# NENA E9-1-1 Wireless Maintenance Call Routing & Testing Validation Standard

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Prepared by:
National Emergency Number Association (NENA) PSAP Operations & Next Generation Integration Committee

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# 1 Executive Overview

The Wireless Call Routing and Testing Validation Standard facilitates the standardization of the Call Routing and Testing Validation Worksheet (TVW) between all parties involved in the wireless maintenance process. This worksheet and the accompanying completion rules ensure that PSAPs or the 9-1-1 Governing Authority have all of the data elements they need in order to make informed call routing decisions and to update their CAD and mapping applications. In addition, this standard provides MPC and ALI database owners the information they need in order to fulfill the PSAP data and display requirements. The notification and testing rules ensure that the 9-1-1 Governing Authority has sufficient time to make call routing decisions while balancing the Wireless Carrier's need to add new cell sites and make cell site changes timely.

Wireless maintenance activity that requires the creation of a Call Routing Spreadsheet and TVW include:

- New cell site adds (post Phase 1or 2 deployment).
- Changing the number of sectors on a tower (e.g. going from omni to 2 or 3 sectors, etc.).
- Changing the orientation of sectors to an extent that it may affect call routing decisions or change the sector directional displayed to the PSAP.
- Re-homes of cell sites from one switch to another.
- New air interface technology (e.g. TDMA to GSM).
- Changing MPC Service Providers.

This document specifically focuses on maintenance activities in existing PSAP E911 Service deployments (E911 Phase I or Phase II). Implementing a new phase of E911 service to a PSAP (e.g. migrating from E911 Phase I to E911 Phase II) and the deployment of cell sites in new service areas or market areas for a given Wireless Carrier are not considered maintenance activities within the scope of this document and are considered new E911 Service deployments.

"Testing" as referred to in this document means testing to verify that calls are routing properly and the delivery of location data is functioning properly between the 911 network components**.** This document does not address the testing of the accuracy of E911 Phase 2 latitude & longitude provided via a Phase 2 location query.

# 2 Introduction

## 2.1 Purpose and Scope

This "NENA E9-1-1 Wireless Maintenance Call Routing and Testing Validation Standard" is to provide a common format and rules for the submission of wireless maintenance cell data for call routing and ALI display review and approval by the 9-1-1 Governing Authority in existing E911 Service deployments.

## 2.2 Reason to Implement

Traditionally the format and method of making changes and adding new sectors in a wireless 9-1-1 deployed area has been varied based on the Wireless Carrier, Deployment Service Providers, MPC

Service Provider and the 9-1-1 Governing Authority. To help to standardize this process this standard was developed. The Wireless Call Routing and Testing Validation Standard facilitates the standardization of the Call Routing and Testing Validation Worksheet between all parties involved in the wireless maintenance process. This worksheet and the accompanying completion rules ensure that the 9-1-1 Governing Authority has all of the data elements they need in order to make informed call routing decisions and to update their CAD and mapping applications. In addition, this standard provides MPC and ALI database owners the information they need in order to fulfill the PSAP data and display requirements. The notification and testing rules ensure that 9-1-1 Governing Authorities have sufficient time to make call routing decisions while balancing the Wireless Carrier's need to add new cell sites and make cell site changes timely.

## 2.3 Benefits

Use of this "NENA E9-1-1 Wireless Maintenance Call Routing and Testing Validation Standard" will result in the following benefits:

- Standardization will allow for automation of input for PSAPs, as well as Wireless Carriers, Deployment Service Providers and MPC Service Providers.
- Provide consistent wireless maintenance cell data elements and format for the submission to the 9-1-1 Governing Authority for call routing review and approval.
- Provide for a standard template for PSAP ALI display requirements.
- Provide consistent timelines for submission and approval of call routing data and ALI display requirements.
- Provide consistent testing notification guidelines.

## 2.4 Technical Impacts Summary

Implementation of this standard by Wireless Carriers, Deployment Service Providers, MPC Service Providers and 9-1-1 Governing Authorities may require system changes in order to convert existing Call Routing and TVW forms into a new standard template.

In addition, Wireless Carriers, Deployment Service Providers and MPC Service Providers may require software upgrades to modify existing automated processes in order to capture and deliver new data elements called for by the new form.

## 2.5 Document Terminology

The terms "shall ", "must" and "required" are used throughout this document to indicate required parameters and to differentiate from those parameters that are recommendations. Recommendations are identified by the words "desirable" or "preferably".

## 2.6 Reason for Reissue

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

| Document Number | Approval Date | Reason For Changes |
|---|---|---|
| NENA 57-002 | 06/05/2007 | Initial Document |
| NENA 57-002.1 | 05/25/2015 | Update web page links |
| NENA-STA-039.1.1-2024 | October 1, 2024 | Reaffirmation. Minor updates include a new document number assignment and update to webpage link for Glossary in Section 2.9. Page reduction due to change in header. |

## 2.7 Cost Factors

Implementation of this standard may require system changes in order to convert existing Call Routing and TVW forms into new standard template. In addition, the Committee understands that contract changes between Wireless Carriers and their Deployment Service Providers and MPC Service Providers may be required in order to support standard formats and the rules regarding notifications and timing of changes. Therefore, this Committee requests that Wireless Carriers and service providers work toward adoption of this standard in as short a time frame as reasonably possible.

## 2.8 Cost Recovery Considerations

N/A

## 2.9 Acronyms/Abbreviations

| | **The following new acronyms and new terms are used in this document:** |
|---|---|
| COW | Cell on Wheels |
| COLT | Cell on Light Truck |
| ASRR | Average Sector Radius Range. The average true sector radius under average operating conditions. Radius at which cell tower's polygon of coverage influence ends and another begins. |
| MPC | Mobile Positioning Center |
| TVW | Testing Validation Worksheet |

Some of the acronyms/abbreviations used in this document may not have been included in the master glossary. After initial approval of this document, they will be included. Link to the master glossary is located at: https://kb.nena.org/wiki/Category:Glossary

# 3 Operational Description

Wireless maintenance activities that require the creation of a Call Routing Spreadsheet and TVW include:

- New cell site adds (post Phase 1or 2 deployment).
- Changing the number of sectors on a tower (e.g. going from omni to 2 or 3 sectors, etc.).
- Changing the orientation of sectors to an extent that it may affect call routing decisions or change the sector directional displayed to the PSAP.
- Re-homes of cell sites from one switch to another.
- New air interface technology (e.g. TDMA to GSM).
- Changing MPC Service Providers.

## 3.1 Format & Rules for Entering Data on Call Routing Spreadsheets and TVW

Process Overview:

The Call Routing/TVW spreadsheet is produced by the Wireless Carrier or the Deployment Service Provider, whichever is applicable. The Wireless Carrier begins the process by filling out the Wireless Carrier Section on the Call Routing tab of the spreadsheet. Call routing maps should be sent with the spreadsheet for new cell sites or cell site changes that affect call routing (reference Section 3.1.4). The Call Routing/TVW spreadsheet is then forwarded to the 9-1-1 Governing Authority who fills out the 9-1-1 Governing Authority Section of the Call Routing tab of the spreadsheet. If changes are required to the MSAG address in the Wireless Carrier's section (due to re-addressing), the 9-1-1 Governing Authority should cross out the old information and add the new information in the same fields on the spreadsheet. Once 9-1-1 Governing Authority has completed their section of the Call Routing tab of the spreadsheet and made any changes to the Wireless Carrier's MSAG addresses, the Call Routing/TVW spreadsheet should be sent back to the Wireless Carrier or the Deployment Service Provider, whichever is applicable. The 9-1-1 Governing Authority should complete their portion of the Call Routing/TVW spreadsheet within the timeframes specified in Section 3.2. Once the Wireless Carrier or Deployment Service Provider complete the provisioning of the data in accordance with the completed Call Routing tab of the spreadsheet, the first four columns of the TVW tab of the spreadsheet should be populated and sent to the 9-1-1 Governing Authority as specified in Section 3.2.

### 3.1.1 Call Routing/TVW Spreadsheet Format

Data should be formatted as specified on the sample Call Routing/TVW spreadsheet in Appendix A of this standard. Each column on the spreadsheet specifies the type of data that should go in the column and the required format of the data. The data should be handled in accordance with non-disclosure agreements and/or state statutes regarding confidential information. The columns on the Call Routing/TVW spreadsheet are as follows:

### 3.1.1.1 Wireless Carriers Section(s)on Call Routing portion of spreadsheet (CR tab):

3.1.1.1.1 Market ID – Numeric indicator of carrier market in which cell site is located.

3.1.1.1.2 Switch ID – Numeric indicator of switch to which cell site is homed.

3.1.1.1.3 Name Identifier – Alpha-Numeric field for name identifier of switch.

3.1.1.1.4 Numeric Cell ID – Numeric identification of individual cell site at switch. Generally, the Market-Switch-Cell Site ID combination is a unique key for an individual cell site.

3.1.1.1.5 Numeric Sector ID – Numeric identification for individual cell sector. For example, a three sector site would have sector identifications of 1, 2 and 3.

3.1.1.1.6 Cell Site Common Name – Alpha-numeric field that indicates the carrier's name for a given cell site. For example, a cell site near a VFW hall could be called "VFW".

3.1.1.1.7 Cell Site Unique ID – Alpha-numeric field. Some carriers have cell site identifications in their RF propagation or other software that is unique for that cell site within the entire Carrier network. Leave blank if not applicable.

3.1.1.1.8 Air Interface Technology – The RF technology the carrier uses for voice traffic.

3.1.1.1.9 Cell Site Location Information – this is the MSAG valid address for the cell site and should identify the following information:

- Street Address
- City
- State
- County

3.1.1.1.10 Cell Tower Latitude and Longitude – Information should be expressed in decimal format and should be the physical location of the cell tower (not the cell sector centroid) and should be as accurate as possible, but no more than 7 meters from its true location. For the recommended format of the latitude and longitude, reference 02-010 NENA Standard Formats & Protocols for ALI Data Exchange, ALI Response & GIS Mapping.

3.1.1.1.11 Cell Sector Coverage (Note - This data is to be used for purposes of determining call routing and is not intended for use in PSAP map displays. If used by PSAPs for such purposes, it is with the understanding that the actual RF coverage may be different or change due to a multitude of factors.):

- Sector Orientation/Azimuth – The data should be expressed in numeric degrees with N=0.

- Beam Width – The data should be expressed in numeric degrees and is the width of the sector beam (e.g. 60, 120, etc.).

- Sector Compass Orientation – An alpha indicator of the section directional – e.g. NE, WSW, etc.

- Avg Sector Radius Range (miles) – The average true sector radius under average operating conditions. Radius at which cell tower's polygon of coverage influence ends and another begins. For example, Wireless Carriers may want to use –95 DBMS signal strength for determination of average sector radius range.

3.1.1.1.12 ESRD or ESRK – There are two numeric columns on the Call Routing spreadsheet. The first column should be used for the ESRD of the specific cell sector, if applicable, or the first number in the ESRK range for the PSAP. The second column should be used for the last number in the ESRK range for the PSAP

3.1.1.1.13 Update Type – This column is used to indicate the type of maintenance activity for each cell sector on the spreadsheet. The values in this column are "add" or "delete".

3.1.1.1.14 Date of Update – This column is used to indicate the date that the maintenance activity is expected to occur.

3.1.1.1.15 Comments – The column is used to indicate the type of cell site changes that are occurring – e.g. re-home, add or reduce sectors, sector orientation change, etc. It is also used to indicate a temporary cell site, such as a COW, and the date the temporary cell site will be out of service. For re-homes of cell sites from one company to another, the old company name and "re-home" should be indicated in the Comments column of the old cell site information (and "delete" should be indicated in the "Update Type" column).

### 3.1.1.2 9-1-1 Governing Authority Section on Call Routing portion of spreadsheet (Wireless Call Routing tab):

3.1.1.2.1 PSAP To Receive Wireless 9-1-1 Call – The PSAP should fill in the Routing PSAP NAME for the given cell sector.

3.1.1.2.2 Wireless ESN – The ESN of the Routing PSAP should be entered in this column.

Note: Routing is actually based on the ESN associated with the pANI in the 9-1-1 system provider's database and those pANI loads validate against (shell) MSAG ledgers to get assigned the ESN.

3.1.1.2.3 Selective Router – Selective Router that ESN of Routing PSAP is assigned.

3.1.1.2.4 Alternate Route – The 10 digit number where the calls should be routed when all the trunks from the wireless switch to the Selective Router are out of service. PSAP can also indicate if they want the calls to go to "fast busy" or "announcement".

**Note**: The following fields are taken from 02-010 NENA Standard Formats & Protocols For ALI Data Exchange, ALI Response & GIS Mapping. The PSAP should enter the information in these fields, as they want to see it on their call-taker display (Note: Based on individual PSAP needs, other fields contained in the NENA 02-010 standard may be used for building routing data):

3.1.1.2.5 Customer Name – 9-1-1 Governing Authority has flexibility as to what information they want to see in this field. Some PSAPs use this field for the wireless carrier name or the carrier's 24x7 number.

3.1.1.2.6 House Number Field – 9-1-1 Governing Authority can indicate the numeric portion of cell site/sector street address or leave blank.

3.1.1.2.7 House Number Suffix – PSAP can indicate the numeric extension of street address for cell site/sector (e.g. ½) or leave blank.

3.1.1.2.8 Prefix Directional - PSAP can indicate the leading street direction prefix for cell site/sector street address or leave blank.

3.1.1.2.9 Street Field Name – PSAP can indicate the street name in this field, the entire street address of the cell site/sector plus any other information deemed necessary .

3.1.1.2.10 Street Suffix – This field contains a valid street abbreviation or can be left blank.

3.1.1.2.11 Post Directional – The field can contain the trailing street address suffix (e.g. N, NW, etc.) or can be left blank.

3.1.1.2.12 MSAG Community Field – This field should contain a valid service community name as identified by the MSAG. PSAP may also include other helpful information such as sector directionals.

3.1.1.2.13 State – This field should contain the alpha US State abbreviation.

3.1.1.2.14 Location – The field can be used to display any additional location information describing the exact location of the cell tower or can left blank.

### 3.1.1.3 The TVW (Testing Validation Worksheet) tab on the spreadsheet:

**Note:** This tab is used for testing the cell site adds and the new cell site changes. The "delete" information on the Call Routing tab of the spreadsheet should not be included on the TVW.

#### 3.1.1.3.1 Wireless Carrier Columns - TVW

The first four columns of the **TVW** tab contain cell site identification information from the Wireless Carrier section on the Call Routing tab of the spreadsheet. The TVW tab in Appendix A is set up to auto-populate this information. If information is not auto-populated, it should be entered manually. The following cell site identification columns are required on the TVW:

- Market ID
- Switch ID
- Numeric Cell ID
- Numeric Sector ID

#### 3.1.1.3.2 9-1-1 Governing Authority Columns - TVW

The next fifteen columns contain the 9-1-1 Governing Authority completed CPE display information from the Call Routing tab. This is needed to help the tester confirm each cell sector is routing and displaying correctly at the PSAP. The TVW tab in Appendix A is set up to auto-populate this information. If information is not auto-populated, it should be entered manually. The following 9-1-1 Governing Authority completed CPE display information are required on the TVW:

- PSAP To Receive Wireless 9-1-1 Call
- Wireless ESN
- Alternate Route
- Customer Name
- House Number Field
- House Number Suffix
- Prefix Directional
- Street Field Name
- Street Suffix
- Post Directional
- MSAG Community Field
- State
- Location
- County and/or FIPs - The County information can be auto-populated from the Call Routing tab. FIPS information, if required, will need to be entered manually.

#### 3.1.1.3.3 Wireless Call Tester Columns – TVW:

The following eighteen columns are to be used by the call tester for validating test calls for each cell site/sector. The following fields are to be filled in by the call tester:

- ESRD/ESRK Received – The 10 digit pANI received by the PSAP for that test call.
- Calling Party Number – The call back number received by the PSAP for that test call.
- Initial Call information – This is the information that is initially received by the PSAP for that test cell. The columns in this section are:
  - COS Received – Class of Service seen by PSAP
  - Uncertainty – The uncertainty in meters seen by the PSAP with Phase 2 data. If PSAP gets Phase 1 information initially, they will not see an uncertainty. Not all PSAPs receive uncertainty with Phase 2 information – depends on LEC.
  - Latitude or Other – If PSAP gets Phase 2 data initially, the call tester should record the latitude. If PSAP gets Phase 1 data initially, call tester should indicate that cell site address was displayed.
  - Longitude or Other - If PSAP gets Phase 2 data initially, the call tester should record the longitude. If PSAP gets Phase 1 data initially, call tester should indicate that cell site address was displayed.
- 1st Re-Bid – This is the information that is received by the PSAP after the first re-bid on the same test cell. The first re-bid should be made approximately 15 to 30 seconds after the initial bid is received at the PSAP. The columns in this section are:
  - COS Received – Class of Service seen by PSAP
  - Uncertainty – The uncertainty in meters seen by the PSAP with Phase 2 data. If PSAP gets Phase 1 information again, they will not see an uncertainty. Not all PSAPs receive uncertainty with Phase 2 information – depends on LEC.
  - Latitude or Other – If PSAP gets Phase 2 data after the first re-bid, the call tester should record the latitude. If PSAP gets Phase 1 data again, the call tester should indicate that cell site address was displayed.
  - Longitude or Other - If PSAP gets Phase 2 data after the first re-bid, the call tester should record the longitude. If PSAP gets Phase 1 data again, the call tester should indicate that cell site address was displayed.
- 2nd Re-Bid –This is the information that is received by the PSAP after the second re-bid on the same test cell. A second re-bid is only necessary if Phase 1 information was received on the initial bid and first re-bid. The second re-bid should be made approximately 15 to 30 seconds after the first re-bid is received at the PSAP. The columns in this section are:
  - COS Received – Class of Service seen by PSAP

- Uncertainty – The uncertainty in meters seen by the PSAP with Phase 2 data. If PSAP gets Phase 1 information again, they will not see an uncertainty. Not all PSAPs receive uncertainty with Phase 2 information – depends on LEC.
- Latitude or Other – If PSAP gets Phase 2 data after the second re-bid, the call tester should record the latitude. If PSAP gets Phase 1 data again, the call tester should indicate that cell site address was displayed.
- Longitude or Other - If PSAP gets Phase 2 data after the second re-bid, the call tester should record the longitude. If PSAP gets Phase 1 data again, the call tester should indicate that cell site address was displayed.

- Tested/Live Date – Date cell sector was tested and passed.
- Time of Call – Time test call is made.
- Tester Name – Name of call tester.
- Comments – Enter any notes in this column, such as changes to the TVW or to note unsuccessful tests on a particular cell sector.

### 3.1.2 Call Routing Rules

With regard to specific data elements for the **Call Routing** tab of the spreadsheet, the following rules apply:

3.1.2.1 Post deployment cell sites/sector adds, changes or deletes for a PSAP or 9-1-1 Governing Authority should be listed on Call Routing/TVW spreadsheet.

3.1.2.2 Alternate routes (defined as an "out of service" condition where extended timeframes may be required for call path availability) and default routes (defined as call routing required due to insufficient call data received by the MSC and/or S/R to route the call to the proper serving PSAP) should have been defined with E911 Phase 1 deployment. However, alternate routes should also be included on the Call Routing/TVW spreadsheet (marked with either 10 digit number, "fast busy", or "announcement") and confirmed by the PSAP as still valid.

3.1.2.3 Lat/Long of cell tower should be in decimal format. The latitude and longitude provided in the Wireless Carrier section of the Call Routing tab should be of the cell tower itself (not the cell sector centroid) and should be as accurate as possible, but no more than 7 meters from its true location. For the recommended format of the latitude and longitude, reference 02-010 NENA Standard Formats & Protocols for ALI Data Exchange, ALI Response & GIS Mapping.

3.1.2.4 New cell sites should be marked as "add" in the "Update Type" field.

3.1.2.5 Temporary cell site adds such as COWs or COLTs, should be marked as an "add" in the "Update Type" field and indicated as "temporary" with an end date (date taken out of

service) provided in "Comments" section. The on-air date for the COW or COLT should be indicated in the "Date of Update" field. Exceptions are where temporary cell sites are added in emergency situations were advance notice is not possible. Where COWs or COLTs are added in an emergency situation, it is preferable that routing be established to comply with the requested level of wireless E9-1-1 service for the PSAP or 9-1-1 Governing Authority, i.e. Phase I or Phase II. If the appropriate level of wireless E9-1-1 service can not be established at the time of the on-air date, temporary routing to the PSAP or 9-1-1 Governing Authority 10 digit number is permissible. PSAPs should be informed of these situations as soon as possible.

3.1.2.6 In cases involving re-homes of cell sites, including re-homes from one company's switch to another company's switch (e.g. in cases of buy-outs), the old cell site and routing information should be on the Call Routing/TVW spreadsheet as a "delete" in the "Update Type" field with the old company name (if applicable) and the word "re-home" in the "Comments" section. The new cell site information should be on Call Routing/TVW spreadsheet as an "add" in the "Update Type" field and word "re-home" in the "Comments" section.

3.1.2.7 For other cell site changes, such as re-sectoring a cell site, the old cell site and routing information should be on the Call Routing/TVW spreadsheet as a "delete" in the "Update Type" field and an indication of what cell site change is occurring in the "Comments" section. The new cell site information should be on the Call Routing/TVW spreadsheet as an "add" in the "Update Type" field and an indication of what cell site change is occurring in the "Comments" section.

3.1.2.8 For cell site adds, an on-air date must be provided in the "Date of Update" field. For cell site re-homes, changes or deletions, the date of change or deletion must be provided in the "Date of Update" field.

3.1.2.9 Cell site adds and the new cell site information after re-homes and other cell site changes (which are marked with an "add" in the "Update Type" field) should be listed first on the Call Routing tab of the spreadsheet. The cell site decommissions and the old cell site information before the re-home or other cell site changes (which are marked with a "delete" in the "Update Type" field) should be listed together after all the "add" cell site information. This allows for easier auto-population on the TVW tab.

### 3.1.3 TVW Rules

With regard to specific data elements for the **TVW** tab of the spreadsheet, the following rules apply:

3.1.3.1 Only the new cell sites and new cell site changes (e.g. changes after re-home or sectorization) should be included on the TVW tab and tested.

3.1.3.2 Only "Initial Call" information section needs to be completed for a Phase I deployment.

3.1.3.3 "Second Re-bid" section is to be used as needed, and is not a requirement. For example, use this section when a Phase II result has not been received on the initial bid or the first re-bid.

3.1.3.4 It is recommended that the fields on the TVW be completed, but not required. Information should be maintained as needed to verify that proper call routing and data delivery is taking place.

3.1.3.5 The PSAP may also use ALI screen prints to record this data.

### 3.1.4 Call Routing Maps

In addition to the Call Routing/TVW spreadsheet, 9-1-1 Governing Authority should be provided with individual maps for each cell site displaying the coverage of the new cell site(s) or the coverage of the cell sites that are affected by maintenance changes listed in Section 3. These maps should be provided, at minimum, in one of the following forms (based on PSAP preference and carrier capability): a paper document, Word file or JPEG file. If requested by the 9-1-1 Governing Authority and the Wireless Carrier or Deployment Service Provider is reasonably capable of doing so in a cost effective manner, maps should be provided in the form of a shape file.

## 3.2 Notification and Testing Rules

3.2.1.1 The 9-1-1 Governing Authority needs to be notified of new towers being placed in service or tower changes a minimum of 10 working days in advance

3.2.1.2 The 9-1-1 Governing Authority needs notification of towers taken out of service. This should be within 10 working days after the tower has been taken out of service.

3.2.1.3 For temporary cell site adds (e.g. COWs or COLTs), PSAP should be given the same advance notice of 10 working days. Exceptions are where temporary cell sites are added in emergency situations where advance notice is not possible. PSAPs should be informed of these situations as soon as possible.

3.2.1.4 When changing MPC Service Providers on particular cell sites, end-to-end testing should be performed.

3.2.1.5 The 9-1-1 Governing Authority should be provided 10 working days after receipt of email, letter or fax to review and process a Call Routing/TVW spreadsheet. If the 10 working day period has passed with no response from the 9-1-1 Governing Authority, then the Wireless Carrier, the Deployment Service Provider or the MPC Service Provider (whichever is

applicable) should send an email, letter or fax with accompanying spreadsheet stating the proposed call routing for each cell sector. The PSAP or 9-1-1 Governing Authority should be informed that they have another 5 working days of receipt of proposed routing to respond and if no response, then proposed call routing will be implemented.

- PSAP or 91-1 Governing Authority response can be approval of spreadsheet or can be a request for more information. Response can also be for an extension of time due to operational issues. Examples of operational issues include problems with getting MSAG valid addresses or local jurisdictional requirements may prevent address verification within the 10 working day period.

- In cases where the PSAP or 9-1-1 Governing Authority is not responding and the PSAP or 9-1-1 Governing Authority is located in area with state or regional wireless oversight board, the Wireless Carrier, Deployment Service Provider or MPC Service Provider (whichever is applicable) can seek their assistance to confirm call routing.

- Reasons for additional time with call routing decisions should be stated and the time period extension should be reasonable in length. Note: Time extensions beyond an additional 10 to 15 working days may result in pushing the deployment past the FCC-mandated six month deadline and may require a waiver.

3.2.1.6 After call routing spreadsheet is returned, the 9-1-1 Governing Authority may need to geocode affected cell sectors into mapping program before end-to-end testing is conducted. Geocoding should be performed in a timely manner and should not cause a delay in end-to-end testing.

3.2.1.7 When the 9-1-1 Governing Authority makes changes to the MSAG address in the Wireless Carrier section on the Call Routing tab (e.g. re-addressing) or changes to the display data on the 9-1-1 Governing Authority section on the Call Routing tab, the Wireless Carrier or MPC Service Provider (whichever is applicable) should confirm back to the PSAP or 9-1-1 Governing Authority within 10 working days, that the changes have been made along with an updated copy of the Call Routing/TVW spreadsheet. Note: This may require an extra step in the process to be performed by the Wireless Carrier or MPC Service Provider.

3.2.1.8 After return of Call Routing spreadsheet by the 9-1-1 Governing Authority but prior to testing, the Wireless Carrier or Deployment Service Provider (whichever is applicable) must coordinate such testing with the 9-1-1 Governing Authority for the new cell sites or cell site changes. Such coordination should provide a minimum of 10 working days advance notice, if possible, but no less than 24 hours in advance. Re-confirm prior to making test calls. In cases of emergencies that require the Wireless Carrier to make 911 test calls, coordination should be prior to testing if at all possible. If prior coordination is not possible, then post-notification of emergency event requiring testing should be provided to PSAP or 9-1-1 Governing Authority, including completed TVW. PSAP or 9-1-1 Governing Authority may at their discretion request only notification that testing was

successful and not require a completed TVW. This should be specified during coordination period.

3.2.1.9 All parties prior to the drive testing should verify the TVW against the final routing sheets.

3.2.1.10 Wireless Carriers, Deployment Service Providers and MPC Service Providers must notify the 9-1-1 Governing Authority of contact name and number changes.

3.2.1.11 The 9-1-1 Governing Authority must notify the Wirless Carriers, Deployment Service Providers and MPC Service Providers of changes to contact names, number changes and provide a 24x7 operations contact number.

3.2.1.12 The 9-1-1 Governing Authority must notify carriers at least 10 working days in advance of changes made to 10-digit alternate or default routes, if applicable. This notification should be made to the Wireless Carrier or the MPC Service Provider via the 24x7 contact number.

**Note: "Testing" as referred to in this section means Functional end-to-end testing to verify that calls are routing properly and the delivery of location data is functioning properly between the 911 network components.**

## 3.3 Annual Audit

The 9-1-1 Governing Authority should conduct annual audits of cell sites and alternate route numbers. Requests for routing changes or changes to the 10-digit alternate or default routes, if applicable, must be communicated to the Wireless Carrier or MPC Service Provider via the 24x7 contact number at least 10 working days in advance. Other issues that may generate the need for an annual audit include: excessive numbers of misroutes, excessive number of NRFs, and to audit pANI assignments by ESN. Audit data should consist of all cell sites/sectors that are routed to the PSAP or 9-1-1 Governing Authority and includes all of the data shown on the Call Routing Spreadsheet including the default and alternate route numbers along with the associated call routing maps. At the request of the 9-1-1 Governing Authority, this may include towers or sectors from neighboring PSAPs or 9-1-1 Governing Authorities. Wireless Carriers, Deployment Service Providers or MPC Service Providers should provide this data upon request of the 9-1-1 Governing Authority.

# 4 References

NENA 02-010 Revised November 9, 2004 – Recommended Formats & Protocols for ALI Data Exchange & GIS Mapping

NENA 57-001 November 18, 2004 – Wireless E9-1-1 Overflow, Default and Diverse Routing Operational Standard

# 5 Exhibits

Appendix A contains the sample Call Routing/TVW spreadsheet.

Appendix B contains a sample Nondisclosure Agreement