Metropolitan Transportation Authority – New York City Transit

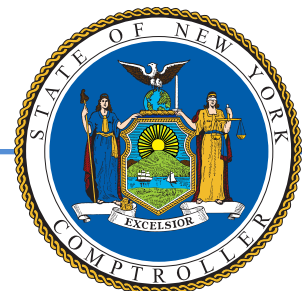## Selected Aspects of Safety and Security in Subway Facilities

OFFICE OF THE NEW YORK STATE COMPTROLLER
Thomas P. DiNapoli, State Comptroller

Division of State Government Accountability

Audit Highlights

Objectives

To determine whether New York City Transit has taken steps to implement safety and security in all its subway facilities, and whether safety and security equipment, such as cameras, help point intercoms, and customer assistance intercoms, is maintained (working and tested). The audit covered the period from September 2019 through March 2023.

About the Program

New York City Transit (Transit) is a Metropolitan Transportation Authority (MTA) agency that manages, maintains, and runs subway service in New York City. Transit has 472 subway stations in four boroughs (Manhattan, the Bronx, Queens, and Brooklyn) and facilities such as train yards, office buildings, and fleet support shops throughout New York City.

Security and safety, while managed together, have different points of focus. Security is concerned with protecting against harm caused by external factors, such as intrusion (a person entering an area where they are not wanted) or cyberattacks, while safety is focused on preventing incidents caused by physical hazards, such as through the use of physical barriers to protect against building or natural disasters. An example of security is the placement of security guards at rail yards, while safety includes approaches such as a better drainage system to prevent flooding.

At MTA Headquarters, the Chief Security and Safety Officer is mainly responsible for the policy aspect of safety and security across all MTA agencies, including Transit. MTA hires consultants or experts to conduct safety and security assessments, as well as to plan and provide guidance, to address issues such as crime and homelessness.

MTA's Office of Security is responsible for protecting all MTA agencies, including Transit, with its implementation of security enhancements selected through its periodic All-Agency Electronic Security Program strategy (Security Strategy) using the Federal Emergency Management Agency's Threat and Vulnerability Risk Assessment (TVRA) process. The purpose of the Security Strategy is to ensure that there is a system-wide security program in place. MTA Construction & Development (formerly MTA Capital Construction) is responsible for implementing projects, such as those identified through the TVRA process, related to safety and security, including soliciting contractors. In some instances, temporary solutions are put in place if a project is not started. For mitigation measures, the Electronic Maintenance Division (EMD) may be responsible for installing equipment, such as cameras, for small or temporary projects.

As of May 2022, Transit had 1,075 closed-circuit television (CCTV) systems. These systems are used to observe incidents, deter unlawful activities, and improve safety in subway facilities. Laser Intrusion Detection Sensors are installed inside the tunnels. When an alarm is triggered, the Security Command Center (SCC) has a defined process to adjudicate why the alarm was triggered and what investigatory steps to take. Transit's EMD is responsible for maintaining and repairing security equipment installed in subway facilities.

Key Findings

- Transit has taken steps to implement security in its subway facilities based on MTA's Security Strategy. However, four of the 30 security projects we reviewed were delayed because there

were no Small Business Mentoring Program (SBMP) contractors available to perform the work. Furthermore, five projects were not started within the time frame of the 2010–2014 and 2015–2019 MTA 5-Year Capital Programs, as planned. Instead, the projects started up to 7 years after the 2010–2014 Capital Program or 1 year after the 2015–2019 Capital Program.

- Transit's safety and security equipment (e.g., CCTV systems, customer assistance intercoms, emergency alarms, fire alarms, and help point intercoms) is not always maintained as required. Only 916 of the required 1,061 preventive maintenances (PMs) we sampled were scheduled—145 PMs were not scheduled. In addition, documentation was not provided to support the completion of 610 of 916 scheduled equipment PMs. For example, one system with 119 cameras should have had scheduled PMs four times per year; however, there were no records for PMs performed during the same period.

- Although Transit prioritizes repairs of equipment defects over PMs, defects were not always addressed within the required time frame set by its procedures. The responses to the 141 electronic work orders (tickets) sampled from the period September 1, 2019 through July 21, 2022 were delayed by as much as 2 years beyond the required time frame. Transit officials attributed these delays to 11 major categories. The two largest categories were "Reason not indicated" and "Other Assistance" (53 and 41 tickets, respectively).

- For the 6-month period ended February 7, 2023, 25 of 80 (31%) alarm events we sampled were "False Alarm – Authorized Employee." According to SCC officials, this occurs when employees do not use their access card when entering a subway tunnel. The SCC has instructed employees to always use their access card. However, they do not always comply with the policy.

- We sampled 50 of the 1,997 security equipment pieces with malfunctions (e.g., security gates and traffic-control arms). For 16 of the 50 (32%) malfunctions, tickets were open for more than 5 days, ranging from 7 to 142 days, including five tickets that were still open as of the date of our review (March 30, 2023).

Key Recommendations

- Revisit the list of SBMP contractors available to perform the work to ensure it is sufficient to meet the needs of the MTA Capital Program and address the risk to the system. If the contractor pool is not sufficient, develop an alternative plan to complete the capital projects.

- Document reasons PMs were not completed.

- Develop written policies and procedures for PMs that address how often PMs should be performed and how to document maintenance status and reasons (e.g., complete, incomplete, or not completed).

- Review outstanding tickets daily to assess why they remained open longer than the established response time and what corrective actions are required to decrease the time.

- Ensure compliance with the requirement that employees use their access card to enter and exit tunnels.

- Prioritize the repair of equipment malfunctions.
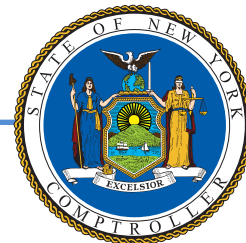
Office of the New York State Comptroller
Division of State Government Accountability

August 8, 2024

Janno Lieber
Chairman and Chief Executive Officer
Metropolitan Transportation Authority
2 Broadway
New York, NY 10004

Dear Mr. Lieber:

The Office of the State Comptroller is committed to helping State agencies, public authorities, and local government agencies manage their resources efficiently and effectively. By so doing, it provides accountability for the tax dollars spent to support government operations. The Comptroller oversees the fiscal affairs of State agencies, public authorities, and local government agencies, as well as their compliance with relevant statutes and their observance of good business practices. This fiscal oversight is accomplished, in part, through our audits, which identify opportunities for improving operations. Audits can also identify strategies for reducing costs and strengthening controls that are intended to safeguard assets.

Following is a report of our audit of the Metropolitan Transportation Authority – New York City Transit, entitled *Selected Aspects of Safety and Security in Subway Facilities*. This audit was performed pursuant to the State Comptroller's authority under Article X, Section 5 of the State Constitution and Section 2803 of the Public Authorities Law.

This audit's results and recommendations are resources for you to use in effectively managing your operations and in meeting the expectations of taxpayers. If you have any questions about this report, please feel free to contact us.

Respectfully submitted,

Division of State Government Accountability

Contents

Glossary of Terms

Term	Description	Identifier
MTA	Metropolitan Transportation Authority	*Auditee*
CCTV	Closed-circuit television	*Key Term*
DOS	Department of Security	*Transit Division*
EMD	Electronic Maintenance Division	*Transit Division*
FDNY	New York City Fire Department	*City Agency*
HPI	Help point intercom	*Key Term*
LIDS	Laser Intrusion Detection Sensors	*Key Term*
Maintainers	Equipment or telephone maintainers	*Key Term*
NYPD	New York City Police Department	*City Agency*
PM	Preventive maintenance	*Key Term*
PSIMS	Physical Security Information Management System	*Key Term*
SBMP	Small Business Mentoring Program	*Key Term*
SCC	Security Command Center	*Key Term*
Security Strategy	All-Agency Electronic Security Program strategy	*Key Term*
Ticket	Electronic work order	*Key Term*
TPPA	Transit Property Protection Agent	*Key Term*
Transit	New York City Transit	*Agency*
TVRA	Threat and Vulnerability Risk Assessment	*Key Term*

Background

The Metropolitan Transportation Authority (MTA) is North America's largest transportation network, serving a population of 15.3 million people in the 5,000-square-mile area from New York City through Long Island, southeastern New York State, and Connecticut. New York City Transit (Transit) is an MTA agency that manages, maintains, and runs subway service in New York City. Transit has 472 subway stations and operates bus service throughout New York City.

Security and safety, while managed together, have different points of focus. Security is concerned with protecting against harm caused by external factors, such as intrusion (a person entering an area where they are not wanted) or cybersecurity, while safety is focused on preventing harm caused by physical hazards, such as through the use of physical barriers to protect against building or natural disasters. An example of security is the placement of security guards at rail yards, while safety includes approaches such as building a better drainage system to prevent flooding.

At MTA Headquarters, the Chief Security and Safety Officer is mainly responsible for the policy aspect of safety and security across all MTA agencies, including Transit. MTA hires consultants or subject matter experts to conduct safety and security assessments, as well as to plan and provide guidance, to address issues such as crime and homelessness. One such assessment is the Federal Emergency Management Agency's Threat and Vulnerability Risk Assessment (TVRA) process—a tool that identifies risks to MTA assets and prioritizes their mitigation, from high to low importance.

MTA's Office of Security is responsible for protecting all MTA agencies, including Transit, with its implementation of security enhancements selected through its periodic All-Agency Electronic Security Program strategy (Security Strategy) using the TVRA. The purpose of the Security Strategy is to ensure there is a system-wide security program in place, and it serves as guidance for entities including Transit's divisions, departments, and personnel. MTA's Security Strategy also requires collaboration with subject matter experts to implement security measures in subway facilities, stations, yards, buildings, and tunnels from Transit's key stakeholders, which include the Department of Subways, Maintenance of Way, Department of Stations, Department of Security (DOS), Electronic Maintenance Division (EMD), MTA Construction & Development (formerly MTA Capital Construction), and external partners such as the New York City Police Department (NYPD) and the New York City Fire Department (FDNY).

Some mitigation projects are common among subway facilities and can be bundled together into one project. Projects are added to the MTA's 5-year Capital Program. As mitigations are implemented, projects move to a lesser risk ranking. Each phase of a project (design, award, construction, completion) is monitored by the stakeholders to ensure projects stay on schedule and within budget. Transit officials work with stakeholders to ensure adherence to the strategic plan and track project schedule and funding. MTA also operates the Small Business Mentoring Program (SBMP), which seeks to increase, facilitate, and encourage the participation of small businesses, including minority- and women-owned business enterprises, by providing a supportive framework for eligible firms to develop and grow within the

construction industry and to establish stable, long-term business relationships with MTA.

Transit's DOS supports MTA's day-to-day security needs and advises on managing security risks and the use of electronic security mitigation. DOS also ensures that ongoing project activities do not impact MTA's security during construction. MTA Construction & Development assesses the state of equipment in subway facilities and identifies required maintenance and repair work.

EMD is responsible for maintaining and repairing security equipment installed in subway facilities and replacing defective equipment that cannot be repaired. Users of security equipment or EMD electronic equipment maintainers or telephone maintainers (maintainers) report defects to EMD. Closed-circuit television (CCTV) systems are used to observe incidents, deter unlawful activities, and improve safety in subway facilities. Transit's Law Department, NYPD, and DOS use CCTV systems to view and retrieve footage of incidents. As of May 2022, Transit had 1,075 CCTV systems.

EMD's Customer Communication Services, part of the EMD's Telecommunication Field Operation unit, maintains and repairs help point intercoms (HPIs). Customers use HPIs to obtain subway travel information, self-report safety and security issues, and request emergency assistance. As of June 2022, Transit had 3,010 HPIs installed. As of July 2022, Transit's other safety and security equipment included 1,862 customer assistance intercoms, 2,711 emergency alarms, 464 emergency booth communication systems, 2,599 emergency telephones, and 988 fire alarm systems.

Laser Intrusion Detection Sensors (LIDS) are installed inside the tunnel in subway stations to alert Security Command Center (SCC) personnel if an individual enters the subway tunnel. SCC personnel monitor and manage LIDS using the Physical Security Information Management System (PSIMS)—a software application integrated with LIDS that displays camera screens in real time and plays back videos on an SCC computer screen, along with a map of the alarm location. When an alarm is triggered, the SCC has a defined process to adjudicate why the alarm was triggered and what investigatory steps to take.

DOS is also responsible for monitoring access control and perimeter protection in both public and non-public subway facilities. The SCC monitors detection equipment systems for unauthorized access to track areas. DOS placed locally recorded deployable cameras at subway stations with security vulnerabilities as a temporary solution until new camera systems and other security measures are implemented through the MTA Capital Program. These measures include adding passenger identification cameras to stations without them and/or supplementing stations with limited visibility. DOS also deploys Transit Property Protection Agents (TPPAs) as part of a fixed post or patrol coverage at non-public facilities—warehouses, shops, yards, and depots—to deter unlawful activities and detect and report security-related equipment malfunctions to repair shops and the SCC.

Audit Findings and Recommendations

Transit has taken steps to implement security in its subway facilities based on MTA's Security Strategy, which includes the TVRA process. As of February 21, 2023, MTA identified 30 projects related to securing Transit's facilities. However, four of the 30 projects were delayed because no SBMP contractors were available to perform the work. Further, five projects were not started as planned (within the time frames of the 2010–2014 and 2015–2019 MTA 5-Year Capital Programs), with at least one project within the 2010–2014 plan starting 7 years after the end of the Capital Program.

Transit's safety and security equipment, such as CCTV systems and HPIs, is not always maintained as required by Transit's procedures. For the equipment in our judgmental sample, 1,061 preventive maintenances (PMs) were required. However, we found that only 916 of the PMs were scheduled. Officials also did not provide documentation to support that 610 of the 916 PMs scheduled during the period from July 2019 through September 2022 were completed. For example, one system with 119 cameras, which should have had scheduled PMs four times per year, had none of the required PMs performed—deficiencies that could lead to unexpected failures in the future.

Although Transit prioritizes repairs of equipment defects over PMs, defects were not always addressed within the required time frames set forth in Transit's procedures. Between September 1, 2019 and July 21, 2022, responses to 141 electronic work orders (tickets) in our sample were delayed by as much as 2 years beyond the required time frames.

For the 6-month period ending February 7, 2023, 25 of 80 (31%) judgmentally sampled alarms events were related to Transit staff triggering the security alarms in subway tunnels. According to the SCC, this occurs when employees do not use their access card when entering tunnels. The SCC has instructed employees to always use their access card; however, they do not always comply with the policy.

For a judgmental sample of 50 security equipment malfunctions (e.g., involving gates or traffic-control arms), we found that 16 tickets were open for more than 5 days, ranging from 7 to 142 days, including five that were still open as of March 30, 2023. If safety and security equipment is not properly maintained, repaired, or replaced in a timely manner, Transit—and its customers—have no assurance that this equipment will work as intended, especially in the event of a major safety or security incident.

Implementing Security in Subway Facilities

The TVRA, which was first prepared in 2004 and is updated every 3 years, is used as a basis for ranking the most vulnerable of MTA's critically identified assets and is used to allocate resources to the assets most in need of mitigation. Through MTA's TVRA process, 30 projects related to securing Transit's facilities were identified as of February 21, 2023. These projects were to install CCTV and/or electronic security systems in critical areas in both public and non-public subway facilities. These projects were in three phases of implementation: six were completed, 21 were in the construction phase, and three were in the design phase. We found that the six completed projects generally took 2 to 4 years to complete all three phases.

We also determined that four of the 30 projects were delayed because no SBMP contractors were available to perform the work, and the work was not assigned to other contractors. In response, Transit officials stated that it has taken actions to increase the pool of available contractors participating in the program. For example, increasing the value of the contract that businesses are allowed to bid on provides them with more opportunity for growth. Further, five projects were not started as planned within the time frame stated in the 2010–2014 and 2015–2019 MTA 5-Year Capital Programs. Instead, the projects started up to 7 years after the 2010–2014 Capital Program or 1 year after the 2015–2019 Capital Program.

As a stop-gap measure, officials installed deployable cameras in the system until the capital projects could be completed. As of May 2023, the project to install the permanent cameras was not completed; therefore, Transit continues to use the deployable cameras.

During fieldwork, officials cited the MTA Information Technology project (a project started during the COVID-19 pandemic when resources were heavily focused on operational logistics for working from home), the limited candidate pool of available contractors through the SBMP, and the COVID-19 pandemic as reasons for the delays in completing capital project mitigation efforts.

Recommendation

1. Revisit the list of SBMP contractors available to perform the work to ensure it is sufficient to meet the needs of the MTA Capital Program and address the risk to the system. If the contractor pool is not sufficient, develop an alternative plan to complete the capital projects.

Safety and Security Equipment in Subway Facilities

Preventive Maintenance

PM is the act of performing regularly scheduled maintenance activities to help prevent unexpected failures in the future. PM work includes cleaning, testing, and inspecting equipment periodically. Scheduling PMs for equipment depends on the type and location of equipment. Transit officials use electronic software to schedule and track maintenance. Maintainers use pre-filled hard-copy checklists to document the completion of PM routines performed.

We selected a judgmental sample of 1,187 pieces of security equipment during the period July 2019 through September 2022, which included 50 CCTV systems (CCTV systems are maintained as a unit but consist of 1,137 separate pieces of equipment) and 50 HPIs to determine whether PM work was completed per the schedule. For the 1,187 pieces of equipment, three did not have PM scheduled. For the remaining 1,184 pieces of equipment, 1,061 PMs were required during the period from July 2019 through September 2022. We found that only 916 of the 1,061 PMs were

scheduled and 145 PMs (14%) were not scheduled. Further, Transit officials did not provide documentation to support the completion of PM work for 610 of the 916 (67%) scheduled PMs (see Table 1).

Table 1 – Preventive Maintenance of Equipment

Equipment Type	Number of Pieces	Preventive Maintenances				
		Number Expected	Number Scheduled	Number Not Documented	Number Rescheduled	Number Not Done After Reschedule
HPI	50	228	228	69	0	0
CCTV	50	833	688	541	93	18
Totals	**100**	**1,061**	**916**	**610**	**93**	**18**

We also noted that 93 PMs were rescheduled for 41 CCTV systems, but the PMs were still not completed in 18 instances. For example, one CCTV system with 119 cameras, which should have had scheduled PMs four times during the year, had no PMs documented. Neither the electronic software schedules nor the hard-copy checklist documented the reason a PM was not done for this system.

Transit officials informed us that the frequency of equipment PMs was changed per management instructions due to staff reduction; however, no written documentation was provided to support this change. Transit officials also do not have written policies or procedures detailing how often a PM should be performed and to provide guidance on how to properly complete, document, and review the checklist. Transit officials also noted that they could not do more of the scheduled PMs because of reduced staff due to COVID-19-related illness in 2020 and half of 2021, as well as staff retirements. They also attributed the lack of PMs to a significant increase in the number of assets installed. Further, equipment or systems with one or more pieces that did not receive a PM had no documentation on why the PM was missed.

In the absence of documentation, Transit has less assurance that PMs were done as required on its equipment, which could lead to unexpected failures in the future.

Repairs

Transit refers to equipment that is either broken or not working as designed due to damage or technical malfunction as "defects." Officials stated that repairs of equipment defects take priority over PM work, and maintainers perform repairs of equipment defects daily, with priority depending on the location and severity of the defect:

- High Priority—affects the entire system, automated fare collection at key stations, or high-level locations
- Medium Priority—affects one site
- Low Priority—affects one device

Users, including station personnel, report equipment defects by phone or email. Maintainers also report defects detected during PMs. Once reported, Transit's

EMD creates electronic work orders (tickets) to schedule and track the completion of repairs. After maintainers address defects, they update the tickets with notes to either close them out or indicate further action is needed (e.g., parts, professional and technical employees [specialists], or other EMD groups).

EMD's equipment maintenance and repair goal is to address equipment defects within 48 to 72 hours, depending on the type of equipment and priority. We selected a judgmental sample of 141 tickets related to security equipment, from a combined population of 43,239 tickets opened between September 1, 2019 and July 21, 2022 that were addressed more than the 60 or 72 hours beyond the longest time frame, to determine what caused the delay in restoring the equipment to a state of good repair (see Table 2).

Table 2 – Aggregate Causes of Equipment Repair Delays

Aggregated Repair Delay Reasons	Number of Tickets
Reason not indicated	53
Other assistance	41
Parts/equipment replacement	19
Not assigned within 72 hours	8
Third-party vendor action requested	8
Insufficient personnel	4
Delayed access to troubleshoot	3
Human error	2
General superintendent to review	1
Monitoring equipment operation	1
Station under construction	1
Total	**141**

The largest repair delay category, "Reason not indicated," included a ticket that was opened for a CCTV system on October 5, 2020 but not assigned until June 23, 2021—261 days after the defect (Low Priority) was reported. Further, this ticket was not closed until October 20, 2021—119 days later, or more than a year after it was opened. According to officials, CCTV system defects should be addressed within 3 days. While there was no reason given on the ticket, Radio and Security Services officials explained that this ticket was for a CCTV camera that had an intermittent problem and was ultimately referred to another group to be addressed. We also found a repair ticket delayed beyond the required time frame by more than 2 years.

Another ticket was opened for an HPI (Medium Priority) on March 10, 2022 and closed on March 27, 2022—17 days later. There were no notes on the ticket explaining the reasons for the delay. According to officials, HPI defects should be resolved within 2 days.

EMD's Customer Communication Services officials explained that tickets were not closed because they do not have enough maintainers, so they must wait on assistance and expertise from other EMD units, such as Network Operations,

Lighting, and Engineering, to complete the repairs. They also noted that it is difficult to find parts for obsolete cameras, so they had to request or retrofit parts that were not readily available.

Defective equipment that is not repaired in a timely manner may not work as intended. In addition, MTA customers might not be able to reach a customer service agent for real-time transit-related information or in the event of an emergency.

Recommendations

2. Document the reasons PMs were not completed.

3. Develop written policies and procedures for PMs that address how often PMs should be performed and how to document maintenance status and reasons (e.g., complete, incomplete, or not completed).

4. Document the reasons for any changes to the policy and procedures.

5. Escalate tickets that require specialist involvement within a specified number of hours of the original diagnosis/visit and/or the assistance of other EMD units. Establish goals not to exceed a predetermined number of days from reporting to repair for complex tickets.

6. Develop written policies and procedures that include a time frame for when tickets should be addressed, including when they require the assistance of a specialist or other EMD units, the order of ticket priority, reasons parts were not available in inventory, and reasons for leaving tickets open for lengthy periods.

7. Review outstanding tickets daily to assess why they remained open longer than the established response time and what corrective actions are required to decrease the time.

Laser Intrusion Detection System

LIDS are installed inside the tunnels in subway stations to alert SCC personnel when an individual enters the tunnel portal. LIDS include card readers, intercoms, and cameras. SCC personnel monitor and manage LIDS using PSIMS. This software application is integrated with LIDS, displays camera screens in real time, allows for playback of videos, and provides a map of the alarm location. When an alarm is triggered, the SCC has a defined process to adjudicate why the alarm was triggered and what investigatory steps to take, and analysts determine why the alarm was triggered and can then communicate with authorized or unauthorized individuals.

There are 11 PSIMS codes (closing comments) applied to alerts:

- Drill
- False Alarm – Authorized Employee
- Maintenance or Testing
- NYPD Contacted/Acknowledged

- NYPD/FDNY
- Nuisance – System
- Nuisance – Train or Obstruction
- Sensor Failure
- Trespasser 1 – Rail Control Center/NYPD Contacted/Acknowledged
- Trespasser 2 (Use of the system as a bathroom facility)
- Video Unavailable

The SCC works with the NYPD and MTA's Office of Security (Security Emergency Response Team) to respond to ongoing issues, such as homelessness and vandalism within Transit's system. Overnight, the SCC also works with MTA's Evasion and Graffiti Lawlessness Eradication team to deter and detect vandalism and intrusion in the system.

Between August 8, 2022 and February 7, 2023, there were a total of 164,649 alarm events. Of these, we selected a judgmental sample of 80 events to determine whether SCC staff complied with its procedures (see Table 3).

Table 3 – Causes of Sensor Alarms From August 8, 2022 to February 7, 2023

Closing Comment	Total Number of Events	Number of Events in Sample of 80
False Alarm – Authorized Employee	135,333	25
Trespasser 2 Trespasser 1 – Rail Control Center	11,387	15
Nuisance – System	6,473	10
Nuisance – Train or Obstruction	4,384	
Video Unavailable	6,121	5
Drill	43	5
Maintenance or Testing	495	5
NYPD Contacted/Acknowledged	23	10
NYPD/FDNY	350	
Sensor Failure	40	5
Totals	**164,649**	**80**

Of the 80 alarm events in our sample, we found 33 events with compliance, procedure, or monitoring deficiencies that potentially posed security and other risks. The 33 included: "False Alarm – Authorized Employee" (25); "Nuisance – System" (1); "Nuisance – Train or Obstruction" (1); "Video Unavailable" (1); and "NYPD Contacted/Acknowledged"–"NYPD/FDNY" (5). In addition, we found that 15 cameras did not have video during our visit.

Access-Related Events

Only authorized personnel who possess a Transit "Restricted Access" card configured with the appropriate access level may enter subway tunnel restricted areas. Within a narrow time frame of receipt of a LIDS alarm, SCC analysts follow

a defined step-by-step process to adjudicate the alarm by selecting one of the 11 closing comments. In the case of an alert related to an individual, the analyst will evaluate to determine whether the individual is a Transit employee, a contractor, or an unauthorized individual. If an individual entering the tunnel is believed to be a Transit employee or contractor, SCC personnel use the "False Alarm – Authorized Employee" closing comment in PSIMS. Transit's Rail Control Center may also be contacted to confirm any scheduled work. Unauthorized individuals detected in restricted areas are monitored and prescribed actions are taken in response.

We determined that 25 of the 80 sampled alarm events were closed using "False Alarm – Authorized Employee." While this event generally involves authorized personnel, we found SCC didn't always verify that they were, in fact, authorized. In one event, the video showed an individual wearing MTA-labeled clothing and entering the tunnel without using their access card. However, there was no indication that this individual was verified to have the appropriate level of access or that SCC contacted the Rail Control Center to confirm that there was scheduled work.

DOS officials explained that, despite reminding employees to use their access card, employees still have not complied with this requirement. However, allowing employees to disregard this requirement compromises the security of the system. While DOS officials explained the challenges related to monitoring tunnel access and acknowledged a compliance issue, they need to take steps to ensure that employees use their access card while addressing these challenges.

We also determined that 15 of the 80 sampled alarm events were coded as "Trespasser 1 – Rail Control Center/NYPD Contacted/Acknowledged" and "Trespasser 2" (Use of the system as a bathroom facility). During a January 30, 2023 visit, we observed SCC personnel apply the "Trespasser 2" closing comment when an unauthorized individual entered and exited a tunnel. For these incidents, there is no requirement to notify anyone and no required investigation of the unauthorized entry.

No Video Footage Events

DOS checks the online status of all cameras streaming to SCC daily. Health checks are snapshots in time conducted at various times during the week. The system automatically generates a report of station camera statuses at about 5 a.m. SCC officials stated that 6 months of alarm information is accessible in PSIMS.

To determine whether the SCC was able to retrieve alarm events in PSIMS and that video recordings were stored in the PSIMS, we reviewed 15 events: five "Nuisance – System" alarms, five "Nuisance – Train or Obstruction," and five "Video Unavailable."

Nuisance

"Nuisance" closing comments are used when the analyst did not see anything to explain why an alarm was triggered or a train or obstruction blocked the system, triggering the alarm.

- For the five "Nuisance – System" alarms in our sample, four were found in PSIMS, but there was no video playback as the request was beyond the period videos are stored. We also noted that one camera did not have live streaming video footage at the time of our visit.
- For the five "Nuisance – Train or Obstruction" alarms, one was no longer in PSIMS as it was beyond the period for maintaining alarm records. The other four alarms were found in PSIMS.

During our visit, we saw both closing comments used. The "Nuisance – Train or Obstruction" event we observed was caused by a passing train that triggered the alarm. In both cases, we were told that no further action was required to determine the cause of these alarms. If, however, these are recurring frequently at the same location, they would be referred to Security IT. We determined that 60% of the "Nuisance – System" and 45% of the "Nuisance – Train or Obstruction" alarms originated at stations within the last 6-month period. In response to our preliminary findings, Transit officials stated that they are aware of the issue, which was caused by two ongoing construction projects.

Video Unavailable

The "Video Unavailable" closing comment is applied when one or both playback cameras (initial alert footage) are blank. This closing comment was assigned to 6,121 of the 164,649 total alarms. For the five alarms in our sample, four were found in PSIMS, and we observed the live video stream showing footage during our visit. The other incident could not be found in PSIMS, although it was within the defined time frame for maintaining video. Of greater concern was the fact that no video footage was available from the cameras related to this alarm. During our January 30, 2023 visit, we observed another alarm where the SCC analyst applied the "Video Unavailable" closing comment. No further action was taken, but we were told that sometimes the camera may have a glitch. Officials further stated that the footage could be retrieved from the system by the technical unit if there was an incident. As SCC personnel did not pursue the footage for this event or call for repairs, we have no assurance that the footage could be retrieved or that the glitch was corrected.

We also observed that, for 65 of the 80 sampled events, live videos were available/working at the time of our visit. The remaining 15 cameras were not showing/working. For example, two of the incidents were available in PSIMS, but no live video was showing at the time of viewing. Although SCC personnel stated they would follow up on the 15 non-viewable cameras, they did not explain why these cameras were not viewable. DOS officials provided a response regarding the live videos; initially, it was not for the same date as our visit.

Incident Reporting to NYPD/FDNY Events

A security incident is any event that could affect the security of Transit's employees, customers, critical systems, or properties. In the event of a security incident, SCC personnel must record the details on a Security Incident Tracking Sheet Form and disseminate the information via a Security Incident Notification email to internal or

external stakeholders for situational awareness. These incidents can include crime and trespassing related to PSIMS alarms in the SCC.

According to SCC personnel, 10 of the alarms in our sample of 80 involved crime or trespassing based on the assigned closing comment entered in PSIMS ("NYPD Contacted/Acknowledged" and "NYPD/FDNY"). Of the 10, five alarm events did not comply with the procedures to record a Security Incident Tracking Sheet Form and send a Security Incident Notification email. DOS officials responded that SCC personnel may have inadvertently used these codes because they are not normally used.

Drill, Maintenance/Testing, Sensor Failure

The remaining 15 of the 80 sampled events were related to "Drills," "Maintenance or Testing," and "Sensor Failure" (the sensor did not set off the camera). SCC personnel told us that five of the events related to "Maintenance or Testing" are done to check that PSIMS is working. We did not have any issues with these 15 events.

Recommendations

8. Ensure compliance with the requirement that employees use their access card to enter and exit tunnels in subway stations.

9. ███

10. Work with other departments to require employees to swipe their access card with LIDS.

11. ████████████████████████████

12. Develop a mechanism to review blank videos to ensure that unauthorized individuals did not act unlawfully.

13. Investigate the reason alarm records were not in PSIMS within the defined period.

Note: Recommendations 9 and 11 have been redacted for security purposes.

Security Equipment Malfunction

Security equipment at non-public posts (e.g., train yards) refers to physical hardening, electronic technology, and perimeter protection. Security equipment includes CCTV systems, communication devices, perimeter fencing, and gates or traffic-control arms. When security equipment at a post is damaged, malfunctioning, or inoperable, TPPAs post the activity in the memo book at the site, contact the appropriate Transit repair group or responsibility area, and then notify the SCC. SCC personnel will obtain the repair shop ticket number from the TPPA, generate an incident number, and enter the equipment malfunction condition into the SCC Equipment Malfunction Log. SCC personnel will then notify and update the Incident Report Distribution Group (SCC managers who track the status of the equipment

from the initial report to completion). Incidents are assigned priority ratings of: A - severe, B - high, or C - medium, depending on the location and vulnerability of the post due to the malfunction. Once the incident is resolved, SCC personnel will again notify the Incident Report Distribution Group via email.

To determine whether the SCC complied with its procedures, we selected a judgmental sample of 50 pieces of equipment with a malfunction from a population of 1,997 reported to SCC during the period September 14, 2019 to January 31, 2023. We also calculated the time that elapsed between when malfunctions were reported and when they were closed.

Of the 50 pieces of equipment with a malfunction sampled, 36 were referred to repair groups, 10 were completed in-house at local facilities, and four were handled by other means (e.g., replacing the malfunctioning item instead of repairing it). We found that 16 of the 50 (32%) malfunctions were open for more than 5 days, ranging from 7 to 142 days, including five tickets that were still open the day of our review (March 30, 2023). For example, there were two instances where TPPAs experienced radio issues, and they took 37 and 107 days, respectively, to be resolved. We question why these malfunctions, which had priority ratings of "C," remained open for such a long period without a resolution.

We also found that SCC personnel do not receive or maintain work orders or any other documents to verify the status of malfunctions. We requested copies of the work orders associated with the 36 malfunctions that were referred to a repair shop but received only 21 due to incorrect or missing ticket numbers and/or repair shop name. Further, SCC officials could not determine which repair shop was responsible for repairing two of the malfunctions. In addition, similar types of malfunctions were not always prioritized the same. For example, in two separate malfunctions where a traffic-control arm not working properly, one was prioritized as an "A" and the other as a "C."

At a minimum, SCC personnel must send the open and closed emails to the Incident Report Distribution Group. However, SCC officials did not send all the required email notifications for 16 of the 50 sampled malfunctions. Of the 16 malfunctions, three open emails were not sent, seven closed emails were not sent, and for six, neither the open nor the closed emails were sent. Both open and closed emails were sent for the other 34 malfunctions.

SCC officials explained that personnel inadvertently miscoded malfunctions because the malfunctions were not specifically assigned temporary TPPAs for five of the six events. The staff also did not document required details in the Equipment Malfunction Log and notify DOS officials of the malfunction. The malfunctioning of security-related equipment not being resolved in time either leaves facilities vulnerable to security breaches or leads to additional Transit agent personnel costs.

Recommendations

14. Ensure that both open and closed email notifications are sent to the notification group.

15. Ensure staff record sufficient details in the Equipment Malfunction Log and the memo book for tracking the status of equipment malfunctions.

16. Prioritize the repair of equipment malfunctions.

Audit Scope, Objectives, and Methodology

The objectives of our audit were to determine whether Transit has taken steps to implement safety and security in all its subway facilities, and whether safety and security equipment, such as cameras, HPIs, and customer assistance intercoms, is maintained (working and tested). The audit covered the period from September 2019 through March 2023.

To accomplish our objectives and assess related internal controls, we interviewed Transit and Security management and staff and reviewed records, including all 30 capital projects as of February 21, 2023.

We used a non-statistical sampling approach to provide conclusions on our audit objectives and to test internal controls and compliance. We selected judgmental samples; however, because we used a non-statistical sampling approach for our tests, we cannot project the results to the respective populations. Our samples, which are discussed in detail in the body of our report, include four judgmental samples, as follows:

- 1,187 pieces of security equipment during the period from July 2019 through September 2022, including 50 CCTV systems (maintained as a system but made up of 1,137, of 13,289, separate pieces of equipment) and 50 HPIs to determine whether PMs were completed as required per the schedule.

- 141 tickets from a combined population of 43,239 related to security equipment opened during the period from September 1, 2019 to July 21, 2022 that were not addressed within 60 or 72 hours of the required time frame to determine what caused the delay in restoring the equipment to a state of good repair.

- 80 alarm events randomly selected from the 164,649 alarm events during the period from August 8, 2022 to February 7, 2023, based on the size of each category or combined categories, to determine whether SCC personnel responded as required by the procedures.

- 50 pieces of equipment with malfunctions from a population of 1,997 reported to the SCC during the period from September 14, 2019 to January 31, 2023. We also calculated the time elapsed between when malfunctions were reported and when they were closed.

We tested the data used to select our samples and conducted audit work and determined it was sufficiently reliable for the purposes of our audit objectives.

Statutory Requirements

Authority

The audit was performed pursuant to the State Comptroller's authority as set forth in Article X, Section 5 of the State Constitution and Section 2803 of the Public Authorities Law.

We conducted our 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 findings and conclusions based on our audit objectives.

In addition to being the State Auditor, the Comptroller performs certain other constitutionally and statutorily mandated duties as the chief fiscal officer of New York State, including some duties on behalf of public authorities. For MTA, these include reporting MTA as a discrete component unit in the State's financial statements and approving selected contracts. These duties could be considered management functions for purposes of evaluating organizational independence under generally accepted government auditing standards. In our professional judgment, these duties do not affect our ability to conduct this independent audit of MTA's oversight and administration of selected aspects of safety and security in subway facilities.

Reporting Requirements

We provided a draft copy of this report detailing our audit findings to MTA Transit and Headquarters officials for their review and comment, and considered their comments in preparing this final report. Certain information has been redacted from this report for security purposes, including information in their response (which is attached) and two recommendations referenced in that response. MTA Transit and Headquarters officials were provided with an unredacted version of this report.

MTA officials replied that they agree with eight of the 16 recommendations and have taken or plan to take corrective actions. They "acknowledge" seven recommendations indicating that they were already doing what was recommended. However, for some of these recommendations, we do not have evidence that action has been taken. Our responses addressing certain MTA remarks are included in our State Comptroller's Comments.

Within 180 days after final release of this report, as required by Section 170 of the Executive Law, the Chairman and Chief Executive Officer of the Metropolitan Transportation Authority shall report to the Governor, the State Comptroller, and the leaders of the Legislature and fiscal committees, advising what steps were taken to implement the recommendations contained herein, and where recommendations were not implemented, the reasons why.

Agency Comments

Metropolitan Transportation Authority

State of New York

May 24, 2024

VIA E-MAIL

Ms. Carmen Maldonado
Audit Director
The Office of the State Comptroller
Division of State Government Accountability
59 Maiden Lane, 21st Floor
New York, NY 10038

Re: Draft Report #2022-S-20 (Selected Aspects of Safety and Security in Subway Facilities)

Dear Ms. Maldonado:

This is in reply to your letter requesting a response to the above-referenced draft report.

I have attached for your information the comments of Richard Davey, President, New York City Transit, which address this report.

Sincerely,

Janno Lieber

c: Laura Wiles, MTA Chief of Staff
       Michele Woods, Auditor General, MTA Audit Services

MTA Metropolitan Transportation Authority

State of New York

May 23, 2024

VIA ELECTRONIC MAIL
Mr. Janno Lieber
Chair and Chief Executive Officer
Metropolitan Transportation Authority
2 Broadway, 20th Floor
New York, New York 10004

Re: Response to the Office of the New York State Comptroller Audit #2022-S-20 – Selected Aspects of Safety and Security in Subway Facilities

Dear Chair Lieber:

Thank you for providing us with an opportunity to respond to the Office of the New York State Comptroller's (the "OSC") audit report #2022-S-20 on selected aspects of safety and security in subway facilities (the "Report"), which covers the period from September 2019 through February 2023. The stated purpose of the audit was to determine whether New York City Transit ("Transit") has taken steps to implement safety and security in all its subway facilities, and whether safety and security equipment, such as cameras, Help Point Intercoms ("HPIs"), and Customer Assistance Intercoms ("CAIs"), is maintained.

As an initial matter, we want to emphasize that the Metropolitan Transportation Authority ("MTA") takes the safety and security of the subway system very seriously. For at least the past two decades, we have been making significant financial investments to provide our customers and employees with a safe and secure system.

Since 2002, we have invested over $650 million on completing security camera projects and allocated more than $400 million to related projects that are currently in the planning, design, or construction phases. In just the past five years, we have invested in the expansion of cameras by 66%, which has facilitated the rollout of an extensive and robust camera network comprised of over 1,000 closed-circuit television ("CCTV") systems including over 13,000 cameras. It is important to note that MTA's purposeful strategy for its camera projects has been to build in redundancies across the system that factor in risk tolerance for preventative maintenance activities that are largely influenced by resource fluctuations and constraints.

The MTA has also been actively evolving its Enterprise Asset Management ("EAM") system, which is facilitating the improved oversight of inspection, maintenance and repair records that relate to key assets and pieces of equipment, including but not limited to safety and security-related assets.

In April 2023, Station Agents also contributed to a safer system by stepping out from behind the booths to perform more enhanced customer service functions, and this has had a notably positive impact on the subway environment. In a customer survey conducted in the Fall of 2023, it was found that customers who were satisfied with their station agent interactions were more likely to feel safe on platforms.

Under Governor Hochul's leadership, the MTA has implemented a Five-Point Plan for Subway Safety that includes:

1) adding 1,000 officers from the New York State Police, MTA-PD, and the New York National Guard to assist NYPD in providing a secure environment for Subway riders;
2) the introduction of a bill that will allow judges to ban individuals convicted of assaulting commuters and Transit workers within the system;
3) improving coordination between law enforcement and district attorneys via a new Subway Violence Strategic Partnership ("SVSP");
4) accelerating new camera installations; and
5) budgeting $20 million to rapidly expand a successful pilot program ("SCOUT") that is assisting some of New York's most vulnerable populations in gaining access to mental health treatment and supportive housing.

These actions build upon multiple efforts that were already underway, including but not limited to installing cameras in every subway car at the direction of Governor Hochul and making stations and platforms safer by converting 150,000 light fixtures to more illuminating LEDs.

MTA is pleased that OSC recommendations are in line with plans the MTA has already begun to implement. In accordance with Executive Law Section 170, below are Transit's[1] responses to the findings and recommendations contained in the OSC report.

RESPONSE TO OSC FINDINGS

The Report focuses on five key findings.

Key Finding #1: Transit has taken steps to implement security in its subway facilities based on MTA's Security Strategy. However, four (4) of the 30 security projects we reviewed were delayed because there were no Small Business Mentoring Program ("SBMP") contracts available to perform the work. Furthermore, five (5) projects were not started within the time frame of the 2010-2014 and 2015-2019 MTA 5-Year Capital Programs, as planned. Instead, the projects started up to 7 years after 2010-2014 Capital Program or 1 year after 2015-2019 Capital Program.

As an initial matter, the Small Business Mentoring Program ("SBMP" or the "Program") specifically targets contracts under certain dollar value thresholds. At the time applicable to this audit, those thresholds were under $1.5 million for Tier 1 contractors and under $3 million for Tier

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[1] With respect to Finding #1 and Recommendation #1, Transit consulted with MTA Construction and Development, which now manages all MTA Capital Projects as well as oversees the MTA's Small Business Mentoring Program.

2 contractors and federally funded contracts.[2]). The Program is not involved in contracting over those thresholds and thus would not be the reason for any delay(s). That said, for contracts within the Program, there can occasionally be instances where there may be a delay that results from the MTA's strong investment in supporting healthy and productive relations with its small business partners. For example, if there are SBMP firms within a specific trade or industry that are relevant to a new contract but engaged in completing a different project, we may accept a temporary, short-term delay to provide these businesses with the opportunity to take on additional work. The MTA is mindful of the timing and cadence of awarding contracts to smaller businesses, ensuring that the opportunities do not overwhelm the capacity of engaged vendors to take on additional work. The ultimate goal is to provide a steady stream of work that vendors can accept, complete successfully and remain engaged for future contracting opportunities.

Comment 1

In terms of the four security projects specifically identified by the State auditors as having been delayed, two were affected by the impacts of COVID-19, during which the MTA Capital Program was subject to a moratorium on new awards. Despite this, MTA expeditiously awarded both of these projects in June 2020. One project was then completed ahead of schedule and the other was completed on time. Of the remaining two identified projects, both were awarded as planned in 2021.

Regarding the five (5) projects identified by the State auditors as having not started within the time frames of their respective capital plans: occasionally, there are factors beyond the MTA's control that can result in projects being awarded outside of a capital plan window, including business needs, emergent environmental factors (e.g., a global pandemic), and funding constraints. Of the five (5) projects identified, three (3) had their schedules impacted by COVID-19. The remaining two (2) were affected by external funding not being available in the originally anticipated timeframe. Even with these few exceptions, since 2019, 87% of capital projects related to NYCT security have started, or are planned to start, within their respective capital plan.

Comment 2

Furthermore, in connection with the MTA's 2019 Transformation Plan, MTA C&D now leads the MTA's Capital Program, along with the consulting and construction contracts funded under the Capital Program. These responsibilities previously resided with each MTA operating agency, including but not limited to Transit. This consolidation of project management has resulted in positive changes to the timely awarding of projects. Specifically, 100% of the 2020-2024 NYCT Security capital projects have either been awarded (29), or are forecasted to be awarded (8), by the end of 2024.

Key Finding #2: ███████████████████████
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[2] In October 2023, the MTA increased these thresholds to $3M for Tier 1 contractors and under $5M for Tier 2 contractors and federally funded contracts.

Transit's Electronic Maintenance Division ("EMD"), within the Department of Subways, is a relatively small division comprised of four groups: Automated Fare Collection ("AFC"), Central Electronics Shop ("CES"), Telecommunications ("Telcom"), and Operations Support. The AFC group maintains over 60,000 pieces of equipment, including but not limited to bus signs, OMNY devices, and turnstiles. CES inspects and repairs more than 76,000 units of equipment and components (e.g., automated fare collection, car equipment, communication equipment). The Telecom group is responsible for all of the vital communication systems of Transit, both wired and wireless. The Telcom team maintains approximately 150,000 pieces of equipment and systems, including communications, security, and networking.

EMD takes its maintenance duties seriously and has a long history of setting aggressive goals for maintaining a wide range of electronic equipment to ensure it is working, tested, maintained, and monitored. However, as acknowledged by the auditors, EMD must make informed determinations and prioritize urgent matters and requests (e.g., repairs, installations, rush video-retrieval requests, PMs on Police/Transit radios, etc.), which may result in the redirection of resources and deferral and/or cancellation of certain PMs. Each of the different types of equipment listed by OSC in its finding statement (CCTVs, HPIs, CAIs, emergency alarms, and fire alarms) contribute to the safety and security of the Subway system; however, this audit exclusively sampled the PM records of 50 CCTV systems and 50 HPIs.

During the time of this audit (2019-2022), there was a trifecta of influencing factors that must be considered to understand the context of PMs that were "not completed". Over the past two decades, there has been a substantial increase in the number of pieces of electronic equipment that Electronic Equipment Maintainers ("EEMs") within EMD are expected to inspect, maintain, repair, and perform other related tasks upon (e.g., the pulling of requested video footage). At the same time EEM-assigned work was substantially increasing, it was becoming increasingly more difficult to fill vacancies in this title with qualified personnel. Despite updated operating budgets increasing headcount for this critical role, there was, and continues to be, a shortage of qualified and interested candidates to fill a substantive number of vacancies. On top of this, this audit's test period covers the height of a global pandemic when, beyond the above known factors, there were unprecedented circumstances that significantly impacted frontline Transit personnel. Despite the fact that its vacancy rate has remained persistently high (with an average vacancy rate of 21% across the division, and an even higher vacancy rate of 38% in the critical title of EEM), EMD's post-pandemic performance rates for PMs are outstanding. Specifically, in 2023, EMD completed 98% of its scheduled PMs for HPIs (465 out of 474) and 99.7% of its scheduled PMs for CCTVs (12,406 out of 12,444).

[Comment 3]

In terms of the audit findings related to HPI PMs, the primary objective of a PM on this type of equipment is to test its functionality. While the Report notes that evidence was not provided for the completion of all scheduled PMs, it fails to acknowledge that these exceptions occurred during a gap in contractors. As was noted in the Report, prior to December 2020, EMD had been outsourcing the 24-7 monitoring of HPI functionality to a third-party contractor. EMD would have continued to do so; however, due to a concern with the vendor, the contract was terminated. While this matter was ultimately resolved and the responsibility for monitoring HPI functionality was restored in 2023, during this interim period, EMD leadership needed a temporary solution to ensure the ongoing monitoring of HPI functionality.

[Comment 4]

With insufficient resources of its own to assign to this task, EMD leadership was able to successfully collaborate with Subways' Division of Station Environment and Division of Service Delivery to implement a solution. Specifically, the Division of Stations Environment agreed to have its supervisory personnel conduct routine tests of HPIs in their assigned territories in coordination with the Division of Service Delivery's Rail Control Center ("RCC") and, if a functionality issue was identified, the RCC agreed to relay that information to EMD's control desk to create a service ticket. This collaborative arrangement enabled personnel, who were already working in the station environment, to monitor for functionality on a daily basis, while a more permanent solution for 24-7 HPI monitoring could be pursued. While this may have resulted in some relatively insignificant gaps in HPI PM records during this time, the collaborative effort that Subways personnel put forth to ensure the continuity of HPI monitoring and reporting of any identified HPI defects was remarkable. Furthermore, in the audit's sample, there were no instances of scheduled HPI PMs that were not completed during 2022. This speaks to the positive impact that EAM is having upon Transit's ability to provide auditable inspection and maintenance records as evidence of work completed.

[Comment 5]

In 2023, EMD again updated its protocol for conducting HPI PMs. In addition to restoring monitoring capability of HPI functionality (as well as the regular cleaning of HPIs that continues to occur by Stations personnel), EMD now has a team of personnel that visit each station's Communications Room to visually confirm the visibility and functionality of cameras in that location. If any deficiencies are found, a ticket is created that prompts a separate service team to respond to the non-conformity.

Furthermore, OSC acknowledges in the Report that EMD management advised it during the audit that the required frequency for PMs was being adjusted to once per year in 2020, in large part due to the impacts of COVID-19 on staff availability (including but not limited to a spike in retirements, a hiring freeze, budget cuts, COVID-related rotation schedule changes, and the quarantining of active personnel). Even with that information, OSC did not adjust its "expected" number of PMs or calculations for "not completed" PMs, stating that "no documentation" was provided to support the modified internal benchmark. That is not accurate. On November 15, 2019, during the course of this audit, Transit's President signed an official memorandum addressed to the MTA Chair that stated, *"EMD is also in the process of revising maintenance schedules to better align targets with workforce availability."* This memorandum was provided to OSC as part of the MTA's response to audit #2019-F-7.

[Comment 6]

Finally, in regard to the specific example cited in the finding (i.e., *"one system with 119 cameras should have had scheduled PMs four times per year; however, there were no records for PMs performed during the same period"*), it was relayed to the auditors during the audit that the system in question was placed into service in 2018; however, due to ongoing contractual issues, EMD did not assume maintenance responsibility for the system until December 2022.

In sum, while the operating environment has continued to apply more and more pressure to EMD personnel to assume responsibility for rapidly increasing quantities of equipment spread across the system without a corresponding increase in personnel, EMD leadership has done an

exceptional job of continually reassessing how to balance regulatory requirements, operational vulnerabilities, financial constraints, and resource capabilities in order to maintain the system, given multiple competing demands and limitations.

Key Finding #3: Although Transit prioritizes repairs of equipment defects over PMs, defects were not always addressed within the required time frame set by its procedures. The responses to the 141 electronic work orders (tickets) sampled from the period September 1, 2019, through July 21, 2022, were delayed as much as two years beyond the required time frame. Transit officials attributed these delays to 12 major categories. The two largest categories were "Reason not indicated" and "Other Assistance" (53 and 41 tickets, respectively).

<u>MTA Response</u>

As an initial matter, we respectfully disagree with the decision to group together findings on disparate systems with different levels of criticality, and different levels of redundancy, into one consolidated finding.

When considering the audit's HPI data, specifically, it is important context that there were over 9,000 HPI trouble tickets for HPIs during the test period. However, the auditors only selectively sampled 50 trouble tickets that they had already determined were not closed in a timely manner. While this methodology may have enabled a narrower assessment of whether the sampled trouble tickets contained sufficient detail to explain the reason why they were open for lengthy periods of time, we believe this methodology unfairly yields a distorted perspective on EMD's overall performance in closing HPI trouble tickets in a timely and expeditious manner.

In addition, within the auditors' sampled HPI tickets, none went unaddressed for "as much as two years." By far the lengthiest delay (under one year) was due to excessive vandalism of the HPI that required complicated remediation, multiple specialists to troubleshoot, and coordination with contract compliance. An additional lengthy repair (under six months) was due to the HPI being located in a station under construction. Again, these are rare exceptions to the norm; when selectively sampled, they yield a distorted impression.

Moreover, while EMD has an internal target to address HPI tickets within 48 hours after receipt, there are instances where, based on the damage sustained to the equipment, this will not be a realistic target. Moreover, EMD's internal goal is for 75% of Priority 1 trouble calls and 70% of Priority 2 trouble calls to be addressed within 48 hours (i.e., not 100% of all tickets). This was noted to OSC as part of the MTA's official response to audit 2019-F-7. Furthermore, in 2023, EMD exceeded this internal goal, with 79% of all HPI tickets being closed within 48 hours (2,920 out of 3,693).

In regard to CCTV repairs, the Report relied upon EMD's three-day internal goal as its compliance criteria. However, this pre-pandemic performance goal was adjusted at the end of 2019. Furthermore, this internal goal was never meant to constitute a requirement as there are multiple legitimate reasons, some of which are well beyond the control of EMD, as to why a CCTV repair ticket may remain open for an extended period of time, including but not limited to

<div style="border:1px solid red; display:inline-block">[Comment 7](#)</div>

<div style="border:1px solid red; display:inline-block">[Comment 8](#)</div>

construction in the vicinity of the equipment, limited track access, staffing limitations, obsolete parts, and a range of other mitigating conditions.

Key Finding # 4: For the 6-month period ended February 7, 2023, 25 of 80 (31%) alarm events we sampled were "False Alarm – Authorized Employee." According to SCC officials, this occurs when employees do not use their access card when entering a subway tunnel. The SCC has instructed employees to always use their access card. However, they do not always comply.

MTA Response

The majority of "False Alarm – Authorized Employee" instances occur when a given crew is working in an alarmed area for multiple consecutive hours and continually re-tripping the same alarm(s) as they perform their work. While it would be ideal, from a security perspective, for employees to keep interfacing their access card with the LIDS reader device to avoid false alarms in need of investigation, a balanced approach must be devised that considers both the need for security compliance and operational performance. Leadership from both the Department of Security and the Department of Subways agree that command center personnel in both departments would benefit from a reduction in the total volume of "False Alarms – Employee Events" (~700-1,200 events/day) and will work together to devise practical solutions to effectively reduce that volume while not impeding operational performance.

Key Finding # 5: We sampled 50 of the 1,997 security equipment malfunctions (e.g., security gates and traffic control arms). For 16 of the 50 (32%) malfunctions, tickets were open for more than 5 days, ranging from 7 days to 142 days, including five that were still open as of the date of our review (April 6, 2023).

MTA Response:

Transit acknowledges the auditors' findings and recognizes the importance of promptly addressing security equipment malfunctions to ensure the safety and efficiency of its operations. Going forward, when reporting security equipment malfunctions to the respective owner, the Security Command Center ("SCC") will suggest prioritization, based upon the Department of Security's risk management assessment.

RESPONSE TO RECOMMENDATIONS

Recommendation No. 1:

Revisit the list of SBMP contractors available to perform the work to ensure it is sufficient to meet the needs of the MTA Capital Program and address the risk to the system. If the contractor pool is not sufficient, develop an alternative plan to complete the capital project.

MTA Response:

Transit, in consultation with MTA C&D, acknowledges this recommendation.

The MTA takes pride in its Small Business Mentoring Program, which began in 2010 and, since inception, has awarded over $500 million in work to small businesses. In terms of increasing

the availability of SBMP contractors, the MTA is consistently and constantly monitoring its data on how many firms are in the Program and paying very close attention to the demographics of our firms. We have an outreach team that is aggressive about casting as wide a net as possible with respect to diversity, both from a race and gender perspective, although diversity is not the driving goal of the program which is targeted to small businesses of any demographic origin. This team actively participates in numerous outreach opportunities, whether created internally or sponsored externally, at the local, state and even regional levels (e.g., New Jersey, Boston, Philadelphia), proactively getting the word out about contracting opportunities available with the MTA. In 2023, MTA's Department of Diversity and Civil Rights ("DDCR") increased its overall SBMP contractor recruitment by 17%, exceeding its goal of 10%. In addition, in 2024 alone, DDCR facilitated ten small business loans to perform contract work, facilitating over $1,000,000 in small business lending. Moreover, the MTA continues to have a strong record of successfully delivering its small business projects on time and on budget. In the 2015-2019 Capital Plan, 88 of 94 (94%) small business projects were completed on time or earlier and 78 of 94 (83%) projects were completed on or under budget. To date, in the 2020-24 Capital Plan, 71 of 72 (99%) small business projects have been completed on time and 67 of 72 (93%) projects completed on or under budget.

In addition, for emergency and/or immediate safety and security matters that put the system at risk, the MTA would respond immediately by putting temporary measures in place to provide a safe and secure environment for riders and transit workers.

Recommendations No. 2:

Document the reasons why PMs were not completed.

MTA Response:

Transit acknowledges this recommendation.

Since the conclusion of this audit, PM records within EAM have become significantly more detailed and now provide management with enhanced visibility into the status of various PM-related workorders for the purpose of enhanced monitoring and oversight. More specifically, there is now a "Schedule Compliance" PowerBi Dashboard that details for management the compliance rates of various scheduled PMs (including but not limited to CCTV PMs). This dashboard details the number of PMs completed on time, early, late, not performed, etc. An example of the data provided by this dashboard is shown in the image below. In this instance, the data represents EMD's compliance rate (94%) with scheduled CCTV PMs between July and December 2023.

Subways Auto-Generated PM, Inspection, & Test WO Schedule Compliance for Sched. End Date 1/1/2023 to 12/31/2023 E A M

Schedule Compliance : 94 %   Considered for Compliance   Click here to follow link   Open: 0

| 13,485 Total Work Orders | = | 12,690 Completed On Time | + | 0 Completed Early | + | 49 Completed Late | + | 733 Not Performed | + | 13 Out of Service | + | 0 Open, Not Late | + | 0 Open, Late |

Past 6 Months (Sched. End Date Jul/2023 to Dec/2023) Compliance

Sched. End Date (Month)	Compliance %	Total Work Orders	Completed On Time	Completed Early	Completed Late	Not Performed	Out of Service	Open, Not Late	Open, Late
Jul/2023	97	1,067	1,031	0	13	23	0	0	0
Sep/2023	99	1,048	1,045	0	0	1	2	0	0
Aug/2023	80	1,305	1,050	0	1	254	0	0	0
Oct/2023	99	1,070	1,055	0	0	15	0	0	0
Nov/2023	81	1,314	1,060	0	2	251	1	0	0
Dec/2023	99	1,063	1,061	0	2	0	0	0	0
Total		6,867	6,302	0	16	546	3	0	0

Auto-Generated PM, Inspection, & Test WO Compliance % by Subways Division for Sched. End Date 1/1/2023 to 12/31/2023

DIV | L1 | L2 | L3 | L4 | PM

94%

Electronic Maintenance Division

Given the already vast and ever-increasing quantity of pieces of equipment that EMD Telecommunications is currently responsible for, this aggregate, big-picture performance data is what EMD management needs to review to effectively track and monitor the overall status of PMs completion rates and initiate corrective action when necessary.

The EAM system has been strategically designed to automatically close an incomplete PM work order so that a new PM work order can be automatically generated. This design is intentional and reprioritizes the completion of the greatest quantity of PMs over a more extended period. Furthermore, any time a PM work order is closed automatically because it has not been completed on time, the system automatically includes a comment in the work order that states, "The status of this work order was automatically changed to not performed due to generation of the next scheduled work order." This comment, by default, assumes that the reason the work order was not completed was due to the prioritization of other work.

Comment 9

In turn, the only way each and every missed PM EAM record could currently include detailed documentation regarding why the PM was missed would be for management to assign personnel to manually go into EAM and enter customized comments in each record. When we consider the business impact that requiring this new, manual recordkeeping task would have upon this small work unit that is already highly understaffed and concurrently being assigned work of much higher priority, EMD simply does not have sufficient resources to fully implement this recommended action; however, we believe that the increased oversight we described will facilitate accomplishment of the goal.

Recommendations No. 3:

Develop written policies and procedures for PMs that address how often PMs should be performed and how to document maintenance status and reasons (e.g., complete, incomplete, or not completed).

MTA Response:

Transit partially agrees with this recommendation.

EMD management has already developed a written procedure that describes how CCTV PMs are to be completed and how to document maintenance status and reasons in EAM and is agreeable to creating a similar procedure for HPI PMs.

However, with respect to the proposed frequency requirement of PMs, while EMD sets aggressive PM goals, there are many internal and external factors that can impact those goals and the work priorities of EMD personnel. Creating fixed requirements within written policies would undermine EMD leadership's ability to act quickly with sound judgment and flexibility, potentially impacting the Telecommunications work unit, which is already severely understaffed.

While EMD may revisit its procedures when EMD's budgeted staffing vacancies are filled, at this time EMD management will continue to define its internal PM goals within the EAM rules that generate the respective equipment work orders.

Recommendations No. 4:

Document the reasons for any changes to the policy and procedures.

MTA Response:

Transit agrees with this recommendation.

To the extent that EMD's current written procedure pertaining to CCTV PMs and to-be-developed procedure pertaining to HPI PMs (see response to Recommendation #3) are modified in the future, the reason for the change will be documented within the updated procedure. In addition, when a change to a CCTV and/or HPI PM frequency is deemed appropriate, EMD leadership will effectuate this change via written correspondence to the EAM team and note the reason behind the change.

Recommendations No. 5:

Escalate tickets that require specialist involvement within a specified number of hours of the original diagnosis/visit and/or the assistance of other EMD units. Establish goals not to exceed a predetermined number of days from reporting to repair for complex tickets.

MTA Response:

Transit acknowledges this recommendation.

In order to effectively track and monitor the completion rate of repair tickets, identify trends and, as appropriate, investigate and escalate tickets that need prioritization (including but not limited to those that require Specialist involvement and/or coordination with other operating groups), EMD management reviews a PowerBi Dashboard daily. This dashboard details completed versus open work orders as well as the average days to close for different priority level tickets.

In addition to continuing to conduct this daily dashboard review, EMD management agrees to document an escalation process that describes the number of hours/days between steps of escalation (e.g., escalating up the managerial ranks for necessary cross-divisional coordination) to resolve repair tickets that remain open for extended periods of time.

EMD management also will continue to work on filling its vacant Specialist position(s).

Recommendations No. 6:

Develop written policies and procedures that include a time frame for when tickets should be addressed, including when they require the assistance of a specialist or other EMD units, the order of ticket priority, reasons why parts were not available in inventory, and reasons for leaving tickets open for lengthy periods.

MTA Response:

Transit acknowledges this recommendation.

MTA proudly sets aggressive time goals, knowing that certain more complex cases will not be possible to complete in those timeframes. EMD's current internal goal for the completion for HPI repair tickets is to address 75% of Priority 1 trouble calls and 70% of Priority 2 trouble calls within 48 hours of receipt. For CCTV, the internal goal is to complete 75% of CCTV system trouble calls within 72 hours of receipt. EMD management will examine instructing its personnel of these goals in a written instruction or bulletin to management/supervision.
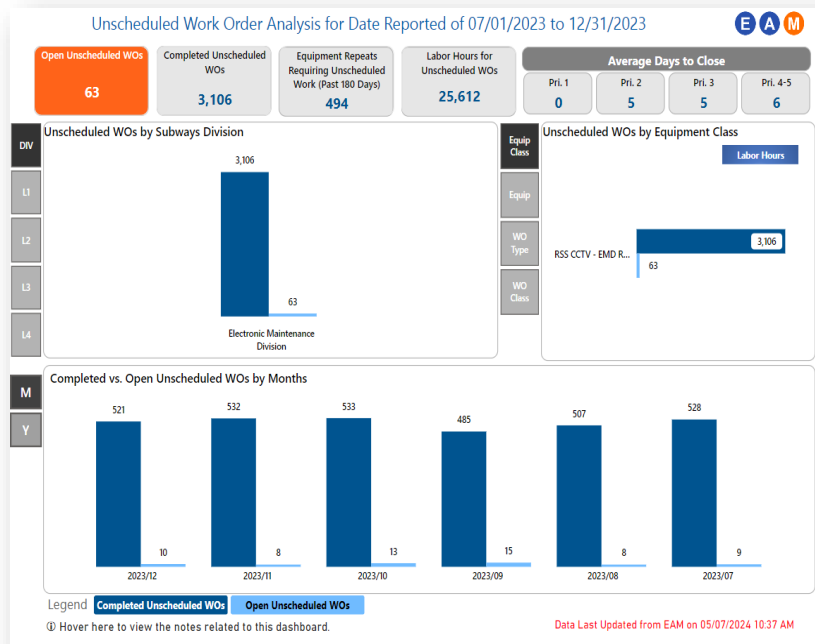
Recommendations No. 7:

Review outstanding tickets daily to assess why they remain open longer than the established response time and what corrective actions are required to decrease the time.

MTA Response:

Transit acknowledges this recommendation.

Since the conclusion of this audit, corrective maintenance/repair records within EAM have become significantly more detailed and now provide management with enhanced visibility into the status of related workorders for the purpose of enhanced monitoring and oversight. More specifically, there is now a PowerBI Dashboard that details, for management, the compliance rates of various repair work orders (including but not limited to those associated with CCTVs, under RSS). This dashboard details both completed and open work orders, as well as the average days to close for different priority level tickets. Under the Open WOs (i.e., the orange box shown in the image below), when clicking on that box, all of the details of each open work order populate, including the number of days the work order has been open.

Unscheduled Work Order Analysis for Date Reported of 07/01/2023 to 12/31/2023

Open Unscheduled WOs	Completed Unscheduled WOs	Equipment Repeats Requiring Unscheduled Work (Past 180 Days)	Labor Hours for Unscheduled WOs	Average Days to Close			
				Pri. 1	Pri. 2	Pri. 3	Pri. 4-5
63	3,106	494	25,612	0	5	5	6

This dashboard is reviewed daily by EMD management to effectively track and monitor the overall status of repair work orders to identify trends, investigate individual work orders as needed, and effectively initiate corrective action, if needed.

Given the availability of this information, it would no longer make business sense to have EMD management enter each individual open repair ticket, daily, to continually assess and reassess the reason(s) why each remains open (e.g., if a ticket were open due to an obsolete part needing to be fabricated, and that fabrication was going to take 30 days, it would add no value to have EMD management review that same ticket, daily, while the fabrication was taking place, for the purpose of continually reassessing its status, along with potentially hundreds of other open repair tickets). In turn, EMD management will continue to keep an active eye on open repair tickets by monitoring this dashboard daily and as needed investigate the more detailed data of open work orders by drilling down within the dashboard.

Recommendation No. 8:

Ensure compliance with the requirement that employees use their access card to enter and exit tunnels in subway stations.

MTA Response:

Transit agrees with this recommendation.

The Department of Security and the Department of Subways are committed to actively investigating methods to enhance employee utilization of access cards in subway station environments. The common goal is to reduce the number of false alarms while maintaining operational efficiency and ensure employee compliance.

Transit will reinstruct employees to comply.

Recommendation No. 9:

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MTA Response:

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Recommendation No. 10:

Work with other departments to require employees to swipe their access card with LIDS.

MTA Response:

Transit agrees with this recommendation.

Leadership from both the Department of Security and the Department of Subways agree that there would be operational efficiency benefits gained from command center personnel in both departments having fewer "False Alarms – Employee Events." Transit will reinstruct employees to comply.

Recommendation No. 11:

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MTA Response:

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Recommendations No. 12:

Develop a mechanism to review blank videos to ensure that unauthorized individuals did not act unlawfully.

MTA Response

Transit disagrees with this recommendation.

On average, 99% of NYCT's cameras within the network are operational at any given time and HPI numbers are at 98%. The Department of Security does not agree that investigating every "blank" video request would be a worthwhile endeavor or business process improvement. The root cause of the blank video is typically caused by buffering delays and most likely not the result of unauthorized personnel removing our video.   Because buffering is intrinsic to this type of technology, the SCC has work arounds to resolve the issue when necessary. Furthermore, the SCC has multiple tips and workarounds for opening live and recorded video. There are always other personnel available 24/7 that can assist if an analyst is unable to populate a video.

Comment 10

Recommendations No. 13:

Investigate the reason why alarm records were not in PSIM within the 6-month period.

MTA Response

Transit agrees with this recommendation and notes that it has already been implemented.

In response to the audit findings, the Department of Security contacted its PSIM integrator on May 23rd, 2023, to further investigate the reason why one of the sampled alarm records from this audit (that would have been expected to be in the PSIM) was not in the PSIM. The investigation found that there are very rare cases where this can occur (e.g., if integration is down at the time of an incident). In most cases, alarm events will resync; however, in extreme cases, it is possible that our integrator may have to purge events from the queue to restore normal operations to our system.

Recommendation No. 14:

Ensure that both open and closed email notifications are sent to the notification group.

MTA Response:

Transit agrees with this recommendation and notes that it has already been implemented.

In response to the audit findings, the Department of Security took the following measures to ensure that both open and closed notification are consistently sent to the notification group going forward:

- **Notification System Enhancement:** Upgraded the notification system to ensure both open and closed notifications are sent to the designated notification group. This included implementing checks and controls to verify the accuracy and completeness of the notifications before they are dispatched.

- **Monitoring and Self-Assessing:** Established monitoring mechanisms to track the delivery of notifications and perform regular self-assessments to ensure that both open and closed notifications are consistently sent to the notification group. This allows us to promptly identify and rectify any issues that may arise.

- **Feedback and Continuous Improvement:** Encouraged feedback from the notification group and other stakeholders to identify areas for improvement.

Recommendation No. 15:

Ensure staff record sufficient details in the Equipment Malfunction Log and the memo book for tracking the status of equipment malfunctions.

MTA Response

Transit agrees with this recommendation.

The Department of Security recognizes that robust documentation is essential for the effective tracking and resolution of equipment malfunctions and is committed to fostering a culture of meticulous recordkeeping. Going forward, management from the Department of Security will ensure that sufficient details regarding equipment malfunctions are recorded in the EML log and Field Operations Agents Post Activity Logbooks.

Recommendations #16:

Prioritize the repairs of equipment malfunctions.

MTA Response

Transit acknowledges this recommendation.

The Department of Security acknowledges the audit findings and recognizes the critical need to promptly address malfunctioning security equipment (e.g., CCTV systems, communication devices, perimeter fencing, gates, traffic-control arms, etc.). To enhance operational efficiency and assist those responsible for handling security-equipment repairs, the Department of Security will recommend a prioritization level when reporting equipment malfunctions to the respective equipment maintenance owner based upon Security's risk management assessment. However, the ultimately responsibility for determining appropriate work prioritization resides with the maintenance owner.
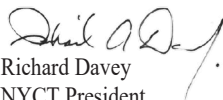
<p style="text-align:center">*   *   *</p>

We appreciate OSC's work and consideration of this response in issuing a final report. In the interim, should the auditors need any additional information or have any questions, they should reach out to the designated agency contacts handling this audit.

Very truly yours,

Richard Davey
NYCT President

cc: Monica A. Murray, NYCT Chief Administrative Officer
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State Comptroller's Comments

1. During the audit, MTA staff told auditors that delays were caused by a lack of available SBMP contractors, and seem to acknowledge such delays by stating "there can occasionally be instances where there may be a delay that results from the MTA's strong investment in supporting healthy and productive relations with its small business partners." Moreover, in response to our preliminary findings, the agency stated that measures were instituted to increase the pool of available contractors, adding as an example that general contractors are now allowed to bid on trade-specific contracts "as long as they hire appropriate employees to perform the work of the appropriate trade."

2. The finding states that five projects were not started within the time frames of 2010–2014 and 2015–2019, both of which are prior to the pandemic. While the pandemic may have further delayed these projects, it does not explain why three of the projects were not started within the time frames specified.

3. MTA replied that maintenance, inspections, and repairs were not always done during the period covered by the audit due to certain conditions (e.g., the pandemic) that were not under its control. Officials point out there is a small group of employees responsible for about 280,000 pieces of equipment. We are aware of the magnitude of the work to be completed by EMD. However, we identified several of the same conditions during our prior audit "Selected Safety and Security Equipment at Subway Stations" (2016-S-92) issued April 12, 2018. For example, we found that 31% of the expected PM visits for CCTV cameras at 10 sampled stations were not done. One of the reasons was staff resources. The fact that these conditions remain several years later indicates that the MTA needs to reassess its response.

4. The monitoring contractor was in place during our prior audit, yet we still found that repairs were not being made within the 3-day target. Therefore, the restoration of the monitoring HPI functionality, by itself, is likely not enough to address the issue of timely repairs when the equipment is not working.

5. In response to our preliminary findings, Transit officials explained why PMs were not done but did not provide any supporting documentation. They added that they are working with EAM officials to include a comment column to document actions/conditions negatively impacting maintenance operations for all service calls and PMs.

6. MTA officials are incorrect. The change in the required frequency for PMs during the audit period was taken into consideration in our review of the work performed.

7. We reviewed trouble tickets that were not addressed in a timely manner to identify the reasons and determine whether MTA Transit identified the cause and developed a corrective action plan. The trouble tickets that were addressed in a timely manner met management's criteria and, as such, were not included in our audit tests.

8. The outstanding trouble ticket was not for an HPI. The trouble tickets included multiple equipment types such as emergency booth communication systems, fire alarms, and CCTV systems. The documentation supports that the delay was over 2 years. Moreover, we do not have any record of a request from Transit for the details.

9. It is difficult to fix a problem without understanding its cause. The MTA should consider if there are alternative solutions to manually entering information.

10. We did not recommend "all blank videos should be reviewed." Rather, DOS officials should consider periodically reviewing a sample of blank videos to confirm the causation rather than assuming it is due to buffering.

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