REQUEST FOR BOARD ACTION

HENDERSON COUNTY
BOARD OF COMMISSIONERS

MEETING DATE: **January 7, 2008**

SUBJECT: **Communications Center Operations Study**

ATTACHMENTS: **Yes**

SUMMARY OF REQUEST:

In July of 2007, Henderson County retained Solutions for Local Government, Inc. of Charlotte, North Carolina to conduct an operations study of the emergency (911) Communications Center. County Manager Steve Wyatt will deliver that Study to the Board at this meeting.

BOARD ACTION REQUESTED:

No Board action is requested. If desired, the Board may schedule an opportunity at a future meeting for Steve Allen to formally discuss the Study.

Suggested Motion:

No motion suggested.

Communications Center Operations Study

December 2007

Prepared for:
Henderson County
North Carolina

Prepared by
Solutions for Local Government, Inc.

Communications Center Operations & Cost Study

December 2007

Prepared for:
Henderson County
North Carolina

Prepared by
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Charlotte, NC 28226
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Table of Contents

Executive Summary

For the calendar years 2000-2006, The Henderson County Communications Center received a total of 1,314,097 calls; *an average of 187,728 calls per year*. Of course recent year data indicates that annual call numbers have been increasing at a significant rate. In fact, t***he average number of calls received per year for calendar years 2004-2006 was over 222,500 calls per year.***

- Currently twenty (20) full-time personnel, which include the Center Director, answer, dispatch and maintain emergency communications with emergency agency responders 24 hours/day, 365 days/year. All personnel are employees of the Sheriff.

- The total number of 911 calls dispatched by agency for the years 2000-2006 was:

Year	EMS	FIRE	RESCUE	LPPD	FPD	SHERIFF	OTHER	Total # Disp.
2000	6,886	7,768	361	1,845	8,238	36,571	3,262	**64,931**
2001	7,296	7,997	320	2,112	5,235	41,832	3,702	**68,494**
2002	7,523	7,957	370	2,117	5,187	44,659	4,530	**72,343**
2003	8,045	8,556	358	2,174	5,239	54,317	6,038	**84,727**
2004	8,352	9,361	466	2,047	5,089	55,599	6,961	**87,875**
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2006	8,729	10,278	480	2,114	6,839	60,091	14,789	**103,320**

- As noted, the Sheriff's Office is consistently the most frequently dispatched agency in the County; more than twice as many times/year as all other agencies combined

- The busiest days of the week with regards to call volume are Wednesday, Tuesday, and Friday. The least busy day of the week is Sunday.

- The busiest hour of the day with regards to call volume is between 9:00am and 10:00am; the least busy hour of the day is between 5:00am and 6:00am.

- The total budget allocated the Communications center for FY 2007-2008 is $1,198,897, although $543,000 of that is expected to be "returned' to the County as revenue via 911 surcharge collections.

Performance Comparisons

The School of Government at the University of North Carolina at Chapel Hill undertook a Local Government Performance Measurement Project covering fiscal years 1999-2000 through 2000-2003. It collected and assessed performance and cost data for numerous service areas of numerous ***city*** governments in North Carolina. A specific function studied in 11 cities was Emergency Communications.

The last fiscal year for which report findings were published was 2002-2003. Although there were no *County* Centers included in the study, data from two of the participating cities are included in the table that follows in an effort to offer comparisons with Henderson County.

- The City of Cary is included because it is (was) the closest in population to Henderson County
- The City of Asheville is included because it is the closest in proximity to Henderson County

Comparison of Performance Data

Jurisdiction	Henderson Co.	Cary	Asheville
Population Served	102,424	105,765	69,193
Total Calls Received	224,160	251,232	230,291
Totall 911 Calls Received	89,664	73,901	32,584
Total Calls Answered per 1,000 Population	2,189	2,375	3,328
Total 911 Calls Received per 1,000 Population	875	1,431	471
Total Calls Answered per Telecommunicator	12,453	13,957	9,595
Total 911 Calls Received per Telecommunicator	4,981	4,106	1,358
Total Budget *	$ 1,198,857	$ 1,345,574	$ 1,435,015
Cost per 911 Call Received	$ 13.37	$ 18.21	$ 44.04
FTE Positions-Calltakers/Teleconmmunicators	18	18	24
FTE Positions-Administrative/Other	1	-	1

* ***NOTE: Henderson County's figures are based on the current FY 07-08 approved budget. The data included for both Cary and Asheville is that from their FY 2002-2003 budgets.***

The report section titled ***Issues & Recommendations*** begins on page 23. The issues identified as the most significant based on the study's findings are discussed in that section and provide the basis for the recommendations that follow here.

Recommendations re: Staffing

1. *Provide one (1) additional, full-time, 24 hour/day Telecommunicator position now; i.e. at least four (4) full-time personnel depending upon shift configuration.*
2. *Provide two (2) additional, full-time Calltaker positions now, to work the primetime hours of either 10:00am-10pm or 11:00 am-11:00pm, seven (7) days per week; estimate three (3) full-time personnel.*
3. *Create and provide for one (1) full-time, dedicated "Training & Quality Assurance" position to address directly and regularly all training, certification, and quality assurance audits and personnel reviews on an on-going and scheduled basis.*

The premises upon which these recommendations are based include the following:

- *The Communications Center is the essential "hub" from which emergency service response originates*
- *It serves on a continuing basis as the foundation necessary for a quality emergency service system*
- *Emergency communications is a complex and dynamic process*
- *Technical knowledge, extensive training, and above all human/personal skills must be brought to bear calmly, professionally, and efficiently in the most critical life situations*
- *Dedicated, professional, and experienced management is imperative*
- *Dedicated training & quality assurance oversight is equally imperative*

Recommendations re: Performance Objectives & Call Data

1. Establish and document performance benchmarks that fall within the established standards of PSAP performance recommended by NFPA, NENA, CALEA or similarly established standards setting professional organization(s).
2. Establish as an immediate priority, and begin collection and review on a monthly basis, the data elements that specifically address Communications Center performance, such as those identified in list A, above.
3. As soon as practical, begin regular collection and distribution of data elements for emergency response agency served similar to those identified in list B, above; and distribute to each agency accordingly.

Recommendation re: Public Education

1. Be it public service announcements via radio or television, individual "reminder" mailings to citizens, newspaper announcements, Library postings, or school announcements provided on a periodic basis there needs to be an effort made to curtail the 911 line abuses currently being experienced.

Recommendations re: Security

1. The feasibility of constructing a security vestibule at the parking lot entrance to the Center should be studied. Card key access could still be utilized, however the vestibule, in conjunction with video surveillance would preclude direct contact and exposure of the Center to individuals having no business there.
2. Cameras should be mounted to permit viewing from within the Center of parking lot entrance to the Center, as well *any/all* of the entrances to the building not already monitored. In order not to unnecessarily distract Center personnel after hour cameras should include motion detection activation of monitors.
3. Be certain the parking lot adjacent the Center exit is well lighted and can be monitored via camera to enable observation of staff leaving and entering the building and their personal vehicles; and that enough parking places be reserved to accommodate at least the number of personnel assigned to the largest shift.

Summary

Considerable data was collected, and analyzed during the development of this study. Communications Center operations were observed and studied numerous times for hours during both day and night. And, many interviews were conducted with Center personnel as well as numerous user agency representatives. In summary:

The Henderson County Communications Center is well run, however, suffers from a significant shortage of key staff positions.

In contrast with the late summer and fall of 2006 when this consultant requested important (normally maintained information from the Center during development of the then EMS study, and was told "it was not available" or what was available "could not be considered accurate", the current staff and management have not only excelled in discovering how to in fact access the data that has been available all along, but gone beyond the basic retrieval of that data and begun to actually ***do*** something with it.

The data is in fact what performance evaluations and funding decisions should be based upon. In addition to the data, performance under pressure is somehow done as well as ever and from this writer's experience, with generally, a great attitude; although without help soon, that may not last.

Lastly, while not an intended focus of this study originally, the question has repeatedly come up during the study and in fact the development of this report, of "who should be responsible for the Communications Center?"

This writer's answer would typically be "whoever will give it the most serious attention"! Consider the following:

- The Sheriff's Office responds to *more than twice* the number of 911 calls of all other emergency response agencies combined.
- The current Sheriff has been responsible for the Communications Center for the past year.
- The Communications Center is well run and from all indications is continuing to evolve in a very positive direction
- It's not broke; why try to fix it?

INTRODUCTION

During July of 2007, Henderson County retained Solutions for Local Government, Inc. of Charlotte, North Carolina to conduct an operations study of the emergency (911) Communications Center. Facility visits, operations audits, group meetings, individual interviews, and data collection and review activities took place during the months of August-November 2007.

The majority of the data cited in this report was originally generated by the Communications Center Director and various support personnel. The graphics which refer to this information throughout the report were prepared by the consultant. As well, the analyses and accompanying comments and ultimately, the recommendations that follow are solely those of the consultant.

Emergency Communications

Emergency communications in the mind of both citizens and public safety professionals is synonymous with "911"; the number dialed in an emergency. Since this concept deals essentially with telephone communications, the federal government, particularly the Federal Communications Commission (FCC) has played a significant role in its development.

In 1967 the President's Commission on Law Enforcement and the Administration of Justice recommended that a "single number" be established for nationwide use to report emergency situations. On March 22, 1974, the Office of Telecommunications Policy issued National Policy Bulletin Number 73-1, the *National Policy for Emergency Telephone Number 911*". This policy stated that:

1. It is the place of the Federal Government to Encourage Local authorities to adopt and establish 911 emergency telephone services in all metropolitan areas, and throughout the United States. [Paragraph 3(a)]
2. Responsibility for the establishment of 911 service should reside with the local government. [Paragraph 3(b)]
3. The cost for basic 911 service should not be a deterrent to its establishment [Paragraph 3(c)]

By 1996 cellular and commercial mobile telephone service had become so popular and widespread that the FCC issued issue a report (CC Docket No. 94-102; July 26, 1996) calling for the requirement that 911 service be available to wireless phone users in two phases; phase I would provide calling party's number and cell tower location; phase II would provide calling party's number and location of the mobile phone by latitude and longitude. The *Wireless Communications and Public Safety Act of 1999* was subsequently signed by the President on October 26th , of that year.

In North Carolina G.S. 62A-2 of the Public Safety Telephone Act states;

"The General Assembly declares it to be in the public interest to provide a toll free number through which an individual in this State can gain rapid, direct access to public safety aid. The number shall be provided with the objective of reducing response time to situations requiring law enforcement, fire, medical, rescue, or other public safety service."

Emergency Communications in Henderson County

Henderson County's emergency services network, which includes virtually all of the public safety agencies operating in the County, could not exist; i.e. could not *begin* to approach the general public's expectations of it, without a sophisticated emergency communications system.

While there is no doubt that much credit is due the many fire, rescue, EMS, and law enforcement personnel that respond with special vehicles, skills, and equipment to the scenes of countless reported emergencies, it is the actual ***reporting*** of those emergencies which gets everything started.

In this instance, the County's Communications Center; or "911 Center" as it is frequently called; is an operational component of the Henderson County Sheriff's Office. It is located at the lower level of the County Administration Building on King Street in Hendersonville, adjacent the offices of the Emergency Services Director and the Fire Marshal. The personnel who work in the Center are of course employees of the Sheriff.

In the professional terminology of the communications industry, the Communications Center is referred to as the primary ***public safety answering point***, or **PSAP**, for emergency communications in Henderson County.

The Center operates 24 hours per day and is continuously staffed (typically) by anywhere from 3 to 5 professionally trained and certified personnel. The variance in the number of staff on duty at one time is typically a function of scheduling requirements necessary to answer and respond to call volumes that occur and coincide with certain hours of the day. However, in other instances, the Center may find itself working "short" as a result of staff vacancies, illness, vacation, or off-site training.

On duty personnel receive, handle and dispatch calls for Fire, Rescue, Emergency Medical Services (EMS), and law enforcement throughout Henderson County.

The Process

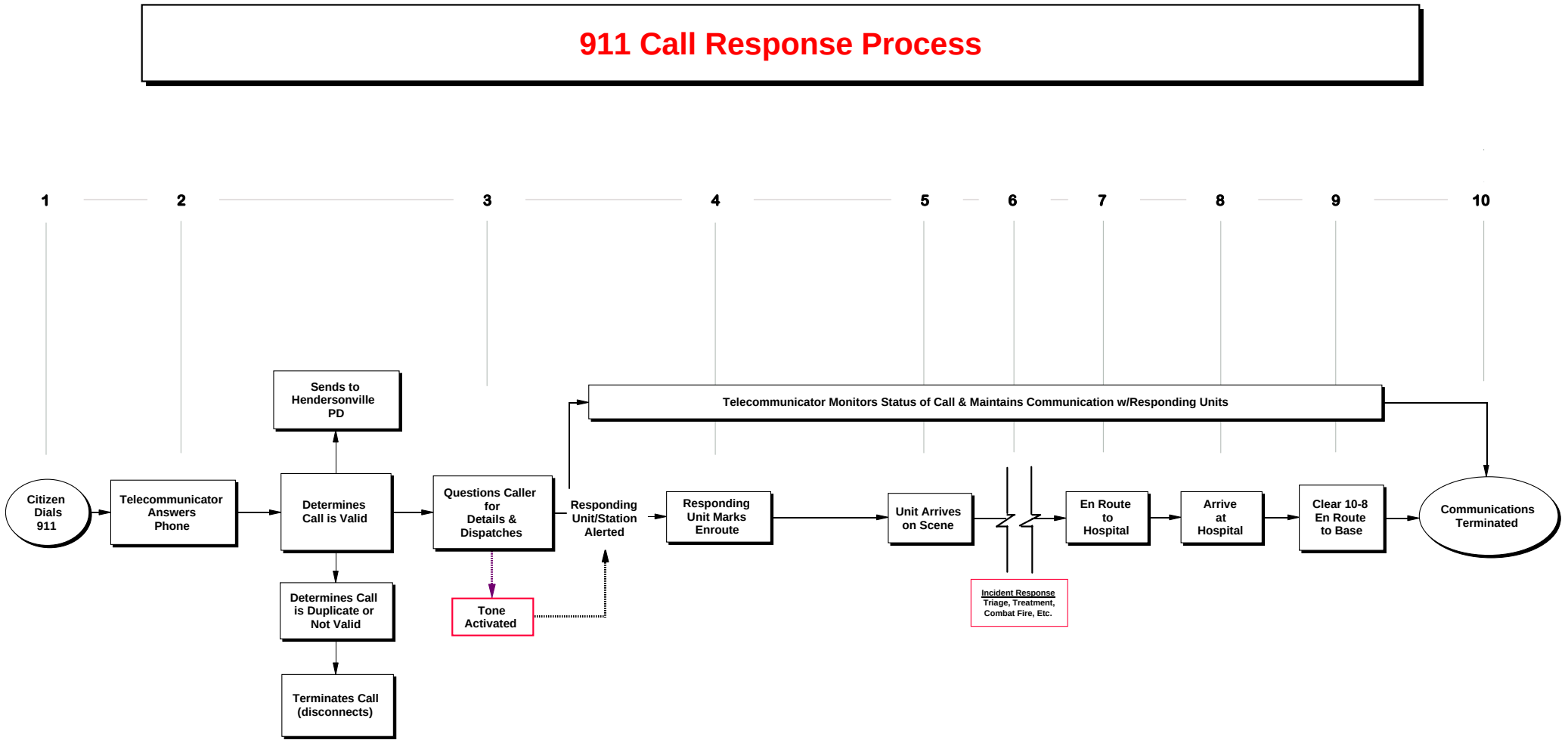
The communications and dispatch functions involved in the emergency communications process itself is illustrated in the accompanying fold-out diagram (Figure 1). The numbers across the top of the diagram represent the significant activity points identified for the purposes of this study. In real life these activities will vary somewhat from call to call and certainly from service to service. The process diagram shown utilizes an EMS example.

The involvement of Communications Center staff may vary significantly depending upon the type of call or emergency initially reported and the number of units or agencies dispatched. In some instances, the Telecommunicator may terminate the call when the dispatched agency responds enroute, in others they remain in on-the-line and in direct communication with some or all of the units/agencies responding to the emergency for the entire duration of the call; i.e. until the responding units are "back in service".

The focus of this study is the operations of the County's Communications Center. Subsequently, the activities addressed throughout this report and those receiving the most attention will be those occurring beginning at Step 1 and continuing through Step 4 as identified in the diagram.

The diagram will be repeated later in the report with additional information describing the time/activity intervals most significant to the emergency communications process.

Figure 1


911 Call Response Process
1
2
3
4
5
6
7
8
9
10
Citizen Dials 911
Telecommunicator Answers Phone
Determines Call is Valid
Sends to Hendersonville PD
Determines Call is Duplicate or Not Valid
Terminates Call (disconnects)
Questions Caller for Details & Dispatches
Tone Activated
Responding Unit/Station Alerted
Telecommunicator Monitors Status of Call & Maintains Communication w/Responding Units
Responding Unit Marks Enroute
Unit Arrives on Scene
Incident Response
Triage, Treatment, Combat Fire, Etc.
En Route to Hospital
Arrive at Hospital
Clear 10-8 En Route to Base
Communications Terminated

The significant activities undertaken by Communications Center staff and illustrated in the previous diagram include the following:

1. **Citizen dials 911**

2. **The telephone is answered in the Communications Center (now) by either a Calltaker or a Telecommunicator who:**
   - Identifies the nature of the emergency; i.e. police, fire, or medical
   - Follows initial question protocols; verification of address. number, immediate circumstances, etc. and either
   - Determines if medical emergency is a significant event (unconscious and/or not breathing) or similar high priority (life in danger) call and dispatches (sends alert to) Fire, Rescue, EMS, or law enforcement unit w/ initial victim information, status/condition, and address

     or
   - Determines call validity and transfers call to Telecommunicator for dispatch

     or
   - Determines call is duplicate of one already received or not a valid emergency, and terminates call

3. **Call is Dispatched**

   - If the call volume is particularly heavy, all available Telecommunicators may be occupied with other calls in which case the (now) single Calltaker may have to initiate dispatch themselves or, if calls continue to come in (in a worst case scenario), put the caller on hold until the next available Telecommunicator can pick up the call

   - The dispatch is official once the "tone" is activated in the base, station, or vehicle of the unit/service assigned the call and the address of the incident being reported and essential circumstances given

   - The Telecommunicator receiving the call may find on further questioning of the caller that the incident being reported has already/previously been reported by another caller, at which point the call will be terminated

   - A Telecommunicator will maintain communications with agency units responding to the reported incident for the duration of the call response time period which includes (in the medical emergency example) transport, hospital arrival, and ultimately to the point at which the until communicates that they are "back in service"

4. With calls involving medical emergencies, a significant responsibility of the Telecommunicator continues in Step 4 of the diagram, and relates specifically to "emergency medical dispatch" (EMD) protocols. In this instance the Calltaker or Telecommunicator will remain on the line with the caller to obtain as much additional patient/victim information as possible since they must simultaneously and continuously alert the responding Paramedics as to patient condition, physical characteristics, scene circumstances, etc.; *and* to provide actual medical/first aid instructions to the caller in an effort to help the victim; i.e., emergency medical dispatch (EMD). In cases involving high-priority medical emergencies (e.g., a person accidentally hung), EMS dispatch can take place with minimum questioning of the calling party. This continues until the EMS unit is on the scene and EMS staff has initiated care.

In most people's eyes, once the Telecommunicator alerts the appropriate law enforcement agency, EMS unit, or Fire station of an emergency and requests a response that their job is over. No so. Agencies for which the Center dispatches will have a Telecommunicator monitoring and supporting, via on-going communications, the efforts of those responder(s) enroute to the incident and throughout the activities that follow.

Steps 5-10 (Figure 1) illustrate the significant activity points of the responding unit, in this case, EMS, from arrival on the scene until the point at which the unit is back in service and the communications are terminated.

Emergency Medical Dispatch (EMD)
Henderson County is a licensee of the National Academy of Emergency Dispatch (NAED) "ProQA" automated emergency medical dispatch program. NAED's EMD standard medical protocols are the accepted national standard for EMD providers.

EMD is based on the premise that a fire engine or ambulance does not have to be the first unit on the scene of a medial emergency. Once a caller reaches a Telecommunicator, that Telecommunicator can, almost immediately, begin providing medical information and pre-arrival instructions via phone. Subsequently, EMD consists of three key components:

First, is triaging the in-coming call request for medical assistance to determine the level of response required; i.e., no response, non-emergency transport, emergency transport.

Second, is providing pre-arrival instructions so the caller can immediately help the victim. The level of telephone assistance can vary from just simple advice (call your doctor), to complete instructions for CPR. This is the most visible component of EMD and, in the eyes of some, its most valuable feature in that it can very well save a life.

Pre-arrival instructions are based on the concept that dispatchers are the victim's first medical contact and can provide basic first-aid via telephone, by asking specific questions and giving the caller instructions. The questions and instructions--protocol in medical parlance--are predetermined, given in a structured sequence, and specially designed to be effective when given to a third party over the telephone. The intended result is a dramatic decrease in the time it takes to begin administering emergency care.

Third, and perhaps the most critical feature of EMD, is quality assurance. State law requires that each EMD program-and each aspect of the EMD protocol-must be reviewed, revised as needed and approved by the local or regional EMS agency; in Henderson County, that authority is the Medical Director; a licensed physician. This ensures that the information and procedures being given by the dispatchers is correct, and appropriate for the incident. In addition, there must be an on-going review of the use of the EMD protocols by Communications Center Telecommunicators to ensure that the protocols are continually followed correctly, and that application of the protocols contributes to a positive patient outcome.

Communications Center Staff

The individuals who occupy the communications workstations in the County's Communications Center are either "Calltakers" or "Telecommunicators". Although, additional position designations exist; i.e. "Sergeant" and "Corporal" and of course "Director", who, while certified and trained as Telecommunicators, these individuals also serve as Supervisors, Lead Telecommunicators and the Center Administrator

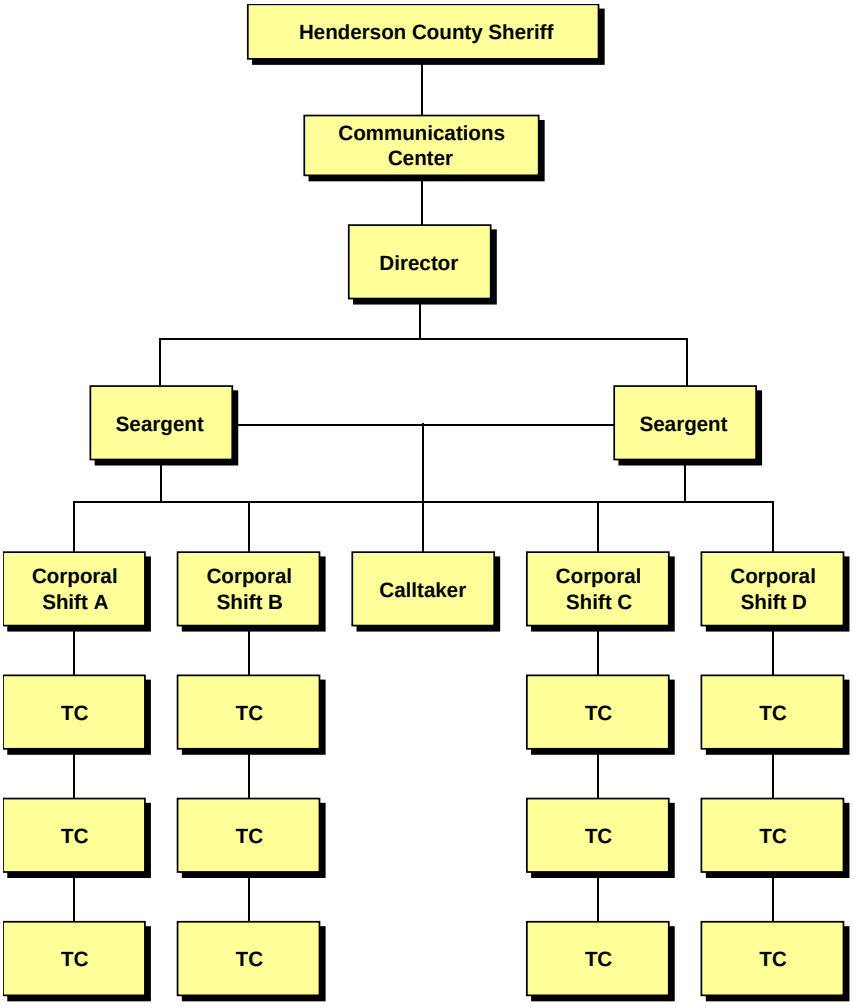
respectively. Of course with "rank" comes additional responsibilities that these individuals are expected to handle *in addition to* receiving, dispatching and monitoring 911 and administrative calls received as necessary and/or as the call volume dictates. Ultimately, however, when a citizen calls 911 in Henderson County they will talk with one of these individuals.

The key positions on the floor, and those most directly involved with the processing of calls received, are Calltakers and Telecommunicators.

- A *Calltaker's* primary responsibility is answering 911 calls coming into the Center, recording essential information in the computer aided dispatch (CAD) system, and (ideally) transmitting that information to a Telecommunicator.
- A *Telecommunicator's* primary responsibility is to dispatch the call to the appropriate agency and handle on-going response agency communications/radio traffic.

All active Calltakers and Telecommunicators have been trained and are certified as Emergency Medical Dispatchers" or EMD's. At the time of this report, the Communications Center was operating with a total allocation of 20 positions, which includes the Center Director. Figure 2 illustrates the current organization and position designations. The letters "TC" designate Telecommunicator positions.

Figure 2
Henderson County Communications Center Organization



Two (2) Sergeants serve as Supervisors and alternate days on duty to cover the time period of 11:00 am to 11:00 pm seven days a week. This time period enables them to coordinate with the Director regarding their supervisory and management responsibilities which include maintaining and updating the Standard Operating procedures manual, keeping staff schedules and monitoring vacation, training and other absences, as well as work with all new employees and oversee all new training and certification and recertification. The hours during which these Supervisors are scheduled to be on-duty and in the Communications Center include the 12-hour span during which the highest volume of calls are (typically) received which also enables them to back up regular shift personnel when necessary. These hours also enable Supervisors to meet with and coordinate the activities of personnel during changeover periods of two (2) different regularly assigned shifts that occurs at 7:00 pm and 7:00 am daily. During this time they can communicate instructions to staff, conduct meetings regarding procedural issues or assist with training of new personnel.

More specifically, observation of Center activities appeared to involve the designated personnel assigned to the various positions in the following activities:

Calltaker

- Receives and screens incoming requests (via telephone, radio and computer terminal) for law enforcement, fire, medical, or other emergency services.
- Questions callers to determine location and seriousness of emergency and response needed.
- Enters information into computer-aided dispatch system (CAD).
- Provides basic pre-arrival instructions to caller.
- Forwards caller needs and appropriate response information to Telecommunicators.
- Enters, updates, and retrieves information from a variety of computer systems. This includes making inquiries/entries into the North Carolina crime information computer system (DCI), or National Crime Information Center (NCIC) through a computer terminal.
- Answers or forwards non-emergency requests for assistance.

Telecommunicator

- Receives and screens incoming requests (via telephone, radio and computer terminal) for law enforcement, fire, medical, or other emergency services.
- Questions callers to determine location and seriousness of emergency and response needed.
- Enters information into computer-aided dispatch system (CAD).
- Operates two-way radio and/or other communications equipment to dispatch police, fire, medical and other personnel and equipment and to relay instructions or information to remote units.
- Provides pre-arrival instructions to caller.
- Coordinates police, fire, ambulance, and other emergency requests, relaying instructions to closest and most suitable units available.
- Contacts police officers to verify assignment locations, monitors dispatched units and, when necessary, serves as liaison with caller.
- Enters, updates, and retrieves information from a variety of computer systems. This includes making inquiries/entries into the North Carolina crime information computer system (DCI), or National Crime Information Center (NCIC) through a computer terminal.

Lead Telecommunicator

- Assists in providing supervision and coordination of Communications Center operations on an assigned shift, and provides training and guidance to subordinates

in the performance of assigned duties.

- Receives and screens incoming requests (via telephone, radio and computer terminal) for law enforcement, fire, medical, or other emergency services.
- Questions callers to determine location and seriousness of emergency and response needed.
- Enters information into computer-aided dispatch (CAD) system.
- Operates two-way radio and/or other communications equipment to dispatch police, fire, medical and other personnel and equipment and to relay instructions or information to remote units.
- Provides pre-arrival instructions to caller.
- Coordinates police, fire, ambulance, and other emergency requests, relaying instructions to closest and most suitable units available.
- Contacts police officers to verify assignment locations, monitors dispatched units and, when necessary, serves as liaison with caller.
- Enters, updates, and retrieves information from a variety of computer systems. includes making inquiries/entries into the North Carolina crime information computer system (DCI), or National Crime Information Center (NCIC) through a computer terminal.
- Checks equipment to ensure proper operating condition and reports malfunctioning equipment.
- Answers or forwards non-emergency requests for assistance.

Telecommunications Supervisor

- Supervises a shift of Telecommunicators and is responsible for the effective operation of the Communications Center and related equipment on an assigned shift.
- Receives and screens incoming requests (via telephone, radio and computer terminal) for law enforcement, fire, medical, or other emergency services.
- Questions callers to determine location and seriousness of emergency and response needed.
- Enters information into computer-aided dispatch system.
- Operates two-way radio and/or other communications equipment to dispatch police, fire, medical and other personnel and equipment and to relay instructions or information to remote units.
- Provides pre-arrival instructions to caller.
- Coordinates police, fire, ambulance, and other emergency requests, relaying instructions to closest and most suitable units available.
- Enters, updates, and retrieves information from a variety of computer systems. This includes making inquiries/entries into the DCI, or National Crime Information Center through a computer terminal.
- Checks equipment to ensure proper operating condition and reports malfunctioning equipment.
- Answers or forwards non-emergency requests for assistance.

Call Volume & Distribution

For the calendar years 2000-2006, Communications Center records reflect that a total of 1,314,097 calls of all types were received; an average of 187,728 calls per year. Of course recent year data does indicate that annual call numbers have been increasing at a significant rate. In fact, the average number of calls received per year for the years 2004-2006 was over 222,500 calls per year.

These call totals are ***not*** all 911/emergency calls, however. The total call numbers include what are referred to as *Administrative* calls as well as 911/Emergency calls.

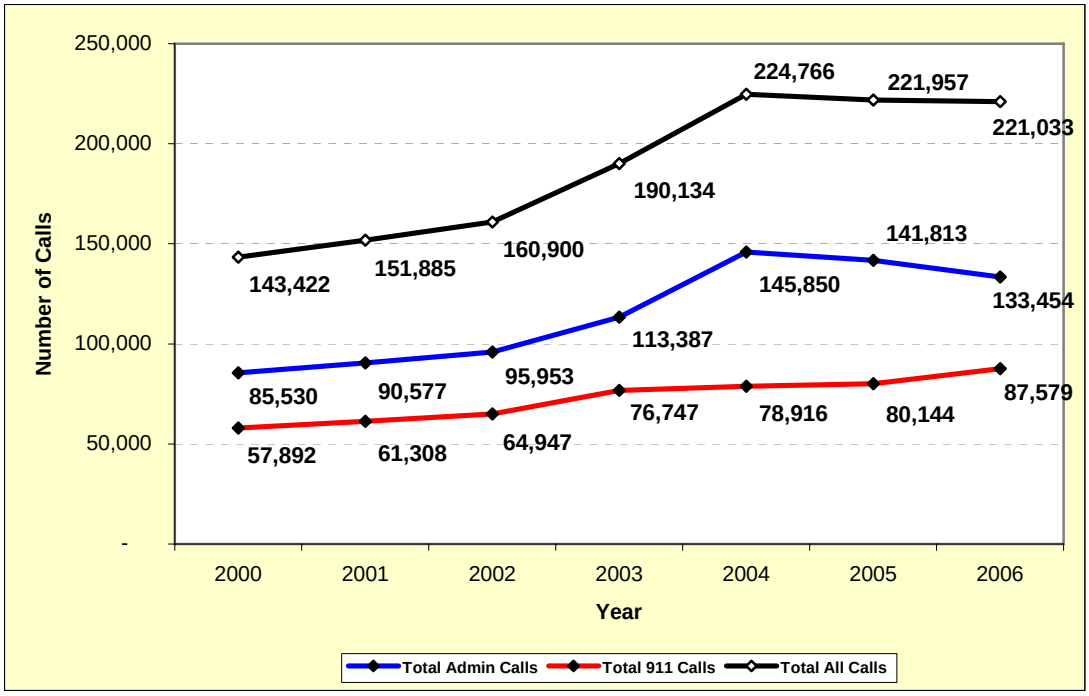
Depending upon the number of agencies and geographic area served, Communications Centers such as Henderson County's will generally find that anywhere from 55-65 percent of all calls received are administrative calls; i.e. 35-45 percent of calls received are 911/emergency calls.

It must be recognized that administrative calls for the most part are a very important responsibility of the Telecommunicators assigned to the Communications Center. While the calls may not be emergencies per se, they may be calls from law enforcement or first responders to an incident asking for back-up, assistance, or other information relevant their immediate incident or emergency. Of course from time to time calls are received that are duplicate calls or calls that have nothing to do with an emergency, however, the determination of a call's status alone is a significant responsibility. Examples of "administrative" calls will include:

- License tag checks
- Inquiries regarding outstanding warrants
- Request for information; directions, phone numbers, names, etc.
- Requests for assistance at a crime or accident scene
- Duplicate calls
- Nefarious or misplaced calls

The table provided in Figure 3 identifies the total administrative and 911/emergency calls received for each of the years 2000-2006. While the total of all calls and the total administrative calls appear to be dropping somewhat since 2004, it is significant to note that the number of 911 emergency calls have continued to increase every year since 2000.

Figure 3
Annual Calls Received



Also, the ratio of 911 calls to the total annual calls for 2006 was 60.4%, which is consistent with the seven (7) year average rate of 61.1%.

Calls Dispatched per Agency/Department

Figure 4 identifies the total emergency calls dispatched to each of the public safety agencies serviced by the Communications Center. The agencies include EMS, all

volunteer Fire Departments, the Henderson County Rescue Squad, Laurel Park police (LPPD), Fletcher Police (FPD), and the Sheriff's Office. The category labeled "other" includes the City of Hendersonville calls that come into the Center but are transferred to the City, or calls that are transferred to the Highway Patrol, Forest Service, and contract medical transport (non County EMS).

Figure 4
911 Calls Dispatched by Agency
2000-2006

Year	EMS	FIRE	RESCUE	LPPD	FPD	SHERIFF	OTHER	Total # Disp.
2000	6,886	7,768	361	1,845	8,238	36,571	3,262	**64,931**
2001	7,296	7,997	320	2,112	5,235	41,832	3,702	**68,494**
2002	7,523	7,957	370	2,117	5,187	44,659	4,530	**72,343**
2003	8,045	8,556	358	2,174	5,239	54,317	6,038	**84,727**
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2005	8,449	9,606	411	2,157	5,980	54,456	7,825	**88,884**
2006	8,729	10,278	480	2,114	6,839	60,091	14,789	**103,320**

The difference in the total number of calls dispatched in the far right column from that of the total annual calls "received" (Figure 3) is accounted for by the fact that in certain circumstances dispatch protocols require that multiple agencies be simultaneously dispatched to a single 911 call; for example a motor vehicle accident with injuries will call for Law Enforcement, Fire Department and EMS, a structure fire will dispatch multiple (typically 2-3) Fire Departments. In other words, in 2006, 87,579 calls to 911 resulted in a total of 103,320 public safety "units" being dispatched.

Perhaps more significant is the call distribution by agency. In this instance the total of all 911 calls dispatched for each year is the combined total of all calls dispatched to all emergency response agencies. The number of 911 calls to which the Sheriff's Office was dispatched is consistently and significantly greater than any of the other agencies identified. In fact, the Sheriff's Office has received ***more than twice*** the number of 911 calls of the other agencies combined, every year since 2000.

Call Distribution

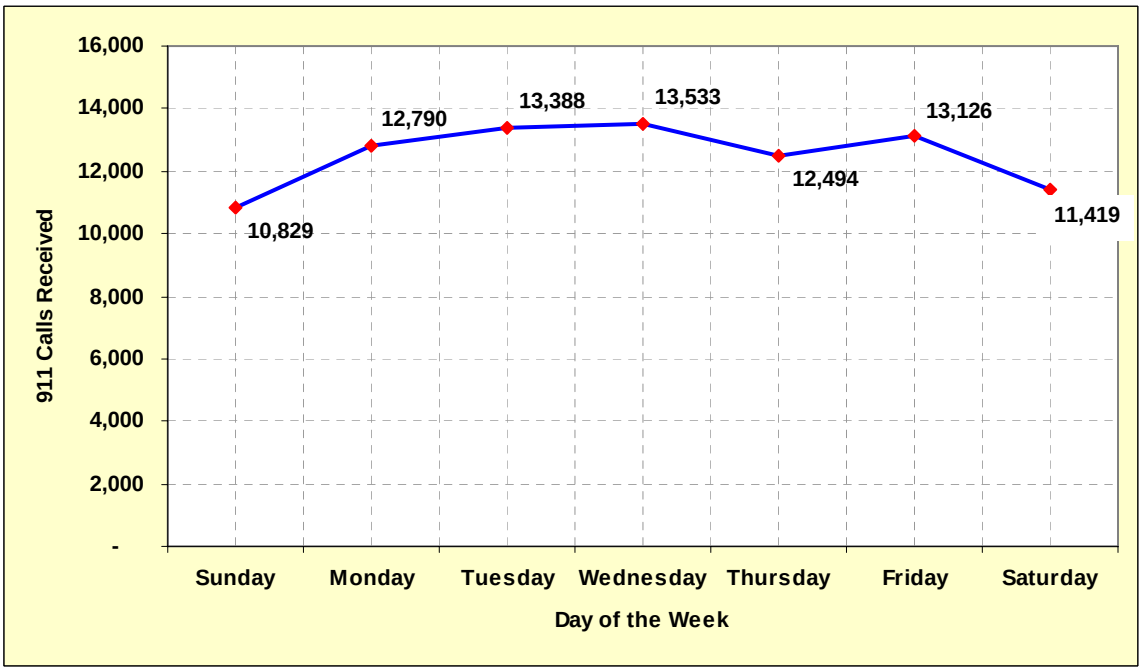
Collecting, organizing, and assessing incoming call data received at the Communications Center becomes very important to not only the Communications Center but also to the various responding agencies and, ultimately the entities responsible for funding Center and emergency response agency operations

For example, for responding fire, rescue, medical, and law enforcement agencies keeping track of where the calls came from and being able to plot or track the "patterns" of those high (and low) call areas can aide agency planners significantly when planning for the deployment of personnel and equipment throughout the County.

The same principles apply to the Communications Center. Of course in considering staffing patterns and the assignment of personnel, it is the call data itself and the processing of that data that becomes important. In this case, the distribution of incoming calls by "Day of the Week" and "Hour of Day" are significant.

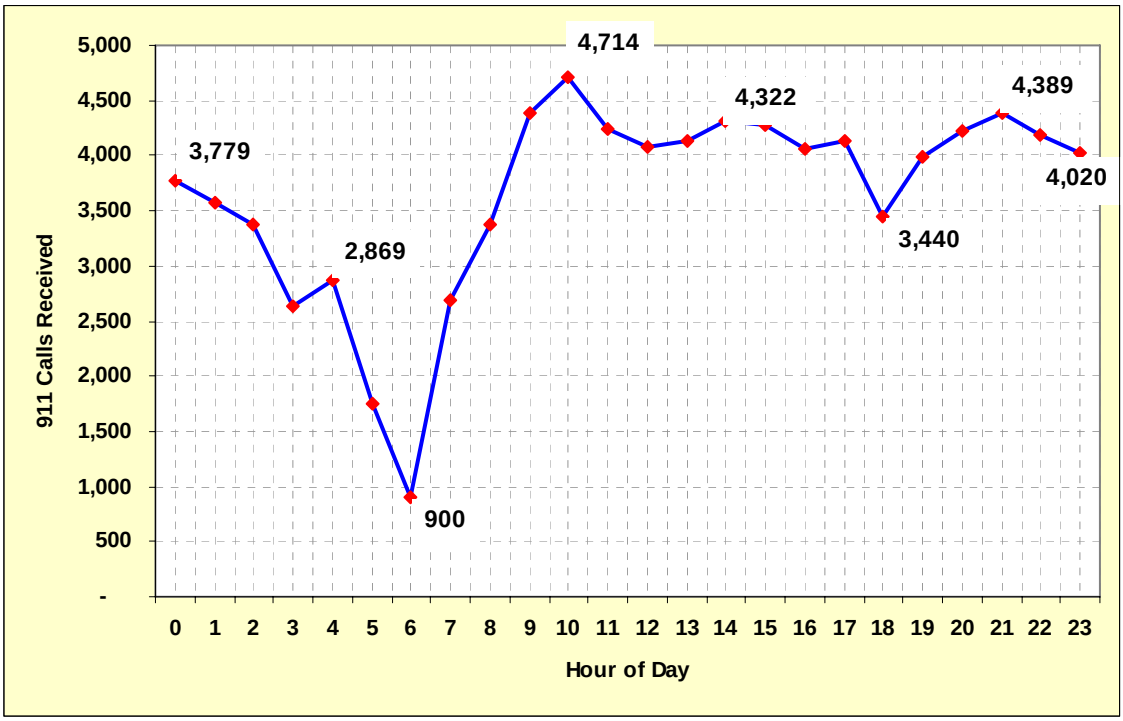
Figure 5 identifies the total number of 911 emergency calls received by the Communications Center during each day of the week for calendar year 2006. During 2006, the busiest day of the week was Wednesday followed by Tuesday, then Friday. Sunday was the least busy day of the week in terms of call volume.

Figure 5
2006 Incoming 911 Calls/Day of Week



The tracking of incoming 911 calls by *hour of day* becomes even more critical when anticipating staff assignments ultimately to make sure that all emergency calls for assistance get answered. Figure 6 illustrates the total 911 calls received by hour of day for he calendar year 2006.

Figure 6
2006l Call Rate per Hour of Day



The "hour of day" is indicated along the bottom of the chart by the numbers "0" through "23"; for example between hours 23 (11 pm) and midnight (Hour "0") 3,779 incoming 911 calls were received.

During 2006, the hour of the day with the fewest incoming calls was between 5:00 am and 6:00 am with a total of 900 calls received. The busiest hour of the day, was between 9:00 am and 10:00 am with 4,714 calls received

Based on the consistency of the call rate per hour remaining between 4,000 and 5,000 calls from 10:00 am until11:00 pm, this 12-13 hour time period is oftentimes referred to as "prime time" in the Communications Center; i.e. *the busiest*.

Current & Experienced Costs

The Communications Center budget is split, at least as regards to its method of documentation. Annual operating costs are noted in Figure 7 for the fiscal years 2004-2005 to 2007-2008. These figures are included in the County Budget.

Coincidentally offsetting these costs is ***revenue*** received by the County in the form of "State 911" and "E911 Surcharge" fees which are also budgeted accordingly; for FY 07-08 the estimated revenue was estimated at $543,000.

Figure 7
Communications Center Operating Budget
(Identified County Funding)

Expense Category	FY 04-05 Actual	FY 05-06 Actual	FY 06-07 Actual	FY 07-08 Budget
Departmental Supplies & Materials	$0	$17,022	$21,990	$5,000
Non-Expendable Supplies	$39,264	$7,525	$43,093	$12,500
Data Processing Supplies	$3,973	$9,814	$2,499	$5,000
Non-Capital Technology	$0	$91,661	$24,724	$40,000
Telephone & Communications	$227,145	$237,095	$225,057	$230,000
Utilities	$32,750	$37,102	$35,576	$37,000
Fuel Oil	$549	$51	$582	$1,000
Maintenance & Repair-Equipment	$5,316	$71,557	$8,875	$7,500
Maintenance Agreements-Software	$0	$1,323	$0	$0
Professional Services	$1,428	$2,613	$4,551	$10,000
Contracted Services	$33,430	$33,606	$54,585	$60,000
Rental of Equipment	$141,295	$137,537	$122,506	$125,000
Capital Outlay-Equipment	$0	$72,210	$0	$0
Capital Outlay-Technology	$0	$0	$0	$10,000
Total Emergency Communications	**$485,150**	**$719,116**	**$544,038**	**$543,000**

Salary costs for the twenty (20) Communications Center employees budgeted by the Sheriff's Office for FY 2007-2008, and including all matching costs, for insurance, benefits, etc. totaled $655,857. Subsequently, the total FY 2007-2008 Communications Center budget is $1,198,857. Additional data regarding unit costs are also provided on page 18, "additional Performance Criteria".

Performance

Ask the average citizen what they expect when they call 911 and they will inevitably say "they want help. . . FAST"! Ask them to think about it a minute or two and they might add that they want, "q*ualified personnel*, *with the proper equipment*. . . FAST!"

In either case, it is the end result; i.e., the arrival on the scene and the effectiveness of the action taken that is what the average citizen will tend to concern themselves with, and for obvious reasons. How well informed those actually responding to the incident

are with regards to what to expect at the scene, or how effectively the emergency response process was implemented are much less often considered outside of professional circles. Several organizations publish time and performance standards yet it is difficult to find well respected professionals that can agree on what those standards should be or how distinctly or specifically they should apply to them.

A number of professional organizations offer commentary on, and/or specific and documented performance standards in which emergency communications plays some role. They include:

- National Academy of Emergency Dispatch (NAED)
- Association of Public-Safety Communications Officials (APCO)
- National Emergency Number Association (NENA)
- National Fire Protection Association (NFPA)
- Insurance Services Organization (ISO)
- Federal Communications Commission (FCC)
- Federal Emergency Management Agency (FEMA)
- Commission on Accreditation for Law Enforcement Agencies (CALEA)

While the citizen is immediately concerned (and will definitely be thinking about) how long it takes from the time they picked up the phone to the time the responding agency vehicle arrives on the scene, the responder(s) will be moving from point 'A', where they were when they were notified of the emergency by the Communications Center, to point 'B', the scene of the emergency. It is therefore extremely important that the process of answering the phone, obtaining the necessary information needed to initiate dispatch, activating the dispatch itself, and providing critical information to the responder(s), occurs as promptly and efficiently as possible.

Figure 8 (foldout) is similar to Figure 1; however, here the critical timelines have been added. They include:

Timeline a. time from first ring to answer

Timeline b. time from answer to dispatch

Timeline c. Communications Center total response time; **a + b**

Timeline x. time between "tone'; i.e., dispatch announcement to response agency, to time vehicle is moving ("wheels rolling"); also referred to as "turn-out" time

Timeline y. the time from when the responding unit marks enroute ("wheels rolling") to the time the unit arrives on the scene with "wheels stopped"

Timeline d. represents the total response time from the dialing of 911 to the arrival of the appropriate responder on the scene

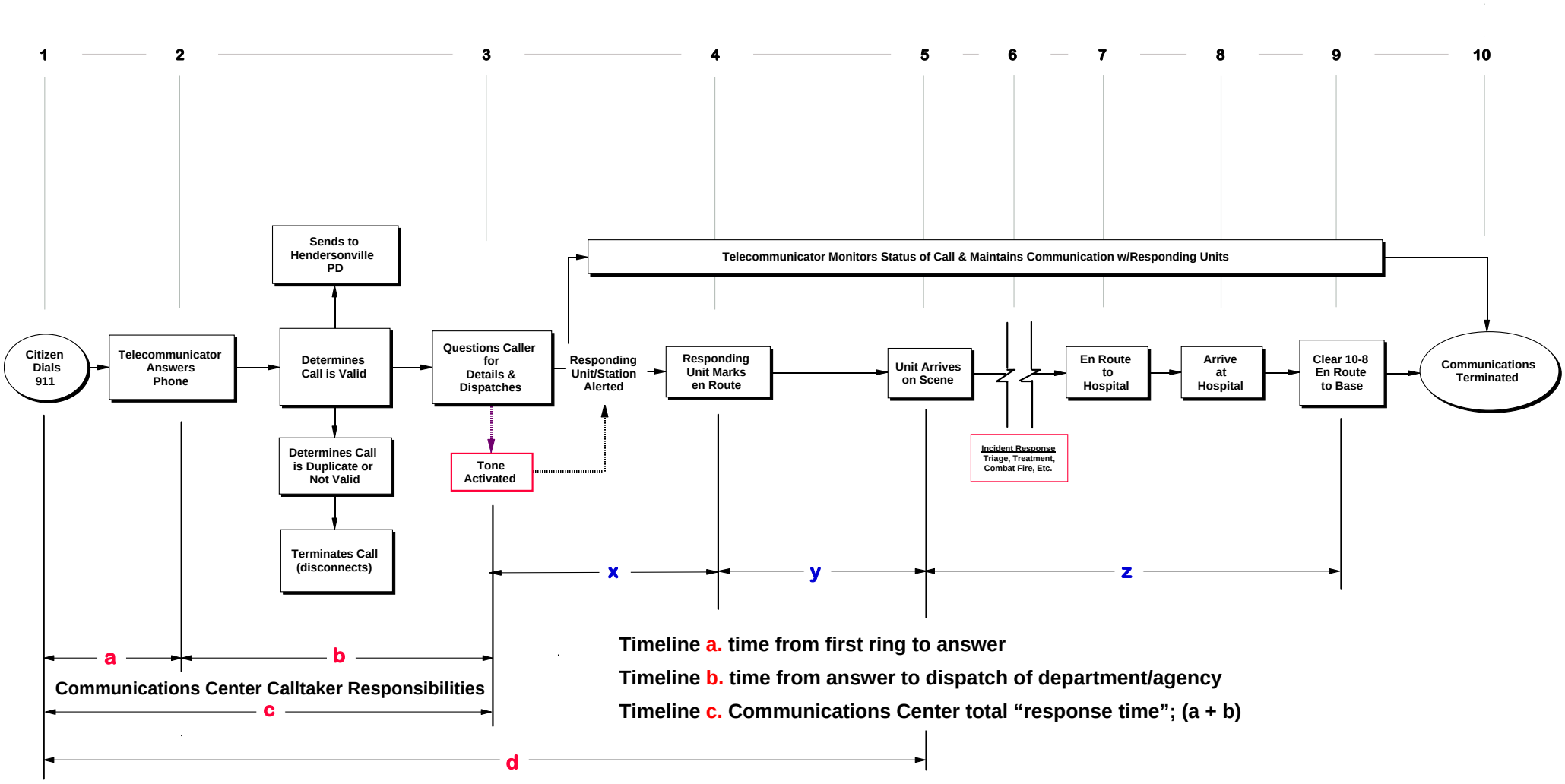
Timeline z. represents the time between arrival on the scene, throughout the on-scene response, transportation to a medical facility if required, until that time the unit calls in as "back in service" and is again available for dispatch

From the citizen's perspective, the most critical timeline is'd'.

From the responding service agency's perspective the critical timeline becomes 'c'; based on the premise that "they cannot *begin* to respond until they are notified".

Figure 8

911 Call Response Process



Timeline a. time from first ring to answer

Timeline b. time from answer to dispatch of department/agency

Timeline c. Communications Center total "response time"; (a + b)

Why time is important
The most elementary explanation of why time is important in a police, fire, or medical emergency has to do with the obvious; serious injury and/or the potential of loss of life and property. Of course not all 911 calls are going to be that serious. Also, the variety, type, and circumstances faced with a single service agency will vary considerably from call to call; even more so between those calls placed to police, fire, and emergency medical services. Of course too, the agency or service *must be* prepared to address the most serious scenario each time they are dispatched.

Critical of course, and a factor that neither dispatchers nor responders can do anything about, is the time between when an event actually "begins" and the time it is reported or 911 is dialed. For example, the time between the fire actually starting and the time it is discovered and reported, the length of time an individual had not been breathing before being discovered, or the delay between a crime occurring and it being discovered and reported.

Police
While a great deal has been written with regards to law enforcement response times there is no identifiable time standard with which to judge performance or efficiency using only time as a basis. Urban or rural setting, nature of the offense, method of notification, and personnel and equipment availability only begin to describe the variables that will inevitably effect police response time to an emergency situation to which they are called.

"Ideally, if the police are notified as a crime is in progress, they have a good chance to arrive before the perpetrators leave the scene. If police do not arrive at the scene within a few minutes, but still arrive while witnesses remain and are able to talk with them while the crime is still fresh in their memory, then they have a high probability of being able to solve the crime". (NENA; *911 System Survey and Resource Guide*; 2002)

Fire
The National Fire Protection Agency (NFPA) states that if a fire is not suppressed in eight to 10 minutes from the time of ignition, it will flashover, spreading outside the initial area or room of origin.

"As a rule of thumb, first responders should arrive on the scene in less than five minutes, 90% of the time." (National Institutes of Health)

"The fire department shall establish a response time objective . . . of four minutes or less for the arrival of the first arriving engine company at a fire suppression incident, for not less than 90% of all incidents" [NFPA Standard1710 for the Organization and Deployment of Fire Suppression Operations; Section 4.1.3.1.1.]. Note that "response time" in this standard is expressed as the time from "wheels rolling" to "wheels stopped" at the scene.

Medical
The same NFPA Standard (1710) also states that "deployment objectives are for the first responder/AED level to arrive within four minutes for 90% of all calls".

"For cardiac arrest, the highest hospital discharge rate has been achieved in patients for whom CPR was initiated within 4 minutes of arrest and advanced cardiac life support within 8 minutes". (American Heart Association)

In an incident involving lack of oxygen, brain damage is very likely at 6-10 minutes; irreversible after 10 minutes. (American Association of Orthopedic Surgeons)

Emergency Communications
The aforementioned NENA published survey states that:

"An important unit of measurement for primary public safety answering points (PSAP's) is ***average call length***. Calltakers and dispatchers must try to minimize call length while at the same time processing all of the information required to dispatch a call.

The study found that the average call length decreased as PSAP size increased. Average call length was 91 seconds for emergency calls in small PSAP's, 74 seconds for medium PSAP's and 66 seconds for large PSAP's, as defined in the survey.

National Fire Protection Association (NFPA) Standard 1221, Section 7.4.1 states; "Ninety-five percent of alarms (911 calls) received on emergency lines shall be answered within 15 seconds, and 99 percent of alarms shall be answered within 40 seconds".

Further, NFPA Standard 1221, Section 7.4.2 states; "Ninety-five percent of emergency call processing and dispatching shall be completed within 60 seconds, and 99 percent of call processing and dispatching shall be completed within 90 seconds".

In considering Communications Center performance it was determined that the most current information available would be the most important to evaluate. What constituted "current" data in this instance turned out to be actual call data pulled from CAD records for January thru August of 2007.

Therefore based on call data generated through August of 2007 analyses were undertaken that projected the total number of all calls and the total number of 911 calls that were likely to be received by the Communications Center through Calendar year 2007.

Based upon the time standards suggested on the preceding pages and with references to the time intervals identified in the Call Process diagram (Figure 8), the most important performance criteria were determined to be "first ring to answer" (time interval a.), "answer to dispatch" (time interval b.) and the total Communications Center "response time" (interval c.). The results of these analyses are included in the tables that follow:

Figure 9
"First Ring-to-Answer Time"

Interval	911	Percent	Admin	Percent	Total	Percent
1-10 seconds	34,828	**92.02%**	98,542	**92.11%**	133,370	**92.08%**
11-20 seconds	2,600	**6.87%**	6,860	**6.41%**	9,460	**6.53%**
21-30 seconds	323	**0.85%**	1,130	**1.06%**	1,453	**1.00%**
31-40 seconds	60	**0.16%**	314	**0.29%**	374	**0.26%**
> 40 seconds	39	**0.10%**	139	**0.13%**	178	**0.12%**
(Sample Size)	**37,850**		**106,985**		**144,835**	

From the sample studied, 92.02 % of all 911 calls received were answered within 10 seconds, and 98.89% within 20 seconds, and 99.74% were answered within 30 seconds; ***well within*** the standard parameters established by NFPA.

Figure 10
"Answer-to-Dispatch Time"

Interval	911	Percent	Admin	Percent	Total	Percent
0-30 seconds	10,955	**39.9%**	30,853	**38.4%**	41,808	**38.8%**
30-60 seconds	7,166	**26.1%**	20,837	**25.9%**	28,003	**26.0%**
61-180 seconds	6,878	**25.1%**	22,370	**27.8%**	29,248	**27.1%**
181-300 seconds	1,451	**5.3%**	4,152	**5.2%**	5,603	**5.2%**
301 + seconds	987	**3.6%**	2,229	**2.8%**	3,216	**3.0%**
(Sample Size)	**27,437**		**80,441**		**107,878**	

From the sample studied, 66% of all 911 calls answered were dispatched (responding agency notified) within 60 seconds, and 91.1% within 180 seconds. Based on this call sample 8.9% of the 911 calls answered were dispatched after the call taker had been on the phone for two (2) minutes or more; performance ***well below*** the standard parameters established by NFPA.

However, a factor impacting the times recorded for the "answer-to-dispatch" interval times, especially those recorded as greater than 60 seconds in duration, are very likely impacted by the Telecommunicator's involvement with a medical emergency and their implementing the appropriate EMD protocols (page 5), which typically will involve considerably more time talking with the caller than a "regular" emergency.

During actual audits of Communications Center operations it was noted that many times, during a call with someone reporting a medical emergency the Telecommunicator would actually dispatch the appropriate Fire or EMS unit while continuing to keep the caller on the line, and continuing to talk with and give instructions to the caller until the appropriate response unit arrives at the scene. Obviously these calls more often than not require several minutes to complete. Subsequently, in many of these instances the call and corresponding conversation between the caller and the Telecommunicator is not interrupted simply to record the time the dispatch alarm/announcement was sent, even though it had physically been sent to the appropriate responding agency(s).

Subsequently, the total response time (interval c, Figure 8, page 14) could be calculated as follows:

Total Communications Center Response Time = Interval a + Interval b

a. "first ring-to-answer" = 99% of all 911 calls < 30 seconds
b. "answer-to-dispatch" = 65% of all 911 calls < 60 seconds
92% of all 911 calls < 180 seconds
97% of all 911 calls < 300 seconds

c. "total response time" = 30 + 60 seconds 65% of time
30 + 180 seconds 92% of time
30 + 300 seconds 97% of time

Obviously, the total response time (c.) does not comply with NFPA Standard 1221, Section 7.4.2 which states; "….. 99 percent of call processing ***and*** dispatching shall be completed within 90 seconds"; however, from the many call responses actually observed and the various forms of call reports studied, the difference is very likely the manner and timing of the recordation of the actual dispatch notification in conjunction with the EMD

calls handled. Recommendations in this regard will be provided in the sections that follow.

Additional Performance Criteria

In that this report document went to press in early December, data available for calendar year 2007 was incomplete. Calculations were run however, as stated previously, based upon the available month's data, that projected that the total calls for the year would approximate 224,160, and of those, 89,664 would be 911 calls.

Using these projected year-end numbers, an estimated County population of 102,424 (per NC Office of Budget & Management) and the FY 2006-2007 budget numbers identified earlier (page 12), the following calculations were developed which corresponded to various additional performance criteria:

Population Served	102,424
Total Calls Received	224,160
Totall 911 Calls Received/Dispatched	89,664
Total Calls Answered per 1,000 Population	2,189
Total 911 Calls Received/Dispatched per 1,000 Population	875
Total Calls Answered per Telecommunicator	12,453
Total 911 Calls Received/Dispatched per Telecommunicator	4,981
Total Budget	$ 1,198,857
Total Cost per 911 Call Received/Dispatched	$ 13.37

Performance Comparisons

Comparing the performance and/or productivity of emergency communications centers is difficult. Most particularly because there are so many different approaches to management, position classifications and duties assigned, as well as different software applications, and data collection methods. Also, there are Centers; i.e. PSAP's, that cover only municipalities as opposed to entire Counties as Henderson does

The School of Government at the University of North Carolina at Chapel Hill undertook a Local Government Performance Measurement Project covering fiscal years 1999-2000 through 2000-2003. It collected and assessed performance and cost data for numerous service areas of ***city*** government in North Carolina, including Emergency Communications Centers, in which eleven cities participated.

Reports were published annually highlighting the findings of the previously completed fiscal year. Although there were no *County* PSAP's included in the study, data from two of the participating cities are included in the table that follows in an effort to offer comparisons with Henderson County.

- The City of Cary is included because it is the closest in population to Henderson County
- The City of Asheville is included because it is the closest in proximity to Henderson County

Figure 11
Comparison of Performance Data

Jurisdiction	Henderson Co.	Cary	Asheville
Population Served	102,424	105,765	69,193
Total Calls Received	224,160	251,232	230,291
Totall 911 Calls Received	89,664	73,901	32,584
Total Calls Answered per 1,000 Population	2,189	2,375	3,328
Total 911 Calls Received per 1,000 Population	875	1,431	471
Total Calls Answered per Telecommunicator	12,453	13,957	9,595
Total 911 Calls Received per Telecommunicator	4,981	4,106	1,358
Total Budget *	$ 1,198,857	$ 1,345,574	$ 1,435,015
Cost per 911 Call Received	$ 13.37	$ 18.21	$ 44.04
FTE Positions-Calltakers/Teleconmmunicators	18	18	24
FTE Positions-Administrative/Other	1	-	1

* ***NOTE:*** *The data included for both Cary and Asheville is that from their* ***FY 2002-2003*** *budgets.*

As a means of further comparison, assume that the annual budgets (due to inflation if nothing else) of Cary and Asheville have each increased by 16% in the 5 years since the data was provided in order to compare with current budget of Henderson County. The Cary and Asheville budgets then would have risen considerably beyond those identified in this table. Subsequently, the Communications center budgets and cost per 911 call received would be even greater for each and, in turn, the margin between those and that of the *current year* Henderson County costs would be even greater.

Issues & Recommendations

This section identifies issues of concern identified during the analyses of the various data reviewed, observations made during Communications Center audits, and interviews conducted during the development of this study.

The determination of whether or not an "issue" was identified as such was based on the assessment of existing Center operations, as observed, considerable study of existing data and performance criteria and standards published and available for comparison.

In conjunction with the issues discussed are recommendations for remedy and/or improvement of Center performance.

1.a. Staffing-Number of Positions

Both during audits of Center call operations as well as during individual interviews and meetings with Center personnel, "staffing"; i.e. lack of adequate staffing, was the single major concern expressed.

While efforts were made to view actual call center operations during various shifts and different hours of the day and night, direct observation alone could not adequately asses the number of personnel required to respond to the call volume received. Subsequently, a quantitative analysis was undertaken utilizing several data sets and established methods for determining what the adequate staffing levels should be.

The method used to determine the level of staffing required for a primary PSAP such as Henderson County's was one initially developed by the U.S. Department of Justice, and since utilized by such agencies and organizations as FEMA., the National Emergency Number Association (NENA), and the Association of Public Safety Communications Officials (APCO).

It utilizes a matrix that considers two principal criteria:

- The average call-taker "busy time" in seconds; i.e., average call duration, and
- The peak call rate per hour.

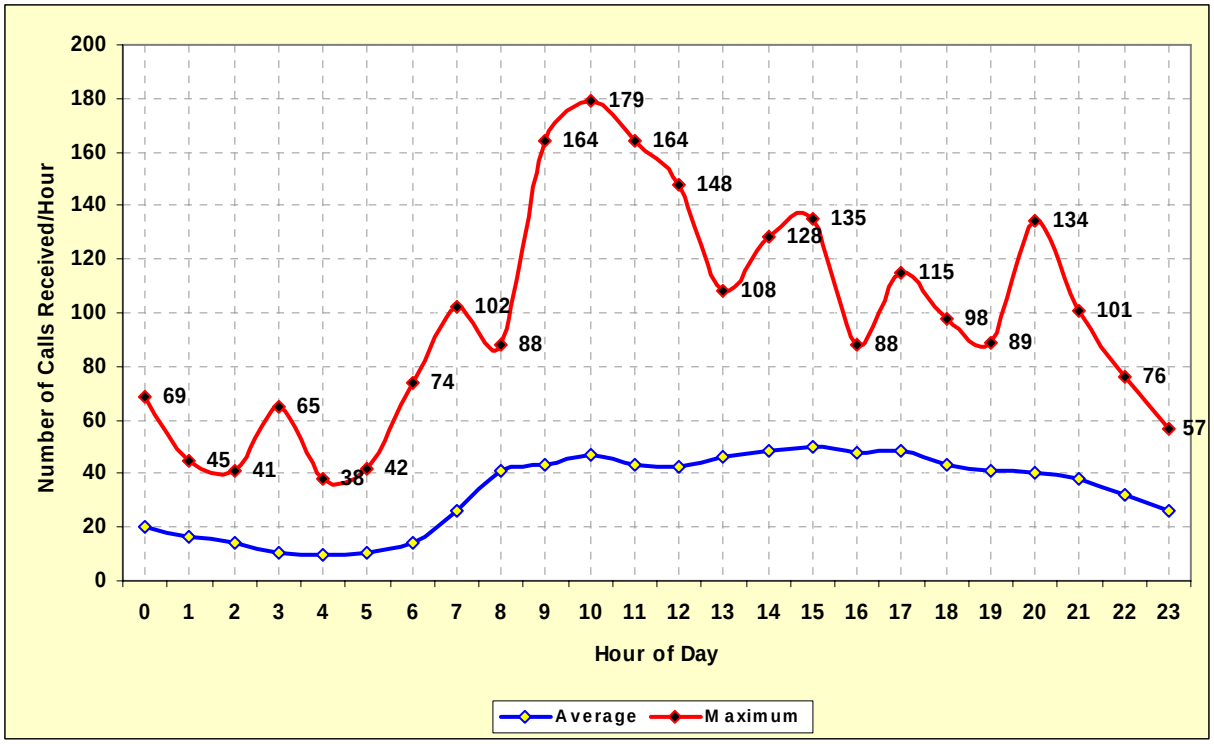
The average call duration was calculated using a sample of 107,878 calls received by the Communications Center from January through July 2007. Call duration information is recorded automatically for every call received. While the computer printouts and call data reviewed for this purpose did not indicate the type of call or specific emergency service requested, it was generally assumed that total call durations of two minutes or more involved some degree or type of EMD response.

Call data analyzed identified ***the average call duration as 77 seconds.*** This was the average of the entire sample studied; from the one-ring, 6-second hang-up to the 28 minute (apparent) medical crisis/EMD response.

Based on the numbers illustrated in Figure 6 on page 11, the busiest hour of the day with regards to call volume for calendar year 2006 was between the numbers 9 and 10 on the graph; or between 9:00am -10:00am. Logically, it was assumed that the peak call rate per hour would come from this hour of the day.

Assessing the available data revealed the results illustrated in Figure 12 with regards to maximum call rates experienced per hour. The hour of the day experiencing the highest call rate per hour was in fact 9:00am-10:00am and ***that rate was 179 calls.***

Figure 12
Peak Call Rates per Hour



Applying these numbers to the nearest like numbers on the referenced staffing matrix, illustrated in Figure 12, identifies '75' as the number closest to the Center's average busy time of *77 seconds* along the top line. The number 196 in the column (below the number 75) is the closest to the Center's *peak call rate per hour of 179.* Now, following the line of numbers to the left, from the number 196, results in the number of *"required call-takers";* in this case, seven (7).

Figure 28
Staffing Matrix

Average Call Duration = 77 seconds

Required Call-Takers	Average Call-Taker Busy Time, in Seconds												
	30	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**	**85**	**90**
1	16	13	11	9	8	7	6	6	5	5	5	4	4
2	77	64	54	47	42	37	34	31	28	26	24	23	21
3	157	131	112	98	87	78	70	64	59	55	51	48	45
4	247	206	177	154	137	123	111	102	94	87	81	76	71
5	343	287	248	215	191	171	156	142	131	122	113	106	100
6	443	371	318	278	247	222	202	185	170	158	147	138	130
7	545	457	393	344	306	275	250	229	211	196	182	171	161
8	650	545	469	411	365	329	299	274	252	234	218	205	192
9	756	635	546	479	426	384	349	319	295	273	265	239	225
10	864	726	625	548	488	439	399	366	336	313	292	274	258

Peak Call Rate/Hour = 179

Staffing Matrix Source: U.S. Department of Justice

To staff a 24 hour per day position, 365 days per year, requires the equivalent of five (5) people; regardless of the shift configuration in place. With the full allocation of staff assigned to the Communications Center ***now*** (if all positions were filled) the available personnel would conceivably be able to cover ***four (4) full-time positions***; perhaps 4 ½ depending upon the time the Shift Supervisors are actually able to take calls. By comparison, ***the staffing matrix suggests seven (7).***

Ultimately, the staff expressed concerns appear to be justified.

1.b. Staffing-Position Classification

The Communications Center currently has one (1) position identified as a "Calltaker" (versus "Telecommunicator"). While persons in both positions are ultimately responsible for answering 911 calls coming into the Center, in industry terminology the difference in the two assignments are as follows:

A ***Calltaker's*** primary responsibility is answering 911 calls coming into the Center, recording essential information in the computer aided dispatch (CAD) system, and (ideally) transmitting that information to a Telecommunicator in order then to be free to answer the next call.

A ***Telecommunicator's*** primary responsibility is to dispatch the call received from the Calltaker to the appropriate agency and handle all on-going response agency radio traffic and, in the case of a medical emergency maintain on-going communications with the caller per EMD protocols.

The call volume being experienced by the Communications Center, particularly during the referenced "primetime" hours, requires that the staffing be addressed as soon as

possible. An option for the distribution and assignment of the staff that is needed should include a more comprehensive allocation and assignment of Calltaker positions.

This would assure more calls get answered more quickly as well as dispatched more quickly and effectively without having to tie up experienced Telecommunicators with basic call answering tasks and permitting them to focus specifically and more efficiently on the dispatch and continuum of communications responsibilities that can make the difference in an emergency.

An additional issue with regards to position classification has to do with training and quality assurance. Quality assurance, including regular review of actual call recordings, is a requirement of licensure as an EMD provider. While training occurs now via various individuals, including at times the Director, it is not identified as a dedicated or otherwise recognized as a specifically designated position.

Recommendations re: Staffing:

4. *Provide one (1) additional, full-time, 24 hour/day Telecommunicator position now; i.e. at least four (4) full-time personnel depending upon shift configuration.*

5. *Provide two (2) additional, full-time Calltaker positions now, to work the primetime hours of either 10:00am-10pm or 11:00 am-11:00pm, seven (7) days per week; estimate three (3) full-time personnel.*

6. *Create and provide for one (1) full-time, dedicated "Training & Quality Assurance" position to address directly and regularly all training, certification, and quality assurance audits and personnel reviews on an on-going and scheduled basis.*

The premises upon which these recommendations are based include the following:

- *The Communications Center is the very "hub" from which emergency service response originates*
- *It serves on a continuing basis as the foundation necessary for a quality emergency service system*
- *Emergency communications is a complex and dynamic process*
- *Technical knowledge, extensive training, and above all human/personal skills must be brought to bear calmly, professionally, and efficiently in the most critical life situations*
- *Dedicated, professional, and experienced management is imperative*
- *Dedicated training & quality assurance oversight is equally imperative*

2. Performance Objectives & Call Data

Make no mistake, the information and call data available now, versus that "unavailable" during the fall of 2006 for example, (see Executive Summary) is excellent. In addition the Center's Standard Operating Procedures Manual (SOP) and the manner in which Supervisors address current issues and related addendums to the manual appears to work very well. As well, communications among and between staff appears to be open, comfortable, and frequent.

There are not, however, contained within the SOP, specific performance objectives or defined expectations of the Center staff; be they Calltaker, Telecommunicator, or

Supervisor. Benchmarks similar to the following examples would establish a basis for Center and individual performance as well as Center efficiency overall.

Examples:

> *"All incoming calls to the Center shall be answered within (2)-rings"*
>
> *"Decisions to dispatch emergency responders to a 911 incident shall be made within (60) seconds of answering the call"*

In addition, the collection and assessment of incoming call data should be reviewed and assessed monthly, maintained for reporting purposes, and provided to the responding provider agencies on a regular basis.

A. Examples of monthly Center data elements to be collected for review might include:

- Total all calls received
- Total911 Calls received
- Total 911 calls dispatched
- Total 911 calls dispatched by agency; i.e. Sheriff, EMS, Rescue, etc.
- Average "ring-to-answer "time-all calls
- Average ring-to-answer "time-all 911 calls

B. Examples of Individual agency data to be collected and distributed might include:

- Total calls dispatched
- Total Calls responded to
- Type of call; i.e. medical, MVA, structure fire, break-in, etc
- Average response time to all calls
- Time in service/on scene at each call responded to

Recommendations re: Performance Objectives & Call Data

4. Establish and document performance benchmarks that fall within the established standards of PSAP performance recommended by NFPA, NENA, CALEA or similarly established standards setting professional organization(s).

5. Establish as an immediate priority, and begin collection and review on a monthly basis, the data elements that specifically address Communications Center performance, such as those identified in list A, above.

6. As soon as practical, begin regular collection and distribution of data elements for emergency response agency served similar to those identified in list B, above; and distribute to each agency accordingly.

3. Public Education

The 911 emergency number has been around for sometime; officially, for almost 40 years; yet PSAP's around the Country, including Henderson County, continue to receive calls daily on 911 telephone lines that (for example) ask for directions to a County building, or the operating hours of the Public Library. These types of calls take time away from Telecommunicators trained to respond to serious emergencies.

Statutes exist that call for the prosecution of those who intentionally place malicious calls to 911 Centers, however, sheer ignorance on the other hand is difficult to punish. Yet it

is potentially dangerous if it takes a professional's time away from a serious emergency event.

Secondly, the public must also be made aware that in this age of and predominance of individual cell phones, it is more possible than not that a single motor vehicle accident (for example) on a major highway, can easily generate 20, 30, or even more calls to the Communications Center via 911 for that one incident. The result could very well be that for some of those well intended callers, a "busy" signal occurs; which, in turn, causes people to complain that their "911 Center was not responsive" or "took forever to answer their call".

Third, the Sheriff's Office listed non-emergency number should not ring in the Communications Center *except* (if no other option is available) after normal business hours during the week and on weekends. These calls often have nothing to do with operations taking place within the Center or provided by Center personnel. Personnel should be assigned and be available specifically and continuously during daytime business hours to answer the Department's phones, regardless of current office locations, *without the call being transferred or forwarded to the Communications Center*.

Recommendation re: Public Education

2. Be it public service announcement via radio or television, individual "reminder" mailings to citizens, newspaper announcements, Library postings, or school announcements provided on a periodic basis there needs to be an effort made to curtail the, albeit naïve and innocent in some cases, 911 line abuses currently being experienced.

4. Security

Security concerns, both observed and those expressed by Center personnel during interviews include the following:

Center Access; there are currently two (2) access/exit points to and from the Communications Center; one from within the building and one directly from the adjacent parking lot. Both entrances should include a security vestibule; i.e. double, inter-locking set of doors, with access controlled from within the Center and monitored via camera. The current renovations within the building should be satisfactory to address the internal access; however, the direct access from the outdoor parking area is likely to remain a concern.

Visibility & Surveillance; the electronic gate which previously prevented those without a card key from entering the back parking lot after hours, has been removed. There are also numerous doors permitting access to the building that cannot be seen from within the Communications Center.

Parking; Communications Center staff, particularly night staff have expressed concern that parking next to the building not be taken away, but that better lighting be provided.

Recommendations re: Security

4. The feasibility of constructing a security vestibule at the parking lot entrance to the Center should be studied. Card key access could still be utilized, however the vestibule, in conjunction with video surveillance would preclude direct contact and exposure of the Center to individuals having no business there.

5. Cameras should be mounted to permit viewing from within the Center of parking lot entrance to the Center, as well *any/all* of the entrances to the building not already

monitored. In order not to unnecessarily distract Center personnel after hour cameras should include motion detection activation of monitors.

6. Be certain the parking lot adjacent the Center exit is well lighted and can be monitored via camera to enable observation of staff leaving and entering the building and their personal vehicles; and that enough parking places be reserved to accommodate at least the number of personnel assigned to the largest shift.

5. Technology

While this study was not expected to address specific technology issues or equipment needs an issue did arise that had to do with the Master Street Addressing Guide, or MSAG.

Essentially, questions and subsequent concerns arose surrounding the fact that several individuals, in different departments, each had (or was assuming) responsibility for one task or other that had to do with identifying and assigning new addresses, entering new addresses into the County's database, making sure those addresses were provided the County's telephone provider and that the changes and additions regarding each of these new addresses, together with a map of their specific location, got to the Communications Center in a timely manner; i.e. before an emergency 911 call came in with that (new) address and/or phone number and no one knew where it was or how to find it.

In November a meeting was held in the County Administration Building with various County Department representatives from the County Manager's Office, Inspections, Information Technology, the Communications Center, and the consultant to discuss the issue.

Ultimately, much of the issue coincided with on-going system upgrades that had been anticipated for some time and had just recently been scheduled. Assignments were made, and time objectives established that everyone in attendance was in agreement with. As reported most recently, just prior to this document going to press, things seemed to be going much better and all was on schedule for the announced mid-February 2008 "up & running" goal.