NENA
Silent or Hang-Up
9-1-1 Calls for Service

An Operations-Focused Study
Operational Information
Document 56-501

NENA
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ASSOCIATION

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Silent or Hang-Up 9-1-1 Calls for Service

This <u>Operations-Focused Study</u> is published by the National Emergency Number Association (NENA) as a guide and fact-finding tool to 9-1-1 agency administrators, communications center managers and supervisors, and public and private sector designers and manufacturers of public safety answering point (PSAP) technology solutions used for the purpose of processing emergency (E/9-1-1) calls for service.

It is not intended to provide an exhaustive procedural guideline or "how-to" outline. Rather, the purpose of the study is to offer general guidance and key "consideration points" to agency PSAP managers, administrators, and the full range of public safety users (managers, supervisors, communications personnel, and first responders).

If the study's findings and recommendations are approved, NENA will refer this study to the appropriate 9-1-1 Center Operations Committee for the purpose of developing a model recommendation/procedural standard based on these and other findings, as well as conformity with standards promulgated by various agencies (oversight and advisory), utilization of advances in the state-of-the-technical-art or to reflect changes in design and capabilities of PSAP equipment.

It is possible that certain advances in technology, for example, will precede revisions of this document. Therefore, this Operations Study should not be the only source of information by E9-1-1 administrators, communication center managers and supervisors in constructing an appropriate model procedure for their respective agencies. NENA members are encouraged to develop procedures complimentary to their community's values and expectations, and reflective of the service and safety standards of their agency.

By using this issue-focused document, the user agrees that the National Emergency Number Association will have no liability for any consequential, incidental, special, or punitive damage that may result.

Finally, this document has been prepared solely for the voluntary use of E9-1-1 service providers, E9-1-1 equipment vendors, manufacturers of public safety command and control applications, and other interested parties.

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INTRODUCTION

The telephone is universally recognized as the primary link from the person needing assistance and the emergency services network and the potentially lifesaving resources available from the full complement of community emergency services agencies (i.e., police, fire, EMS, poison control).

Before today's enhanced 9-1-1 service became available[1], a citizen with a public safety need would call the seven-digit telephone number listed in the community telephone book for emergency services. Usually, there would be a telephone number for police, another number for fire service, and still another number for emergency medical, though in some instances fire and emergency medical might share the same number. The caller, as commuter, either committed these individual numbers to memory, would look them up in a phonebook, or dial "O" for the operator to connect them to the proper agency.

The receiving dispatcher would enter into a "lengthy" dialogue with the caller in an attempt to determine what the caller's needs was, where service was needed, obtain a call back telephone number and other personal identity information, and collect any available details the caller might have regarding the event. Nothing fancy, however, the burden of knowing "who" to call was clearly on the caller.

In February 1967, President Lyndon Johnson's Commission on Law Enforcement and Administration of Justice issued its landmark report, recommending that police departments have a single number to call, and that eventually that single number should be used nationwide. The report stated:

> *"The Commission recommends: Wherever practical, a single police telephone number should be established, at least within a metropolitan area and eventually over the entire United States, comparable to the telephone company's long-distance information number."*

The recommendation was based on input from the Commission's Task Force on Science and Technology. Not long thereafter, AT&T established 9-1-1 as the universal emergency number for the United States[2].

Since 1968, when the first 9-1-1 call was placed in Haleyville, Alabama, the emergency network of the time consisted largely of wireline telephone service (business, residential, payphone). ***Oh how things have changed!***

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[1]   Enhanced 9-1-1 (E/9-1-1) services are generally recognized to include three distinct elements: Automatic Number Identification (ANI), Automatic Location Identification (ALI), and geographically based Selective Routing (SR) of 9-1-1 calls to public safety answering points (PSAPs).

[2]   Friday, January 12, 1968.

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No one in 1968 could have ever predicted the widespread implementation of "wireless" communications we enjoy today: Personal cellular service, wireless LAN communications, wireless personal digital assistants (PDAs), etc. And, no one in 1968 could have envisioned the literal explosion in business and personal communications that wireless networks have had – and continue to have - on US society.

Today, we can literally hold personal conversations, conduct business transactions, and, yes, summon emergency assistance from almost any location on the planet (in a car, at the beach, on a boat, in a tunnel, on a train, in a plane, in the basement, on the roof, in a locked compartment, etc).

This report focuses on a single but important aspect of E/9-1-1 service and the plethora of emergency incidents common to public safety communications. Specifically, this operations-focused report explores the nature and force of "silent[3]" or "hang-up[4]" or "abandoned[5]" 9-1-1 calls for service and their impact on emergency services. The report also draws extensively from agencies that voluntarily submitted standard operating procedures, call processing guidelines, and other procedural information as part of the committee's fact-finding undertaking. In addition, data was collected by other means and is incorporated in this report (i.e., Internet searches, peer-to-peer networking).

Finally, the report offers guidance to the public safety community on a range of topics related to processing silent or hang-up calls for service, including technical, procedural, statistical, and technology oriented suggestions.

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[3] For the purpose of this report, a "**silent 9-1-1**" call is defined as *"someone has dialed 9-1-1, the call has successfully passed through the 9-1-1 network and has been answered by a 9-1-1 operator. Aside from the 9-1-1 operator's, no voice communication is heard on the initiating caller's end of the emergency call."*

[4] For the purpose of this report, a "**9-1-1 hang-up**" call is defined as *"someone, either through malicious intent or accidental occurrence, has dialed 9-1-1, the call has passed through the emergency network and has been answered by a 9-1-1 operator. The initiating caller has hung up prior to the 9-1-1 operator answering the call."* This type of call is very similar to an abandoned 9-1-1 call.

[5] For the purpose of this report, an "**abandoned 9-1-1**" call is defined as *"someone has dialed 9-1-1 and all available operators are busy. The call is placed into queue for answer. Rather than wait for an available operator, the caller elects to hang-up prior to the 9-1-1 call being answered by an available 9-1-1 operator."* Generally, an "abandoned" call is more often associated with call centers that have an automatic call distribution (ACD) call delivery scheme.

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1 **BACKGROUND**

2 The National Emergency Number Association (NENA) operates and manages an email list server to
3 which its membership can post a range of questions and problems/queries and receive responses
4 from those registered on the shared list server.[6] When a question is posed, all registered list server
5 members[7] receive an email of the posting. Respondents have one of three options:

6   1. Post comments directly to the entire list, or

7   2. Contact the questioner off-line (via email or telephone contact) and provide a personal
8   response to the question or problem posed by the initiating list server member, or

9   3. Opt to provide no response at all.

10 In early July 2002, one such question was posed:

11 *Is there a "Best Practices" standard adopted by NENA for hang-up 9-1-1 calls for service?*
12 *(emphasis added)*

13 Norm Forshee, a leading member and contributor of the list server process, suggested a working
14 subcommittee of NENA membership be formed to collect data, compile a report, and make
15 recommendations to NENA and its membership on a "best practices" standard for hang-up 9-1-1
16 calls for service. Rather than focus exclusively on wireline silent/hang-up calls for service, the range
17 of inquiry was expanded to also include wireless silent/hang-up calls.

18 **WORKING COMMITTEE FORMED**

19 The NENA E/9-1-1 Wireline and Wireless Hang-Up Subcommittee was formed on July 9, 2002. The
20 subcommittee's charter assignment was posted on the list server as follows:

21   *Pursuant to Norm Forshee's suggestion posted to this list server, a working group has been*
22   *formed to collect data on methods and procedures used by PSAPs serving a wide range of*
23   *population centers to process, document and service hang-up wireless and wireleine 911 calls*
24   *for service. The working team will rely heavily on PSAPs willingness to share existing methods*
25   *and procedures documentation to support the team's working charge:*

26   *To develop a sample best practices portfolio for processing wireless and wireline hang up 911*
27   *calls for service. PSAPs willing to share existing SOP documentation as it relates to providing*
28   *guidance to telecommunicators in processing hang-up calls for service are encouraged to send*
29   *copies to the following address (all copies will be destroyed after the working group completes*
30   *their work):*

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6   The 9-1-1 List email address is *911TALK@LISTSERV.NENA.ORG*

7   As of August 2002, there are approximately 1,200 members registered on NENA's email
list server service.

34 **TEAM MEMBERS**
35 The following team members are voluntary working group subcommittee participants:

36 William C. Weaver, Jr.   Team Leader and Report Author
37 Tom Ling   Member
38 Janet Hamilton   Member
39 Valorie Taylor   Member[8]
40 Norm Forshee   Member (Member Emeritus)
41

42 **METHODOLOGY**
43 The above NENA subcommittee team members held a number of conference calls, email exchanges
44 and teleconference meetings. An agreed project timeline was adopted and quickly put into place. A
45 "project management" approach was implemented with the goal of completing the subcommittee's
46 work and fulfilling its charter in 6-8 weeks after forming.

47 Very soon after announcement of the subcommittee's charter on the NENA list server, team
48 members began receiving electronic and hard copy sample procedures from list server members. In
49 all, over 25 sample procedures were received. A list of identifiable contributing agencies is attached
50 at the end of this report.

51 Subcommittee team members were instrumental in widely communicating the subcommittee's goals
52 and objectives throughout the public safety community (i.e., through peer-to-peer networking)
53 soliciting PSAP involvement in the process, collecting PSAP procedural and/or policy data, and
54 reviewing and comparing collected data. William C. Weaver, Jr., Subcommittee Team Leader,
55 accepted responsibility for authoring the final report and project managing the team toward
56 fulfillment of its mission.

57 **Inquiry Matrix Developed**
58 The membership developed a simple data collection matrix as part of its information discovery and
59 collection efforts. The approved matrix included a number of essential and "nice-to-have" elements
60 considered central to contributing toward the (eventual) development of an informed "Best
61 Practices" standard. However, it was quickly realized that a less structured approach was required,
62 due to the differences in agency nomenclature, technology capabilities among participating agencies,
63 call for service processing standards, management focus, and geographical challenges in collecting
64 data of this type.

65 Instead, the committee's data collection was generally confined to agency procedural standards and
66 guidance provided by E/9-1-1 and/or communications center management to their emergency
67 communications personnel in support of processing wireline and wireless 9-1-1 calls for service.

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[8]   The input provided by the 9-1-1 Public Educators of Texas is also recognized by subcommittee team members.

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71 **Wireline 9-1-1 Calls for Service**
72 From a review of the data voluntarily submitted by contributing agencies, NENA list server
73 members, and other resources at the disposal of working subcommittee members, the following
74 WIRELINE call-processing model appears to be consistent:

Agency Type	Primary PSAP` Secondary PSAP or Command and Control Center
Type of 9-1-1 Service	Enhanced 9-1-1
Division of Labor	In the majority, **NO**. The same operator that receives the call for service also dispatches the call to the responding units. A small sample of agencies polled segregate call taking functions from radio dispatching functions. Clearly, this models the approximate 5%, 10% and 85% split of the PSAP marketplace as it relates to large communications center, medium size communications center, and small communications center, respectively.
Percent of Call Total	Wireline hang-up calls for service account for the vast majority (90% to 95%) of all hang-up, silent or abandoned calls for service. Clearly, the absence of data to validate this percentage calls into question the validity of this estimate. Many PSAP managers subsume that the percentage of wireless misdials are greater than the estimated 5% to 10%. However, lacking empirical data, we caution the membership in assigning clear percentile values, other than to say the "majority" of target calls are from wireline devices.
Technology Employed	
Call Receipt	ANI/ALI information via CTI intelligent workstations, ALI spill to CAD system, manual back-up for local site emergency.

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Resource Assignment	CAD system, with manual back-up.
Mapping	Few agencies used mapping applications in support of their command and control responsibilities.

Procedure Information

Unless there is no indication of trouble (i.e., crying, loud voices) or concern perceived by the call taker, or overtly displayed by the caller, an attempt is made to contact the caller prior to dispatch.

In few instances, a supervisor is assigned this responsibility. In the main, the receiving call taker must complete the call back.

Depending on the exchange between the call taker and the caller, the call taker may elect to:

- Decide not to dispatch any public safety resource and may opt to log his/her decision via a generic or unique event code in the agency's dispatching system [depending on agency policy or dispatcher intuition (i.e., CYA)].[9]

- Dispatch police personnel on a medium priority assignment to verify the caller is not in a threatening situation, or in need of emergency assistance.[10]

- Dispatch police personnel on a high priority assignment if violence is suspected, or repeated attempts to contact the caller have been unsuccessful.[11]

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[9] Most agencies left to the dispatcher the discretion as to whether a CYA (cover your agency) event record was generated for non-dispatch situations, including hang-up wireline calls for service.

[10] Slightly more than half the agencies poled assigned a specific event code to hangup/silent/abandoned calls for service.

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Agency Dispatched

Most agencies polled dispatch police/law enforcement personnel to investigate silent, hang-up or abandoned E/9-1-1 calls for service. In very few instances was another service agency dispatched (i.e., EMS, paramedics).

Priority Assigned

Unless circumstances indicated otherwise, silent, hang-up or abandoned E/9-1-1 calls for service are assigned mid-level priority status. Differences in agency nomenclature, incident typology and call management scheme prevent an "apples-to-apples" comparison.

Unique Event Type

Most agencies use a unique event type to describe the assignment to responding personnel, as well as provide personnel with a "sense of expectation" of what they might encounter on the scene. In the majority, silent or hang-up descriptors are used to clarify the call. No agency segmented the event by wireline or wireless device.

Statistical Analysis

It was determined that the majority of agencies cannot generate accurate call for service demand reports for hang-up/silent/abandoned call for service incidents, **particularly if the event did not result in the assignment of a public safety resource.**

If an assignment is made, the responding/investigating officer may change the event type if an arrest is made, an investigative report is completed, or some other "official" action is taken.

Further, the committee discovered that none of the agencies providing documentation discriminated between wireline and wireless E/9-1-1 calls, though it is recognized that the majority of silent/hang-up calls received over the E/9-1-1 system are believed to be from wireline customers (residential, business,

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11   No agency surveyed placed a specific value on the number of times callback attempts were to be made prior to assignment of a public safety resource.

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payphone, etc).

This source "non-differentiation" further skews developing an accurate assessment of true incoming calls for service demands, particularly as they relate to silent, hang-up and abandoned calls for service.

Pre-Warning Capability

Most agencies indicated that their call takers are provided no warning that a ringing or in queue emergency 9-1-1 call for service might be a hangup/silent/abandoned E/9-1-1 call prior to their staff actually answering the phone.
Other agencies indicate their CPE equipment "pulls" a hang-up call out of queue and provides a visual "flag" that the is an "abandoned call" (as defined in the context of this report).[12]

TDD Challenge

If a silent/hang-up/abandoned 9-1-1 call is suspected, the call taker is required to challenge the initiating party to determine whether the caller may be using a special communications device for hearing impaired individuals (i.e., TDD).[13]

Though we believe all PSAPs are aware of this requirement, slightly less than 70% of those polled list this guidance as an "action" to be taken by their communications personnel, particularly as it relates to wireless callers.

We are confident TDD challenges are being completed, but encourage agencies to update their policies to reflect this requirement.

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12   Committee members recognize that some E/9-1-1 calls lacking voice communication might be TDD calls (from a deaf/hearing impaired citizen). However, in the context of this report, a TDD call would be the exception, rather than the norm.

13   The United States Department of Justice is charged with auditing compliance for Public Law 101-336, also known as the *Americans with Disabilities Act*, signed into law on July 26, 1990. Briefly, a provision of the law requires that PSAPs "interrogate" all silent, hang-up or abandoned 9-1-1 calls for service with a voice call back **and** a TDD challenge.

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If the challenge is successful (i.e., a deaf person using a TDD), then the call taker enters into a dialogue with the TDD user and determines what service might be needed. Once determined, the proper event type corresponding to the caller's need is used to generate an incident and track agency response to the scene. A resource is assigned and service provided.

If unsuccessful (i.e., no TDD user), however, the call taker takes whatever action he/she deems appropriate for the situation, or as dictated by established agency policy or procedure (formal or informal).

75

RECOMMENDATION

77 The NENA E/9-1-1 Wireline and Wireless Hang-Up Subcommittee values and appreciates the input
78 received from the various police departments, dispatch centers, public safety answering points, E/9-
79 1-1 agencies and other public safety entities in its effort to collect a wide range of data on a "best
80 practice" for handling silent, hang-up or abandoned wireline and wireless emergency (E/9-1-1) calls
81 for service. Each agency's submittal provided valuable insight into assembling and recommending a
82 "best practices" standard within the initial charge statement assigned the subcommittee, and will be
83 useful, we are sure, in constructing the NENA developed "best practice."

84 It is clear from the data collected that silent, hang-up or abandoned E/9-1-1 calls for service confront
85 PSAPs with unique challenges, particularly as it relates to Liability. Other service dimensions, like
86 safety and response, are also clearly implied. However, liability with respect to responding to and/or
87 documenting attempts to respond and provide some level of event appropriate service to silent, hang-
88 up or abandoned calls for service is the primary concern of subcommittee members, and forms the
89 basis of our collective "best practices" strategy.

90 **Liability**
91 Prior to the implementation of Enhanced 9-1-1 (E/9-1-1) service in the United States, the caller bore
92 the greater burden of responsibility in obtaining the service he/she needed in that the caller MUST
93 provide the dispatcher/call taker with a location (either where service was needed or where the caller
94 could be met).

95 With the implementation of E/9-1-1 service, this dynamic has changed considerably. The
96 responsibility for response is clearly on the agency such that technology has filled the information
97 gap with regard to where the call is being placed, particularly as it relates to wireline dialed E/9-1-1
98 calls for service (residences, businesses, payhones, etc). Consider that in today's enhanced universal
99 emergency number (E/9-1-1):

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100 • The caller's telephone number is automatically provided to the emergency dispatcher when
101 answering the request for service.

102 • The address from which the call is being made is automatically displayed on the call taker's
103 dispatch screen or intelligent workstation.

104 • The three (3) emergency service agencies responsible for public safety services in the caller's
105 specific geographic area are automatically displayed for the call taker.

106 And, technology will soon close this same location gap with wireless (cellular) callers via
107 widespread implementation of Phase I and Phase II location identification services[14] (see
108 www.nena.org for additional information on Phase I and Phase II location identification services).

109 After review of the data collected, the NENA E/9-1-1 Wireline and Wireless Hang-Up
110 Subcommittee recommends the following "Best Practices" standard when processing and responding
111 to silent, hang-up or abandoned E/9-1-1 calls for service. Our "best practices" recommendation is
112 centered around six (6) elements:

113 **1.0   Documentation**

114 **2.0   Source Differentiation and Incident Typology**

115 **3.0   Mandatory Call Back**

116 **4.0   System Pre-Warning**

117 **5.0   Visual Display**

118 **6.0   User Education**

119

120 **1.0   Documentation**

121 All E/9-1-1 calls for services and any attempt by an agency to provide service, regardless of
122 the type of service, should be documented by the agency.

123 With the proliferation of computer aided dispatch (CAD) systems common in public safety
124 agencies today, the committee believes further that successful and unsuccessful

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[14]   Briefly, Phase I services provide the cellular tower and service radius of the tower on a visual map for decision-making and response by the dispatcher. Phase II service provides an estimated physical location of the caller based on intelligence in the network or the handset, depending on the location identification solution deployed by the cellular carrier, and "plots" the caller's estimated location on a visual (and integrated) customer owned mapping application.

For a more exhaustive discussion on Phase I and Phase II wireless location services, *See* 47 C.F.R. §20.18(i); *see also* Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, *Third Report and Order*, 14 FCC Rcd 17388, 17408 (para. 42) (1999) (*E911 Third Report and Order*).

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125 documentation of attempts to respond to silent, hang-up or abandoned calls for service is
126 essential for two reasons:

127 ➢ First, by establishing a policy of documentation on all silent, hang-up or abandoned calls
128 for services, agency administrators will be in a better position of defending not only
129 requests for additional funding and/or personnel with true and accurate workload
130 measures, but will also enhance their legal position in defending themselves and their
131 agencies against service related litigation surrounding an agency's alleged failure to
132 respond to E/9-1-1 dialed calls.

133

134 ➢ Second, by agency administrators providing clear guidance to the communications
135 personnel on this key service related issue, their staff will benefit from the "cover"
136 provided by management in issuing policy statements and/or procedural guidelines.
137 Clearly, experience has shown that it is the absence of clear policy statements and/or
138 procedural guidelines that enhance successful litigation against government agencies.

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140 **2.0   Source Differentiation and Incident Typology**

141 Agency administrators should have sufficient statistical data on hand to provide his/her
142 executive level management team with accurate constituent called for services information,
143 especially as it relates to E/9-1-1 dialed services.

144 CAD systems should be programmed to accept "notational" source data for statistical
145 purposes, and specific event codes should be developed to address both wireline and wireless
146 silent, hang-up or abandoned E/9-1-1 calls for service.

147 Our review of submitted procedures revealed that few agencies used a unique event code to
148 distinguish between wireline and wireless silent, hang-up, or abandoned E/9-1-1 calls for
149 service. Rather, most used a common event code that included wireline and wireless calls
150 (most often – hang-up or silent).

151 The subcommittee recognizes that dispatchers "set the tone" in their assignment of calls for
152 service to responding resources (i.e., officers). The committee also recognizes that the event
153 code or literal "verbalized" title given a dispatched event also plays some role in setting the
154 tone of responding units. In that respect, the committee believes that a more accurate
155 descriptor of silent, hang-up or abandoned calls for service should be developed. With that in
156 mind, the subcommittee offers the following for consideration:

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161   Event Type: Silent (code example: 300 and 300W)[15]
162   Source: Wireline or Wireless
163   Description: A caller has dialed 9-1-1. The incoming call is timely answered by
164   the emergency dispatcher. No voice is heard on the other end of
165   the line. The presence of ambient background "clutter" (i.e., music,
166   crying, yelling) may or may not be detectable.
167

168   Event Type: Abandoned (code example: 310 and 310W)
169   Source: Wireline or Wireless
170   Description: A caller has dialed 9-1-1. Prior to the emergency dispatcher
171   answering the line, the caller disconnects.[16]
172

173 Lacking event codes that properly discriminate one data element from another, analysis of
174 calls for service data, particularly silent, hang-up or abandoned calls, is difficult.

175 Though the subcommittee recognizes the majority of these events are generated from
176 wireline devices, no empirical data exists to validate what subcommittee members believe is
177 a more accurate assessment of the current state of affairs with regard to misdialed E/9-1-1
178 calls.

179 Development of unique event codes (also called incident code or incident descriptors) for
180 wireline and wireless calls for service would provide a level of stratification and event
181 analysis not currently available to agencies.

182 Justification for this element lies in the recognition that PSAP managers are actively engaged
183 in public education in the proper, appropriate and effective use of emergency services.

184 Stratification, combined with post-event analysis, provides managers with the ability to focus
185 educational and enforcement efforts more effectively toward the appropriate sector of
186 users/abusers, recognize trends, etc.

187

188 **3.0**   **Mandatory Call Back**

189 Regardless of the source, all silent, hang-up or abandoned E/9-1-1 calls for service, including
190 wireline and wireless callers, should be 1) documented and 2) called back for need
191 verification[17]. If service is not needed, the call taker should note with whom they spoke,

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[15]   **W** identifier indicates a wireless caller.

[16]   This description would be visually or audibly reinforced if vendors of intelligent
workstations and E/9-1-1 controllers cause the telephone button icon on intelligent workstations behave
"differently" when a 9-1-1 hang-up prior to answer is detected.

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192 the reason 9-1-1 was dialed (e.g., accidental, misdial), and any other explanatory or
193 "intuitive" observations discerned from the call taker's exchange with the caller. A service
194 disposition code should be added to the call record for statistical analysis and
195 documentation.[18]

196 Unless a plausible explanation is provided to the call taker, at a minimum, the call taker
197 should consult a supervisor and provide the supervisor with as much information as
198 possible[19].

199 It is recognized that not all PSAPs and communications centers have a communications
200 supervisor continuously available for consultation. In their absence, patrol supervisors or
201 senior patrol officers can provide necessary guidance, if needed.

202 Nevertheless, if in doubt as to the veracity of the caller's claim that 9-1-1 was inadvertently
203 dialed, or that emergency services are not needed, a field unit should be dispatched to verify
204 the caller is not in a threatening situation (i.e., welfare check).

205 The subcommittee believes it important for agency administrators to provide appropriate,
206 region specific guidance regarding wireless call back attempts to their communications
207 personnel. The following is an excerpt from an agency's procedure with regard to wireless
208 call back attempts:

209 *When a call has been abandoned and it has been determined that the call originated from a*
210 *wireless phone, locate the call back phone number on the ALI screen and attempt to call*
211 *back. If no answer, the wireless provider can do an account search for the residential*

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[17]   Particularly if the 9-1-1 calls was dialed from a wireline device (i.e., residence, business payphone),
as the call taker will have received the caller's ANI and ALI information when answering the call. It is
recognized that network problems may prevent this information from being delivered, but this occurrence
should be rare.
        Because of the differences in subscriber information available from wireless callers when entering the
9-1-1 network, a call back may not be possible (i.e., no MDN provided). If not, then agency policy would
dictate what action the call taker should take (i.e., no action, document event, notify supervisor).
[18]   Service dispositions provide management with a method of identifying emerging or
continuing trends as it relates to "servicing" called for services (emergency and non-emergency).
Unique event codes, combined with a variety of disposition codes, provide management with
additional data sets for remediation, education, or enforcement activities.

[19]   Wireline procedures (i.e., call back protocols) have been clearly established by agencies
in providing appropriate guidance to their communications personnel. However, in the majority,
wireless procedures have not been given the same level of guidance as its wireline counterpart.
Clearly, a small percentage of agencies submitting procedural data addressed wireless call back
procedures (2 in 25). Subcommittee members believe this has more to do with the "uncharted"
territory of wireless call back verification, and the differing levels of wireless caller information
available from Phase 0, Phase I and Phase II wireless services. A simpler explanation may be
that their procedures have not been updated to include wireless call-back protocols.

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212 *address. Keep in mind; this may not be the location the caller was calling from since a*
213 *wireless phone was used.*

214   1. *If no phone number was displayed, then the call-taker does not have enough information*
215   *available to locate the call. No further action is necessary.*
216   2. *If latitude and longitude is available, the information will need to be converted into a*
217   *readable address and dispatch a deputy to check the area.*

218

219 Please note the above reference to a "readable address".

220 We encourage agencies to build cooperative working relationships with cellular carriers,
221 identify 24/7/365 contacts points within cellular carrier organizations for customer
222 information (i.e., security), and work with cellular carriers' to address their concerns
223 regarding confidentiality and liability.

224 Further, we believe NENA (either at the state or national level) can provide agencies support
225 and guidance in designing an appropriate procedure that meets the needs of both public
226 safety and wireless carriers.

227 Finally, wireless carriers – particularly those providing Phase I and/or Phase II location
228 services - should provide each PSAP in their service area with a toll free (preferably)
229 emergency contact number for public safety agencies to call to obtain emergency customer
230 information in response to a silent, hang-up or abandoned E/9-1-1 call for service, or any
231 event where a caller has requested assistance via a wireless device vis-à-vis a wireline one.

232

233 **4.0 System Pre-Warning**

234 The committee is aware of a few manufacturers that provide emergency dispatchers with
235 visible or audible "prompts" that the call they are about to answer is/maybe a silent, hang-up
236 or abandoned call for service.

237 Such information would be of considerable importance to the call taker, particularly when
238 answering multiple emergency lines with more than one line ringing and waiting to be
239 answered[20].

240

241 **5.0 Visual Display**

242 It was mentioned previously that, unless the PSAP requests and receives Phase II wireless
243 location identification services from its local wireless carrier(s), wireless callers are at
244 distinct disadvantage when requesting emergency services.

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[20]   This feature would be particularly helpful in aiding "informed" decision-making by the
call taker in determining which emergency line to answer when multiple E/9-1-1 calls are ringing
on a call taker's workstation (usually found in a non-ACD environment).

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245   However, as Phase II implementation continues and matures across the PSAP landscape, the
246   value of mapping the location of wireline and wireless emergency calls for service cannot be
247   overstated.

248   Clearly, Phase II location services will require integration (at the functional level) of several
249   communications and command and control subsystems, including the PSAPs customer
250   premise equipment: 9-1-1 equipment, intelligent workstations, and their CAD system and
251   mapping applications. The subcommittee recommends that PSAPs expand the use of
252   mapping beyond just wireless calls for service and extend "plotting" to all received
253   emergency calls for service, including those not received over 9-1-1 trunks but, nonetheless,
254   warrant the assignment of a public safety resource (i.e., police, fire, EMS). This would
255   require integration of the agency's CAD system with their mapping application and the
256   ability of the CAD system to pass conventional block number and street addresses (i.e., 1415
257   Main Street) to their mapping application for display. Public safety and public safety
258   communications will become more visual due, in large part, to increased emphasis and
259   implementation of location-based technologies to meet the FCC's intent outlined in FCC 94-
260   102 (as amended). As mapping systems mature and become more commonplace in public
261   safety, opportunities to improve response, decision-making, and management oversight of
262   valuable public safety resources will abound[21].

263   **6.0 User Education**

264   Clearly, the telephone user owns a significant level of responsibility for the proper use of
265   their emergency services network (i.e., 9-1-1). Accidental misdials will occur. However,
266   PSAPs and cellular carriers have an opportunity to provide onpoint one-on-one education of
267   the cellular user community and customer base.

268   For example:

269   • During the course of call-backs, public education seminars, and other outreach
270   efforts, PSAP educators might use the opportunity to provide brief "user
271   suggestions" to cellular users with the objective of reducing misdialed 9-1-1 calls
272   (i.e., lock dial pad, properly securing phone inside a purse or in a vehicle).

273   • Cellular carriers can also provide assistance in reducing 9-1-1 cellular customer
274   misdials by enclosing PSAP provided or cellular carrier developed information
275   mail outs to their customers semi-annually, quarterly, etc.

276   **CONCLUSION**
277   Prior to the computer revolution, the police communications system was slow and cumbersome. A
278   citizen would call the police (neutral PSAPs weren't needed yet) with a seven-digit telephone
279   number. A police telephone operator would take the information, write it on an index card, and put

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[21]   See *NENA News Magazine* publication, Spring 2001 Edition, for an informative article on
various present and future applications for which Phase II wireless mandated mapping integration
services could be logically extended to other, equally important public safety endeavors (i.e.,
crime/incident analysis, pattern recognition, electronic pin map, etc).

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280   the card on a conveyor belt, where it would travel to the dispatcher's desk. There, the dispatcher
281   would then manually search maps and records for the police car that covered the area from which the
282   call originated and then call the car, giving the officer all the information from the index card. All
283   records were kept manually.

284   Today we have technology that far surpasses anything that a dispatcher or police telephone operator
285   could have imagined decades ago. In-car video systems, microcomputers, cellular telephones and
286   satellites are all very familiar to many reading this text. The past few decades have seen advances in
287   technology that most of us would never have imagined (Phase II location services is just such an
288   example). Clearly, the computer chip has revolutionized society. Telecommunications technology,
289   particularly emergency communications, has benefited greatly from this technological revolution.

290   When making recommendations on a "best practices" scale, subcommittee team members believed it
291   was important to first consider the current state-of-the-art of emergency communications and, to the
292   extent possible, shape a "best practices" recommendation embracing the new paradigm of
293   emergency services and incorporate "future" technologies and/or systems in its recommendation. We
294   believe we have done that.

295   Clearly, the cellular telephone will become even more ubiquitous as the calling public moves from
296   wireline and wireless telephone service and shifts to a more wireless environment[22]. We point to
297   present-day marketing plans and service options of the dominant cellular carriers: Caller ID, internet
298   access, on-line chat, free long distance, no roaming charges, caller-pays plan and a host of other
299   incentives to "reach out and touch someone" using cellular more often than we would its wireline
300   cousin.

301   As more and more PSAPs acquire technology to use and manipulate wireless location data,
302   opportunities to leverage the underlying mapping and technology applications central to effectively
303   locating wireless emergency (E/9-1-1) callers in their geographic areas will be obvious to those with
304   a "foresight" toward using one technology solution to address other public safety issues (i.e.,
305   telemetrics, crime analysis, electronic pin mapping). We believe the foregoing "best practice"
306   recommendation with regard to wireline and wireless silent, hang-up or abandoned E/9-1-1 calls for
307   service incorporates elements of both present and future technologies for public safety agencies.

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[22]   As of August 23, 2002, there are 137,458,902 wireless subscribers in the United States.
Source: www.ctia.org.

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315   # NENA E/9-1-1 Wireline and Wireless Hang-Up
316   # Subcommittee Members
317   ## ATTACHMENT 1

318

319   Partial list of agencies contributing procedural and/or operational examples for use by the NENA
320   working subcommittee.[23]

321   Contributing Agency Data

Robinson PD   Woodway Public Safety
111 W. Tisdale   920 Estates Drive
Waco, Texas 76706   Waco, Texas 76712
254-662-1414

Hewitt Police Department   Waco Police Department
204 Chama Drive   721 N. 4th Street
Hewitt, Texas 76643   Waco, Texas 76701
254-666-1661   254-750-7500

Charlotte County Sheriffs Office   Boulder County 9-1-1
7474 Utilities Road   1805 33rd Street
Punta Gorda, Florida 33982   Boulder, Colorado 80301
941-639-0013   303-441-4816

Boca Raton Communications Center   Seminole County 9-1-1
2500 NW 1st Avenue   100 Bush Boulevard
Boca Raton, Florida 33431   Sanford, Florida 32771
561-368-6201   407-665-6650

Houston Police Department   Marion County 911
Emergency Communications Division   P. O. Box 1175
61 Reisner Street   Salem, Illinois 62881
Houston, Texas 77002   618-548-3685

322

323   An additional fifteen (15) agency procedures were submitted to the subcommittee and could not be
324   identified as to agency source.

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326

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[23]   NENA members and public safety agencies contributing sample procedural information and other
data for use by NENA E/9-1-1 Wireline and Wireless Hang-Up Subcommittee members were assured that
once the working committee's draft report was completed, any data collected would be destroyed.

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327 # NENA E/9-1-1 Wireline and Wireless Hang-Up
328 # Subcommittee Members
329
330 ## ATTACHMENT 2
331

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