METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

OFFICE OF INTERNAL AUDIT

FINAL REPORT

Audit of the
Emergency Communications Center

Date Issued: August 25, 2011

*The Metropolitan Nashville Office of Internal Audit is an independent audit agency
reporting directly to the Metropolitan Nashville Audit Committee*

EXECUTIVE SUMMARY
August 25, 2011

What We Found

The Metropolitan Nashville Office of Internal Audit performed an audit of operations of the Metro Nashville Emergency Communications Center, Davidson County's 9-1-1 function. During the audit, we examined operations, metrics and raw data. We reviewed policies, procedures and applicable criteria. We compared the operations to 9-1-1 service providers in other parts of the country. We examined support systems and also tested employee satisfaction levels. Our audit results for the three year test period ending December 31, 2010, include:

o   Operations at the Metro Nashville Emergency Communications Center (ECC), including emergency 9-1-1 and non-emergency contacts are performed effectively and efficiently. Industry standard performance metrics are continually compiled and reviewed by ECC management.

o   The hiring and training process provides qualified and well trained call takers and dispatchers.

o   The majority of ECC employee respondents to our survey indicated that morale is "generally low."

o   The ECC meets quality assurance standards as established by industry through its accreditation with the Commission on the Accreditation for Law Enforcement.

o   Computer and physical security at the ECC indicated positive control with no significant weaknesses noted. Minor physical security issues were found and addressed in Observation A.

Key recommendations include:

➢   Physically isolate the E911 equipment in the Radio Room so that unauthorized personnel may not gain access.

➢   Ensure that overtime vouchers have been properly approved before payment.

➢   Ensure that supervisors or managers approve weekly timesheets for each employee.

Management's response can be found in Appendix A.

Table of Contents

INTRODUCTION

AUDIT INITIATION

The Metropolitan Office of Internal Audit's approved annual audit work plan included an audit of the Metro Nashville Emergency Communications Center (hereafter referred to as the "ECC"). The audit was primarily initiated due to the length of time (greater than five years) that has elapsed since the last audit was performed (2001).

BACKGROUND

The mission of the ECC is to "provide initial emergency and non-emergency first-responder products to the public and first responder partners so they can experience the benefits of a healthier, more secure community."

Metro Nashville's modern, state-of-the-art 9-1-1 facility is located in south Nashville and has been used for 9-1-1 service delivery since 1978. Metro Nashville's system is fully compliant with the Enhanced 9-1-1 (or E9-1-1) standards required by the Federal Communications Commission. Enhanced 9-1-1 systems have the ability to triangulate cellular 9-1-1 call locations to within 50 meters. Although the Metro Nashville system is fully E 9-1-1 compliant, it will be referred to as a 9-1-1 system for the duration of this report.

The ECC is operated and maintained jointly by Police, Fire, Emergency Communication Center and Office of Emergency Management personnel. It is essentially a "one-stop shop" for emergency calls regarding police, fire, emergency medical, etc. A secondary or back-up site is available. It is fully functional and is frequently used so that this essential emergency function will remain active under most any conditions. Although both sites may be operated simultaneously, the primary site is used most often and the secondary site is used one week each month to ensure there are no transition issues when it is needed.
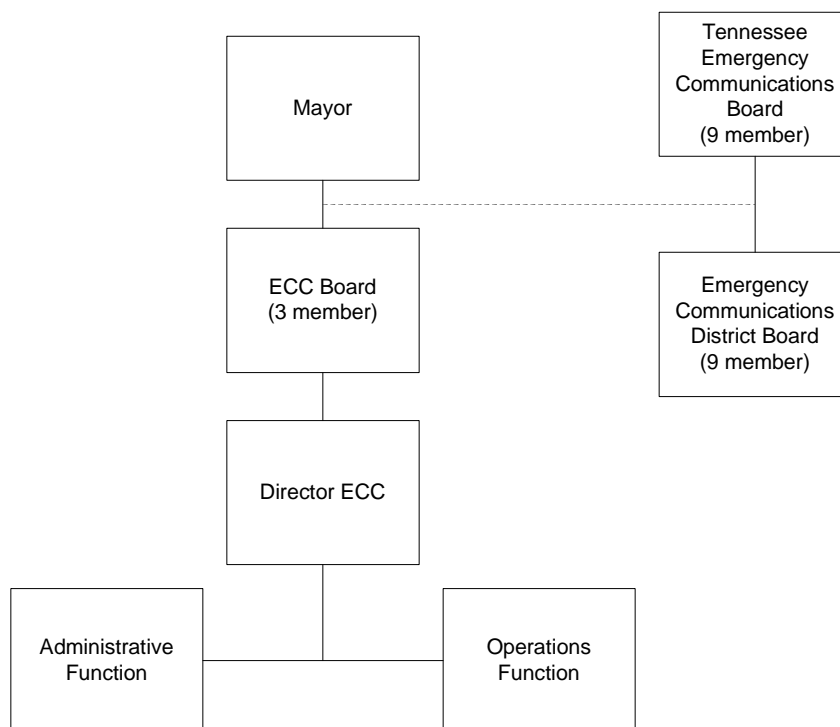
The ECC Director reports to the Emergency Communications Board which is comprised of the Chief of Police, the Fire Chief and the Director of the Office of Emergency Management. The board was created in August of 2002 as the result of consolidation of the previously separate emergency call centers and is specified through a Memorandum of Understanding. The board provides leadership and oversight of the Emergency Communication Center.

The Metro Nashville Emergency Communications Board should not be confused with the Emergency Communications District Board. The State of Tennessee is divided into 100 Emergency Communications Districts. Nashville and Davidson County is one such district and was authorized by Tennessee Code Annotate §7-86-105. The district was created by Metropolitan Nashville Ordinance No 088-609. The Emergency Communications District provides funding to the ECC for equipment, training and conference attendance but plays no role in daily operation of the facility. The funding originates from telephone monthly fees and other grants and reimbursements. Statewide oversight of the Emergency

Communications Districts is the responsibility of the Tennessee Emergency Communications Board.

Communications companies provided the infrastructure which allow the emergency calls (land-line and wireless), received within Davidson County, to be routed to the ECC. When a person dials 9-1-1 from within the county, the call is routed to the public safety answering point in the respective district. In Davidson County this is the ECC. Exhibit A below shows the reporting structure and various entities associated with the ECC.

Exhibit A – ECC Reporting Structure

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┌──────────────┐                    ┌──────────────────┐
│              │                    │   Tennessee      │
│              │                    │   Emergency      │
│    Mayor     │                    │ Communications   │
│              │                    │     Board        │
│              │                    │   (9 member)     │
└──────┬───────┘                    └────────┬─────────┘
       │                                     │
       ┆ - - - - - - - - - - - - - - - - - - ┆
┌──────┴───────┐                    ┌────────┴─────────┐
│              │                    │    Emergency     │
│  ECC Board   │                    │ Communications   │
│  (3 member)  │                    │  District Board  │
│              │                    │   (9 member)     │
└──────┬───────┘                    └──────────────────┘
       │
┌──────┴───────┐
│              │
│ Director ECC │
│              │
└──────┬───────┘
       │
   ┌───┴────────────────────┐
┌──┴─────────┐        ┌──────┴────┐
│            │        │           │
│Administrative│      │ Operations│
│  Function    │      │ Function  │
│            │        │           │
└────────────┘        └───────────┘
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ECC FINANCIAL HIGHLIGHTS

Revenue for the ECC is provided by Metro Nashville (employee salaries and benefits) and the Emergency Communications District. The Emergency Communications District collects fees from telephone carriers (both land lines and wireless) and grant sources. Revenue collected by the phone companies is based on customer usage. Total Emergency Communications District provided revenues and expenditures, as of July 1, 2010 was $19 million and $15.6 million, respectively. This covers all non-salary and benefits expenditures.

For fiscal years 2009, 2010, and 2011 expenditures for the ECC were $11.6 million, $11.2 million, and $12.0 million, respectively. This included personnel,

internal service and other costs. All other funds were provided by the Emergency Communications District.

Exhibit A – Budget versus Actual Expenditures for Fiscal Year 2009, 2010 and 2011

	Fiscal Year 2009		Fiscal Year 2010		Fiscal Year 2011	
	Budget	**Actual**	**Budget**	**Actual**	**Budget**	**Actual**
Personnel	$11,346,200	$10,721,488	$11,020,500	$10,516,553	$11,447,700	$11,187,349
Other Services	$580,000	$518,103	$526,000	$454,733	$571,800	$549,747
Internal Service Fees	$292,900	$339,987	$251,900	$270,648	$224,300	$258,579
Total	$12,219,100	$11,579,578	$11,798,400	$11,241,934	$12,243,800	$11,995,676

Source: Metro Nashville's EnterpriseOne Financial System

Exhibit B – Top Five ECC Vendors/Contractors Paid by Metro Nashville for Fiscal Years 2009 and 2010

Vendor	Amount	Purpose
1. Metro Airport Authority	$135,965	Lease Backup Site
2. CMS Uniforms	90,348	Uniforms
3. Vanderbilt	40,800	Psychological Testing
4. APCO International	25,296	Training, Conferences
5. Wackenhut Corp	23,570	Building Security

Source: Metro Nashville's EnterpriseOne Financial System
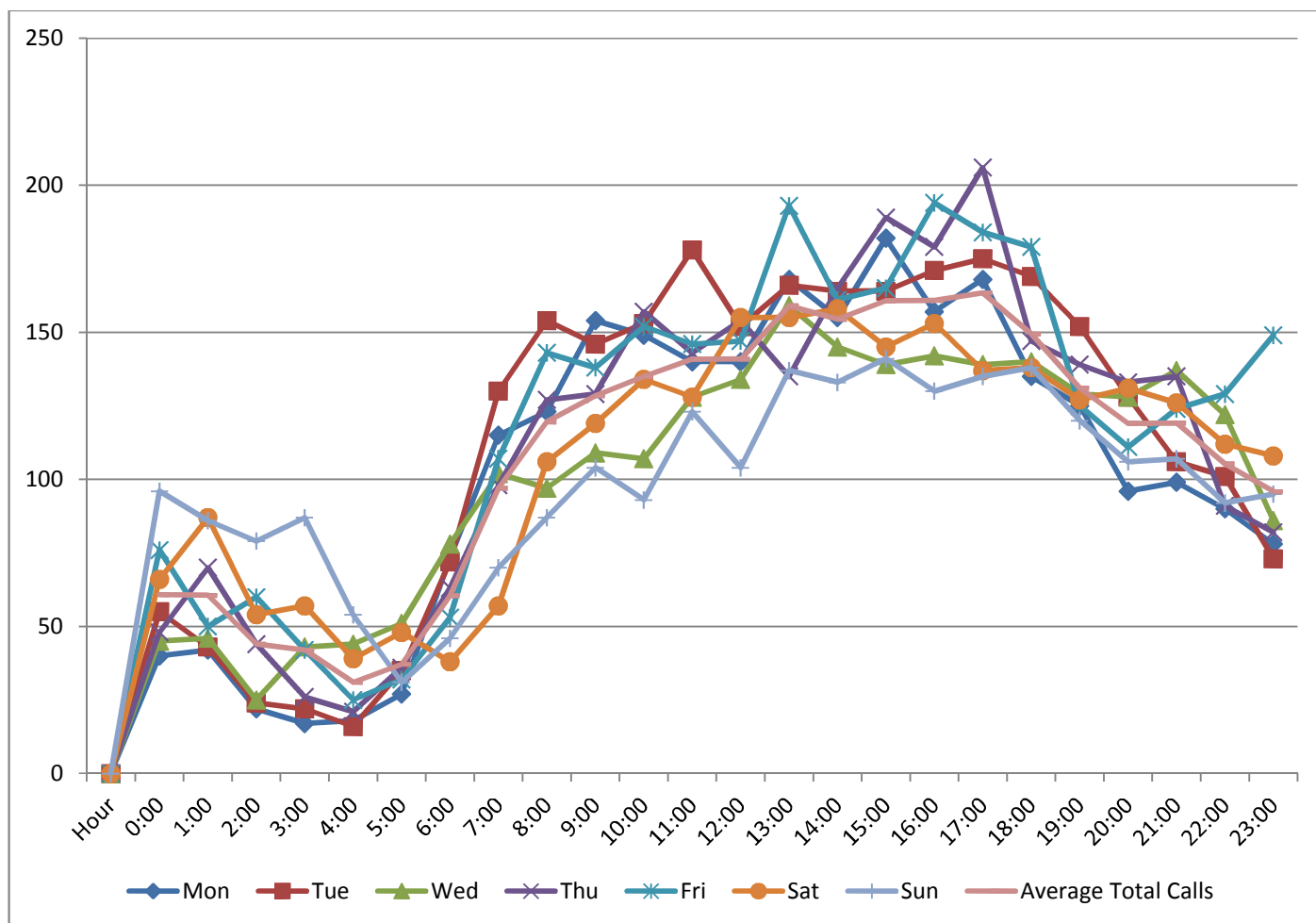
EMERGENCY COMMUNICATIONS CENTER FUNCTIONS

Operations: The Operations Department staffs the emergency operations center and performs all associated duties. The staff includes the call takers who handle all incoming calls, emergency and non-emergency. Calls are forwarded to dispatchers for police and fire who have a variety of information at their disposal to efficiently assign resources.

The Operations Department consists of 159 employees who are divided into three shifts: Details A, B and C. Each detail overlaps the adjoining detail by 30 minutes to allow a smooth flow of operations and begins with a roll call meeting, where assignments are distributed, training is performed and general news is communicated. Assignments are broken down into 4-hour segments (one-half of the shift) in order to avoid undue stress and possible boredom during non-busy periods. The minimum staffing level for each detail is determined by call volume and other factors. Detail B, which begins at 2:30 p.m. is the busiest shift.

Exhibit C below shows the volume of calls for one week. Our review of this and other weeks of call volume indicated that in general, call volume rose in the afternoon and into the evening before dropping off sharply in the early morning.

Exhibit C – Distribution of Call Weekly Volume between January 24, 2011 and January 30, 2011

Source: Metro Nashville's Emergency Communications Center Data, 2011

Several types of calls are handled by the ECC. First and foremost are the 9-1-1 emergency calls, which have the highest priority. Next, are alarm calls that originate from an alarm company as a result of an event at a customer's home or business. Lastly, are the 862-8600 calls which are administrative/non-life threatening requests for police and can be assigned a lower priority for response.

The key process for the ECC is to obtain the correct information from the caller, translate the information into an incident code and move the incident to the dispatch queue. The dispatcher then sends the appropriate amount of equipment and personnel to the scene. Average time from incoming call to arrival of emergency responder for 2010 is shown in Exhibit D below.

Note: May 2010 data has been removed from the calculation due to the historic Nashville flooding that occurred during this time, significantly altering the data.

Exhibit D – Average Call to Arrival Time for Calendar Year 2010

Type of Call	Call to Arrival Time (Minutes)
Fire Suppression	7:09
Fire EMS	6:52
Police	11:00

Source: Metro Nashville's Emergency Call Center Time Data, 2010

In addition to answered calls, there is a percentage of calls that are abandoned before being completed. This is often due to individuals whom accidently dial 9-1-1, then hang up when they realize their error. In 2009 the rate of 9-1-1 abandoned calls was 6.33% and 8.67% in 2010.

Quality Assurance: The ECC Quality Assurance Division works closely with ECC Operations Division to ensure effectiveness. Primary tasks are: reviewing calls for each shift, random survey of callers, fielding customer complaints and acting on requests from stakeholders for audio and printed material. The reviewing of calls is accomplished by reviewing a random sample of calls for each shift. The reviewers also review all calls with high impact incident codes, such as house fires and homicides. Citizen surveys regarding interactions with the ECC are also conducted by a third party vendor to ensure impartiality. In 2009, there were 60 complaints communicated, which represents 0.0065% of 923,341 calls answered. For 2010, the figures were 55 complaints on 891,882 calls answered or 0.0062%.

Accreditation: Accreditation is required at the entity and individual level. The primary certification held by the ECC is the Commission on Accreditation for Law Enforcement (CALEA) designation. An onsite visit is conducted every three years by industry peer reviewers to determine the ECC compliance with standards. Other accreditations held include the Accredited Center of Excellence and the National Academies of Emergency Dispatch. Certifications for individuals include the Emergency Medical Dispatcher, Emergency Fire Dispatch and the Emergency Dispatch-Quality Assurance.

Computer and Physical Security: Sound computer and physical security measures are deployed to protect the ECC.

Assets: All equipment is the property of the Emergency Communications District Board which provides all funds for equipment purchases. However, the ECC is the equipment custodian. Two separate inventory files are maintained, one is for financial use and the other listing is maintained by the technology group.

Hiring and Training: The hiring process is accomplished by the ECC Human Resources Division representative working closely with the Metro Nashville

Human Resources Department. Both functions work with ECC management to provide testing, orientation, interviews, background checks, drug tests, physical exams and psychological evaluations. Upon conditional employment, the candidate trains to reach the level of Telecommunication Officer II after approximately one year, at which point the candidate successfully attains Call Taker and Police Dispatch capability. Additional training and experience are required to achieve the Medical/Fire Dispatch capability. As the call taker/dispatcher proceeds through their career, additional training is available to meet established industry standards, changes to work policies and procedures and refresher instruction to keep the individual current on working knowledge. Due to frequent changes to industry practices and technology, constant training is required.

OBJECTIVES AND CONCLUSIONS

1. *Did the organizational structure of the ECC support the business operations in accordance with industry design standards?*

   Yes. There were no significant issues or control observations noted. The organization was created in its present state during 2002 and based upon a Memorandum of Understanding between the Police Department, the Fire Department and the Office of Emergency Management. Essentially, the document outlined the merging of the emergency communications function between these groups. This reorganization resulted from implementation of a recommendation included in a 2001 audit report. Prior to 2001, all three organizations worked independently to perform the emergency communication function.

   The Commission on Accreditation for Law Enforcement certification process requirement calls for a written directive, organizational chart prominently displayed, clear lines of authority, written policies and procedures in place, a position management system, and an investigative process for customer complaints. All of these requirements were being met by the current configuration.

2. *Were 9-1-1 emergency communication operations effective?*

   Yes. We looked at the 9-1-1 operations, procedures, policies, and support systems. In each of these areas, the center was operating in an efficient manner. We observed the operations of the center on all three details (shifts), on the weekend, and during severe storms. Communication traffic was heavier as the audit proceeded because usage of the system is seasonal.

   The ECC has established metrics that were defined by industry groups and ECC management. These metrics were met and reviewed on a monthly basis. We also reviewed reports from 9-1-1 centers in other parts of the country. From our limited analysis, the ECC was operating efficiently. Staffing was based on a minimum standard which allowed the police dispatch, fire dispatch and a set number of call takers stations be covered at all times. The detail also allowed for relief of personnel and potential personnel absences.

Once each month, the 9-1-1 operations moved to the backup site. The purpose was to ensure the backup center can be switched on immediately and without problems. We observed operations on multiple occasions at the backup center and found no obvious hindrances. Also, during our audit, operations moved to the backup site for an extended period while the main site was under refurbishment.

3. *Was the ECC meeting recognized accreditation standards for emergency communication centers?*

Yes. The Commission on the Accreditation for Law Enforcement is the main certification for the public safety industry and was used by the ECC to meet industry standards. See Appendix C to reference the specific Commission on the Accreditation for Law Enforcement requirements. Each member must submit to a review every three years. The ECC's next scheduled review is to begin in August 2011. During our audit, a mock review was performed by a Commission on the Accreditation for Law Enforcement appointed team. The Metropolitan Nashville Office of Internal Audit observed the mock review. Based on the closing meeting we attended, the team indicated there were no major issues observed.

In addition to the ECC Accreditation Division, there is also an ECC Quality Assurance Division who monitored 9-1-1 communications in order to ensure industry standard protocols were met and to attend to constituent's complaints. We interviewed ECC Quality Assurance Division personnel to understand their process. The Emergency Medical Dispatch and Fire Dispatch used the industry standard, ProQA. Police Dispatch used a protocol generated in-house with the assistance of a quality assurance software vendor. Industry standards call for 3% of all calls to be reviewed; however, the ECC Quality Assurance Division reviewed 4% to 5% of calls.

For each call reviewed, the ECC Quality Assurance Division created a report about the call, whether positive or negative. Follow-up contact with the supervisor and call taker was made where necessary to resolve any issues. Per the ECC Quality Assurance Division statistics report for 2010: 98.62% for Police Dispatch, 95.46% for Fire Dispatch calls, and 96.26% of Emergency Medical Dispatch calls did not require additional feedback. Metrics were also collected on the error rate of incident codes assigned. In 2010, the Emergency Medical Dispatch error rate was 5.23% and Emergency Fire Dispatch was 4.48%.

4. *Was the ECC network and data protected from unauthorized access?*

Yes. The ECC had implemented several computer security measures to protect data and the network from unauthorized access. Also, ECC management stated they have plans to install additional system components that will further add to the security of the 9-1-1 system in spite of the high level of security currently provided.

5. *Did the physical security in place protect the ECC according to international computer security standards (ISO 27002, Part 9)?*

    Generally yes. The ECC had reasonable physical security measures in place to protect ECC facilities. One observation to improve interior security was communicated separately to ECC management.

6. *Did the ECC provide a safe environment as required by General Service's standards and Civil Service rules?*

    Yes. The ECC had an evacuation plan and a business continuity/disaster recovery plan, both associated with Metro Nashville's General Services Department. The evacuation plan was created in 2003 and revised in 2007 and 2010. The business continuity/disaster recovery plan was in the format supported by Metro Nashville General Services Department and was sufficiently detailed. The last test exercise was in 2007. Additionally, the ECC backup site is regularly used each month.

7. *Was the ECC hiring process providing qualified call takers/dispatchers?*

    Yes. There were no significant issues or control observations noted. The ECC utilized the hiring process as outlined by the Metro Nashville Human Resources Department.

    The Metropolitan Nashville Office of Internal Audit conducted an employee survey for the non-management and management personnel at the ECC. The survey was made up of 16 questions, some of which were used in the previous 2001 audit (see survey questions in Appendix B). The survey was targeted at non-management personnel; however, management was also encouraged to complete the survey form. A number of issues surfaced in the survey that may be of assistance to management. A total of 70 out of 155 employees replied to the survey; a 45% response rate.

    The ECC dispatchers rated co-workers, challenges, and problem solving as the top three (best) aspects of their job. The ECC dispatchers rated management, technology, and compensation as the three least liked areas.

    There were three questions which inquired about stress levels individually and in the department. The response selections ranged from one (little/none) to five (extremely stressed). All surveys returned showed some level of stress checked as an answer. The majority of the responses were selection four (stressed). The three items rated as the top causes of stress were call volume, management, and expectation levels. The stress levels of the ECC personnel were directly proportional to employee morale and averaged 41 percent. However the percentage of personnel that rated morale below average was about 33 percent compared to only 26 percent that rated morale above average. Those percentages indicated how respondents rated their own individual morale levels. When the respondents were asked about the overall morale of the ECC, 59 percent of respondents rated it as "generally low" while 30 percent of respondents rated the overall morale of the ECC as average or above.

Initial training was rated above average by more than 71 percent of the respondents and 96 percent of the respondents rated the initial training as average or above. Ongoing training did not fare as well with only about 33 percent of respondents rating it as above average. The areas noted by personnel that would be beneficial for them to receive additional training in is procedures, stress management, and technical issues with systems.

Common themes cited in additional comments include:

- Lack of personnel
- High stress levels
- Low morale
- Too much focus on the quantity of calls
- Additional training should be offered
- Lack of communication between management and personnel
- Quality Assurance should be used as a teaching tool instead of punishment

8. *Did the ECC training program prepare call takers/dispatchers?*

Yes. There were no significant issues or control observations noted. The training process was very comprehensive for new hires to the ECC. The call taker trainee participates in approximately one year of training and internship on the floor in order to become a Call Taker/Police Dispatcher. This is the minimum level which a trainee must meet to become a "Tele-communicator 2". We observed several call taking classes and observed the training desk for call takers. There were also members of the ECC Training Division who provided one-on-one training during real-life circumstances for trainees. The trainee spent a total of six to nine months training on call taking and dispatching.

The goal of the call taker was to produce a fully qualified call taker/police dispatcher at the end of one year.

9. *Were assets in the ECC tracked and safeguarded?*

Yes. Assets were tracked by the ECC personnel; however, the Emergency Communications District purchased and owned all 9-1-1 equipment. Within the ECC operations, we focused on the physical asset listing. Following purchase of the assets, through Metro contract, the items were delivered to the ECC site. Shipments were opened with ECC Information Technology Division and ECC Finance Division personnel present. Information was recorded and inserted into the physical asset database. The Emergency Communications District and ECC property tags were placed on the computers.

We obtained asset information from 35 invoices from the ECC Finance Division and physically observed a sample of 10 items. We also verified 100% of computers used at both sites were listed on the tracked asset records.

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10. *Were the department's payroll and leave records properly supported and in compliance ECC administrative procedures?*

Generally yes. We reviewed the payroll process within the ECC. The software package *Time Force* was used to manage the ECC payroll. There were a total of 170 employee payroll records processed during the audit scope. A sample of 19 employee payroll records were tested for the following attributes: accuracy, proper approval, overtime policy adherence and matching to payroll detail registers. The test sample of 19 entries was correct except for prior approval and overtime compliance (see Observations B and C).

Leave records were also tested. In all cases, leave requests were not approved by management. The *Time Force* system does have the capability to perform this function, but was not being used. Other methods could also be used.

11. *Were credit card purchases made in accordance with Metro Nashville Finance Department policy for credit card purchases (Metro Nashville Finance/Treasury, Policy #19)?*

Generally yes. We tested 48 transactions made during the audit scope to determine if credit card purchases followed Metro Nashville Finance Department credit card purchasing policy. There were five attribute tests conducted for each sample item. Of the 226 successfully tested items, 184 met expectations and 44 did not, leaving a success rate of 81%. All of the exceptions were due to a lack of documented prior approval from the department buyer (see Observation D).

12. *What procedures ensured call takers avoided litigation?*

The ECC had a Liability Protection Policy in place that was created in 2005. It provided guidance and procedures for 9-1-1 employees. Per the procedure document, always following approved procedures provided individuals protection in the event of litigation.

OBSERVATIONS AND RECOMMENDATIONS

A – E 9-1-1 Equipment is Not Physically Segregated

An inherent risk of harm to E 9-1-1 equipment existed because E 9-1-1 equipment was not physically segregated from other equipment in the Radio Room. The Radio Room currently holds several types of equipment including, radio gear, computers and storage, network equipment, and computers used for backup. The equipment is serviced by several different groups including contractors, ECC employees and other Metro Nashville employees. Not all personnel in the room have been granted access to all equipment.

Criteria:
ISO 27002, Part 9, Physical Security Building Controls

Risk:
Service personnel, who service one type of equipment, have physical access to equipment that they have no authorization for.

Recommendation:
ECC management should physically isolate the E 9-1-1 equipment in the Radio Room so unauthorized personnel may not gain access to equipment.

B – Employee Payroll Approval was Not Consistently Documented

The management control which ensures ECC payroll was reviewed and approved for correctness was weak. Nine of the thirteen (69%) pay periods examined did not have documented approval signatures. There was no signature on the FASTpak envelope indicating that the supervisor reviewed or approved the ECC payroll employee roster, hours worked or amounts paid. Payroll sheets are compiled in a FASTpak document and sent to the Metro Nashville Finance Department Payroll Group for processing.

Criteria:
Prudent Business Practice (segregation of duties)

Risk:
False or inaccurate payroll items could be forwarded for payment.

Recommendation:
ECC management should ensure that all payroll documents are reviewed, approved and signed before they are submitted for payment.

C – Overtime Approval

There were instances where overtime vouchers were submitted for payment without having the proper approval. Each voucher is to be signed by a manager

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or supervisor who is verifying that the employee actually worked the time submitted on the voucher.

Criteria:
- Civil Service Rules - Section 5.7, Special Pay Provisions
- ECC Overtime Procedures

Risk:
Employees could submit fictitious overtime vouchers for payment.

Recommendation:
ECC management should ensure overtime vouchers are properly approved before payment.

D – Credit Card Transactions were not Pre-approved

There was no pre-approval documentation maintained for credit card purchases indicating a lack of accountability over credit card purchases.

Criteria:
- Metro Nashville Finance Department, Treasury Policy #19, Credit Card
- ECC Procedure 05-0516, Fiscal Management

Risk:
Cardholders could submit receipts to the finance manager that were never approved by management.

Recommendation:
ECC management should ensure pre-approval documentation is submitted to the finance manager with all receipts.

GENERAL AUDIT INFORMATION

STATEMENT OF COMPLIANCE WITH GAGAS

We conducted this compliance audit between January 2011 and July 2011 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our observations and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our observations and conclusions based on our audit objectives.

SCOPE AND METHODOLOGY

The audit period focused primarily on the period July 1, 2008, through June 30, 2010, financial balances, transactions, and compliance of the processes in place during the time of the audit. Certain analyses required the consideration of financial results, performance, and operations outside that period. The methodology employed throughout this audit was one of objectively reviewing various forms of documentation, including written policies and procedures, financial information and various forms of data, reports and information maintained by the ECC.

CRITERIA

In conducting this audit, the existing ECC operations and processes were evaluated for compliance with:

- ECC Directive #05-0602 Unusual Occurrence
- ECC Directive #06-1031 Pagers
- ISO/IEC 9.0 Physical Security, Building Controls (Section 9.2)
- Metro Nashville Procurement Policy
- Metro Nashville Finance Department Policy #14 and #18
- Metro Nashville Civil Service Rules for Attendance and Leave
- Metro Nashville Civil Service Rules for Special Pay Provisions (Chapter 5, Section 7)
- Metro Civil Service Rules for Injury (Section 4.8)
- ISO/IEC, 27002, (Section 10, Operational Security and Section 11, Access Control)
- ISO/IEC, 27002, (Section 7, Asset Protection)
- The Commission on Accreditation for Law Enforcement Agencies (CALEA) requirements (see appendix B)
- Emergency Medical Dispatch Protocol-National Academy of Emergency Dispatchers.
- Fire Dispatch Protocol--National Academy of Emergency Dispatchers.
- Metro Nashville Finance Department Policy #19, Credit Card
- Metro MOU-ECC, MNPD, MFD, and OEM, dated 2002
- ECC Procedure 05-0516, Fiscal Management

STAFF ACKNOWLEDGEMENT

Carlos Holt, CPA, CFF, CIA, CFE, CGAP, Audit Manager
Joe McGinley, CISA, CISSP, In-Charge Auditor
Tracy Carter, CFE, Auditor

APPENDIX A. MANAGEMENT RESPONSE

Karl Dean, Mayor
Duane Phillips, Director

Metropolitan Nashville Davidson County
Emergency Communications Center

August 12, 2011

Mr. Mark Swann
Metropolitan Auditor
Office of Internal Audit
222 3rd Ave No. Suite 401
Nashville, Tn. 37201

    Re: Audit of the Emergency Communications Center

Dear Mr. Swann:

This letter acknowledges that the Emergency Communications Center received the internal audit conducted for the Emergency Communications Center and its Operations and has reviewed the recommendations. We concur with three of the findings and recommendations as you will see in our responses. We disagree with one finding and responded with our interpretation. We have established a plan to implement the changes and recommendations. We appreciate the way this audit was performed and welcome the changes and recommendations your auditors made.

If I, or my staff, can be of any further assistance; please don't hesitate to contact us.

Sincerely,

Duane Phillips

Duane Phillips, Director

Audit Recommendation	Response to Recommendation / Action Plan	Assigned Responsibility	Estimated Completion
A – ECC management should physically isolate the E 9-1-1 equipment in the Radio Room so unauthorized personnel may not gain access to equipment.	**Reject -** We have just relocated all computer support systems from a segregated environment on the second floor, to the main transmitter / data transfer room on the first floor. While this area is not totally segregated from the other equipment, it is in a highly secured area. Persons entering this area have had background checks and/or a security review before entry is allowed. In addition, twenty-four hour video surveillance and on site security is maintained 7 X 24 X 365. Each individual equipment enclosure utilizes a lock and key system. These added security measures meet the newly released ITS Policy # 9 Dated August 1, 2011 "Secure Areas Policy".	**ECC Management**	**N/A**
B – ECC management should ensure that all payroll documents are reviewed, approved and signed before they are submitted for payment.	**Accept -** Procedures have been implemented to insure that proper authorization signatures must be obtained before payroll may be processed. A directive will be issued to maintain the integrity of this process.	**ECC Management**	**N/A**
C – ECC management should ensure overtime vouchers are properly approved before payment.	**Accept -** As the audit plainly states, the civil service rules were overlooked on a few occasions. Reminders and directives have been issued to the payroll clerk not to process any overtime vouchers without the proper signatures.	**ECC Management**	**N/A**
D – ECC management should ensure pre-approval documentation is submitted to the finance manager with all receipts.	**Partially Accept -** While there was no written documentation to verify pre-approval, in most cases (if not all) verbal permission was given. To document future approvals, we will develop a permission signature form to be kept with all receipts.	**ECC Management**	**N/A**

APPENDIX B - SURVEY QUESTIONS

1. What are the top three things you like most about working for the Emergency Communications Center (ECC)?
   a. Challenge
   b. Citizen Contact
   c. Co-Workers
   d. Expectation Level
   e. Problem Solving
   f. ECC Mission
   g. Other_____

2. What are the top three things you like least about working in the ECC?
   a. Breaks/Hours/Shifts
   b. Life and Death Outcomes
   c. Personnel Issues
   d. Systems/Technology
   e. Compensation/Benefits
   f. Management
   g. Stress
   h. Focus on Productivity
   i. Other_____

3. What do you feel are the top three strengths of the ECC?
   a. Coordination between agencies
   b. Knowledge/Experience
   c. Technology
   d. Mission Efficiency
   e. Dedication
   f. Teamwork
   g. Mission Effectiveness
   h. Other_____

4. What do you feel are the top three weaknesses of the ECC?
   a. Coordination between Call Takers & Dispatchers
   b. Focus on quantity of calls
   c. Insufficient Training/Knowledge/Experience
   d. Other
   e. Poor Technology
   f. Staffing Levels
   g. Other_____

5. How would you rate your overall job satisfaction?
   a. 1 – Extremely Low

       b. 2 - Low

       c. 3 – Average

       d. 4 - High

       e. 5 – Extremely High

6. How would you rate your stress level?
       a. 1 – Little/None
       b. 2 – Some/Infrequent
       c. 3 – Average
       d. 4 – Stressed
       e. 5 – Extremely Stressed

7. How would you rate the overall stress level of the ECC?
       a. 1 – Little/None
       b. 2 – Some/Infrequent
       c. 3 – Average
       d. 4 – Stressed
       e. 5 – Extremely Stressed

8. What are the top three causes of stress within the ECC?
       a. Call Volume/Queues Building
       b. Condition of Facilities
       c. Expectation Levels
       d. Lack of Training
       e. Management
       f. Personnel Issues
       g. Other_____

9. How would you rate your morale?
       a. 1 –Extremely Low
       b. 2 – Low
       c. 3 – Average
       d. 4 – High
       e. 5 – Extremely High

10. How would you rate the overall morale of the ECC?
       a. 1 – Extremely Low
       b. 2 – Low
       c. 3 – Average
       d. 4 – High
       e. 5 – Extremely High

11. How would you rate the initial training you received to prepare you for the job?
       a. 1 –Extremely Poor

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b. 2 – Poor
c. 3 – Average
d. 4 – Good
e. 5 – Extremely Good

12. How would you rate the ongoing training you receive?
   a. 1 – Extremely Poor
   b. 2 – Poor
   c. 3 – Average
   d. 4 – Good
   e. 5 – Extremely Good

13. What additional training would you like to see provided?
   a. Call Taking/Dispatching
   b. Technical
   c. Management
   d. Stress Management
   e. Procedures
   f. Time Management
   g. Other_____

14. At work, do your opinions seem to count?

15. In the past year has someone at management talked to you about your progress?

16. What would you like to see changed at the ECC?

APPENDIX C - CALEA REQUIREMENTS

A. Agency Name, CEO and AM

B. Dates of the On-Site Assessment:

C. Assessment Team:

D. CALEA Program Manager and Type of On-site:

E. Community and Agency Profile:
Community profile
Agency profile
Demographics
Future issues
CEO biography

F. Public Information Activities:
Telephone Contacts
Correspondence
Media Interest
Public Information Material
Community Outreach Contacts

G. Essential Services
Organization, Direction and Supervision
Personnel allocation
Organizational Integrity
Liability
Performance Measures
Public Education
Human Resources, Recruitment, Selection, Promotion and Training
Classification Plans
Compensation, Benefits and Conditions of Work
Collective Bargaining Agreements
Performance Evaluations
Grievances
Disciplinary processes
Recruitment activities
Selection
Promotion
Training
Operations, Critical Incidents, Special Operations, and Homeland Security
Quality Assurance
Confidentiality, Sensitivity of information
Call Handling Procedures
Alarm Monitoring
Emergency Medical Dispatch
Amber Alert
Records Retention

       Communication Systems
       Facilities/Infrastructure
       Emergency Operating Plan
       Special Events Plan
       Tactical Dispatching
       NIMS/ICS/CBRN

H. Applied Discretion Compliance Discussion:

I. Standards Noncompliance Discussion:

J. 20 Percent Standards:

K. Future Performance / Review Issues

L. Table: Standards Summary:

M. Summary

N. Recommendation

APPENDIX D - RESPONSE TIMES TO CALL TAKING/DISPATCHING FOR 2010

	Month	Create to Dispatch	Dispatch to Arrival	Create to Arrival	Calculated Create to Arrival	Difference	Calculated Time Diff Report Time Flag	Average Response Time	Average Time Over/Under Target
Fire Suppression	Jan-10	1:08	5:00	6:26	6:08	0:18	-1	68	22
	Feb-10	1:09	4:44	6:13	5:53	0:20	-1	69	21
	Mar-10	1:09	4:49	6:14	5:58	0:16	-1	69	21
	Apr-10	1:10	4:55	6:17	6:05	0:12	-1	70	20
	May-10	7:58	6:01	16:24	13:59	2:25	-1	478	-388
	Jun-10	1:13	5:24	6:54	6:37	0:17	-1	73	17
	Jul-10	0:57	5:01	6:14	5:58	0:16	-1	57	33
	Aug-10	1:20	5:01	6:32	6:21	0:11	-1	80	10
	Sep-10	1:11	5:49	7:04	7:00	0:04	-1	71	19
	Oct-10	0:46	4:17	6:58	5:03	1:55	-1	46	44
	Nov-10	2:33	6:31	10:09	9:04	1:05	-1	153	-63
	Dec-10	3:57	6:40	9:43	10:37	0:54	-1	237	-147
Fire EMS	Jan-10	1:32	5:48	7:20	7:20	0:00	0	92	-2
	Feb-10	1:33	5:44	7:17	7:17	0:00	0	93	-3
	Mar-10	1:31	5:33	7:05	7:04	0:01	-1	91	-1
	Apr-10	1:28	5:28	6:57	6:56	0:01	-1	88	2
	May-10	2:56	5:57	8:37	8:53	0:16	-1	176	-86
	Jun-10	1:29	5:35	7:04	7:04	0:00	0	89	1
	Jul-10	1:22	5:40	7:02	7:02	0:00	0	82	8
	Aug-10	1:26	5:29	6:55	6:55	0:00	0	86	4
	Sep-10	1:09	5:41	6:50	6:50	0:00	0	69	21
	Oct-10	0:41	5:42	6:23	6:23	0:00	0	41	49
Police	Jan-10	3:30	6:18	10:31	9:48	0:43	-1	210	-120
	Feb-10	3:28	6:07	10:23	9:35	0:48	-1	208	-118
	Mar-10	3:34	5:49	10:12	9:23	0:49	-1	214	-124
	Apr-10	4:02	6:03	10:46	10:05	0:41	-1	242	-152
	May-10	14:10	7:11	17:57	21:21	3:24	-1	850	-760
	Jun-10	5:29	6:37	12:51	12:06	0:45	-1	329	-239
	Jul-10	4:13	6:10	10:58	10:23	0:35	-1	253	-163
	Aug-10	4:26	6:25	11:26	10:51	0:35	-1	266	-176
	Sep-10	4:13	6:15	11:15	10:28	0:47	-1	253	-163
	Oct-10	3:34	5:53	10:26	9:27	0:59	-1	214	-124
	Nov-10	3:50	6:05	10:54	9:55	0:59	-1	230	-140
	Dec-10	4:07	6:22	11:28	10:29	0:59	-1	247	-157

APPENDIX E – EXAMPLE ECC STAFFING CALCULATION

Hour	Inbound Calls Answered	Total Calls		20 CPH C-Ts	Round Up		Call Takers with Relief Factor	Dispatchers		Required Staffing with Relief Factor		Four Hour Shift Block Required Staffing
0:00	67	66.95238		3.35	4		8	11		19		19
1:00	48	47.71429		2.39	3		7	11		18	18.33	19
2:00	46	45.85714		2.29	3		7	11		18		
3:00	38	38.42857		1.92	2		6	11		17		
4:00	31	31.33333		1.57	2		6	11		17	17.5	18
5:00	38	37.66667		1.88	2		6	11		17		
6:00	67	67.47619		3.37	4		8	11		19		
7:00	116	115.95		5.80	6		10	11		21		
8:00	145	144.6		7.23	8		12	11		23	22.5	23
9:00	154	153.5		7.68	8		12	11		23		
10:00	155	154.7		7.74	8		12	11		23		
11:00	157	157.4		7.87	8		12	11		23		
12:00	163	163.45		8.17	9		13	11		24	23.75	24
13:00	166	166.35		8.32	9		13	11		24		
14:00	177	177.2		8.86	9		13	11		24		
15:00	187	187.35		9.37	10		14	11		25		
16:00	184	184.2		9.21	10		14	11		25	24.5	25
17:00	185	185.15		9.26	10		14	11		25		
18:00	155	155.35		7.77	8		12	11		23		
19:00	144	144.05		7.20	8		12	11		23		
20:00	138	138.3		6.92	7		11	11		22	22.0	22
21:00	123	122.65		6.13	7		11	11		22		
22:00	107	107.15		5.36	6		10	11		21		
23:00	85	85.4		4.27	5		9	11		20	20.00	20