and update timeliness, 9-1-1 Data Base Management System Providers must forward copies of all MSAG Update Requests, ANI/ALI Trouble Reports, Daily Error Files, No Record Found reports within one (1) business day to all Service Providers.
- 4.9 All Service Providers' TN records should contain a unique COMPANY ID that is officially registered with NENA.

5. RECOMMENDED MINIMUM EDITS FOR SERVICE PROVIDERS

- 5.1 It is recommended that all Service Providers MSAG validate 9-1-1 daily updates.
- 5.2 If a Service Provider is pre-scrubbing their records, they must work closely with the 9-1-1 Data Base Management System Provider and the Jurisdiction in order to maintain a mirror image of the 9-1-1 Data Base Management System Provider's MSAG.
- 5.3 If a Service Provider uses an abbreviation or a postal community name field in their service order system and this is the same data which is being provided to 9-1-1, it is the Service Providers responsibility to transmit the correct spelling of the MSAG community name before sending the record to the 9-1-1 Data Base Management System Provider. If Service Providers do not transmit MSAG valid data to Data Base Management System Providers, records will error and as such will be transmitted back to the Service Provider for correction. This will cause a delay in updating the ALI data base.
- 5.4 Exchange name validation is no longer valid with Service Provider Local Number Portability; therefore, all records must be supplied with a valid MSAG Community Name. Valid MSAG Community Name (used to validate daily updates) is defined as the community name the jurisdiction wants to see displayed for the purpose of dispatching emergency services. If the jurisdiction chooses not to use postal communities as their MSAG Community Name, the Service Provider will need to be advised by the jurisdiction what the valid Postal Community Name is for that particular MSAG range. NENA Version 3 will have two community name fields: MSAG Community Name and Postal Community Name.

5.5 If a Service Provider is reselling services for another Service Provider, the Company ID on the record must be the ID of the dial tone provider, not the billing company. If a jurisdiction encounters any problems with dispatching, they will want the 24-hour trouble number for the dial tone provider. Note: NENA V3 allows for two Company ID's: COMPANY ID 1 is for the dial tone provider and COMPANY ID 2 is for the ALI provider.

5.6 All Service Providers' TN records should contain at a minimum a unique COMPANY ID 1.

5.7 Each Service Provider is responsible for ensuring their customer records are transmitted to the appropriate Data Base Management and/or Selective Routing System Provider. This may entail sending the same updates to multiple providers if one company is providing selective routing and another company is providing ALI lookup.

6. NEW ENHANCED 9-1-1 CONVERSION RECOMMENDATIONS

6.1 At the time the 9-1-1 Data Base Management System Provider enters into an E9-1-1 Contract or signs a Letter Of Agreement with a jurisdiction, the 9-1-1 Data Base Management System Provider is responsible for notifying all Service Providers within that jurisdiction's boundaries of the conversion to a new Enhanced 9-1-1 system. Service Providers include wireless service providers. This will allow all dial tone providers sufficient time to negotiate the appropriate contracts/agreements required for MSAG development and to prepare their customer records for E9-1-1. All customer timelines and commitments must be jointly agreed upon by the 9-1-1 Data Base Management System Provider and all Service Providers. 9-1-1 Data Base Management System Providers may not make commitments for Service Providers.

6.2 Within 30 days of Contract or Letter of Agreement signing, the 9-1-1 Data Base Management System Provider will host a meeting and/or conference call with all Service Providers, the United States Postal Service, and the jurisdiction's address coordinator and/or address vendor to discuss conversion requirements and procedures.

6.3 The 9-1-1 Data Base Management System Provider and each Service Provider will provide their Street Address Guide (SAG), if available, at the time of the conversion meeting/call in order to develop an initial MSAG.

6.4 Actual telephone customer service records should not be used to create an MSAG in order that all records will validate to ALI. Actual telephone records may be used to create a preliminary SAG; however, the initial load of these TN records into the 9-1-1 Data Base Management System should NOT occur until the final MSAG is approved by the jurisdiction.

6.5 It is recommended that city style, {911 Dispatch Lane, 911911 Highway 11 } United States Postal Service approved addressing be adhered to. United States Postal Service Publication 28 is the recommended standard and is available through the National Address Information Center in Memphis, TN, at 1-800-238-3150.

6.6 It is recommended that the jurisdiction coordinate addressing standards with the United States Postal Service to ensure accurate and common addressing.

6.7 It is recommended that jurisdictions, data base management system providers, and service providers have a 98% data base accuracy (MSAG valid ALI records) prior to taking 'LIVE' Enhanced 9-1-1 calls.

6.8 During conversion each Service Provider will work directly with the jurisdiction to obtain MSAG valid readdressing for their telephone service records.

- 6.9 The use of fictitious addresses or “NO ADDRESS” is not recommended.
- 6.10 The jurisdiction’s authorized 9-1-1 Data Base Coordinator is the only entity allowed to approve changes to the MSAG. No 9-1-1 Data Base Management System Provider or Service Provider may make MSAG changes without written authorization from the jurisdiction except for internal telco type fields such as county code and exchange code.
- 6.11 It is recommended that the jurisdiction work with the appropriate Service Provider to gather each resident’s name, telephone number, old address and new address in those areas being readdressed for Enhanced 9-1-1. The key inquiry field in most service order systems is telephone number. Depending on State Legislation and/or Public Service Commission regulations, a telephone company may be able to assist the jurisdiction during the initial conversion process by providing a customer listing.

7. GOVERNMENT ENTITIES RESPONSIBILITIES (RESERVED)

8. STANDARDS FOR ERROR RESOLUTION PROCESS

- 8.1 9-1-1 Data Base Management System Providers will work Function of Change (FOC) errors with written authorization and return the remaining errors to the appropriate Service Provider in an electronic format. FOC errors are:
- Record Already Exists, Insert Not Allowed
 - Record Does Not Exist for A Change
 - Record Does Not Exist for A Delete
 - Customer Code Does Not Match
 - Unlock Attempted on a Non-existent TN
 - Migrate Attempted on a Non-existent TN
- 8.2 Each Service Provider is responsible for resolving their own errors by working directly with the jurisdiction.
- 8.3 If an MSAG Update is required to correct an error, the jurisdiction will send an MSAG Update form to their 9-1-1 Data Base Management System Provider and ALL Service Providers.
- NOTE: By using the NENA 9-1-1 Data Base Administration Forms software provided on the Internet, a jurisdiction will be able to Email all Service Providers and the 9-1-1 Data Base Management System Provider at one time. This will allow all parties requiring the information to receive it at the same time.
- 8.4 After receiving confirmation of the MSAG change from the 9-1-1 Data Base Management System Provider, the appropriate Service Provider(s) will issue correcting service orders which will flow to the 9-1-1 Data Provider in the daily update process.
- 8.5 In an effort to maintain the integrity of the 9-1-1 data bases and to provide accurate ALI bids, it is recommended that jurisdictions resolve errors within one (1) business day of notification.

9. ANI/ALI TROUBLE REPORTING PROCESS

- 9.1 All ANI/ALI Trouble Reports are to be sent to the 9-1-1 Data Base Management System Provider.

- 9.2 The 9-1-1 Data Base Management System Provider will determine if there are any data base or selective routing problems on their end prior to forwarding the trouble report to the appropriate Service Provider.
- 9.3 Within one (1) business day, the 9-1-1 Data Base Management System Provider will forward all ANI/ALI Trouble Reports to the appropriate Service Provider indicating whether or not trouble was found on their end or if the Service Provider needs to also check their equipment and systems.
- 9.4 The Service Provider will have one (1) business day to resolve the ANI/ALI Trouble Report and return it to the 9-1-1 Data Base Management System Provider. Upon receipt, the 9-1-1 Data Base Management System Provider will return a completion notification to the originator.
- 9.5 Refer to Exhibit A for Process Flow.

10. MSAG MODIFICATION PROCESS FLOW

- 10.1 The jurisdiction's authorized 9-1-1 Data Base Coordinator is the only entity allowed to approve changes to the MSAG. No 9-1-1 Data Base Management System Provider or Service Provider may make MSAG changes without written authorization from the jurisdiction except for internal telco type fields such as county code and exchange code.
- 10.2 All Service Providers will obtain an initial complete MSAG via the negotiated medium (CD-ROM, file transfer, diskette, Email, paper) from the 9-1-1 Data Base Management System Provider per the negotiated contracts. As jurisdictions request changes to their MSAG, the 9-1-1 Data Base Management System Provider must forward a copy of the request to all Service Providers within one (1) business day. This is necessary to ensure all subscriber records contain MSAG valid addresses.
- 10.3 If a jurisdiction is requesting an MSAG range deleted and there are TN records attached to the MSAG, it is recommended that the Data Base Management System Provider print the associated TN's and return to the Jurisdiction Data Base Manager prior to making any MSAG changes.
- 10.4 Refer to Exhibit B for Process Flow.

11. NO RECORD FOUND REPORTS

- 11.1 The 9-1-1 Data Base Management System Provider will provide centralized/regional ALI systems' "No Record Found Reports" to the appropriate Service Provider on a daily basis.
- 11.2 It is recommended that Service Providers generate a service order update back to the Data Base Management System Provider within one (1) business day, if appropriate. Service Providers must send back an explanation within one (1) business day as to whether the record was updated or the NRF was a type of service that could not be fixed; i.e.; Express Dial Tone Service, Quick Connect Service, call from illegal service, etc.

12. RECOMMENDED STANDARD ERROR CODES

<u>Group</u>	<u>Error Code</u>	<u>Description</u>
Data Errors	100	Illegal Class of Service
	101	Illegal Type of Service
	102	Illegal Function Code
	103	Not MSAG Valid

104 House Number Not Valid [if DMS/DBMS capable]
105 Street Name Not Valid [if DMS/DBMS capable]
106 Directional Not Valid [if DMS/DBMS capable]
107 Community Name Not Valid [if DMS/DBMS capable]
108 Exchange Matching Failed

Functional Errors

200 Record Already Exists, Insert Not Allowed
201 Record Does Not Exist for A Change
202 Record Does Not Exist for A Delete
203 Customer Code Does Not Match
204 Unlock Attempted on a Non-existent TN
205 Migrate Attempted on a Non-existent TN

Portability Errors

300 Unlock Attempted on an Unlocked TN (different Company ID)
301 Migrate Attempted on a Locked TN
302 Insert Attempted on a TN that is Unlocked
303 Change Attempted on a TN that is Unlocked
304 Delete Attempted on a TN that is Unlocked
305 Company ID's Do Not Match on a Change or Delete
306 Company ID's Do Not Match on Unlock

13. RECOMMENDED STANDARD FUNCTION CODES

- 13.1 I - Insert telephone record.
- 13.2 C - Change telephone record requires Company ID field to match.
- 13.3 D - Delete telephone record requires Company ID field to match.
- 13.4 U - Unlock telephone record transaction sent by the Donor Company. This will make the telephone number available for the Recipient Company to overwrite the embedded telephone number record. The "U" function code requires a match on the company-id.
- 13.5 M - Migration transaction sent by the Recipient Company. This transaction requires an "unlocked" record in the 9-1-1 data base and will replace the customer information and the Company ID on the "unlocked" record. The "M" function code does not require a match of Company ID. If there is not a "U" record with the same telephone number in the 9-1-1 ALI data base the "M" transaction will be treated as an error with a unique error code or a unique process.

NOTE: It is recommended that a complete record be sent.

14. METHOD OF COMMUNICATING

- 14.1 It is recommended that Service Providers transmit initial loads, daily updates, error files, MSAG updates, complete MSAG's, and 9-1-1 inquiries in a mechanized electronic format.
- 14.2 All TN records {9-1-1 Data Base Management System Provider and Service Providers} will contain an entry in the Company ID field which is officially registered with NENA.

15. NEW NXX NOTIFICATION

Most Service Providers have an internal procedure for adding new NXX's. As long as there are new NPA/NXX assignments being made and due to the critical nature of 9-1-1 service, it is recommended that each Service Provider notify in writing the 9-1-1 Data Base Management System Provider and the jurisdiction when a new NXX is being added in an exchange. It is also necessary that a default PSAP and ESN be identified for each new NXX or new incoming trunk group in order that the selective router/tandem can be updated. It is further recommended that the following information be provided:

- * NEW NXX
- * NPA
- * EXCHANGE NAME/RATE CENTER
- * EXCHANGE (4 character abbr. in MSAG) [ALEC'S MAY NOT USE]

16. NPA SPLIT NOTIFICATION

Most Service Providers have an internal procedure for working NPA splits. However, due to the critical nature of 9-1-1 service, it is recommended that each Local Service Provider notify in writing the 9-1-1 Data Base Management System Provider and the jurisdiction when an NPA split is occurring. It is further recommended that the following information be provided:

- * OLD NPA
- * NEW NPA
- * NXX
- * EXCHANGE NAME/RATE CENTER

- * EXCHANGE (4 character abbr. in MSAG) [ALEC'S MAY NOT USE]
- * DATE BILLING SYSTEM WILL START TRANSMITTING NEW NPA
- * DATE OF ANI (SWITCH) CONVERSION
- * DATE OF PERMISSIVE DIALING
- * DATE OF MANDATORY DIALING

The following 9-1-1 data bases may need to be updated:

- Automatic Location Identification (ALI)
- Selective Routers/Tandems
- PSAP Equipment

NPA splits must be a coordinated effort between the 9-1-1 Data Base Management System Provider and all Service Providers. When the 9-1-1 Data Base Management System Provider has been notified of an NPA split it is recommended that they assume coordination responsibilities for updating all affected 9-1-1 data bases under their control.

17. RECOMMENDED GUIDELINES FOR ALI RETRIEVAL CONDITIONS

Retrieval Conditions for ALI Database Records: A 9-1-1 Jurisdiction may retrieve or otherwise have access to an ALI record under the following conditions:

1. An automatic retrieval and display may be made to a telecommunicator (i.e., jurisdiction call taker or dispatcher) when that telecommunicator answers a 9-1-1 call. This provisioning meets the Electronic Communications Privacy Act of 1986 (ECPA) in that by placing a 9-1-1 call, the caller is granting permission for its telephone company to disclose the information to a government agency.
2. Where not restricted by local laws, a telecommunicator is authorized to manually retrieve a caller's ALI on the basis of the caller providing the caller's telephone number (ANI). This permission is granted because a call may arrive without the ANI or the caller may be calling from a neighbor's phone, for example, to report a fire at the caller's location which is in a different fire district than the neighbor's location. This meets the ECPA requirement in that the caller is granting permission.
3. A Jurisdiction's administrator may retrieve an ALI record to insert information received from the subscriber into the "Comments" field of the record. Because the subscriber is requesting the entry, permission is given, meeting the ECPA requirements. The Jurisdiction administrator is prohibited from disclosing this information to any other person.

The following information is shown as an explanation of the impact of ECPA (Electronic Communications Privacy Act).

Confidential Nature of the ALI Database -----

1. Legal basis for confidential nature:

While the ALI database is specifically created for use by a 9-1-1 jurisdiction, it contains confidential telephone company information that may not be disclosed except under conditions that meet the requirements of the Electronic Communications Privacy Act 1986 (ECPA), 18 USC [section symbol] 2701, et sequens. ECPA prohibits regulated telecommunications companies from disclosing to government agencies customer record information without either the customer's permission or a legal mandate. In particular, 18 USC [section symbol] 2703(c) provides regulated disclosure of "a record or other information pertaining to a subscriber to or customer of such service not including the contents of communications covered by subsection (a) or (b) of this section...." Subparagraph (c)(1)(B) permits disclosure to a governmental agency only with (i) subpoena,

(ii) warrant, (iii) court order, or (iv) "consent of the subscriber or customer to such disclosure." The name, address and phone number of a customer constitute a "record or other information pertaining to a ...customer" as used in [section symbol] 2703(c).

2. Application of ECPA to ALI database

The key aspect of EPCA is "disclosure," whereby if the 9-1-1 jurisdiction already has a subscriber's name, telephone number and address information via the published white pages of a telephone directory or other source, the confidentiality requirement listed above does not apply. Similarly, once a person has called 9-1-1 and previously confidential information is provided to the 9-1-1 district as a result of that call, the telephone company has no confidentiality requirement for that information regarding that governmental entity as it has been disclosed by the caller. The confidentiality requirement of the ALI database pertains to the nonlisted telephone address, which the customer has requested that the telephone company neither publish in a directory nor disclose upon being asked for that information. Because that confidential information is a part of the ALI database, the ALI database itself must be handled as if it were completely confidential.

18. MEASUREMENTS FOR DATA QUALITY

18.1 **ALI Records** - The number of working subscriber records available to be retrieved as a result of a 9-1-1 call.

Responsibility: ALI Service Provider

Background Logic: "Working subscriber records" should not include disconnected records or subscribers that have moved beyond the 911 service area.

18.2 **ALI Call Retrievals** - The number of requests for ALI that are not duplicated within a two (2) minute time frame.

Responsibility: ALI Service Provider

Background Logic: This means that if a Call Retrieval came in at 8:00 A.M. and another came in at 8:01 A.M. on the same telephone number, it would only count as one Call Retrieval. If a retrieval came in at 8:00 A.M. and another at 8:02 A.M. on the same telephone number, two Call Retrievals would be counted.

18.3 **ALI Customer Retrievals** - The number of requests for ALI that are not duplicated within a twenty-four (24) hour time frame.

Responsibility: ALI Service Provider

Background Logic: If a call came in at 9:00 P.M. and another call from the same telephone number came in at 10:00 A.M. the next day, only one Customer Retrieval would be counted.

ALI Retrieval Background Logic: The ALI Retrievals are broken into two (2) separate elements in order to establish a relationship for the quality of the Retrievals as well as a measurement of the quality of the overall customer data base. The number of opportunities that the data base has to provide a response to a customer call about a single incident is different than the number of retrievals that is made from the data base since it is possible for multiple retrievals to be generated by hitting the "repeat ALI" button or transferring the call to another answering point. A "data base opportunity" is a retrieval from the data base that is not duplicated within a twenty-four (24) hour period. The intent of the Customer Retrievals is to measure incidents/opportunities. The twenty-four (24) hour interval

would align more to the quality of the data base in that the error most likely would align to the number of actual calls received.

- 18.4 **Customer Records Processed** - The number of telephone number records from the participating data provider that should be loaded into the data base. This number includes those records accepted by the data base as well as those written to error files.

Responsibility: ALI Service Provider

- 18.5 **Total Unresolved Discrepancies** - At the time of the Public Service Conversion and monthly thereafter, how many telephone number record discrepancies have not been resolved.

Responsibility: ALI Service Provider

Background Logic: The discrepancy could be on the telephone subscriber record, or on the MSAG.

Data Element Relationship:

$$\frac{\text{Total Unresolved Discrepancies}}{\text{Total ALI Records in Data Base}} = \text{Percentage of Unresolved Discrepancies}$$

- 18.5a **MSAG Related Discrepancies** - A count of the telephone number records not accepted by the initial data base load process or the service order update process in which the telephone number record address does not match the MSAG, as defined by the official addressing authority.

Responsibility: ALI Service Provider

Background Logic: Both the MSAG and the subscriber telephone records should contain addresses defined by the official addressing authority.

Data Element Relationship:

$$\frac{\text{Total MSAG Related Discrepancies}}{\text{Total Telephone Number Records Processed}} = \text{Percentage of MSAG Related Discrepancies}$$

- 18.5b **Non-MSAG Related Discrepancies** - A count of the telephone number records not accepted by the initial data base load process or the service order update process in which the telephone number record does not match system edits.

Responsibility: ALI Service Provider

Data Element Relationship:

$$\frac{\text{Total Non-MSAG Related Discrepancies}}{\text{Total Telephone Number Records Processed}} = \text{Percentage of Non-MSAG Related Discrepancies}$$

- 18.6 **Call No Record Found** - An ALI record not found for the telephone number sent to the PSAP and not duplicated within a two (2) minute time frame.

Responsibility: PSAP and ALI Service Provider

Background Logic: (See ALI Call Retrievals)

Data Element Relationship:

$$\frac{\text{Total Call NRF's}}{\text{Total ALI Call Retrievals}} = \text{Percentage of Call No Record Found}$$

- 18.7 **Customer No Record Found** - An ALI record not found for the telephone number sent to the PSAP and not duplicated within a twenty-four (24) hour time frame.

Responsibility: PSAP and ALI Service Provider

Background Logic: (The same logic that was used for ALI Call Retrievals and ALI Customer Retrievals was used.)

Data Element Relationship:

$$\frac{\text{Total Customer NRF's}}{\text{Total ALI Customer Retrievals}} = \text{Percentage of Customer No Record Found}$$

- 18.8 **MSAG Related Discrepancy Resolution Days** - The number of days that transpire from the date that the discrepancy occurs to the date that the discrepancy is resolved in the ALI and Selective Routing (SR) data bases.

Responsibility: ALI Service Provider

Background Logic: If the fallout occurs today and is resolved tomorrow, it is counted as one day. Measurement for a partial day may be indicated in "tenths" of a day where the capability exists to measure in these increments.

Data Element Relationship:

$$\frac{\text{Total MSAG Discrepancy Resolution Days}}{\text{Total MSAG Address Related Discrepancy}} = \text{Average Days Required to Resolve Discrepancy}$$

- 18.9 **Service Order Update Completion Days** - The number of days from the day the subscribers' order is completed to the date the subscriber information appears in the ALI and SR data bases.

Responsibility: ALI Service Provider and Local Exchange Carrier

Data Element Relationship:

$$\frac{\text{Total Service Order Update Completion Days}}{\text{Total Subscriber Records Processed}} = \text{Average Days Required to Update ALI}$$

- 18.10 **NRF Resolution Days** - The number of days from the date of the NRF to the date the NRF is resolved and the record is valid in the ALI and SR data bases.

Responsibility: ALI Service Provider

Data Element Relationship:

$$\frac{\text{Total NRF Resolution Days}}{\text{Total Number of resolved NRFs}} = \text{Average Time to Correct an NRF Condition}$$

- 18.11 **MSAG Update Completion Days** - The number of days which pass from the date the MSAG change was initiated by the 9-1-1 PSAP to the date the service provider completes the change into the MSAG data base, the MSAG data is available for query and the ALI and SR data bases are updated if applicable.

Responsibility: ALI Service Provider and PSAP

Data Element Relationship:

$$\frac{\text{Total MSAG Update Completion Days}}{\text{Total Number of MSAG Changes}} = \text{Average Days to Complete MSAG Changes}$$

- 18.12 **Total Response Days** - The number of days from the date the service provider initiates the request (e.g., MSAG change, mismatch or address discrepancy) to the date the service provider receives the information back from the PSAP and updates the MSAG and/or ALI and SR data bases.

Responsibility: ALI Service Provider and PSAP

Data Element Relationship:

$$\frac{\text{Total Number of Days to Resolution}}{\text{Total Number of Resolutions}} = \text{Average Number of Days To Resolution}$$

- 18.12a **PSAP Response Days** - The number of days from the date the service provider initiates a request to the date the PSAP supplies the information to the service provider.

Responsibility: ALI Service Provider

Data Element Relationship:

$$\frac{\text{Total Number of Days of Response}}{\text{Total Requests}} = \text{Average Number of Days To Response}$$

- 18.12b **Service Provider Response Days *** - The number of days from the date the service provider receives the PSAP response to the date the service provider accurately updates the MSAG and/or ALI and SR data bases.

Responsibility: ALI Service Provider

* Multiple participating data providers and other factors can affect the total number of response days. Where multiple service providers are involved, additional measurement intervals should be considered.

Data Element Relationship:

$$\frac{\text{Total Number of Days of Response}}{\text{Total Requests}} = \text{Average Number of Days To Update}$$

- 18.13 **Total Inquiry Completion Days** - The number of days from the date that an inquiry situation occurred to the date that the inquiry situation is resolved and the PSAP is notified of the resolution of the inquiry situation.

Responsibility: PSAP

Data Element Relationship:

$$\frac{\text{Total Number of Days Elapsed}}{\text{Total Number of Days}} = \text{Average Number of Days Elapsed}$$

- 18.13a **PSAP Notification Days** - The number of days from the date that an inquiry situation occurred (ALI failure, ANI failure, wrong display of information) until the date the service provider is notified.

Responsibility: ALI Service Provider

Data Element Relationship:

$$\frac{\text{Total Number of Days to Notify}}{\text{Total Number of Days}} = \text{Average Number of Days To Notify}$$

Total Notifications

- 18.13b **Service Provider Inquiry Response Days** - The number of days from the date the service provider is notified of a request for inquiry resolution to the date the inquiry situation is resolved.

Responsibility: ALI Service Provider

Data Element Relationship:

$$\frac{\text{Total Number of Days to Resolution}}{\text{Total Requests}} = \text{Average Number of Days To Resolution}$$

- 18.14 **Receive ALI Accuracy** - A measure of the accuracy of the ALI information received at the PSAP.

Responsibility: PSAP

Data Element Relationship:

$$\frac{\text{Total Incorrect ALI Retrievals}}{\text{Total ALI Call Retrievals}} = \text{Percentage of Incorrect ALI Call Retrievals}$$

- 18.15 **Percentage of Misrouted Calls** - 9-1-1 calls that are incorrectly routed to a PSAP that are not due to alternate or default routing conditions.

Responsibility: ALI Service Provider or PSAP

Data Element Relationship:

$$\frac{\text{Total Misrouted Calls}}{\text{Total ALI Call Retrievals Received}} = \text{Percentage of Misrouted Calls}$$

- 18.16 **Data Base Synchronization**

- A. Percentage synchronization between ALI and source data bases. (Recommended time period between data base comparisons is annually.)

Responsibility: ALI Service Provider and Local Exchange Carrier

- B. Percentage synchronization between SR/Tandem and ALI data bases. (Recommended time period between data base comparisons is annually.)

Responsibility: ALI Service Provider and Local Exchange Carrier

19. **RECOMMENDATIONS FOR AUDITS/RECONCILIATIONS (RESERVED)**

20. STANDARDS FOR INTERIM NUMBER PORTABILITY

- 20.1 In a geographic area where Interim Number Portability (INP) is used, when a customer wants to change his local service provider and also wants to keep his telephone number, service is provided via a Remote Call Forwarding (RCF) arrangement. RCF allows the donor Local Exchange Carrier (LEC) to permanently forward the customer's telephone number to the telephone number assigned by the recipient LEC. The customer can continue to use the telephone number he's familiar with, when in reality another telephone number is actually giving him dial tone.

The recipient LEC will send an insert (I) function code transaction record to the Data Base Management System (DBMS) for the new telephone number they have assigned, because that is the telephone number that will now ANI. The recipient LEC will include in that transaction record the donor LEC telephone number that is being forwarded. That donor LEC number should be displayed at the PSAP with the label "ALT#". The recipient LEC will populate that forwarded donor LEC number in the NENA 02-010 Recommended Formats and Protocols for Data Exchange reserved field positions:

- Version 1 positions 227-236
- Version 2 positions 356-365
- Version 2.1 positions 377-386
- Version 3 Label, ALT

The DBMS System Provider will attach the label "ALT#" for the ALI display.

- 20.2 The recipient LEC will send the actual ANI from their switch through the network, not the RCF number.
- 20.3 It is recommended that the donor LEC in an INP process send a disconnect (D) function code transaction record update to the DBMS System Provider upon completion of implementation of INP to the recipient LEC.

21. INTERIM NUMBER PORTABILITY (INP) TO LOCAL NUMBER PORTABILITY (LNP) CONVERSION STANDARDS

- 21.1 It is expected that cooperative efforts occur between Local Exchange Carriers (LEC's) to successfully manage the INP to LNP conversion process.
- 21.2 Each LEC providing portability must identify and maintain 9-1-1 LNP "points-of-contact" within their company. These contacts must be communicated to interconnecting carriers.
- 21.3 The recipient LEC would send an insert (I) function code transaction record to the Data Base Management System (DBMS) Provider on the donor LEC's LNP ported number prior to the start of the INP to LNP conversion.

- 21.4 The recipient LEC would send a disconnect (D) function code transaction record to the DBMS Provider on the telephone number assigned by the recipient LEC after the INP to LNP conversion is completed. *(Caution: If the subscriber chooses to retain the telephone number assigned by the recipient LEC as a stand alone number, the recipient LEC must work to maintain the integrity of the ALI data base by deleting reference to the INP number in the ALI record through issuing a change (C) function code transaction record instead of a disconnect (D) function code transaction.)*

22. STANDARDS FOR LOCAL NUMBER PORTABILITY

- 22.1 Allow any certified company to send end user telephone number records to the appropriate Data Base Management System (DBMS) Provider for any valid NPA-NXX that has access to 9-1-1.
- 22.2 Adopt the use of the Company ID on all transactions and include on all embedded telephone number records in the 9-1-1 data base. The telephone number and Company ID relationship will remain the same until the record is unlocked and migrated or completely disconnected.
- 22.3 The DBMS Provider and Local Exchange Carrier (LEC) must work together to modify the embedded telephone numbers to include the 3-5 character Company ID as referenced in the document “*NENA Company ID Registration Service*” available through the NENA National office.
- 22.4 In an LNP environment using the Location Routing Number (LRN) managed by a Number Portability Administration Center – Service Management System (NPAC-SMS), the recipient LEC upon request to port a telephone number, must notify the donor LEC using the industry recommended Local Service Request (LSR) form. This will allow the creation by the donor LEC of an unlock (U) or delete (D) function code transaction record based upon the Firm Order Confirmation (FOC) provided by the donor Company.
- 22.5 Create two (2) additional function codes for *NENA-02-001, NENA Recommended Formats for Data Exchange* to assure data integrity:
- U -Unlock function transaction record sent by the donor LEC. This will make the telephone number available for the recipient LEC to overwrite the embedded telephone number record. The “U” function code requires a match of Company ID.
- M -Inward (migration) function transaction record sent by the recipient LEC. This transaction requires an “unlocked” record in the 9-1-1 data base and will replace the customer information and the Company ID on the "unlocked" record. The “M” function code does not require a match of Company ID.
- 22.6 When the subscriber location and DBMS remain the same, the ported out telephone numbers should remain in the 9-1-1 data base for ALI retrieval until the migration (M) function code transaction from the recipient LEC successfully updates the record. This supports the expectation of uninterrupted 9-1-1 service.
- 22.7 The recipient LEC will send a complete telephone number transaction record to migrate the end user's service, not just the telephone number and Company ID.
- 22.8 It is recommended that the DBMS Provider change a record with a migrate (M) function code to an insert (I) function code when there is no existing unlocked (U) telephone number record in the ALI data base to be migrated for the telephone number being ported.

- 22.9 When a customer ports a telephone number and moves at the same time, the affected LEC's will provide the following information:
- The donor LEC will provide a delete (D) function code transaction record if the EUMI field on the LSR is "Yes"
 - The recipient LEC will provide a migrate (M) function code transaction record to the DBMS
 - The DBMS Provider will change the recipient LEC's migrate (M) function code transaction record to an insert (I) function code transaction record and process the record.
- 22.10 The following edits for the C and D function codes in the *NENA-02-001, NENA Recommended Formats for Data Exchange* for transactions are in addition to any existing edits:
- C -create error conditions if Company ID does not match between the embedded telephone number record in the 9-1-1 data base and an update transaction record.
- D -create error conditions if Company ID does not match between the embedded telephone number record in the 9-1-1 data base and the delete transaction record.
- 22.11 The service orders should be completed on the date (completion date) the porting activities occur. It is recommended that upon order completion, the unlock (U) function code transaction record will be sent by the donor LEC and the migrate (M) function code transaction record will be sent by the recipient LEC to the DBMS Provider.
- Create a unique informational message code if a migrate (M) function code transaction record is processed and the corresponding embedded data base record remains locked.
- Create a unique informational message code if a migrate (M) function code transaction record is attempting to process and the corresponding embedded data base record is locked with the recipient LEC Company ID.
- Create a unique error condition code identifying when a migrate (M) function code transaction record reprocessing fails in the attempt to update the 9-1-1 data base.
- 22.12 The DBMS Provider must notify the recipient LEC whenever a migrate (M) function code transaction record is not successfully processed. This can be done as part of the normal reporting process. The DBMS Provider should make every effort where technically feasible to minimize error reporting to the recipient LEC when a migrate (M) function code transaction record is received before the corresponding unlock (U) function code transaction record.
- The DBMS Provider will reprocess all migrate (M) function code transaction records that did not successfully process because the record is still locked, a minimum of one additional time in one additional business day. Migrate (M) function code transaction records needing to be reprocessed by the DBMS will generate an informational error. If the final migrate (M) function code transaction update attempt fails; the transaction will be treated as an error. Pursuant to local regulations, it is recommended that the Company ID of the locked telephone number record in the DBMS be identified in the error record.
- 22.13 The DBMS Provider should make an exception report(s) available on a daily basis to the donor LEC if their embedded telephone number records are in an unlocked state.
- (Note: The NENA LNP Study group identified that more time and analysis are required to recommend a best practice as to how to handle orphaned unlocked records left in the 9-1-1 ALI data base.)*

- 22.14 It is expected that cooperative efforts occur between Service Providers to resolve all error conditions in a timely manner. Each LEC must assure that all internal LNP processes have been completed and the telephone number is actually ported, prior to calling the other LEC for assistance.
- 22.15 Each LEC providing portability must identify and maintain 9-1-1 LNP “points-of-contact” within their company. These contacts must be communicated to interconnecting carriers and DBMS providers.
- 22.16 Each LEC should investigate if the possibility of record movement between DBMS's exists within their service areas and make provisions for dealing with the situation should it arise.
- 22.17 It is recommended that each affected LEC identify what causes missing or delayed unlock (U) or migrate (M) function code transaction records to occur and resolve the record conditions within their company.
- 22.18 The donor LEC shall be responsible for identification and referral to the recipient LEC of all records unlocked (U) by their company that have not been migrated within 7 business days. Written notification should be sent to the recipient LEC with potential escalation to the appropriate regulatory authorities.
- 22.19 The recipient LEC shall be responsible for successful resolution of all migrated (M) function code transaction records produced by their company which have not processed due to the unlock (U) function code transaction record not being generated by the donor LEC. Written notification should be sent to the donor LEC with potential escalation to the appropriate regulatory authorities.
- 22.20 The DBMS administrator shall never re-lock a record previously unlocked by a donor LEC. The donor LEC can re-lock its own unlocked records, only if it is determined that the end-user is still a customer of the donor LEC. If the donor LEC relocks the embedded record the migrate (M) function code transaction record should be used.
- 22.21 Any ALI records associated with Direct Outward Dialing (DOD) numbers that cannot receive callbacks should include a clear reference to a valid inward number at the same location.
- 22.22 The donor LEC shall ensure the integrity of any block of numbers, remaining under its control, and were previously associated to a porting out Pilot Telephone Number.

23. STANDARDS FOR CONTAMINATED NUMBER POOLING

- 23.1 If a decision is made to return an NPA/NXX number block to the number pool administrator, steps should be taken to insure that the integrity of the 9-1-1 ALI data base is upheld.
- 23.2 The internal company service order to port the number back to its own switch does not need to, and **should not**, generate any update to the DBMS data base. The Telephone Number record in the ALI data base should remain exactly the same since the customer name, address, telephone number remains the same and the same Company ID remains on the record. Therefore, LEC's must be cautious to ensure that no update is sent to the DBMS unless otherwise advised.

24. STANDARDS FOR INCLUDING THE 24 X 7 TELEPHONE COMPANY CONTACT NUMBER WITH THE ALI RESPONSE MESSAGE (RESERVED)

EXHIBIT A -- ANI/ALI TROUBLE REPORTING PROCESS FLOW

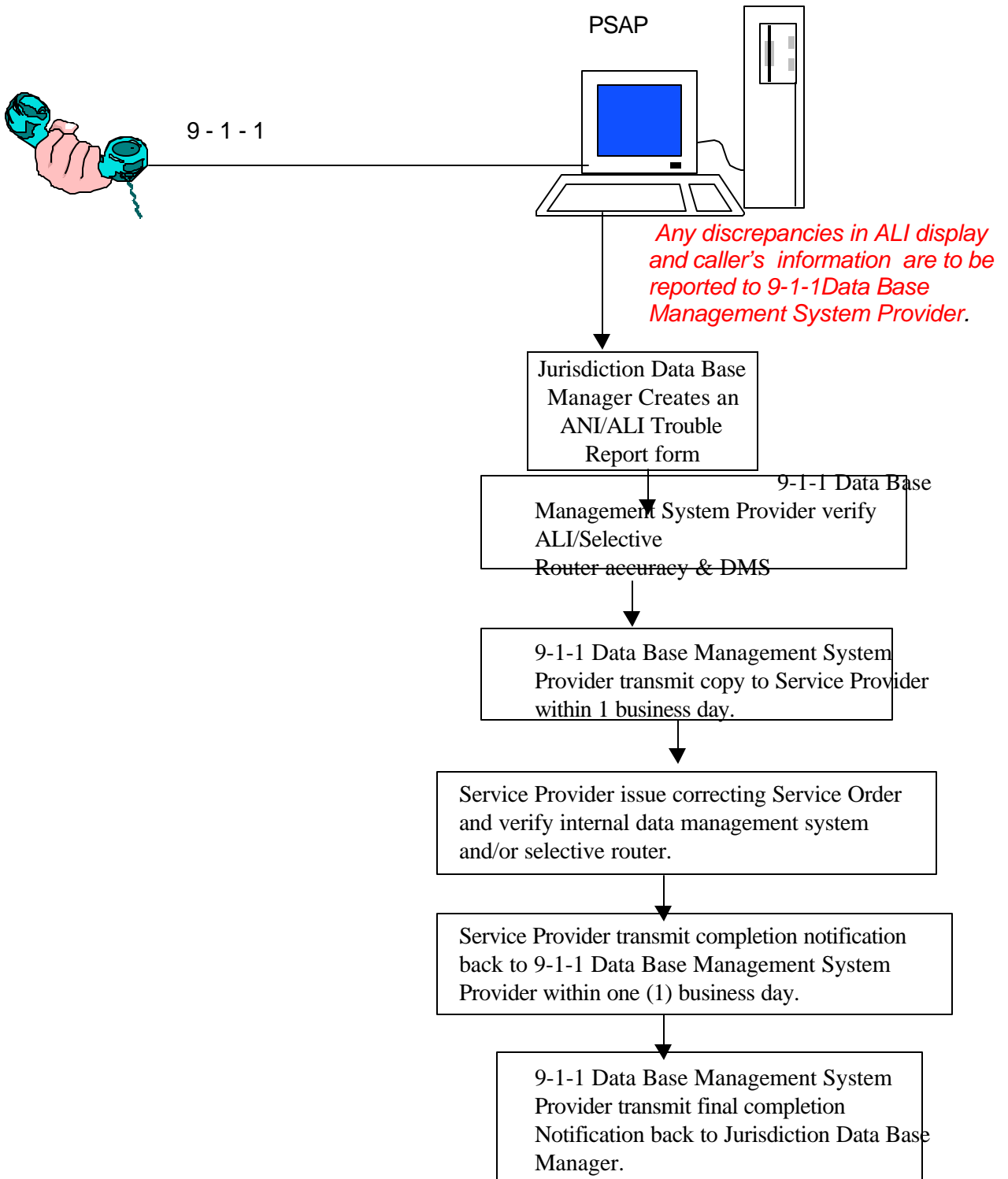
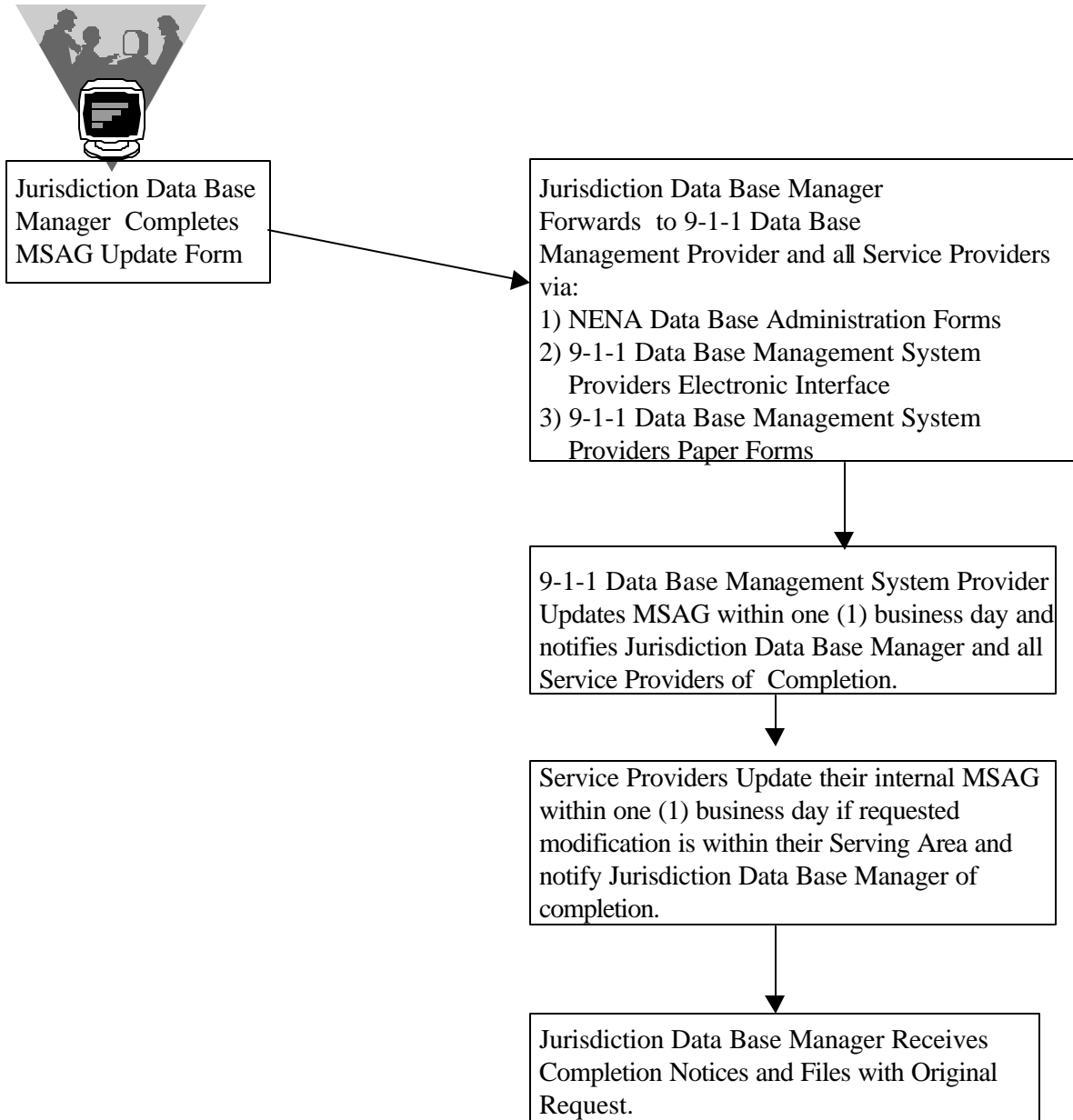
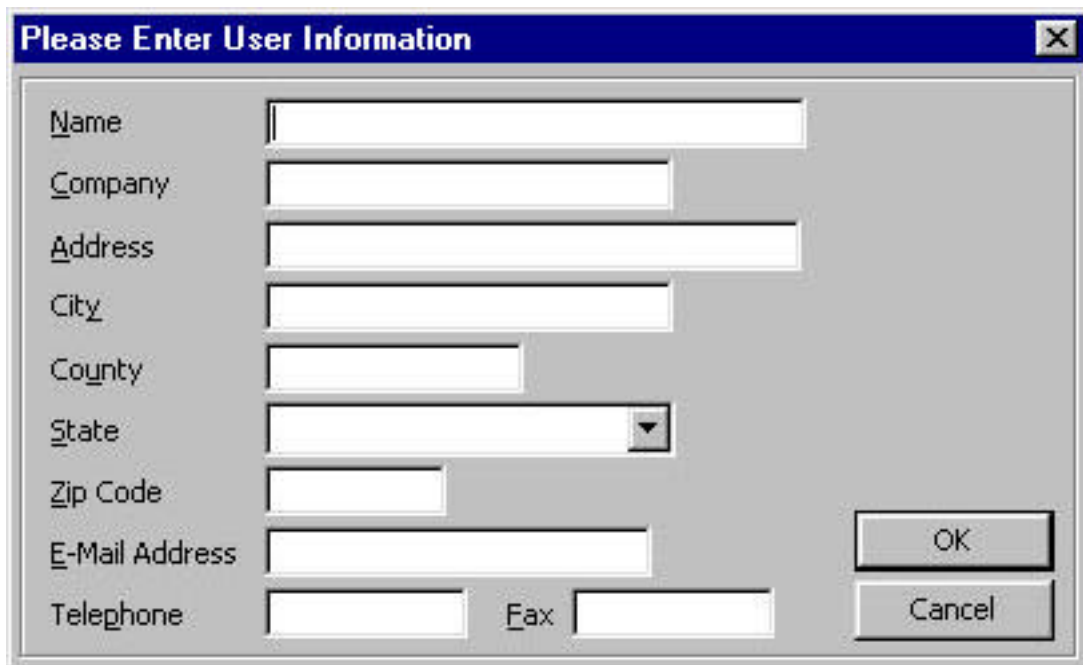
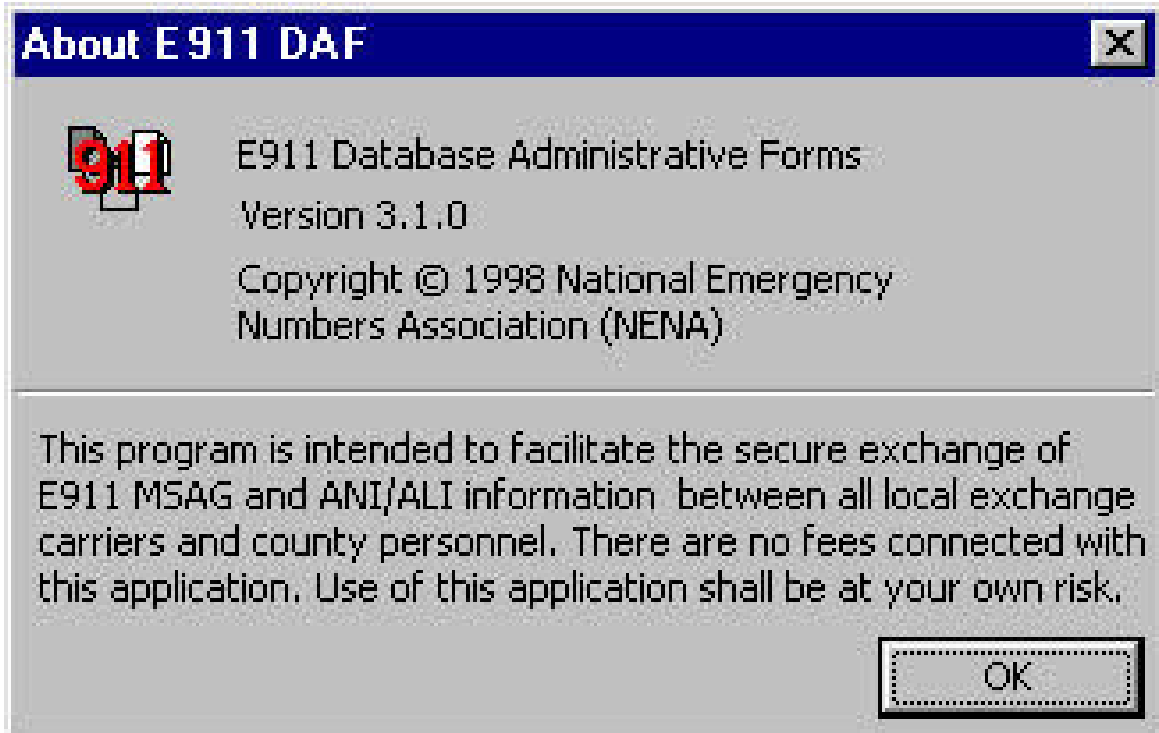


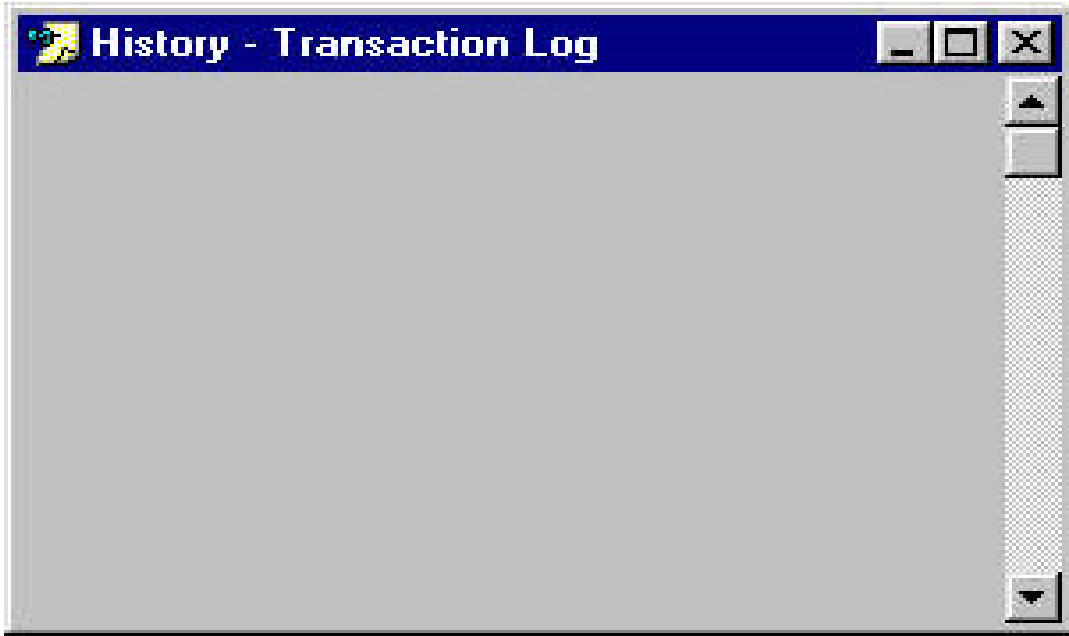
EXHIBIT B -- MSAG MODIFICATION PROCESS FLOW



NOTE: Should either the 9-1-1 Data Base Management System Provider or any Service Provider have any concerns about the request, they will attempt to resolve the concern among themselves before going to the Jurisdiction Data Base Manager.







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File Edit Tools Help

ANI / ALI Form MSAG Update Form Additional Information

Created 06/09/1998 16:19
Received
Corrected
Forwarded

Customer Name ESN Number Company ID Missing
 House Number County ID No Record Found
 Address See Additional Info. Mis Route
 Location Info. ANI Failure

Initial Call Company ID Answer PSAP True PSAP

ALI Screen Display

Telephone #
Customer Name
House Number
Address
MSAG Comm
Location Info.
ESN Number County ID State

Correct Customer Data

Telephone #
Customer Name
House Number
Address
MSAG Comm
Location Info.
ESN Number County ID State

Reason for Discrepancy

1 Record Control Number: DA.GTE.AA.001.01 06/09/1998 16:19

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File Edit Tools Help

ANI / ALI Form MSAG Update Form Additional Information

Created: 06/09/1998 16:20
 Received:
 Corrected:
 Forwarded:

Street Name Change
 Range Change
 Odd / Even / Both
 MSAG Community Name
 Exchange or TAR Code Change
 ESN Change
 See Additional Information

EXCH: PSAP ID: County ID:

Existing Address Range		New Address Range	
Function	<input type="checkbox"/>	Prefix Directional	<input type="checkbox"/>
Street Name	<input type="text"/>	Street Name	<input type="text"/>
Street Suffix	<input type="text"/>	Post Directional	<input type="checkbox"/>
Low Range	<input type="text"/>	High Range	<input type="text"/>
Odd/Even/Both	<input type="text"/>	TAR Code	<input type="text"/>
MSAG Community	<input type="text"/>	MSAG Community	<input type="text"/>
Postal Community	<input type="text"/>	Postal Community	<input type="text"/>
ESN Number	<input type="text"/>	State	<input type="text"/>

1 Record Control Number: DA.GTE.MS.001.01 06/09/1998 16:20

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ANI / ALI Form MSAG Update Form Additional Information

Enter additional information or remarks below to be communicated to either the Service Provider or to the PSAP

1 Record 06/09/1998 16:21