

# Orleans Parish Communication District

## *9-1-1 Call Answering Times*



An OPCD Staff Information Paper

March 15, 2011

## Executive Summary

It is nationally accepted that 9-1-1 call-takers and dispatchers are the first responders to all emergencies, whether isolated or widespread, man-made or natural, accidental or deliberate. In New Orleans, the 9-1-1 call-takers act as the gateway through which every emergency is reported. That is, the 9-1-1 call-takers provide the critical link between the public needing emergency assistance and the responders who arrive on the scene.

The National Emergency Number Association (NENA) is the standards-setting entity for E9-1-1 service and technology. The NENA standard for answering 9-1-1 calls is that at least 90 percent of all 9-1-1 calls arriving at the PSAP during the average busy hour<sup>1</sup> shall be answered within 10 seconds. The NENA standard also requires that 95 percent of all 9-1-1 calls shall be answered within 20 seconds.

In New Orleans, in April 2010, 98 percent of all 9-1-1 calls<sup>2</sup> received at the Orleans Parish 9-1-1 Center were answered within 10 seconds. Slightly more than 99 percent of all 9-1-1 calls were answered within 20 seconds. Thirteen callers waited 70 seconds for their 9-1-1 call to be answered, and only one caller waited for two minutes (120 seconds). No 9-1-1 calls were on hold for longer than 120 seconds.

In June 2010, 25 of 65 NOPD call-takers and dispatchers were laid off due to the City's budget crisis. Since that time, call volume has increased. In addition, the remaining NOPD call-takers and dispatchers were subject to mandatory furlough days, and additional employees left NOPD.

By October 2010, 36 call-takers remained, representing a 44 percent decrease in staff. In that month, only 89 percent of 9-1-1 calls<sup>3</sup> were answered within 10 seconds. Only 92.88 percent of all 9-1-1 calls were answered within 20 seconds, a significant decrease from April. Thirteen callers had to wait 140 seconds, and one caller waited over four minutes for his or her 9-1-1 call to be answered.

In December 2010, there were only 34 call-takers, representing an almost 50 percent cut in staff. In that month, only 89.15 percent of all 9-1-1 calls were answered within 20 seconds, even though 9-1-1 call volume decreased. Five callers waited eight minutes for their 9-1-1 call to be answered. In January 2011, NOPD was no longer subject to mandatory furlough days, and call answering times improved; almost 93 percent of all 9-1-1 calls were answered within 20 seconds. While an improvement, the City is still not meeting the national standards.

It is reasonable to conclude that the layoffs, furloughs, voluntary resignations, and increased call volume have had a negative impact on NOPD's ability to answer 9-1-1 calls in a timely manner. The facts show that NOPD is operating near the limit of human capacity. The staff shortage of NOPD call-takers poses an enormous concern for the public safety response time to our citizens. The City must work together with the Orleans Parish Communication District (OPCD) to develop a joint solution to the extended wait times, along with the ability to respond to 9-1-1 calls, especially with the major events coming over the next 90 days. A major incident could overload the thinly staffed 9-1-1 system, and could hamper the City's ability to respond to that and any other emergency.

<sup>1</sup> The average busy hour is the hour each day with the greatest 9-1-1 call volume.

<sup>2</sup> In April, there were 37,253 9-1-1 calls, and 36,648 were answered within 10 seconds.

<sup>3</sup> In October, there were 38,624 9-1-1 calls, and 34,468 were answered within 10 seconds.

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## Background Information

### The Orleans Parish Communication District

The Orleans Parish Communication District (OPCD) was created by the Louisiana Legislature in 1982 to provide Enhanced 9-1-1 (E9-1-1) service throughout Orleans Parish. Governor Dave Treen signed House Bill 856 into law as Act 155 of 1982. The OPCD went “live” with E9-1-1 service two years later, in 1984. E9-1-1 service was, and still is, a coordinated effort among OPCD, the Mayor’s Office, the Office of Emergency Preparedness (OEP), New Orleans Police Department (NOPD); New Orleans Fire Department (NOFD); and New Orleans Emergency Medical Services (NOEMS).

An 11-member Board of Commissioners governs the OPCD. Nine of those members are statutory, and are listed below:

- Superintendent of NOFD;
- Superintendent of NOPD;
- Director of the New Orleans Department of Health;
- Director of the Office of Emergency Preparedness (OEP);
- Chief Executive Officer of the Medical Center of Louisiana in New Orleans;
- Commander of Louisiana State Police, Troop B;
- Commandant of the Louisiana Army National Guard; and
- Two at-large members appointed by the Mayor of New Orleans.

Since its creation in 1982, the OPCD Board has added the following two positions, for 11 Board members: Orleans Parish Medical Society, and Director of NOEMS.

### E9-1-1 Operations in New Orleans

Between 1984 and 2005, the OPCD funded the E9-1-1 call-taking equipment, the network, and the infrastructure so that 9-1-1 calls could be answered. The City’s three emergency response agencies—NOPD, NOFD, and NOEMS—were located in two separate buildings,<sup>4</sup> and each agency funded its call-takers, dispatchers, and dispatch centers. All 9-1-1 calls were answered by NOPD call-takers at NOPD headquarters. Callers needing NOFD or NOEMS were transferred to the respective agency for further call-taking and dispatching.

In 2002, OPCD began planning and designing a Permanent 9-1-1 Center to be located on a site that OPCD leased from the Firemen’s Charitable Benevolent Association (FCBA).

In 2005, the failure of the federal levee system flooded and damaged the City’s three separate dispatch centers, along with all call-taking and dispatching equipment. Within 30 days, OPCD set up a fully operational 9-1-1 Center at the Hyatt Hotel. In early November, Hyatt Hotel officials notified OPCD that it had to move 9-1-1 operations from the hotel.

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<sup>4</sup> NOFD and NOEMS shared a building, but were on different floors.



Mayor Ray Nagin made the resumption of E9-1-1 service a prerequisite for reopening the City. The City, however, lacked the funding and resources to build a 9-1-1 Center. The City requested that OPCD erect a 9-1-1 Center, and OPCD agreed.

In early December 2005, the three agencies moved from the Hyatt to a facility constructed of seven trailers, referred to as the "Temporary" Public Safety Answering Point (PSAP). OPCD staff recognized that the trailers were only a temporary solution, and immediately began constructing a metal building on the site, which is referred to as the "Interim PSAP."

In October 2009, OPCD contracted with Donahue-Favret Construction to build a permanent 9-1-1 Center. The ribbon-cutting ceremony is on March 31, 2011, and after the building is equipped with new workstation furniture and new or upgraded 9-1-1 equipment, 9-1-1 operations will move to the building. The new building will combine state-of-the-art equipment and work areas in a secure environment to ensure that emergency communications will continue to function in the event of a natural or man-made disaster.

Currently, OPCD provides

- The 9-1-1 Call Center;
- All call-taking and dispatching workstation furniture;
- The information network and infrastructure;
- The E9-1-1 Call-Taking Equipment;
- The Computer Aided Dispatch (CAD) system;
- Radio console maintenance;
- The GIS/mapping system;
- Training;
- Housekeeping and janitorial services and supplies;
- The voice logging system (which allows 9-1-1 calls and radio dispatches to be recorded); and
- The technical support, service, and maintenance required by the three response agencies to answer, process, and dispatch E9-1-1 calls for service from the public.

The OPCD works closely with the City and its emergency responders to interface the E9-1-1 system with off-site equipment. Examples include the following:

- Mobile data computers in NOPD and NOEMS vehicles;
- Automatic Vehicle Location (AVL) for NOEMS;
- Fire Records Management System (FRMS);
- Fire Station Alerting;<sup>5</sup>
- Tear-n-Run;<sup>6</sup> and
- Emergency Medical Dispatch<sup>7</sup>

## **What is a Public Safety Answering Point (PSAP)?**

The National Emergency Number Association (NENA) defines a PSAP as an emergency communications center that is responsible for answering 9-1-1 calls and either dispatching an emergency response or transferring the 9-1-1 call to another agency or PSAP for dispatching.

<sup>5</sup> Fire Station Alerting allows NOFD to operate the dispatch system in "silent" mode, and only alerts the appropriate units for dispatch rather than all firehouses.

<sup>6</sup> Tear-n-Run provides NOFD stations with a summary printout of dispatch and premise information prior to their departure from the station.

<sup>7</sup> Emergency Medical Dispatch (EMD) allows NOEMS call-takers to provide 9-1-1 callers with medical pre-arrival instructions while the ambulance is on its way to the 9-1-1 caller's location.



NENA further differentiates between a primary and secondary PSAP. A primary PSAP is the first center to answer a 9-1-1 call. A secondary PSAP is a center that takes 9-1-1 calls from the primary PSAP.<sup>8</sup>

## PSAP Configuration in New Orleans

With respect to New Orleans, the three agencies are co-located in the same building, but each agency dispatches its own units in response to a 9-1-1 call. Each agency is also responsible for its own call-takers and dispatchers. NOPD is the primary PSAP because all 9-1-1 calls are answered by NOPD call-takers. Callers needing NOFD are transferred to NOFD dispatchers, who process and dispatch those calls. Callers needing NOEMS are transferred to NOEMS dispatchers, who process and dispatch those calls.

## Call Answering Times

The National Emergency Number Association (NENA) is the standards-setting entity for E9-1-1 service and technology. The NENA standard for answering 9-1-1 calls is as follows:

- ✓ At least 95 percent of all 9-1-1 calls shall be answered within 20 seconds or less.
- ✓ At least 90 percent of all 9-1-1 calls received in the average busy hour must be answered within 10 seconds or less

In addition, NENA requires that all incoming calls be answered in the following order of priority:

1. 9-1-1 lines.
2. Emergency 10-digit lines (e.g., phone lines used by alarm companies).
3. Non-emergency 10-digit lines (e.g., 821-2222).
4. Administrative and internal phone lines.<sup>9</sup>

## Why Have a Call-Answering Standard?

During any emergency, time is of the essence. A person who has stopped breathing will begin to suffer brain damage within four minutes. Studies have shown that fires double in size every two minutes, and that the chance of capture decreases for every additional second that a criminal has to flee.

The call-answer standard was developed to standardize the method of call-taking and call-handling across jurisdictional boundaries, provide consistency in how 9-1-1 calls are answered and processed, improve E9-1-1 service to the public, and ensure that 9-1-1 calls receive the needed priority. In addition, meeting or exceeding the standard could tend to reduce the city's exposure to liability and risk.

<sup>8</sup> Sue Pivetta, *The 9-1-1 Puzzle: Putting All the Pieces Together*. Coshocton, Ohio: The National Emergency Number Association, 1993, p. 12.

<sup>9</sup> National Emergency Number Association, *Call Answering Standard/Model Recommendation*, NENA Operations Standard 56-005, page 8.



## **Compliance with the NENA Standard**

There are over 6,000 PSAPs in the nation providing E9-1-1 service over 6,000 different ways. One common thread linking all PSAPs is the goal of reducing call answer times. OPCD staff spoke with a number of PSAP directors regarding the NENA call-answer standard. Many PSAP directors admitted that they do not always meet the NENA standard of answering 95 percent of all calls within 20 seconds. However, every PSAP director stated that meeting and exceeding the standard was a primary goal. Almost every PSAP director stated that they provide their governing authority (whether a 9-1-1 Board, a County Commission, or State 9-1-1 Authority) with monthly call-answering times.

Some states have even more stringent call-answer times for their PSAPs. For example, the call-answering standard developed by the Connecticut Department of Public Safety/Office of Statewide Emergency Telecommunications is that 90 percent of all 9-1-1 calls must be answered within 10 seconds. In the quarter from July-September 2010, only two PSAPs out of 107 did not meet the state standard. The statewide average is 95 percent of all calls statewide are answered within 10 seconds or less.

## **Call-Answering Protocol in New Orleans**

Following is a brief explanation of how 9-1-1 calls are processed once a 9-1-1 call is received by OPCD's E9-1-1 call-taking equipment.

When a 9-1-1 call reaches OPCD's E9-1-1 system, the call is placed in the Automatic Call Distribution (ACD) system. An ACD is a device or program in OPCD's E9-1-1 telephony system that automatically distributes or routes calls to a specific group of terminals used by call-takers. The ACD is used to route calls in the most efficient manner possible, by automatically distributing every 9-1-1 call to the NOPD call-taker who has been free the longest. The NOPD call-taker does not have an option on whether or not to take the call; the call is "forced" onto the call-taker for processing.

## **What Happens if all the NOPD Call-Takers Are Busy?**

In a situation where all NOPD call-takers are busy and not available to take a call, the 9-1-1 call is placed in the 9-1-1 call queue. In this situation, the 9-1-1 caller will continue to hear ringing to indicate the call is awaiting answer. The 9-1-1 call will remain in queue until the next call-taker is available. As soon as the 9-1-1 call is placed in the 9-1-1 call queue, the wallboard in the 9-1-1 Center changes to red with the call-holding count, and an audio alarm sounds to notify personnel that 9-1-1 callers are holding. Calls in the 9-1-1 call queue are handled in a "first-in, first-out" manner as call-takers become available for call assignment. That is, the call with the longest hold time will be placed first in the queue, and will be answered first, provided the caller has not hung up.

However, if a 9-1-1 caller hangs up while in the queue and then calls back, the problem is exacerbated. The hang-up call is flagged as an abandoned call, which must be called back, which, in turn, results in one fewer call-taker available to take 9-1-1 calls. The new 9-1-1 call is then placed at the bottom of the queue, increasing the amount of time for that 9-1-1 call to be answered.



## Abandoned and Hang-up 9-1-1 Calls

Generally speaking, an abandoned 9-1-1 call is one in which the caller hangs up while waiting for the 9-1-1 call to be answered. 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 call-taker. However, the initiating caller has hung up prior to the 9-1-1 operator answering the call...."<sup>10</sup>

OPCD's E9-1-1 call-taking equipment cannot differentiate between a true abandoned call (where the caller meant to dial 9-1-1, but hung up before the call could be answered) and an accidental or hang up 9-1-1 call. As a result, the abandoned call reports from OPCD's E9-1-1 call-taking equipment contain both hang-up and abandoned calls.

### Abandoned 9-1-1 Call Protocol in New Orleans

If someone hangs up while dialing a "normal" call, the telephone network aborts the call in whatever state it is at the time the call is hung up. That is, if someone hangs up the phone while dialing, the call does not complete. If someone hangs up the phone while the phone is ringing, the ringing stops.

However, in a 9-1-1 call, the 9-1-1 network will not cancel the call if the caller hangs up. Once someone has dialed "9-1-1," the call is immediately placed into the 9-1-1 network and the call is still routed to the PSAP, even if the caller has hung up and is no longer on the line. The caller information is presented as an abandoned call to the 9-1-1 call-taking equipment, and is displayed in an abandoned call list. NOPD call-takers not actively answering calls are required to "work" this list by calling the number to determine if a response is necessary.

According to NENA, there is no gold standard for an "acceptable" level of abandoned calls. In 2002, NENA attempted to establish a standard on abandoned calls. However, very few PSAPs were willing to provide any information publicly on the number and percent of abandoned calls, mainly because of public perception. OPCD staff spoke with several PSAP directors about abandoned calls. Most directors were only willing to discuss their abandoned call ratios off the record because of public perception. That being said, no agency reported an abandoned call ratio that was over five percent of 9-1-1 calls. The Connecticut Department of Public Safety does publish abandoned call ratios on the agency's website<sup>11</sup> for every PSAP in the state. Statewide, abandoned calls in the second and third quarters of 2010 were 2.6 percent and 3.4 percent, respectively.

There appears to be a consensus among the various PSAP directors that there is a direct and positive relationship between 9-1-1 call answering times and abandoned 9-1-1 calls. That is, as answering times increase, abandoned calls increase as well. Conversely, when answering times decrease, abandoned calls decrease as well. Every director stated that adequately staffing the PSAP has the greatest impact on call-answer times.

No matter how well staffed a PSAP may be, abandoned calls will not fall to zero. This is because some abandoned 9-1-1 calls are actually hang-up calls. Nonetheless, it is clear that

<sup>10</sup> NENA Operational Information Document, *Silent of Hang-Up 9-1-1 Calls for Service: An Operations-Focused Study*, NENA OID Number 56-501, August 23, 2002, p. 2.

<sup>11</sup> <http://www.ct.gov/dps/cwp/view.asp?a=2150&q=294314>.



when a PSAP meets the NENA call-answering standard, abandoned calls will be kept to a minimum. If a PSAP does not meet the NENA call-answering standard, it is clear that there will be 9-1-1 callers who will have to wait excessively for their call to be answered, and there will be an increase in abandoned calls.

Table 1 on the following page provides information on total call volume, which includes 9-1-1 calls, 10-digit emergency calls, and 10-digit non-emergency calls, number of call takers, call-answer times, and abandoned 9-1-1 calls. The table provides important information on the City's ability to provide efficient, effective, and responsive E9-1-1 service to its residents.

From Table 1, it can be seen that in April 2010, 98 percent of all 9-1-1 calls were answered within 10 seconds. Slightly over 99 percent of all 9-1-1 calls were answered within 20 seconds, far exceeding the NENA standard (95 percent). Thirteen callers (0.03 percent) waited 70 seconds for their call to be answered, and only one caller waited for two minutes, or 120 seconds. No calls were on hold for longer than 120 seconds in April.

In June 2010, 25 call-takers and dispatchers were laid off due to the City's budget crisis. In addition, the remaining call-takers and dispatchers were subject to the mandatory furlough days, and other employees have left NOPD; those positions have not been replaced. In addition, call volume increased between April and October, further exacerbating the staff shortage. As of December 2010, there were 34 NOPD call-takers, representing almost a 50 percent decrease from April 2010, when the call answering standard was met.

These four factors have had a major impact on call answer times. In October 2010, only 89 percent of 9-1-1 calls were answered within 10 seconds. Only 92 percent of all calls were answered within 20 seconds, below the NENA standard of 95 percent. Thirteen callers had to wait 140 seconds, and one caller waited for over four minutes for his or her 9-1-1 call to be answered. It is reasonable to conclude that the increase in call volume, layoffs, furloughs, and staff resignations and retirement have had a huge impact on NOPD's ability to answer 9-1-1 calls in a timely manner. The facts show that NOPD is operating near the limit of human capacity, as a call-taker can talk to only one caller at a time. It is clear that, at a minimum, NOPD needs to replace those positions lost to attrition.

Between October and December 2010, 9-1-1 call volume fell by 10 percent. However, call answering times increased. Only 89 percent of all 9-1-1 calls were answered within 20 seconds, and abandoned 9-1-1 calls rose to almost 20 percent of 9-1-1 call volume. Five callers waited eight minutes for their 9-1-1 call to be answered.

In January 2011, NOPD call-takers were no longer subject to the mandatory furlough days. Call answering times did improve; about 92 percent of all 9-1-1 calls were answered within 20 seconds. Although this represents an improvement from December 2010, it is still less than the national NENA standard.

The shortage of NOPD 9-1-1 call-takers poses a huge concern for the public safety response time to our citizens. The City needs to work with OPCD to determine a joint solution to the extended call answering times and the ability to respond to 9-1-1 calls. A major incident has the potential to overload our thinly staffed 9-1-1 system, and will certainly hamper the City's ability to respond to that and any other emergency. Failure to address the staffing shortage could tend to erode the public's trust not only in 9-1-1, but in public safety as a whole.



## Staffing Levels

It is nationally accepted that E9-1-1 call-takers and dispatchers are the first responders to all incidents, whether isolated or widespread, man-made or natural, accidental or deliberate. The E9-1-1 call-takers and dispatchers are the critical link between the public and emergency responders.

There are no national standards per se regarding an optimal staffing level. The optimal level of staffing is affected by a variety of factors, some of which are listed below:

- Total call volume (9-1-1, 10-digit emergency, and non-emergency);
- Call volume at the average busiest hour;
- Average call duration;
- Direct population served;
- Indirect population served;
- The extent of a call-taker's other duties;
- Hours of work per year per employee; and
- Goals of the PSAP.

Calculating the optimal number of 9-1-1 call-takers is a continuous process that requires regular reassessment and creative scheduling, such as staggering shifts. Other factors come into play, such as employee fatigue and burnout, mistakes made in the processing of a 9-1-1 call, or even excessive use of sick and vacation time.

The staff shortage is having a significant impact on the ability of NOPD call-takers to answer 9-1-1 calls, and must surely be adding to workplace stress, a huge human resource problem at PSAPs nationally, even those that are adequately staffed. Stress can lead to burnout and loss of qualified, experienced call-takers, and has the potential to increase errors when answering and processing 9-1-1 calls, thereby increasing the City's exposure to risk and liability.

## Conclusions and Recommendations

Determining the optimal staffing levels for NOPD call-takers and dispatchers is a lengthy, labor-intensive, and complicated process that is beyond the scope of this information paper. At the same time, it is reasonable to conclude that the 9-1-1 Call Center is understaffed with respect to NOPD 9-1-1 call-takers. This conclusion is based on 9-1-1 call answering times and the percent of abandoned 9-1-1 calls. Adequate staffing translates into improved call-answering times so that 95 percent of all 9-1-1 calls will be answered within 20 seconds or less. The 9-1-1 call-takers provide the critical link between the public and the City's emergency responders. The prompt answering of 9-1-1 calls inherently affects the public's perception of how safe they feel.

Hiring additional 9-1-1 call-takers will obviously have an adverse impact on the City's finances. City officials will need to balance the goal of improved call-answer times with limited revenue. Implicit in this decision is whether improving 9-1-1 call-answer times is a worthwhile goal.

Table 1  
Analysis of 9-1-1 Call Volume

	April 2010	Oct. 2010	Dec. 2010	Jan. 2011
Total Incoming Calls	56,394	61,286	61,817	61,244
% change, previous reported month		+8.67%	+0.87%	-0.93%
Total 9-1-1 Calls	37,253	38,624	34,536	35,157
% change, previous reported month		+3.68%	-10.58%	+1.80%
No. of NOPD Call-takers	65	36	34	34
% change, previous reported month		-44.62%	-5.5	---
No. of Calls Answered in 10 seconds or less	36,648	34,468	29,311	31,577
% of Calls Answered in 10 seconds or less	98.38%	89.24%	84.87%	89.82%
No. of Calls Answered in 20 seconds or less	291	1,407	1,479	1,086
% of Calls Answered in 20 seconds or less	99.16%	92.88%	89.15%	92.91%
No. of Calls Answered in 40 seconds or less	234	1,554	1,932	1,314
% of Calls Answered in 40 seconds or less	99.79%	96.91%	94.79%	96.64%
No. of Calls Answered in 60 seconds or less	62	698	913	628
% of Calls Answered in 60 seconds or less	99.95%	98.71%	97.39%	98.43%
No. of Calls Answered in 120 seconds or less	18	442	730	461
% of Calls Answered in 120 seconds or less	100.00%	99.86%	99.5%	99.74%
No. of Calls Answered in 180 seconds or less	0	45	124	67
% of Calls Answered in 180 seconds or less		99.97%	99.86%	99.93%
No. of Calls Answered in 240 seconds or less	0	9	32	17
% of Calls Answered in 240 seconds or less		99.99%	99.96%	99.97%
No. of Calls Answered in 260 seconds or less	0	1	6	2
% of Calls Answered in 260 seconds or less		100.00%	99.97%	99.98%
No. of Calls Answered in 360 seconds or less	----	----	4	4
% of Calls Answered in 360 seconds or less	----	----	99.99%	99.99%
No. of Calls Answered in 480 seconds or less	----	----	5	1
% of Calls Answered in 480 seconds or less	----	----	100.00%	100.00%
No. of Abandoned 9-1-1 Calls	3,307	5,376	6,837	5,466
% of Total 9-1-1 Calls	5.86%	8.77%	19.80%	15.55%
% change in Abandoned Calls (prev. mo.)		+62.6%	+27.18%	-20.05%
Maximum hold time in seconds for a 9-1-1 call	120	240	480	420
Approximate # of times phone rang	20	40	80	70