



**A Report to the
Audit Committee**

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Metropolitan
Nashville
Office of
Internal Audit

Audit of the MNPDP Early Intervention System

November 14, 2023

EXECUTIVE SUMMARY

November 14, 2023



Why We Did This Audit

The audit was conducted due to the inherently stressful nature of being a sworn officer and the importance of identifying key stress indicators and providing resources before stress induced reactions occur.

What We Recommend

- Enhance existing training on the function of Early Intervention System stakeholders to ensure the mission and objectives of the program are understood.
- Develop formal written procedures on evaluating the effectiveness and reporting structure of the EIS First Sign System.
- Ensure compliance with Early Intervention System policies.
- Enhance stakeholder buy-in on the early intervention process.

Audit of the MNPD Early Intervention System

BACKGROUND

The Metropolitan Nashville Police Department (MNPD) currently has over 1,400 budgeted positions for sworn officers and a support staff of over 500 employees. To effectively identify and organize sworn officers' critical data that could identify material stress levels, the MNPD developed an Early Intervention System.

The objective of the Early Intervention System is to identify officers who may be experiencing material stress factors which may have negative impacts on performance. The Early Intervention System communicates identified officers to select personnel who evaluate each individual situation. Action plans are then developed to provide appropriate support and resources to potentially at-risk officers.

OBJECTIVES AND SCOPE

The objectives of this audit are to determine if the MNPD:

- Developed a methodology to establish appropriate indicators to identify officers in potential need of additional support.
- Developed a system to properly capture, track, and monitor officers in need of additional support.
- Trained personnel on the mission of the Early Intervention System, how the system works, how to identify at-risk officers, and what resources are available for both management and at-risk officers.
- Established proper general and application controls over applicable software systems.

The scope of this audit includes the operations of the early intervention process between January 1, 2020, and December 31, 2022.

WHAT WE FOUND

The MNPD developed and implemented processes to effectively identify, record, and monitor officers who may need intervention. Early Intervention System indicators are based on a sophisticated software system and are in line with indicators used by other police departments. General and application controls over the system were developed and implemented.

However, additional training on the mission and mechanism of the Early Intervention System is needed to ensure the full acceptance of the system. Increasing stakeholder buy-in may also enhance the effectiveness and efficiency of the EIS system. Supervisor evaluation processing time of flagged officers needs to be improved to ensure timely response.

GOVERNANCE

The Metropolitan Nashville Police Department (MNPD) was established by Metropolitan Government of Nashville & Davidson County, authorized by TN Code of Ordinance Chapter 2, Sec. 8.201, 202, which sets up the roles, responsibilities, and powers of the department. The Chief of Police serves as the director of the department and is appointed by the Mayor. There are currently eight precincts within the MNPD located across Nashville and Davidson County.

The Early Intervention program was significantly revamped in 2016 during a partnership with the University of Chicago. The program is managed in the Executive Services Bureau and currently has 19 staff members dedicated to the management of the Early Intervention System. These staff members report to a Deputy Chief.

BACKGROUND

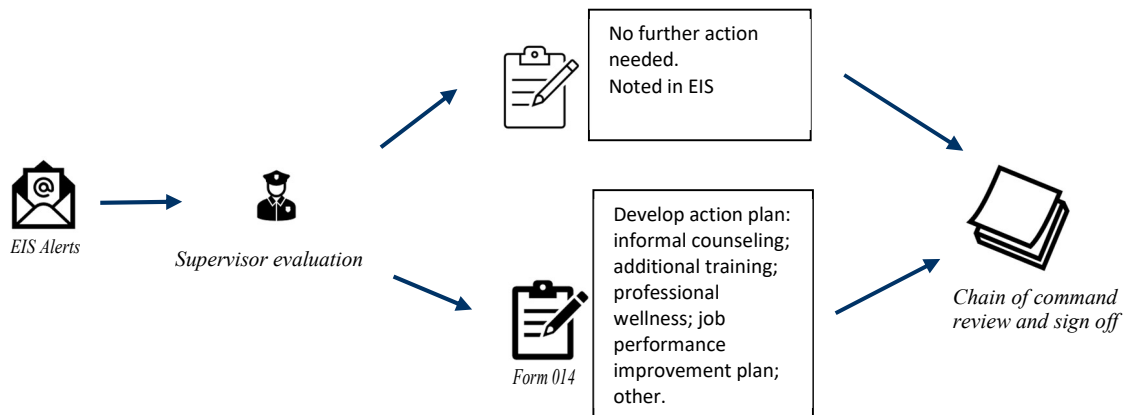
The MNPD's Early Intervention System (EIS) is a machine learning system designed to identify and address potential issues with officer performance before the issues escalate into more serious problems. EIS is a proactive approach to managing officer behavior and performance and is an essential tool for ensuring officers are meeting high standards of professionalism and integrity set by the MNPD.

Early Intervention System Process

Currently MNPD uses the Benchmark – First Sign module as the real time EIS to analyze data daily for live alerting. The system sends out two types of notices based upon established indicators. An advisory memorandum is when the EIS analysis indicates an employee is approaching necessary intervention. The related risk score calculated is from the 95th to the 97th percentile of peers. An actionable memorandum is when the employee's risk score rises to the 98th percentile. Both advisory and actionable memorandums are sent by the system to the EIS Coordinator, MNPD Human Resources representative and the Behavior Health Service Division. The MNPD Human Resources representative then sends the alert to the applicable officer's commander for response processing.

The immediate supervisor is responsible for evaluating the performance and wellbeing of the officer. For actionable memorandums, the supervisor is required to complete an evaluation on Form 014 and conclude whether the at-risk officer needs further intervention and support. The at-risk officer's chain of command reviews and signs off on the Form 014. The MNPD Human Resources representative is responsible for tracking and maintaining the alerts through the chain of command. The EIS coordinator oversees the operation of the system and conducts annual evaluations of the system to ensure the efficiency and effectiveness of the system. An illustration of the EIS process is shown in **Exhibit A**.

Exhibit A: MNPD EIS Process Overview



Early Intervention System Software

MNPD started a partnership with the University of Chicago in 2016 to build an early intervention system. The first version of EIS was in service at the MNPD from 2016 to 2019. The system reviewed triggering events for the previous 5-year interval. The review was conducted approximately every six months. The system developed by the University of Chicago was eventually purchased by Benchmark Analytics.

MNPD negotiated and signed a sole source contract with Benchmark Analytics in 2018. The new system was called First Sign. Enhancements made to the system included daily reviews instead of every six months. However, First Sign was not generating actionable alerts or triggering emails on advisable alerts per the objectives of the MNPD. The MNPD conducts periodic monitoring of the accuracy of the EIS system. Issues existed whereby alerts are being issued incorrectly or alerts that should have been issued were not. The issues were remedied in the spring of 2023. MNPD continued to work with Benchmark Analytics to revise the EIS to increase model performance, reliability, and stability.

The Department of Justice lists seven recommended practices for an EIS program. These practices are in place to ensure the program design, implementation administration and ongoing evaluation are set up in a way to promote the achievement of the EIS program's goal. Exhibit B below provides a high-level summary of those seven practices and relates them to practices at the MNPD.

Exhibit B: Department of Justice Best Practices

Department of Justice Best Practice for Early Intervention Systems
Processes: Establish processes to ensure proper administration of the program.
Data Collection: Program data should be broad and include positive and negative indicators.
Support Services: The program should provide the right support services to address identified issues.
Monitoring and Improvement: The program should be continuously monitored and evaluated for improvement.
Buy-In: Generate Buy-In at all levels of the department.
Training: All members of the department should understand how to use the program.
Transparency: Ensure all stakeholders understand how the system works.

Source: Department of Justice

OBJECTIVES AND CONCLUSIONS

1. Has MNPD developed a methodology to establish appropriate indicators to identify officers in potential need of additional support?

Yes. The Early Intervention System indicators were developed utilizing a study conducted by the University of Chicago and from the Benchmark machine learning system. The indicators are continuously reviewed by the Early Intervention System Coordinator.

The indicators used by MNPD were benchmarked against other cities. The benchmarking indicated that performance indicators used in EIS in MNPD are in line with other jurisdictions. However, additional stakeholder input within the MNPD could strengthen buy-in and ensure indicators continue to be meaningful and appropriate. **(See Observation D.)** Detailed information on indicator benchmarking is summarized in **Exhibit C**.

Exhibit C: EIS Performance Indicators Used by City

	~ Nashville	* Detroit	* New Orleans	* Pittsburgh	* Los Angeles	* Cleveland	* Ferguson	* San Diego	* Seattle	* Charlotte	^ Austin	^ Dallas
Officer- involved use-of-force incident	x	x	x	x	x	x	x	x	x		x	x
Officer-involved shooting incidents	x	x	x	x	x	x		x			x	x
Canine bites	x	x	x	x	x	x						
Citizen-initiated complaints	x	x		x	x	x		x	x			x
Citizen or department-initiated commendations or awards		x	x	x	x	x	x					
Departmental disciplinary actions	x	x	x	x	x	x	x				x	x
Training and reassignment history		x	x	x	x		x					
Officer-involved civil suits or administrative claims	x	x	x	x	x	x	x	x				
Possible or reported officer misconduct	x	x	x	x	x	x		x				
Vehicle pursuits and car crashes		x	x									

* University of Chicago Crime Lab (Zoe Russek & Dylan Fitzpatrick), *Early Intervention Systems*, January 2021

^ Austin Office of the City Auditor Report: *Austin Police Department's Early Intervention System for Officers*, July 2021

~ Metropolitan Nashville Police Department, *Early Intervention System*

2. *Does MNPD have a system in place to properly capture, track, and monitor officers in potential need of additional support?*

Generally, yes. MNPD adopted EIS as a management aid for performance across an array of management activities and responsibilities. An EIS policy was developed according to the Commission on Accreditation for Law Enforcement Agencies (CALEA) standards. The policy was implemented within MNPD to identify and track at-risk officers, direct necessary resources, and offer any assistance to officers in need. Alerts are submitted to applicable supervisors, chain of command, and the MNPD Human Resources department. All actions taken must be reviewed and approved by the applicable chain of command. The MNPD invested in resources, such as the professional wellness section, to assist officers in need. However, an opportunity exists to improve Form 014 response time for officers receiving an alert. **(See Observation C.)**

The MNPD established procedures to monitor and evaluate performance of EIS. An annual evaluation of EIS has been done since 2018 by the EIS coordinator. Review of the evaluations indicated work was done to identify system issues and develop an action plan for improvement. Evaluations also showed progress made during the year. The evaluation revealed issues needing to be addressed in the system, including the selection and addition of the performance indicators. Each yearly evaluation proposed areas of improvement and necessary changes to the system. However, additional stakeholder review of EIS performance within the MNPD could strengthen buy-in and ensure performance measures are meaningful and appropriate. **(See Observation D.)** Additionally, developing formal written procedures on the evaluation and reporting structure of the EIS First Sign System's effectiveness should be implemented. **(Observation B.)**

3. *Does MNPD train applicable personnel on the mission of EIS, how the system works, how to identify at-risk officers, and what resources are available for both management and at-risk officers.*

Generally, yes. MNPD has established training programs such as the police academy, in-service training, supervisory training, and leadership training. Training records for a random sample of 25 employees was reviewed. Training history for each employee was documented with detailed information including content, hours, date, and time.

However, a survey of MNPD officers and supervisors revealed a lack of understanding on the purpose of EIS and how it works. While the officer survey's response rate was low which could lead to sample bias, supervisor responses consistently showed issues on how to understand and interpret alerts received. The survey results indicated that additional training and management promotion of the EIS program is needed. **(See Observation A.)**

4. *Have general and application controls been implemented over software systems involved in EIS?*

Yes. The MNPD established policies and procedures to ensure control over third party access to confidential and sensitive information related to public safety. A review of user access in EIS indicated appropriate roles were assigned to employees based on the needs to perform job functions. An established process is in place over controls on data access, protection, and backup. MNPD has taken additional step to utilize redacted tables directly from the main police data system to ensure that no non-public or confidential information is accessible or could possibly be compromised.

AUDIT OBSERVATIONS

Internal control helps entities achieve important objectives to sustain and improve performance. The Committee of Sponsoring Organizations of the Treadway Commission (COSO), Internal Control – Integrated Framework, enables organizations to effectively and efficiently develop systems of internal control that adapt to changing business and operating environment, mitigate risks to acceptable levels, and support sound decision-making and governance of the organization. See **Appendix B** for a description of the observation *Assessed Risk Rating*.

Observation A – Officer Understanding of the EIS Program and Mission

Officer and supervisor understanding of the mission and operations of the EIS program could be enhanced. A survey of MNPDP officers and supervisors revealed a lack of solid understanding of the mission and objectives of the EIS Program.

Two separate surveys were conducted to ascertain MNPDP officer and supervisor understanding of the EIS system and its effectiveness. A summary and results of the surveys are presented below.

Officers Survey

A nine-question survey was sent to all officers. Of the 1,027 officers surveyed, 66 officers (6 percent) responded. The survey included ratings of understanding and evaluation of statements. Details of results are broken out in Exhibit D and Exhibit E.

Exhibit D: EIS Officers Survey Results on Understanding and Use Questions

QUESTIONS	AVERAGE ANSWER	Very Well/ Extremely Well	Neutral	Slightly Well / Not at all
<i>How well do you understand the objectives of the Early Intervention System (EIS) and how it works within the MNPDP?</i>	2.02	12%	24%	64%
		Monthly	Yearly	Never
<i>How often do you use the EIS system?</i>	N/A	5%	6%	89%

Exhibit E: EIS Officers Survey Results on Statement Questions

STATEMENT	AVERAGE ANSWER	Agree / Strongly Agree	Neutral	Disagree / Strongly Disagree
<i>The EIS system has positive impacts on my work performance.</i>	2.71	7%	70%	13%
<i>The EIS system has positive impacts on the careers of MNPDP personnel.</i>	2.98	15%	73%	12%
<i>I have received sufficient training on how to perform my job.</i>	3.73	64%	24%	12%
<i>A sufficient and effective intervention system exists in MNPDP that has programs and services that meets my needs.</i>	3.02	26%	57%	17%

Approximately 41 percent of respondents provided meaningful feedback for the open-ended questions and comments section. Officers praised outreach, peer support, and an abundance of resources available for officers in need. Officers noted improvements could be made to boost morale and gain officer buy-in of EIS.

Supervisors Survey

A separate 10 question survey was sent to 410 supervisors. Responses were received from 119 supervisors (29 percent). Similar to the officers’ survey, the survey included ratings of understanding and evaluation of statements. Details of results are included below in Exhibit F and Exhibit G.

Exhibit F: EIS Supervisors Survey Results on Questions

QUESTIONS	AVERAGE ANSWER	Very Well / Extremely Well	Neutral	Slightly Well / Not at All Well
<i>How well do you understand the objectives of the Early Intervention System (EIS) and how it works within the MNPd?</i>	3.15	39%	38%	23%
		Very Useful / Extremely Useful	Neutral	Slightly Useful / Not at All Useful
<i>Do you find the EIS helpful in managing your subordinates?</i>	2.03	11%	23%	66%
		Never	Yearly	Weekly
<i>How often do you use the EIS system?</i>	N/A	38%	40%	22%

Exhibit G: EIS Supervisors Survey Results on Statement Questions

STATEMENT	AVERAGE ANSWER	Agree / Strongly Agree	Neutral	Disagree / Strongly Disagree
<i>The EIS system has positive impacts on my work performance.</i>	2.5	12%	43%	45%
<i>The EIS system has positive impacts on the careers of MNPd personnel.</i>	2.59	16%	43%	41%
<i>I have received sufficient training on how to identify and respond to indicators that an officer may need assistance.</i>	3.16	47%	25%	28%
<i>A sufficient and effective intervention system exists in MNPd that has programs and services that meets both supervisor and officers’ needs.</i>	3.15	41%	33%	26%

Approximately 68 percent of the respondents provided meaningful feedback for the open-ended questions and comments section. Supervisors commented favorably on the support services MNPd provided to employees such as various programs within the Behavioral Health Service Division, leadership training, daily supervision, and recognition of the importance of front-line supervisors.

However, supervisors feel the need for more training on leadership and EIS. Training and education opportunities included subjects such as EIS event triggers, training to identify officers in need, EIS transparency, and EIS performance indicator re-evaluation, for example breaking indicators into more subcategories. In addition, supervisors expressed the concern of adverse effects on officers who receive an EIS alert. In general, respondents felt the perception of EIS within MNPd is not positively received, and the follow through from Behavioral Health Service programs needs to be improved.

Risk of misunderstanding and resistance to the EIS program are enhanced when stakeholders do not fully understand EIS's role and functions. Officers and supervisors may perceive EIS as redundant or punitive.

Criteria:

- COSO, Control Activities—Principle 12—The organization deploys control activities through policies that establish what is expected and procedures that put policies into action.

Assessed Risk Rating:

Medium

Recommendation for management of the Metropolitan Nashville Police Department to:

Provide additional training to all supervisory and command personnel on the operational aspects and mission of the EIS system.

Observation B – Evaluation of the EIS First Sign System

The periodic evaluation of the EIS First Sign System lacks a formalized process. The EIS First Sign system is a sophisticated, machine learning system. The EIS Coordinator periodically evaluates the First Sign System and documents the review. The evaluations have revealed issues with the First Sign System in correctly identifying and communicating actionable alerts. MNPd has been diligent in working with the vendor to correct the issues. Were it not for the internal reviews, the issues may not have ever been detected. However, formal written procedures on how to conduct the evaluation process related to the accuracy of the EIS system are not present. Additionally, a formal reporting structure for when errors are found is also not in place.

Having formal procedures on the process evaluating the integrity of the EIS First Sign System reduces the risk of loss of institutional knowledge should the EIS Coordinator leave. Additionally, having a formal reporting structure ensures that MNPd stakeholders are informed of issues related to the software system timely.

Criteria:

- *Metropolitan Nashville Police Department Policies 2.30 Early Intervention System*
- COSO, Control Activities—Principle 12—The organization deploys control activities through policies that establish what is expected and procedures that put policies into action.

Assessed Risk Rating:

Medium

Recommendation for management of the Metropolitan Nashville Police Department to:

Develop formal written procedures and reporting structure for the EIS First Sign Evaluation process.

Observation C – EIS Alert Response Time

Alert response time by MNPD supervisors did not always conform with MNPS policies.

MNPD supervisors are required to complete a series of steps when an alert is received. One step is to complete Form 014 in EIS within 21 working days in accordance with MNPD policies. The form has a checklist and note section which assist in documenting the series of steps the supervisor went through during the evaluation process. Form 014 also concludes whether further actions were needed.

Within a random sample of 10 alerts, Form 014 was not completed within the required 21 days on 3 of the 10 alerts (30 percent). Days past 21 days ranged from 25 days to 34 days. All 10 alerts were properly reviewed, approved, and signed off on by the officer's chain of command once completed.

MNPD stated in certain cases the 21 days may not be enough time to properly process Form 014. Prolonged response to officers who may need additional support or intervention increases the risk of officers underperforming or internal and external complaints. Conversely, completing the Form 014 prematurely could diminish the quality of the review. Having appropriate time frames within the policies and adhering with those time frames decreases these risks.

Criteria:

- *Metropolitan Nashville Police Department Policies 2.30 Early Intervention System*
- *COSO, Control Activities—Principle 12—The organization deploys control activities through policies that establish what is expected and procedures that put policies into action.*

Assessed Risk Rating:

Low

Recommendations for management of the Metropolitan Nashville Police Department to:

1. Ensure Form 104 are completed within 21 days of receipt or modify the policy to reflect a more reasonable time frame.
2. Clearly define the responsibility of the HR representative or personnel who are responsible for enforcing the alert action plan and ensure the fully compliance of the EIS policies.

Observation D – Stakeholder Buy-In

Stakeholder input into the EIS process could be improved. Indicator selection and performance evaluation of the system is currently performed by one individual within the MNPD.

Supervisor surveys showed a lack of buy-in and understanding of the EIS system. Additionally, supervisor comments showed a desire to change the indicators used. (See Observation A.). Though indicators used are in alignment with other jurisdictions and a review of the system is conducted annually, only the EIS Coordinator and direct superiors see the results. Utilizing MNPD supervisors or other stakeholders in the evaluation process could increase diverse perspectives and departmental buy-in.

Having the evaluation process overly concentrated enhances the risk of issues and concerns not being identified and addressed. Stakeholders may feel disconnected from the process leading to lack of buy-in.

Criteria:

- *Metropolitan Nashville Police Department Policies 2.30 Early Intervention System*
- *COSO, Control Activities—Principle 12—The organization deploys control activities through policies that establish what is expected and procedures that put policies into action.*

Assessed Risk Rating:

Low

Recommendation for management of the Metropolitan Nashville Police Department to:

Have various stakeholders such as supervisors, officers and MNP command play a more involved role in the evaluation process of the EIS system.

GOVERNMENT AUDITING STANDARDS COMPLIANCE

We conducted this performance audit 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 findings 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.

METHODOLOGY

To accomplish our audit objectives, we performed the following steps:

- Reviewed Metropolitan Nashville Police Department EIS Policies.
- Interviewed key personnel within the Metropolitan Nashville Police Department.
- Performed benchmarking on important performance indicators in EIS.
- Evaluated internal controls currently in place.
- Performed analysis on the MNPD officers and supervisors survey.
- Reviewed sample selections to evaluate the effectiveness of internal controls.
- Considered risk of fraud, waste, and abuse.

AUDIT TEAM

Nan Wen, CPA, In-Charge Auditor

Bill Walker, CPA, CIA, CFE, CCFO, Quality Assurance

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APPENDIX A – MANAGEMENT RESPONSE AND CORRECTIVE ACTION PLAN

We believe that operational management is in a unique position to best understand their operations and may be able to identify more innovative and effective approaches, and we encourage them to do so when providing their response to our recommendations.

	Recommendation	Concurrence and Corrective Action Plan	Proposed Completion Date
<i>Risk</i>	<i>Recommendations for the management of the Metropolitan Council Office to:</i>		
M	A.1 Provide additional training to all supervisory and command personnel on the operational aspects of the EIS.	Accept MNPD will make available additional information on the operational aspects of the EIS for any/all personnel who wish to review.	June 30, 2024
M	B.1 Develop formal written procedures and reporting structure for the EIS First Sign Evaluation process.	Accept MNPD Has written SOP for supervisors completing an EIS alert response in the Benchmark System. The SOP is a live document and currently under review for any necessary revisions.	Immediately
L	C.1 Ensure Form 104 are completed within 21 days of receipt or modify the policy to reflect a more reasonable time frame.	Accept THE MNPD has found that the 21 days required to complete the EIS response to an alert is not sufficient in all cases. MNPD will update the policy to require the alert is not sufficient in all cases. MNPD will update the policy to require the be completed within 35n days. In addition, the MNPD and Benchmark team have incorporated an additional notice to flag alerts outstanding other than 29 days. The alert is initiated by the EIS System.	Immediately
L	C.2 Clearly define the responsibility of the HR representative or personnel who are responsible for enforcing the alert action plan and ensure the fully compliance of the EIS policies.	Accept MNPD will restructure the EIS policy in the MNPD Manual that clearly defines the responsibility of the HR Designee into one section.	March 1, 2024

APPENDIX A – MANAGEMENT RESPONSE AND CORRECTIVE ACTION PLAN

	Recommendation	Concurrence and Corrective Action Plan	Proposed Completion Date
L	D.1 Have various stakeholders such as supervisors, officers and MNP command play a more involved role in the evaluation process of the EIS system.	Accept EIS Coordinator will meet annually with the MNP Patrol committee to collect input on the EIS evaluation.	June 30, 2024

APPENDIX B – MANAGEMENT RESPONSE AND CORRECTIVE ACTION PLAN

Observations identified during the course of the audit are assigned a risk rating, as outlined in the table below. The risk rating is based on the financial, operational, compliance or reputational impact the issue identified has on the Metropolitan Nashville Government. Items deemed “Low Risk” will be considered “Emerging Issues” in the final report and do not require a management response and corrective action plan.

Rating	Financial	Internal Controls	Compliance	Public
HIGH	Large financial impact >\$25,000 Remiss in responsibilities of being a custodian of the public trust	Missing, or inadequate key internal controls	Noncompliance with applicable Federal, state, and local laws, or Metro Nashville Government policies	High probability for negative public trust perception
MEDIUM	Moderate financial impact \$25,000 to \$10,000	Partial controls Not adequate to identify noncompliance or misappropriation timely	Inconsistent compliance with Federal, state, and local laws, or Metro Nashville Government policies	The potential for negative public trust perception
LOW/ Emerging Issues	Low financial impact <\$10,000	Internal controls in place but not consistently efficient or effective Implementing / enhancing controls could prevent future problems	Generally complies with Federal, state, and local laws, or Metro Nashville Government policies, but some minor discrepancies exist	Low probability for negative public trust perception
Efficiency Opportunity	An efficiency opportunity is where controls are functioning as intended; however, a modification would make the process more efficient			