

Audit Report Highlights

Cuyahoga Emergency Communications System (CECOMS) March 2022

Total Potential Recoveries¹ = None Total Cost Savings² = None

CECOMS Annual Budget³ = \$4.4 million County Annual Budget⁴ = \$1.4 billion

Why DIA Did This Audit



An audit was conducted to assess the effectiveness of CECOMS operations and compliance with related emergency response guidelines. The audit was approved as part of the 2021 Audit Plan. CECOMS operations was identified as presenting high risk to the County due primarily to regulatory intensity, reputational sensitivity, and reliance on external sources for the support of its technologies. The audit period under review was January 1, 2021 through December 31, 2021. The purpose of this audit was to ensure:

1. 9-1-1 calls are answered timely and managed appropriately.
2. Emergency and other response services are managed appropriately.
3. CECOMS was operating in a control conscious environment with adequate controls in place, and if controls do exist, determine if they were adequate to effectively and efficiently achieve CECOMS goals.

What DIA Found

As CECOMS handles over 600,000 9-1-1 calls per a year and was found to be in OAC compliance based on the State's annual 9-1-1 compliance audit since 2018, the process appears to be well managed. However, DIA did note the following internal control or compliance issues:

- Newly hired employees in 2021 were not trained in the agency's emergency medical dispatching protocol;
- Inadequate policies relative to the number of quality assurance reviews necessary to ensure both 9-1-1 and emergency and other incident response services calls are managed in accordance with the agency's policies and emergency response guidelines;
- Completion of weekly and monthly system tests is not ensured;
- Completion of requests for emergency and other incident response services is not ensured;
- Service Organization Control (SOC) audit reports are not currently obtained from service providers and reviewed to ensure that technologies used by the agency are secure and reliable.

Recommendations have been rated by priority: High, Moderate or Low. The report contains 11 recommendations:
2 **High** – 30 days to complete
9 **Moderate** – 90 days to complete
0 **Low** – 180 days to complete

¹ Total amount that could potentially be recovered from overpayments or other revenue sources.
² The amount the County could potentially save annually by implementing recommendations. Cost savings may not be identified.
³ The CECOMS Annual Budget is funded through the County's General Fund (\$493,078 in 2021) and Wireless 9-1-1 Government Assistance Fund (\$3,911,658 in 2021).
⁴ The County Annual Budget includes operating appropriations from all County funds.

Audit Report Highlights

Cuyahoga Emergency Communications System (CECOMS)

March 2022

Background

CECOMS is a 24 hour, 7 days a week, emergency communications operation for Cuyahoga County. CECOMS is responsible for answering cellular 911 calls in Cuyahoga County and transferring them to the appropriate public safety answering point (PSAP) for dispatching Police, Emergency Medical Services (EMS), and Fire.

In addition, CECOMS also works to support requests for emergency and other incident response services, preparedness, and planning efforts, some of which include:

- Activation / dissemination of Amber Alerts
- Reporting hospital capability restrictions / activating override shifts
- Coordination of mutual aid agreements between jurisdictions
- Reporting HAZMAT spill incidents
- Coordination of victim transport during mass casualty incidents



What DIA Recommended

DIA provided CECOMS management with recommendations for improving internal controls. We provided these recommendations during fieldwork to lessen potential risks related to internal controls for 9-1-1 calls and emergency response services. Doing so during the course of fieldwork rather than at audit completion allows the department a chance to remedy identified issues immediately and have no surprises when the report is written.

CECOMS is working to address the issues noted in this report. Based on their responses, we believe corrective action will be taken to mitigate the risks identified. Management responses follow each recommendation in the report. Recommendations we made for management included:

- A new date for classroom training should be set, so that all new hires become certified in Emergency Medical Dispatching and AHA CPR/AED.
- Establish and implement a proper protocol for policy review, including signature approval.
- Determine whether it is appropriate to follow the APCO/NENA requirement of 2% of calls for quality assurance review or set a number that is determined to provide the appropriate level of coverage to mitigate the risk of improper handling of calls.
- Implement a "Supervisor Shift" form for supervisors to ensure that both system tests and requests for emergency and other incident response services are fulfilled. Ensure that calls are labeled to distinguish the types of services.
- Obtain and review the Service Organization Control (SOC) audit reports over service providers for assurance that technologies used by the agency are secure and reliable.

Internal Audit would like to express our appreciation for the cooperation and assistance received from CECOMS during this audit. The strides made help improve the County's efficiency and accountability.

Internal Audit Report

Cuyahoga County, Ohio
Department of Internal Auditing

Cuyahoga Emergency Communications System Audit
Department of Public Safety and Justice Services
January 1, 2021- December 31, 2021

**Director of Internal Auditing: Monica Houston, CPA,
CGMA, CFE, CIDA**

Internal Audit Manager: Joshua Ault, CIA

**Staff Auditors: Tom Schneider, CPA
Joseph Balbier, Esq.**



Release Date: 04/26/2022

INTERNAL AUDIT REPORT
Office of Cuyahoga Emergency Communications
Cover Letter

March 4, 2022

To: Director of Public Safety and Justice Services, Brandy Carney, and current management of Cuyahoga Emergency Communications System

The Department of Internal Auditing (DIA) has conducted an audit of Cuyahoga Emergency Communications System (referred to throughout this report as “CECOMS”) operations for the period January 1, 2021 through December 31, 2021. Our main objective was to assess the effectiveness of CECOMS operations and compliance with relevant emergency response guidelines. After reviewing relevant Ohio Administrative Code and industry guidelines as found in Association of Public-Safety Communications Officials (APCO), we assessed CECOMS compliance with applicable standards.

To accomplish our objective DIA conducted interviews with management regarding processes in place to ensure timely and appropriate answering of 911 calls and fulfillment of emergency and other incident response services. We conducted control and substantive testing, and reviewed CECOMS Standard Operating Guidelines (SOGs) to determine their sufficiency with Ohio Administrative Code (OAC) and APCO industry standards.

Our audit procedures disclosed:

- Newly hired employees in 2021 were not trained in the agency’s emergency medical dispatching protocol;
- Inadequate policies relative to the number of quality assurance reviews necessary to ensure both 9-1-1 and emergency and other incident response services calls are managed in accordance with the agency’s policies and emergency response guidelines;
- Completion of weekly and monthly system tests is not ensured;
- Completion of requests for emergency and other incident response services is not ensured;
- Service Organization Control (SOC) audit reports are not currently obtained from service providers and reviewed to ensure that technologies used by the agency are secure and reliable.

This report provides the details of our findings. We are confident corrective action has been taken or will be taken to mitigate the risks identified in this audit report.

We conducted this audit in accordance with the International Standards for the Professional Practice of Internal Auditing. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Because of the inherent limitations of internal controls, errors or irregularities may occur and not be detected. Also, projection of any current evaluation of the internal control structure to future periods is subject to the risk that procedures may become inadequate due to changes in conditions, or that the degree of compliance with the procedures may weaken.

DIA would like to express our appreciation to CECOMS staff and management who assisted throughout the process for their courtesy and cooperation during this audit especially as such occurred during a time of significant crisis for the County. A draft report was provided to CECOMS' management for review. Management responses are included within the audit report.

Respectfully,

A handwritten signature in blue ink that reads "Monica Houston". The signature is fluid and cursive, with the first name "Monica" and last name "Houston" clearly legible.

Monica Houston, CPA, CGMA, CFE, CIDA
Director of Internal Auditing

Cc: Cuyahoga Council
William Mason, Chief of Staff
Greg Huth, Law Director
Michael O'Malley, Cuyahoga County Prosecutor
Catherine Tkachyk, Executive Audit Liaison

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Glossary

CECOMS	Cuyahoga Emergency Communications System (CECOMS) is a 24 hr, 7 day a week, emergency communications system for Cuyahoga County. As a primary PSAP (Public Safety Answering Point), CECOMS transfers all cellular 9-1-1 calls to various PSAPs across Cuyahoga County.
PSAP	A public-safety answering point (PSAP), sometimes called "public-safety access point" is a call center for a municipality, typically located within police stations, where emergency calls (like police, fire brigade, ambulance) initiated by any mobile or landline subscriber are terminated. It directly dispatches emergency services or passes 9-1-1 calls on to public or private safety agencies.
Primary PSAP	A public safety answering point whose primary function is to receive incoming wireless and wireline 9-1-1 request for emergency assistance and relay those requests to a secondary PSAP. Also referred to as a central PSAP.
Secondary PSAP	A public safety answering point that operates as a dispatch center for a public safety agency and receives rollover and/or transferred wireless, and direct or rollover and/or transferred wireline 9-1-1 requests.
NG9-1-1	Next Generation 9-1-1 (NG9-1-1) refers to an initiative aimed at updating the 9-1-1 service infrastructure in the United States and Canada to improve public emergency communications services in a growingly wireless mobile society. In addition to calling 9-1-1 from a wireless phone, it intends to enable the public to transmit text, images, video.
Ohio 9-1-1 Program Office's Annual Support and Compliance Review	Annually, primary public-safety answer points (PSAPs) will submit compliance documentation to the Ohio 9-1-1 Program Office covering the rules within Ohio Administrative Code Chapter 5507. The Ohio 9-1-1 Program Office Support and Compliance Coordinator will hold meetings with all County 9-1-1 Coordinators to review documentation submitted from the local public safety answering points (PSAPs). Additionally, on-site visits occur every two years.
APCO	Association of Public-Safety Communications Officials. APCO provides training and certificates to help PSAPs meet NENA standards.
NENA	National Emergency Number Association. NENA establishes industry standards for PSAPs.
Call Works	NG9-1-1 Call taking software for PSAPs that helps manage and records calls.

Report Details

Purpose

The purpose of this audit was to conduct a comprehensive examination of various processes and procedures for the answering of 911 calls and fulfillment of emergency and other incident response services to determine areas where CECOMS was exposed to high levels of compliance and operational risk and make recommendations to mitigate that risk.

The Audit Committee approved DIA’s 2021 audit plan to include an audit of CECOMS. CECOMS was identified as an auditable unit with a high level of risk on the Annual Risk Assessment due primarily to regulatory intensity, reputational sensitivity, and reliance on external sources for the support of its technologies. We conducted our review through inquiry and testing of 911 calls and emergency and other incident response services occurring during the audit period. DIA evaluated processes for compliance with existing policies, and applicable Ohio Administrative Code and industry standards.

The audit included review and evaluation of procedures, practices and controls as deemed necessary.

Audit Objectives

Control conscious environment
Adequate level of internal control awareness; proper separation of duties; existence of a proper monitoring system; appropriate authorization/approval of expenditures; and adequate safeguarding of financial, physical, and information assets.

The objective of this audit was to assess the effectiveness of CECOMS operations and compliance with related emergency response guidelines to ensure:

- 9-1-1 calls are answered timely and managed appropriately.
- Emergency and other incident response services are managed appropriately.
- CECOMS was operating in a control conscious environment with adequate controls in place, and if controls do exist, determine if they were adequate to effectively and efficiently achieve CECOMS goals.

Scope

To accomplish our objectives, we focused on CECOMS procedures in answering 911 calls and fulfillment of emergency and other incident response services for the audit period January 1, 2021 through December 31, 2021. Interviews with management and staff were conducted to document the processes in place. Policies and Standard Operation Guidelines (SOGs) were reviewed to determine sufficiency in guidance. Additionally, tests of controls were performed to determine if policies and SOGs were followed and operating effectiveness and compliance achieved.

As the centralized communications channel for the County's Emergency Operations and Business Continuity, CECOMS provides emergency and other incident response services to County agencies and entities within and outside the Cuyahoga County. In reviewing the Standard Operating Guidelines (SOGs), DIA noted that in addition to its core 911 emergency service there were 18 types of other incident response services provided by CECOMS. In establishing the engagement scope, DIA assessed the risks for 911 emergency and each of the 18 types of other incident response services. In its assessment, DIA determined 911 emergency and three other incident response services presented the greatest risk to the County. The three other incident response services of greatest risk were:

- Hospital Restriction Notifications
- Hospital Squad Diversion Override
- Mass Casualty Incidents

DIA included additional control and substantive testing over 911 emergency services and these three other incident response services.

Methodology

To satisfy the audit objectives, DIA made inquiries to gain a general understanding of CECOMS processes relating to the answering of 911 calls and fulfillment of emergency and other incident response services to assess their level of operational and compliance risk.

DIA reviewed audit reports issued annually by the Ohio Department of Administrative Services (ODAS) since 2018 and considered the work performed relative to assessing CECOMS 911 answering operations for compliance with Ohio Administrative Code (OAC) Chapter 5507 requirements. In our review of the audit reports, we concluded that CECOMS was in compliance through the last audit reporting period ending April 30, 2021. Therefore, DIA focused its testing of CECOMS 911 answering operations for OAC compliance to the period between May 1, 2021 through the end of the year.

DIA assessed the written procedures in the CECOMS Standard Operating Guidelines (SOGs) for compliance with emergency response guidelines. DIA assessed whether management had effective monitoring controls in place to ensure actual operations conformed with the written procedures.

In particular, DIA assessed the effectiveness of CECOMS Quality Assurance/Quality Improvement process by reviewing case reviews over calls in 2021, as well as DIA performing its own case reviews by randomly selecting 60 additional calls in 2021. DIA reviewed the 60 calls and supporting system entries and documentation using the same evaluation form used by CECOMS management to assess whether the calls were managed in conformity with the SOGs.

Lastly, DIA performed reviews over the three emergency response services identified as key risks by selecting all related calls and supporting system entries and documentation to assess whether the requests for emergency response services were fulfilled and managed in conformity with the SOGs.

Audit Procedures

Although every audit conducted by the DIA is unique, the audit process for most engagements consists of the following three phases:

- Planning
- Fieldwork
- Reporting

The planning phase of an engagement entails gathering sufficient understanding of the area being audited to identify and reduce key audit risks to an appropriate level. The DIA must document and develop a plan for each audit engagement, including the engagement's objectives, scope, timing, and resource allocation.

The DIA obtained an understanding of CECOMS key processes identified which consisted of 9-1-1 operations as well as 18 additional emergency response services (Hospital Restrictions, Amber Alerts etc.). As CECOMS is subject to OAC chapter 5507 which requires multiple technical and operational standards to promote best practices of 9-1-1 operations, the number of different services and compliance requirements is above average for a County agency.

The fieldwork phase of an engagement entails executing the audit steps. This usually includes testing, reviewing, and analyzing data along with interviewing the appropriate personnel. Each audit has unique aspects and therefore the audit fieldwork and analysis performed on each audit segment should be customized for that assignment. See Methodology for a summary of fieldwork performed.

The DIA prepares written reports to communicate the results of each engagement. The format and nature of the report can vary depending on user needs and the type of engagement. Additionally, the DIA requires all engagements to receive an appropriate level of supervisory review and quality control as required by professional standards. At the time of report release, DIA resources required to complete the audit were as follow:

Stages		Actual Hours
Planning		435.17
Fieldwork		389.00
Reporting:		193.50
Review	74.50	
Draft Report	119.00	
Totals		1,017.67

Background

CECOMS is a 24 hour, 7 days a week, emergency communications operation for Cuyahoga County. CECOMS is responsible for answering cellular 911 calls in Cuyahoga County and transferring them to the appropriate public safety answering point (PSAP) for dispatching Police, Emergency Medical Services (EMS), and Fire. In addition, CECOMS also works to support requests for emergency and other incident response services, preparedness, and planning efforts.

911 Calls



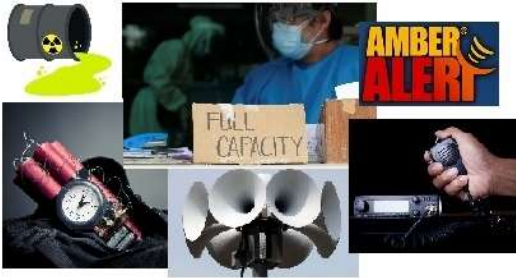
CECOMS currently employs 12 full time and 1 part time call takers. Call takers are responsible for answering 911 calls and determining if they are an emergency and thus need transferring to one of the 22 PSAPs located within the County’s jurisdiction for Police, EMS, and Fire. Call takers make their determinations by following Standard Operating Guidelines (SOGs):

- 911 Emergency Call Taking
- Disconnected, Abandoned, Silent Call Handling
- Emergency Calls from an Invalid or Disconnected Phone Number
- Chronic and Nuisance Non-Emergency Calls
- Misuse/Abuse of 911 Calls

In the event that a PSAP requests assistance because its staff on duty are unable to provide necessary Emergency Medical Dispatching (EMD) pre-arrival instructions, CECOMS call takers trained and certified in EMD will provide pre-arrival instructions as necessary until the PSAP has dispatched EMS. In such instances, CECOMS EMD trained call takers follow Emergency Medical Dispatch Procedures SOG and “EMD Guidecard”, a desk reference outlining all protocols for EMD. As well, in the event of a system or power outage at the Cleveland PSAP, CECOMS EMD trained call takers will administer the dispatching of Cleveland’s calls, including EMD pre-arrival instructions as necessary, until the system or power is up and Cleveland can resume taking calls.

9-1-1 calls are processed in the Emergency Call Works system (“Call Works”), a 9-1-1 software that provides all Cuyahoga County PSAPs a networked answering solution. Call Works provides a caller’s location based on coordinates of the signal from the device, referred to as Automatic Location Identification (ALI), a helpful feature for the call taker to ensure the caller is routed to the appropriate secondary PSAP. Additionally, Call Works has 3-way calling which allows the call taker after routing to stay on the line to confirm that the secondary PSAP’s dispatcher answered and can manage the emergency. Call takers are supervised for the duration of their shift by a CECOMS Operations Supervisor who ensures that all calls are answered.

Emergency and Other Incident Response Services



In addition to 911, call takers are also responsible for fulfilling requests for emergency and other incident response services. Call takers receive these requests through administrative phone lines, radio transmission, and email. Call takers follow Standard Operating Guidelines (SOGs) with the procedures necessary to fulfill the requests.

The following is a list of the other incident response services provided by CECOMS:

1. Hospital Restrictions
2. Hospital Squad Diversion Override
3. AMBER Alerts
4. Knowledge Center
5. Interop Channel
6. Mass Casualty Incident Activation
7. Public Records Requests
8. Bomb Threats
9. Ohio Fire Chief's Emergency Response Plan
10. Communications Unit Leader COM-L
11. Severe Weather Advisory
12. Mutual Aid Box Alarm System
13. Major Emergency Incident Communications Coordination
14. Hazmat Spills
15. Hearing Impaired and Language Interpreter Requests
16. Automatic License Plate Reader
17. Media Alert Notifications
18. Mobile Laptop Loan Program

Continuity of Operations Plan (COOP)



The goal of the CECOMS COOP is to restore and ensure the capability to sustain the mission essential functions:

- Answer 911 and 10-digit emergency calls and transfer to the appropriate dispatch center;
- Process emergency and other incident response requests by County agencies; and,
- Maintain control over expanded operations.

Per the COOP, periodic testing, training, and exercises should occur to ensure equipment and procedures are maintained in a constant state of readiness. CECOMS defines its periodic testing of critical systems in the following Standard Operating Guidelines (SOGs):

- Automatic License Plate Reader website
- CodeRed website (for Hospital Restrictions)
- OHTrac website (for Mass Casualty Incidents)
- Emergency Alert System machine (for AMBER alerts and radio media alerts)
- Knowledge Center website (for multi-agency/jurisdiction coordination)
- Mutual Aid Box Alarm System (statewide mutual aid for fire and EMS)

In addition to the COOP, CECOMS 9-1-1 Continuity Plan describes the steps to troubleshoot and restore the Emergency Call Works system in the event of system issues or power outages. In the event of an outage, CECOMS has several redundancies to ensure continuous operations:

- Uninterrupted Power Supply (UPS) units powering each workstation and an additional two for the power distributions units (PDUs) and server, each lasting up to 3 hours.
- Power to workstations and server split into two separate electrical circuits to continue to receive power during a technical failure of one circuit.
- Emergency power supply lasting 5 days until refueling (350-gallon capacity).
- Roll-over feature to automatically transfer a 9-1-1 call to the Cleveland secondary public safety answering point (PSAP) if not answered by CECOMS within 60 seconds to prevent any technical or operational disruptions to answering calls.

- Switch to transfer all 9-1-1 calls to the Cleveland secondary PSAP for an evacuation/relocation situation during extended system issues or power outages, which CECOMS tests monthly.

Through service agreements, CECOMS has each of these redundancies inspected regularly to ensure their constant state of readiness.

Commendable Practices



DIA commends CECOMS for the work they perform to provide emergency support services to the citizens of Cuyahoga County. The CECOMS management was very knowledgeable about the numerous types of calls that may be received at any moment. The cooperation of CECOMS management during this audit is especially commendable considering the additional challenges brought on by the COVID-19 pandemic. Based on the results of the audit, DIA believes that 911 call intake services, and other emergency and other incident responses services, are well-managed. Specific commendable practices that DIA noted during the audit include:

- CECOMS was in compliance with Ohio Administrative Code (OAC) Chapter 5507 for public safety answering points (PSAPs) in the State's annual 9-1-1 audit every year from its inception in February 2018 through the end of April 2021.
- CECOMS exceeds several OAC Chapter 5507 requirements:
 - Schedules 3 to 5 call takers to a shift based on call volume (2 required in OAC)
 - Provides 480 hours of instruction to its call takers (40 hours in OAC)
 - Expects employees complete 24 hours continuing education (6 hours in OAC)
 - Emergency power supply lasting 5 days before a refueling (24 hours in OAC)
- CECOMS avoids the added costs of external training by its supervisors becoming certified instructors through the Association of Public-Safety Communications Officials (APCO) and providing training internally over Safety Telecommunications (PST), CPR, Emergency Medical Dispatch (EMD), and other job-specific skills.
- CECOMS has been proactive in preparing all secondary public safety answering points (PSAPs) in Cuyahoga County for compliance with OAC Chapter 5507 requirements by offering its training, technological, and monitoring resources, in anticipation of House Bill 445 which will extend the OAC requirements (and the State's annual 9-1-1 audit) to secondary PSAPs within two years of its effective date expected sometime in 2022.

- CECOMS is committed to adding efficiencies to its operations through continuous upgrades:
 - VESTA NG9-1-1 solutions call taking software, set for implementation in early 2022. VESTA will provide CECOMS the following enhancements:
 - Pocket Dial Filter and Automated Abandoned Callback feature that automatically returns abandoned calls and gives the option to be directed to dispatch for help or to report assistance is no longer needed.
 - Automatic Call Distribution (ACD). ACD allows calls to be equally distributed among available call takers, thus achieving a balanced workload.
 - Enhanced analytics and reporting capabilities far exceeding the current services, including an ability to create ad hoc reports, of which will provide the information needed for targeted quality assurance reviews.
 - Diverse access pair procured and expected to be installed in early 2022. This will provide CECOMS with two ethernet connections sourced from separate broadband service lines coming in from opposite ends of the building. In the event one service line has limited connectivity or goes down, the other would be available to supply internet connection and minimize any disruptions or lags to their systems.
- Despite severe personnel shortages due to the COVID epidemic, management has been able to maintain services at an operational level that in most areas meets or exceeds statutory requirements and industry standards.

Priority Level Criteria for Recommendations

High (P1)	Highest-Ranking Officer's immediate attention is required. Corrective action is strongly recommended (<u>30 days</u>).
	<ul style="list-style-type: none"> • Financially material loss or potential loss • Lack of or failure of internal controls requiring considerable time and resources to correct • Non-compliance with laws, regulations, and policies resulting in significant loss of funds, fines, or restrictions • Significantly negative effect on the County's reputation or public perception
Moderate (P2)	Senior Management's attention is required. Corrective action is recommended (<u>90 days</u>).
	<ul style="list-style-type: none"> • Financial loss or potential loss • Internal controls exist but they are not effective, or they are not consistently applied • Non-compliance with laws, regulations, and policies resulting in loss of funds, fines, or restrictions • Negative effect on the County's reputation or public perception
Low (P3)	Management's attention is required. Corrective action is recommended (<u>180 days</u>).
	<ul style="list-style-type: none"> • Financial loss or potential loss is minimal • Internal controls exist, but could be improved • Non-compliance with laws, regulations, and policies is a minimal risk • No effect on the County's reputation or public perception
Business Process Improvement (P4)	Management or supervisory attention recommended but not required
	<ul style="list-style-type: none"> • Process improvement recommendation • Financial loss or potential loss is minimal or not applicable • Non-compliance with laws, regulations, and policies is a minimal risk or not applicable • No effect on County's reputation or public perception

In an effort to assist the auditee in making the best use of their resources, we have prioritized the recommendations according to the table above.

Findings and Recommendations

FINDING New Employees Not EMD Trained

CECOMS does not comply with Ohio Administrative Code (OAC) 5507-1-09 Emergency medical dispatching. Pursuant to Ohio Administrative Code (OAC) 5507-1-09 Emergency medical dispatching:

Any person who answers 9-1-1 requests for service shall be trained in the agency's emergency medical dispatching protocol before handling such requests without direct oversight.

Per the CECOMS Training Program Manual:

All CECOMS staff will complete CPR/AED Heart saver certification training and maintain a current certification. CECOMS will provide opportunities for staff to obtain and maintain this certification. This training will be held either at CECOMS by a qualified instructor or at an off-site training facility. Successful completion of the CPR/AED Heartsaver certification training is required prior to attending the APCO Emergency Medical Dispatching (EMD) course, which provides the student with the knowledge and foundation to answer calls for emergency medical service, properly prioritize the response and convey proper pre-arrival instructions to the caller when needed.

At the time of our review, the four employees hired in 2021 were not trained in the agency's EMD protocol and had not completed the following courses: Association of Public-Safety Communications Officials (APCO) Emergency Medical Dispatching and American Heart Association's (AHA) Heartsaver First Aid CPR (Cardiopulmonary Resuscitation) AED (Automated External Defibrillator).

Per our observation, it appeared that direct oversight is not being provided to these four call takers who are not trained in EMD and that such is not possible. Although there is a supervisor on duty to assist, they are not able to provide direct oversight to a call taker not trained in EMD as there are other call takers on duty receiving calls simultaneously whom the supervisor has the responsibility for assisting as well.

Due to recent exception granted by the Ohio Department of Administrative Services (ODAS) 9-1-1 Program Office for non-compliance, as a result of the COVID-19 pandemic, management was unaware they were not in compliance.

Risk to the County if Not Corrected

Having call takers not trained in EMD and AHA CPR AED could result in a call taker's inability to give a caller potentially lifesaving pre-arrival instructions to help treat a patient until a responding EMS unit arrives.

Recommendations

- 1) (P1) EMD and AHA CPR AED course classroom training should be scheduled as soon as possible for all call takers not yet trained.
- 2) (P1) Moving forward, any additional new hires should complete EMD and AHA CPR AED course classroom training before answering any calls without direct oversight.

Management's Response:

Management is aware that we have four employees not yet trained and certified in Emergency Medical Dispatch. Per the COVID 19 protocols of Cuyahoga County and Bedford Medical Center, we were unable to hold an in-person class during the COVID 19 pandemic. Emergency Medical Dispatching must be taught in person due to the complexity of the training and requirement of practical exercise and exam, so holding a virtual class was not a viable alternative.

In the interim, as a contingency, CECOMS currently requires an employee not yet certified in EMD protocols to hand off any call requiring provision of EMD to a qualified Call Taker or Supervisor, therefore ensuring that EMD calls are processed by an employee who is qualified to handle such a call. This procedure assures CECOMS remains in compliance with OAC 5507-1-09.

With the lifting of restrictions on in-person meetings, Management expects the four employees hired in 2021 to complete both CPR and EMD training by the end of April 2022. Additionally, the County will also be resuming both Public Safety Telecommunicator (April 2022), and Emergency Medical Dispatch (May 2022) classes, demonstrating CECOMS' commitment to train and certify employees as quickly as possible.

Target Date for Completion:

- *CPR - all employees not yet certified shall receive CPR certification by Friday 4/8/2022.*
- *Public Safety Telecommunicator (PST) - all employees not yet certified shall receive PST certification by Friday 4/29/2022*
- *Emergency Medical Dispatching (EMD) - all employees not yet certified shall receive EMD certification no later than Monday 5/16/2022.*

FINDING Inadequate Level of Case Review

CECOMS did not have a quality assurance (QA) policy formally approved by management to ensure the risk of improper handling of calls was sufficiently mitigated. Also, CECOMS does not perform an adequate number of QA reviews over calls.

It is a best practice to have a formal policy approval process to ensure management is setting the expectations for the agency. Signature approval by an appropriate level of management ensures policies are enforceable and employees can be held accountable.

The current effective QA Policy (entitled “Cuyahoga County CECOMS Comprehensive Quality Assurance/Quality Improvement Policy” (QA/QI Policy)) states that “A Minimum of 2% of all calls for service per week, up to 10% per month, are reviewed.” This policy is currently under draft for necessary updates.

The updated draft QA/QI states that the QA/QI program shall follow APCO/NENA ANS 1.107.1.2015 “Standard for the Establishment of a Quality Assurance and Quality Improvement Program for Public Safety Answering Points (PSAP)”, and cites the following APCO/NENA requirement:

PSAP agencies shall, in the normal course of business, review at least 2% of all calls for service. Where the 2% factor would not apply or be overly burdensome due to low or excessively high call volumes, agencies must decide on realistic levels of case review.

During our review, DIA noted that neither the current effective or updated draft QA policy was approved or being complied with. In 2021, only 26 of 526,843¹ calls (0.005%) received documented case reviews, far below the APCO/NENA recommended 2% set in the draft QA policy.

Without a formally approved policy or sufficient use of the QA monitoring control, DIA conducted an independent QA review of calls to assess if operations are efficient and comply with applicable internal policy and related emergency response guidelines. DIA reviewed 60 calls selected both randomly and haphazardly from different days throughout 2021. Using the draft QA policy evaluation form and scoring

¹ The number of calls was based on CECOMS management’s call answering time analysis spreadsheet derived from Call Works reports as of 10/31/2021.

methodology to assess conformity and assign an evaluation score, we determined that calls were overall well managed as no significant deficiencies were identified.

CECOMS lacks a process in which the agency addresses risk through policies that are formally approved. Additionally, as a result of increased operational need, reduced staffing levels, and the impact of COVID-19, CECOMS was unable to devote adequate resources to perform sufficient levels of quality assurance reviews of calls.

Risk to the County if Not Corrected

A lack of a formal policy approval process could result in agency expectations not being met and employees not held responsible. Management not approving a policy for quality assurance could result in an ineffective quality assurance review program that does not ensure conformity with all applicable internal policy and related emergency response guidelines and effective corrective action. Insufficient levels of quality assurance reviews of calls could result in mismanaged calls and an inability to provide timely and appropriate emergency response service to callers with potentially life-threatening emergencies.

Recommendations

- 1) (P2) CECOMS should establish a proper protocol for policy review, including signature approval. Once established, management should implement the protocol with all existing policies.
- 2) (P2) Management should determine whether it is appropriate to follow the APCO/NENA requirement cited in its policy of 2% of calls or set a number of calls that is determined to provide the appropriate level of coverage necessary for an effective control that adequately mitigates the risk of improper handling of calls to an acceptable level. Management should document its determination by updating its policy using the proper protocol for policy review.

Management's Response:

1. *Management shall review all existing policies and make necessary updates annually at a minimum. After annual review, the CECOMS Manager shall sign off on any changes/updates via a signature field within the SOG change log.*
2. *CECOMS recognizes the need for adequate quality assurance reviews to assure emergency operations are being performed in accordance with established procedures and state rules. Management believes call review is one component of quality assurance. The Quality Assurance Supervisor monitors operational metrics on a daily, weekly, and monthly basis. Metrics include but are not limited to call volume and answer times. Metrics provide a solid overview of CECOMS 911 operations as a whole, where call evaluation only looks at one call, randomly chosen, out of the 2,000-2,500 calls CECOMS*

receives daily. There are limitations in the number of call evaluations that are completed due to the increasingly high call volume CECOMS has. While industry standards recommend or require a minimum of 2% of an agency's total calls be evaluated, the standard does allow for an agency to determine an appropriate number of call evaluations if their call volume is either too high or too low to meet 2% efficiently. CECOMS maintains a call volume that is too high to reasonably reach a 2% call evaluation target. Therefore, management has determined that policy updates are required in this area.

- Operations Supervisors shall assist with QA call evaluation effective March 1. Evaluations are completed using the same method as the QA Supervisor, and are forwarded to the QA Supervisor for review and record maintenance.
- Management shall revise the Comprehensive Quality Assurance Policy to include a reasonable call evaluation target that is attainable while still providing the appropriate level of review necessary for assuring calls are handled in accordance with policy and standards. Management has determined that the Operations Supervisors, as a team, shall evaluate a minimum of one call per employee weekly, and the QA Supervisor shall evaluate one call per employee on a monthly basis. Additionally, the QA Supervisor shall continue to evaluate all incidents as they occur.

Target Date for Completion:

- Operations Supervisors began completing weekly QA call evaluations effective March 1, 2022.
- QA Policy shall be updated by March 31, 2022.
- SOG review is ongoing. The Manager approval process shall begin effective with any 2022 policy revisions.

FINDING Completion of Emergency Response Services Not Ensured

The completeness and accuracy of requests for emergency response services are not appropriately ensured. Verifying the completion and accuracy of work by the call takers is an essential duty of a supervisor and necessary to ensure that quality emergency response services are provided.

CECOMS Standard Operating Guidelines (SOGs) instruct the call takers to fulfill requests for emergency response services through various notifications and system entries. For Hospital Restrictions, the SOG instructs the call takers upon receiving hospital restriction requests to determine the type of hospital restriction, make call notifications to Cleveland EMS Radio Emergency Dispatch Center, and record entries into the CodeRed system, Hospital Restrictions website, and Computer Aided Dispatch system (CAD) (effective July 1st, 2021). The website entries require a selection for the type of hospital restriction (one of the five Capability Restrictions or a Facility Comment).

Ensuring that calls are labeled for the type of request is necessary for proper recordkeeping and the ability to perform adequate quality assurance reviews.

Missing and inaccurate notifications and system entries exist. DIA noted in its testing of the 35 Hospital Restriction placements in 2021 there were:

- 4 (11.4%) website entries not recorded
- 1 (2.9%) website entry coded inaccurately (a “CT Scan Down” was coded on the website as a Capability Restriction – Full Restriction, instead of a Facility Comment)

DIA also noted the following in 28 out of the 35 Hospital Restriction placements occurring after June 30th, 2021, when the CAD entry requirement was implemented:

- 13 (46.4%) CAD entries not recorded

CECOMS did not maintain a full listing of all call recordings (incoming and outgoing) related to the fulfillment of hospital restriction requests (placements, updates, and removals). The compensating practice of including call timestamps in CAD entries to help identify the related recordings was inconsistent amongst the call takers and could not be relied upon. This limited the scope of our testing to hospital restriction placements identified on the website as it was the only reliable listing CECOMS could provide to identify recordings of incoming call for placement requests. This scope limitation prevented DIA from concluding whether all hospital restriction requests are fulfilled and managed appropriately.

Management does not formally require supervisors to verify completion and accuracy of notifications and system entries. CECOMS lack a documented verification process.

CECOMS could not provide a full listing of all call recordings (incoming and outgoing) related to the fulfillment of hospital restriction requests (placements, modifications, and removals), because the Call Works system does not differentiate calls between Hospital Restrictions and other emergency response services. Also, CECOMS did not have a formal method to label calls to distinguish the type of emergency response service to query a listing.

Risk to the County if Not Corrected

Without a verification process for emergency response, there is increased risk that service requests will not be fulfilled properly, and operational deficiencies may not be detected. A lack of ensuring that calls are labeled for the type of request could result in inadequate recordkeeping and inability to perform adequate quality assurance reviews.

Recommendations

1. (P2) Management should implement a “Supervisor Shift” form for supervisors to ensure throughout their shift that requests for emergency response services are fulfilled and completed accurately and timely. The form should enable the supervisor to document whether call takers have completed all notifications and system entries required by policy for each type of emergency response service.

2. (P2) Management should ensure that calls are labeled to distinguish the type of emergency response services, either in the primary call taking system or a secondary listing (e.g. CAD, Supervisor Shift forms).

Management's Response:

CECOMS was unable to provide call recordings for all hospital restrictions in 2021 due to the records retention policy implemented by our technology support vendor (CVD). This policy was developed to achieve alignment with the system's data storage capacity.

1. *Management has implemented a Supervisor Shift Report which is completed daily by each supervisor. This requirement became effective January 6, 2022.*
2. *CECOMS will explore the possibility of call labeling or flagging when the enhanced capabilities included in Vesta are implemented.*

Target Date for Completion:

- *Supervisor Shift Reports became effective January 6, 2022.*
- *Enhanced capabilities with Vesta expected within the next 3-4 months (July 2022)*

FINDING Completion of System Tests Not Ensured

The completion of systems tests used by the call takers to provide emergency response services is not ensured. Pursuant to Ohio Administrative Code (OAC) 5507-1-01:

In the course of providing citizens with their most vital link to emergency response, 9-1-1 public safety answering points ("PSAP's") in the state of Ohio shall comply with technical and operational standards and recognize and promote best practices that will provide consistent, quality service by well trained personnel utilizing a high level of secure technology.

Regularly testing systems is a best practice to ensure that equipment is functioning properly to enable call takers to provide timely emergency response services. Management has set policy within the standard operating guidelines (SOGs) instructing call takers to complete weekly tests of the following systems:

- Automatic License Plate Reader
- CodeRed (for Hospital Restrictions)
- OHTrac (for Mass Casualty Incidents)
- Emergency Alert System (for AMBER alerts and radio media alerts)
- Knowledge Center (for multi-agency/jurisdiction coordination)

CECOMS has a 911 Call Diversion Switch used to transfer 911 calls to the City of Cleveland Bureau of Communications Center (“Cleveland”). The switch is activated if due to a power outage CECOMS must relocate to Cleveland.

Although policy is in place instructing call takers to complete tests of systems, the compliance with said policy is not adequately ensured through completion of documentation or supervisory review.

DIA noted the following in its testing:

- Hospital Restriction Notifications: DIA sampled ten random weeks in 2021 and determined for nine out of the ten weeks (90%) that weekly tests of the CodeRed system used to report Hospital Restriction Notifications were not performed.
- Mass Casualty Incidents: DIA sampled ten random weeks in 2021 and determined for the entire sample (100%) that weekly tests of the OHTrac system used to report Mass Casualty Incidents were not performed.
- 911 Call Diversion Switch Process: DIA selected the month of December 2021 for testing and determined, based on lack of support, that the test had not been performed.

Management does not require supervisors to verify the tests of systems for completion. The missing tests were due to a lack of a verification process. Management has an informal policy to conduct a test of the switch monthly. An email is sent back as verification that the test was completed. The most recent example of a monthly test that management could find and provide DIA email support for was for November 2021.

Risk to the County if Not Corrected

Lack of sufficiently verifying the completion of systems tests could result in incomplete tests and undetected equipment failures. Such failures could result in a call taker’s inability to provide timely emergency response and noncompliance with technical, operational, and security standards within Ohio Administrative Code.

Recommendations

- 1) (P2) Management should implement a "Supervisor Shift" form for supervisors to ensure system tests were fulfilled as instructed in the standard operating guidelines and policies.

Management's Response:

Management has implemented a Supervisor Shift form effective January 6, 2022. This form enables each supervisor conducting a system test to report the type of test, the date of completion, and the outcome of the test. The shift form may be viewed in the system by management and/or printed in hard copy. Additionally, Management has created "event reminders" for the duration of the year in the MS Outlook calendar for each system test, which will serve to notify all CECOMS Operational staff of the requirement to conduct a test.

Management confirms that the 911 Diversion test was performed on December 7, 2021. This test was witnessed in person by management so an email notification was not sent.

Target Date for Completion:

The Supervisor Shift Report has already been implemented effective January 6, 2022.

FINDING SOC Not Obtained

Management does not currently obtain and review Service Organization Control (SOC) audit reports from Motorola Solutions, Inc., which provides the CallWorks software used by the agency to process 9-1-1 calls. Pursuant to Ohio Administrative Code (OAC) 5507-1-01:

In the course of providing citizens with their most vital link to emergency response, 9-1-1 public safety answering points ("PSAP's") in the state of Ohio shall comply with technical and operational standards and recognize and promote best practices that will provide consistent, quality service by well trained personnel utilizing a high level of secure technology.

As agencies increasingly use service providers to provide software that handles customer information, there is need for additional trust and transparency from their service providers. Thus, the obtainment and review of SOC audit reports from service providers is a best practice for management to ensure personnel are utilizing secure and reliable technology. SOC audit reports provide agencies assurance over the effectiveness of a service organization's controls related to the AICPA's Trust Services Principles: Security, Availability, Processing Integrity, Confidentiality, and Privacy.

Industry standard for service providers is to schedule a SOC audit annually with a CPA firm. Thus, it is best practice for agencies to request and review SOC audit reports annually.

During the audit, a SOC report was requested however was not received.

Management was not aware of the organization's responsibility for ensuring the system utilized for management of emergency responses adhered to OAC and that assurance of compliance could be provided by obtaining and reviewing SOC reports.

Risk to the County if Not Corrected

The lack of obtainment and review of SOC reporting results in an inability to provide assurance that service providers have adequate controls to prevent incidents such as data breaches or service outages. An incident like a data breach could result in confidential information being compromised. A service outage could result in a delayed response for emergency service.

Recommendations

- 1) (P2) Management should obtain and review Motorola Solutions, Inc. latest Service Organization Control 2 (SOC) Type 2 audit report.
- 2) (P2) Management should determine whether the nature of the services provided or systems furnished by any of its other existing service providers necessitates the obtainment and review of Service Organization Control (SOC) audit reports.
- 3) (P2) As part of the review of Service Organization Control (SOC) audit reports, management should ensure that the service provider received an unqualified opinion. If any other type of opinion is found, management should read the paragraph which describes the reasons for the opinion and assess for deficiencies in controls. A change in service providers should be considered if the assessment shows that the deficiencies could result in a lack of a secure or reliable system. If necessary, management should consult with County's Technical Advisory Committee (TAC) for advisement. Additionally, management should ensure that User Considerations within the SOC reports are identified and adequately addressed so as to not limit the reliance of the report.
- 4) (P2) Management should set a schedule to request and review Service Organization Control (SOC) audit reports from existing service providers annually.

Management's Response:

CECOMS previously requested SOC reports from vendors during the initial implementation of the system. Motorola requires a signed non-disclosure form be submitted prior to releasing their SOC reports. The non-disclosure form was signed by the County and reviewed and approved by the Cuyahoga County Law Department on March 8, 2022, and was returned to Motorola on March 9, 2022. Management has recently received the reports from Motorola and will review the SOC report for any concerns and work with County IT as appropriate to address the report's User Considerations. Management will request and review SOC reports annually.

CECOMS are very engaged in 911 at the State level which doesn't just focus on legislation, but discussions around technical, administrative, and operational 911 topics. Over the last four years the team has held an executive level board position (secretary, treasurer, vice chair and chair) each year for the State National Emergency Number Association NENA Board, who is one of only two associations with 911 that are nationally and locally engaged leaders in the 911 space. The other, APCO, also has representation on the Board and we also follow their training plan(s). Additionally, staff attend and participate in each of the State 911 Meetings held by the State 911 coordinator and they frequently participate in person at the meetings in Columbus. Technologies and systems are often a large focus of these groups because the 911 and public safety technologies are so specialized. These meetings do not only cover policy at the state and local level, but focus on all technologies and systems, as well as administrative and operational rules, best practices and lessons learned.

This is significant because these meetings are also all attended by the system leaders in the 911 space, including Motorola/Emergency Call Works and ATT, who often give presentations and receive back from committee members.

CECOMS also has an ORC required Technical Advisory Committee lead locally that is specially focused on 911 technologies and participation includes Countywide subject matter experts in this area. This is an important point because we work very hard to make sure we are significantly aware and engaged of any operational, administrative, AND technical discussions on the front end, ultimately making sure legislation or requirements that would occur aren't going to be a negative impact for us. While we weren't requesting the SOC for technical assurance yearly, which we will do now, I think it's important to stress how much our office does engage at every level with topics around technical compliance for the leaders and vendors in this space.

Target Date for Completion:

Management will complete this process by May 31st annually.