City of New York

OFFICE OF THE COMPTROLLER

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COMPTROLLER

MANAGEMENT AUDIT

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Follow-up Audit Report on New York City Transit's Efforts to Inspect, Repair, and Maintain Elevators and Escalators

MJ12-129F
September 25, 2013
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THE CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
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September 25, 2013

Dear Residents of the City of New York:

My office has audited the New York City Transit's (NYCT) efforts to implement the 17 recommendations made in a previous audit, *Audit Report on New York City Transit Efforts to Inspect, Repair and Maintain Elevators and Escalators* (#MJ10-065A), issued July 23, 2010. We perform follow-up audits of City operations as a means of increasing accountability and ensuring that City resources are used effectively, efficiently, and in the best interest of the public.

This audit noted that NYCT has made improvements in addressing weaknesses and inefficiencies in its efforts to maintain, inspect, and repair subway station elevators and escalators that were disclosed in the prior audit. Of the 17 recommendations made in the previous audit, NYCT implemented 11 and partially implemented five. One other was no longer applicable. However, we found that NYCT needs to improve its response time to address and remediate Type A (critical) defects and has not developed a standard timeframe within which Type B (non-critical) deficiencies are to be addressed. Further, while NYCT performed *most* required safety inspections and tests, it needs to ensure that *all* such inspections and tests are performed as required.

To address these weaknesses, the audit makes eight recommendations, including that NYCT should (1) ensure that all required safety inspections and tests are performed as required and that second or additional inspections, if required, are conducted at the time intervals prescribed by established criteria and (2) work to improve the response time to addressing and remediating critical defects. In addition, NYCT should develop a standard timeframe within which non-critical deficiencies are to be addressed and corrected.

The results of the audit have been discussed with NYCT officials, and their comments have been considered in preparing this report. Their complete written response is attached to this report.

If you have any questions concerning this report, please email my Audit Bureau at audit@comptroller.nyc.gov.

Sincerely,

John C. Liu

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AUDIT REPORT IN BRIEF

This follow-up audit determined whether New York City Transit (NYCT) implemented the 17 recommendations made in a previous audit, *Audit Report on New York City Transit Efforts to Inspect, Repair and Maintain Elevators and Escalators* (#MJ10-065A), issued July 23, 2010.

NYCT is the largest agency in the Metropolitan Transportation Authority's (MTA) regional transportation network. NYCT operates 24 subway lines that connect 468 active stations throughout four of the City's five boroughs. The NYCT subway serves an average of 4.5 million riders daily. The NYCT Division of Elevators and Escalators (E&E) is responsible for ensuring that all elevators and escalators in subway stations and other NYCT facilities are clean, safe, and reliable. To respond to outages as they occur, E&E operates 24 hours a day, 365 days a year.

The prior audit disclosed weaknesses and inefficiencies that inhibited and, at times, rendered inadequate E&E's efforts to maintain, inspect, and repair station elevators and escalators. While the NYCT E&E was found to have a comprehensive program for the operation of subway station elevators and escalators, it did not ensure that all required preventive and scheduled maintenance system work was performed consistently. Although inspection records revealed that a significant portion of required equipment inspections were performed, five-year safety tests were lacking. Further, NYCT did not have sufficient credible data to adequately assess its performance regarding the repair and maintenance of elevator inspections.

Audit Findings and Conclusions

This audit determined that overall NYCT has made improvements in addressing weaknesses and inefficiencies in its efforts to maintain, inspect, and repair subway station elevators and escalators that were disclosed in the prior audit. Specifically, we determined that of the 17 recommendations made in the previous audit, NYCT implemented 11 (#'s 1, 3, 5, 6, 8–12, 16, and 17), partially implemented five (#'s 2, 7, 13, 14, and 15), and one other (#4) was no longer applicable. However, we found that NYCT needs to improve its response time to address and

remediate Type A (critical) defects and has not developed a standard timeframe within which Type B (non-critical) deficiencies are to be addressed. Further, while E&E performed *most* required safety inspections and tests, it needs to ensure that *all* such inspections and tests are performed as required.

Audit Recommendations

To address these weaknesses, the audit makes eight recommendations, including that NYCT should:

- Ensure that all instances of non-performance of scheduled preventive maintenance assignments are appropriately investigated and followed up on.
- Ensure that all required safety inspections and tests are performed as required and that second or additional inspections, if required, are conducted at the time intervals prescribed by established criteria.
- Work to improve the response time to addressing and remediating Type A defects. In addition, develop a standard timeframe within which Type B deficiencies are to be addressed and corrected.

Agency Response

NYCT officials agreed with all eight of the audit's recommendations, stating that they will continue their efforts to achieve full implementation of the recommendations.

INTRODUCTION

Background

NYCT is the largest agency in the MTA's regional transportation network.[1] NYCT operates 24 subway lines that connect 468 active stations throughout four of the City's five boroughs. The NYCT subway serves an average of 4.5 million riders daily.

To enable passengers with physical mobility impairments to access the subway and to facilitate the movement of passengers through the system, elevators and escalators are installed at select stations considered to benefit the most people, based on such factors as high ridership, presence of transfer points, and service to major areas of activity. As of July 25, 2012, there were 239 elevators and 180 escalators (including two power walks) installed at stations throughout the City. NYCT follows elevator and escalator safety standards established by the American Society of Mechanical Engineers (ASME), a nationally-recognized organization.

The NYCT Division of Elevators and Escalators (E&E) is responsible for ensuring that all elevators and escalators in subway stations and other NYCT facilities are clean, safe, and reliable. To respond to outages as they occur, E&E operates 24 hours a day, 365 days a year.

E&E consists of a central office, an Inspection Unit, and four zone shops. The zone shops are each overseen by a superintendent and are directly responsible for maintaining elevators and escalators within each of their respective geographic zones (Zones 1-4).[2] The E&E Inspection Unit operates independently of the zone shops and is solely responsible for carrying out required safety inspections and tests of elevators and escalators, hoists, moving walks, and other related equipment in the stations and other NYCT facilities.

The E&E central office oversees the status of elevators and escalators via the Lift-Net Remote Monitoring System (Lift-Net), dispatches emergency work crews to reported outages, and records and tracks the status of all equipment outages through its central control desk and related computerized systems. Most station elevators and escalators are connected through telephone lines to Lift-Net, which enables the central control desk to remotely monitor the status of connected equipment. Lift-Net is designed to record all detected outage events in an automated event log.

When an outage is remotely detected in Lift-Net, central control desk staff record the outage in the Elevator and Escalator Reporting and Maintenance System (EERMS), which is used by E&E to record and track elevator and escalator outages and repairs. EERMS also records preventive maintenance and repairs performed by E&E staff. Defects identified through inspection and maintenance reports are entered into EERMS, which generates work orders that are assigned to repair crews in the appropriate zones. When work is completed, the repair information is updated in EERMS and the work order is closed.

[1] The subsidiary or affiliated agencies of the MTA include New York City Transit, Long Island Rail Road, Metro-North Railroad, Staten Island Railroad, Long Island Bus, MTA Bridges and Tunnels, MTA Bus Company, and MTA Capital Construction Company. They service the MTA regional transportation network, which encompasses the City of New York as well as Dutchess, Nassau, Orange, Putnam, Rockland, Suffolk, and Westchester counties.

[2] Zone 1 encompasses the Bronx and upper Manhattan; Zone 2, most of midtown Manhattan; Zone 3, downtown Manhattan and Brooklyn; and Zone 4, Queens, Roosevelt Island, and a small part of midtown Manhattan.

This report is based on a follow-up audit we conducted to determine whether NYCT had implemented the recommendations made in a previous audit, *Audit Report on New York City Transit Efforts to Inspect, Repair and Maintain Elevators and Escalators* (#MJ10-065A), issued July 23, 2010. The prior audit disclosed weaknesses and inefficiencies that inhibited and, at times, rendered inadequate E&E's efforts to maintain, inspect, and repair station elevators and escalators. While the NYCT E&E was found to have a comprehensive program for the operation of subway station elevators and escalators, it did not ensure that all required preventive and scheduled maintenance system work was performed consistently. Although inspection records revealed that a significant portion of required equipment inspections were performed, five-year safety tests were lacking. Further, NYCT did not have sufficient credible data to adequately assess its performance regarding the repair and maintenance of elevator inspections. Not all outages were recorded in EERMS, raising questions about the reliability of the elevator and escalator performance statistics. The prior audit also noted that Lift-Net may have had problems and E&E did not ensure that it retained evidence of maintenance and repair work performed. Finally, E&E lacked formal operating procedures and needed to strengthen the supervisory oversight and monitoring of its work crews.

In this report, we discuss the recommendations from the prior audit as well as the current implementation status of each of those recommendations.

Objective

The objective of this follow-up audit was to determine whether NYCT implemented the 17 recommendations made in the prior audit.

Scope and Methodology

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. This audit was conducted in accordance with the audit responsibilities of the City Comptroller as set forth in Chapter 5, §93, of the New York City Charter.

Overall, the audit scope covered January 1, 2011, through December 31, 2012. Please refer to the Detailed Scope and Methodology section at the end of this report for the specific procedures and tests that were conducted.

Discussion of Audit Results

The matters covered in this report were discussed with NYCT officials during and at the conclusion of this audit. A preliminary draft report was sent to NYCT officials on July 23, 2013, and discussed at an exit conference held on July 30, 2013. We submitted this draft report to NYCT officials with a request for comments. We received a written response from NYCT officials on August 30, 2013. In their response, NYCT officials agreed with all eight of the audit's recommendations, stating that they will continue their efforts to achieve full implementation of the recommendations.

The full text of the NYCT response is included as an addendum to this report.

RESULTS OF FOLLOW-UP AUDIT

Overall, NYCT has made improvements in addressing weaknesses and inefficiencies in its efforts to maintain, inspect, and repair subway station elevators and escalators that were disclosed in the prior audit. In this audit, we determined that of the 17 recommendations made in the previous audit, NYCT implemented 11 (#'s 1, 3, 5, 6, 8–12, 16, and 17), partially implemented five (#'s 2, 7, 13, 14, and 15), and one other (#4) was no longer applicable. However, we found that NYCT needs to improve its response time to address and remediate Type A (critical) defects and has not developed a standard timeframe within which Type B (non-critical) deficiencies are to be addressed. Further, while E&E performed *most* required safety inspections and tests, it needs to ensure that *all* such inspections and tests are performed as required. These matters are discussed in greater detail in the following sections of this report.

Previous Finding: "Weaknesses in Preventive and Scheduled Maintenance Activities"

The previous audit found that NYCT did not ensure that all required Preventive Maintenance (PM) service was consistently performed each month on passenger elevators and escalators. Overall, 21 of the 39 sampled equipment devices were not consistently maintained by PM teams more than 25 percent of the time.

Similarly, the prior audit disclosed that NYCT did not consistently perform Scheduled Maintenance Service (SMS)[3] as scheduled nor was it appropriately documented. Zone shop procedures varied for documenting completed SMS work; not all zones had work completion reports. Consequently, the absence of these reports resulted in a lack of accountability and evidence to support the completion of SMS tasks.

> ***Previous Recommendation #1***: "Ensure that required PM and SMS work is performed and that all such work is appropriately supported by PM and SMS work reports that are signed off both by the work teams and their respective supervisors."
>
> ***Previous NYCT Response***: "[A]s of June 1, 2010 the SMS portion of the maintenance program has been modified . . . components that are beginning to show signs of wear will be identified and replaced as part of a more aggressive preventive maintenance program. Furthermore, in accordance with the recently revised American Society of Mechanical Engineers (ASME A17.1- safety code for elevators and escalators (section 8.6.1.2) the Elevator and Escalator (E&E) subdivision will confirm to the newly revised standard by revising the preventive maintenance frequencies of each individual machine. . . . Beginning in August 2010 the SMS workforce will focus on ASME inspections and performance of the revised preventive maintenance program, ensuring that we are in compliance with established intervals and schedules."
>
> **Current Status:** IMPLEMENTED

According to NYCT officials, starting in August 2010, SMS work was no longer performed as a separate function. All SMS work was incorporated into NYCT's PM program and the workforce

[3] The purpose of the SMS was to (1) predict the useful life of the major components, based on equipment type, manufacturers' recommendations, historical data, and the potential impact of the failure and (2) schedule replacement of these components before they are expected to fail.

previously assigned to SMS was reassigned to perform inspections and/or preventive maintenance. Consequently, components requiring replacement are now identified during planned PM service assignments and are scheduled for replacement based on ASME criteria, which include: (a) equipment age, condition, and accumulated wear; (b) design and inherent quality of the equipment; (c) usage; (d) environmental conditions; (e) improved technology; and (f) manufacturer recommendations.

In March 2011, NYCT implemented a new procedure changing the frequency of required PM service assignments, based on the machine type rather than its former procedure of performing PM based on fixed monthly, weekly, and annual PM tasks. Accordingly, each supervisor has a "Weekly Maintenance Schedule" that lists each elevator and escalator for which s/he is responsible, along with the machine type, required PM service frequency, and level of PM that is scheduled for each machine for the entire year.

Our review determined that in 2011, NYCT appropriately scheduled 495 PM service assignments for the 57 (28 elevators and 29 escalators) machines in our sample. Of the 495 scheduled PM service assignments, 483 (98 percent) of them were completed, according to PM reports and EERMS. (PM reports existed for all but one of them.) Of the 482 PM reports provided, we found that all 482 had been signed by the maintenance teams and 464 (96 percent) were signed by supervisors. Based on these results, we considered the prior recommendation to be implemented.

> ***Previous Recommendation #2:*** "Document instances of and justifications for not performing scheduled PM and SMS work. These reports should be approved by a supervisor and communicated to the zone superintendents. The General Superintendent should also be notified of all instances in which PM and SMS work is not performed."
>
> ***Previous NYCT Response***: "We concur. The current practice for documenting Preventive Maintenance that is not performed in the Elevator and Escalator (E&E) sub-division requires the responsible maintenance supervisor to submit a PM report which indicates in the remarks section an explanation for non conformance. These reports are required to be reviewed by the Zone Superintendents. A monthly maintenance compliance report will be submitted to the General Superintendent and the Assistant Chief starting September 2010. This report will enable management to know that required maintenance is being kept up to date."
>
> **Current Status:** PARTIALLY IMPLEMENTED

According to officials, NYCT now requires each maintenance supervisor to submit to his or her superintendent a weekly maintenance tracking sheet for each machine (elevator and escalator) for which s/he is responsible, detailing the status and dates of the PM service scheduled and performed. If a scheduled PM assignment is not performed, the maintenance supervisor must provide an explanation.

To obtain assurance that this procedure was implemented and is consistently followed, we requested from NYCT the weekly maintenance tracking sheets for the 12 PM assignments that were scheduled but not performed (previously discussed). However, NYCT only provided us with four of the 12 tracking sheets. Of these four, three were signed and dated by a supervisor, and one was not. We asked NYCT for evidence reflecting the superintendents' review of the supervisors' weekly tracking sheets and any actions taken. However, none was provided.

The results of our test provided evidence that NYCT requires non-performance of scheduled PM work to be documented and explained. However, because NYCT did not have weekly tracking sheets signed by a supervisor for all 12 instances for which PM service was not performed, we consider the prior recommendation to be only partially implemented.

> ***Previous Recommendation #3:*** "For each elevator and escalator, keep track of and investigate repeated periods of nonperformance of PM and SMS work."
>
> ***Previous NYCT Response***: "We concur. The E&E subdivision will implement a Departmental Policy of not missing two consecutively scheduled PM's on any machine. This effort will begin September 1, 2010."
>
> **Current Status:** IMPLEMENTED

Officials stated that NYCT implemented a new policy of not allowing more than two consecutively scheduled PM service assignments to be missed on any machine. Officials did not have evidence to establish the effective date of this policy. Instead, we were provided with a February 19, 2013, email sent by the Assistant Chief Officer of Elevators and Escalators to all supervisors and all zone superintendents to remind them of this requirement. Regardless of the actual implementation date of the new policy, we found that the Maintenance Schedules kept by each supervisor clearly list all the PM service assignments that are scheduled and performed. The schedule for each supervisor lists the machines for which s/he is responsible in his/her zone along with the PM level of service scheduled and completed for each apparatus throughout the year. If appropriately and consistently completed as required, these schedules provide a means for supervisors and management to track repeated periods of non-performance of PM work.

> ***Previous Recommendation 4***: "Standardize SMS work crew reports and require that all zone shops use the same format."
>
> ***Previous NYCT Response***: "We concur. The current SMS reports were standardized amongst all four zones; however, there was no tracking of what SMS reports were received. Effective September 2010, the SMS function will be incorporated into a restructured maintenance program. The scheduled replacement of components will be documented in the work order system."
>
> **Current Status:** NO LONGER APPLICABLE

According to NYCT officials, in June 2010, E&E integrated SMS work into its revised preventive maintenance program and the SMS staff was reassigned to PM activities. Because SMS work is no longer performed as a separate function and SMS work crew reports are no longer required or used, the prior recommendation is no longer applicable.

Previous Finding: "Weaknesses in Inspections"

NYCT elevator and escalator inspections are conducted in accordance with the ASME (§A17.1) "Safety Code for Elevators and Escalators." [4] Accordingly, NYCT requires that each elevator undergo two safety inspections each year, six months apart—a routine (visual) inspection and a periodic inspection (no-load safety test)—and a five-year (full-load) safety test once every five years. NYCT also requires that each escalator undergo a routine and periodic inspection each year, also six months apart. [5]

The previous audit found that although a significant portion of required inspections were performed, five-year safety tests were lacking. Specifically, in 2008, five-year tests were performed on 82 percent of the elevators scheduled, but in 2009, only 27 percent of scheduled five-year elevator tests were performed. For both 2008 and 2009, the actual number of inspections performed by the Inspection Unit fell short of its annual goal of 744 safety inspections and tests per year. Moreover, the gap between the target inspection goal and the number of inspections required grew from 2008 and 2010.

The prior audit also noted that the Inspection Unit's level of personnel combined with the unit's work hours and the scheduling of inspections was inadequate to ensure that, at minimum, the inspection goals would be met. Inspection teams worked during the day shift between the hours of 7 a.m. to 3 p.m., Tuesday through Saturday. However, because NYCT rules prevented the inspection teams from taking equipment out of service for inspection before 10 a.m., three hours into the workday, inspection teams incurred unproductive downtime plus any additional overtime to address inspection backlogs.

> ***Previous Recommendation 5***: "Immediately perform the five-year tests on elevators that were scheduled but not tested in 2008 and 2009."
>
> ***Previous NYCT Response***: "We concur. The referenced tests will be completed by end of July, 2010"
>
> **Current Status:** IMPLEMENTED

Our review of the completed inspection reports associated with the 39 elevators for which five-year inspections were required but not performed in 2008 and 2009 showed that NYCT performed the five-year tests on those elevators between June 1, 2010, and July 27, 2010.

> ***Previous Recommendation 6***: "Explore the feasibility of rescheduling inspections to the overnight shift, assign equipment that are in the same or in nearby stations, and require work crews to perform two inspections per shift to ensure that all safety inspections and tests are performed on elevators and escalators."
>
> ***Previous NYCT Response***: "We concur. On the new E&E subdivision job pick, the inspection team will perform their work on the 10:00 p.m. – 6:00 a.m. tour."
>
> **Current Status:** IMPLEMENTED

[4] As a New York State public authority, the MTA and its NYCT affiliate agency are not covered by the City's Administrative Code or the Department of Buildings' rules and regulations for elevator and escalator safety, which are also aligned with ASME standards.

[5] A "no-load" safety test involves running an elevator empty and unloaded, whereas a "full-load" test requires that the elevator be run at its maximum load capacity.

Our review of inspection reports and related documentation associated with the 57 sampled machines for 2011 provided sufficient evidence to confirm that as of January 30, 2011, NYCT's Inspection Unit staff was reassigned to perform elevator and escalator inspections during the overnight shift between the hours of 10:00 p.m. and 6:00 a.m.

We found that of the 122 inspection reports for 2011 for the 57 sampled machines, 114 (93 percent) of the reports indicated that Inspection Unit staff performed the inspections between 10 p.m. and 6 a.m. Three inspection reports (2 percent) showed that the inspections were conducted during the day shift (from 8 a.m. to 1 p.m.) prior to January 30, 2011. Five other reports (4 percent) did not indicate the time the inspections occurred. Overall, as a result of performing inspections at night rather than during the day, NYCT performed the required periodic and routine inspections and five-year tests on the respective 57 sampled machines for 2011.

> ***Previous Recommendation 7***: "Reassess and restate its monthly and annual inspection goals to align them with the actual number of inspections required each year."
>
> ***Previous NYCT Response***: "We concur. The annual inspection goals will be set based on the actual number of required inspections."
>
> **Current Status:** PARTIALLY IMPLEMENTED

E&E officials stated that elevator and escalator inspection goals are now established to reflect the number of actual inspections required by the existing machines. According to inspection records for 2011, E&E's overall inspection goal was set at 820 inspections for the year. However, an evaluation of E&E's records showed that 866 total inspections were actually *required* in 2011 for 413 machines (233 elevators 178 escalators, and two power walks), given their status and service dates. Specifically, 411 machines required both a periodic and a routine inspection; two machines required a routine inspection only (they were new installations and were not due for a periodic inspection until 2012); and 42 elevators were scheduled to undergo a five-year safety test (822+2+42=866).

E&E completed 831 (96 percent) of the 866 required inspections as well as 36 second inspections of machines previously inspected. However, these second inspections mostly occurred between one to four months after the initial inspection, which is not in compliance with ASME, which prescribes that inspections be performed six months apart.

By aligning its goals closer to the actual number of inspections required, E&E nearly met the goal of required inspections for 2011. However, it still needs to ensure that all required inspections are performed in accordance with ASME standards.

Previous Finding: "Weaknesses in Repair Performance"

The prior audit noted that NYCT reported nearly meeting its elevator and escalator availability goals for calendar year 2009. However, there were strong indications that not all outages were recorded in EERMS. Therefore, questions were raised about the reliability of data supporting E&E's performance statistics. Additionally, the prior audit disclosed weaknesses with Lift-Net, including indications of potential problems with its ability to remotely detect and record all outages of station elevators and escalators connected to the server through telephone lines.

Another noted concern was that Lift-Net data was not backed up. Further, the prior audit found that E&E did not consistently maintain evidence to reflect the completion of various repair and maintenance tasks.

> ***Previous Recommendation 8***: "Ensure that all outages and related deficiencies are recorded in EERMS."
>
> ***Previous NYCT Response***: "We concur. The E&E subdivision's control desk functions including the Elevator Escalator Reporting Maintenance System known as EERMS will be relocated to a central area at 40 Sands Street. The E&E subdivision is currently working on developing procedures which will detail the control desk process and improve the process of reporting of outages and dispatching personnel. This consolidation will take place in conjunction with the 2010 employee job pick."
>
> **Current Status:** IMPLEMENTED

In May 2011, E&E instituted a new central control desk procedure that details the duties of control desk personnel and supervisors responsible for monitoring Lift-Net for outages, entering data into the EERMS database, and dispatching repair teams to take corrective action. To assess the effectiveness of this new procedure, we reviewed the machine room logs, along with related EERMS reports and Lift-Net records, for 20 sampled machines (of the original sample of 57) for the months of July and August 2012. We found that 183 (92 percent) of 199 events (entries) identified as outages had been recorded in EERMS. However, there remained 16 events (8 percent) that went unrecorded in EERMS, indicating that control desk personnel may need to be reminded of the importance of ensuring that all outages be recorded in EERMS.

> ***Previous Recommendation 9***: "Periodically compare samples of availability and reliability data to source documents (inspection reports, PM and SMS reports, and machine room logs) to test the accuracy of performance data reflected in reports used by NYCTA and MTA management."
>
> ***Previous NYCT Response***: "We concur. The E&E subdivision will implement an internal process that will require each Zone Superintendent to perform one audit per month to ensure all maintenance, inspections and machine room log book entries are recorded accurately and each instance is consistently recorded in the EERMS and Lift-Net applications."
>
> **Current Status:** IMPLEMENTED

In July 2012, E&E implemented a new procedure requiring that audits be conducted of a sample of machines each month to verify that PM procedures are followed and to ensure that all associated database entries, log book entries, and Lift-Net entries correspond with the inspections and maintenance work performed.

An analyst was assigned to perform these audits. In general, one or two machines per zone are selected each month for audit, resulting in a total of four to eight monthly audits. There is no established criterion for selecting machines to be audited. The audits determine whether monthly maintenance sheets are properly completed and filed, outages are documented in EERMS, recorded in Lift-Net, and corresponding entries appear in machine room logs.

Any issues or discrepancies found during the audit are to be communicated in a report to the E&E General Superintendent, who is required to investigate and prepare a report addressing the cited issues and describing the corrective actions taken.

We reviewed 16 audit reports conducted in July and August 2012, along with their supporting documentation of which five had cited issues. For the latter reports with cited issues, we found that the General Superintendent had obtained the required written employee statements and issued a brief report to the Assistant Chief Officer explaining the cause of the discrepancies or errors and, if applicable, corrective actions employed to address the noted issues.

> ***Previous Recommendation 10***: "Establish procedures and train all EERMS users in those procedures, particularly control desk clerks, supervisors, and others responsible for entering data into the database."
>
> ***Previous NYCT Response***: "We concur. With the consolidation of the Electro-Mechanical Control Desk functions, procedures are being written for all tasks pertaining to the functionality of the control desk. This consolidation will take place in conjunction with the 2010 employee job pick. Electro-Mechanical is currently working with Human Resources Training to make the EERMS a part of the training curriculum for all new E&E employees."
>
> **Current Status:** IMPLEMENTED

In May 2011, E&E instituted a new procedure spelling out the roles and duties of central control desk personnel and supervisors responsible for monitoring Lift-Net for machine outages, entering data into the EERMS database, and dispatching repair teams to take corrective action. We found the procedure to be succinct in explaining central control desk staff and supervisor responsibilities and providing instructions on how to perform tasks and guidance to address Lift-Net problems. Further, our review of training session attendance sheets showed that both central control desk personnel and supervisors have been trained in the new procedure.

> ***Previous Recommendation 11***: "Investigate, diagnose and take action to correct the shortcomings of Lift-Net, reporting outages including telecommunication issues, system problems, and inconsistencies in reporting outages."
>
> ***Previous NYCT Response***: "We concur. As previously stated, the Electro-Mechanical subdivision control desk consolidation will be located [in Brooklyn]. This location currently has a fiber optic hub that will facilitate improved operation and response of the Lift-Net remote monitoring system. The Electro-Mechanical ACIO will request permission for Electro-Mechanical equipment reporting to have fiber optic connectivity."
>
> **Current Status:** IMPLEMENTED

In 2011, the E&E central control desk and other related functions were moved to Brooklyn. According to NYCT officials, to address the problems with Lift-Net not detecting and recording all machine outage events, four additional phone lines were installed, making a total of eight lines connecting the elevators and escalators with the Lift-Net server, which had also been moved to Brooklyn. We confirmed that the new lines had indeed been installed in September 2011. Moreover, our review of machine room logbook entries for July and August 2012 associated with the previously mentioned 20 sampled machines found that 95 percent of the

identified outages had been recorded in Lift-Net. These results show a marked improvement from the prior audit when we found that only 61 percent of tested outages had been recorded in Lift-Net. Consequently, we are reasonably assured that the communication issues between the elevators and escalators and Lift-Net have been remediated.

In addition, officials stated that as a pilot program to enhance connectivity, as of February 2012, the E&E and Telecommunications Division converted the connections between Lift-Net and the elevators and escalators in both the Brooklyn Bridge and Bowling Green stations from dial-up to broadband. According to E&E officials, the average transmission and response time between the machines at these two stations and Lift-Net using broadband was faster than the dial-up lines. E&E officials also said that they plan to try to gradually install broadband at more stations in the future.

> ***Previous Recommendation 12***: "Immediately back up Lift-Net data and establish a standard back-up routine to ensure that the system data is saved on a weekly, monthly, and annual basis, as deemed appropriate by NYCT management and existing records retention policies."
>
> ***Previous NYCT Response***: "We concur. E&E subdivision is currently working with TIS to develop a plan of action for servicing the Lift-Net remote monitoring system. This service will include automatically backing up the system on a consistent basis."
>
> **Current Status:** IMPLEMENTED

As part of the E&E's central control desk relocation, in April 2011, the Lift-Net server was moved from Manhattan to Brooklyn. According to officials, a program was added to automatically back up the Lift-Net data to an external drive, which is fire- and water-proof and stored on site. One full-system backup and two incremental back-ups are performed weekly through the automated process. In addition, E&E officials stated that since March 2012, all Lift-Net data has been saved to the EERMS database. This allows for E&E to readily access Lift-Net outage event logs and data in the event that the Lift-Net server is not accessible. Moreover, the EERMS database is backed up daily by NYCT's Telecommunications and Information Systems department.

As part of our testing, we validated that Lift-Net data was written accurately into EERMS. Specifically, we compared the Lift-Net event log for five sampled machines for the month of June 2012 to the Lift-Net data copied to the EERMS database. We found that the information in both systems generally matched.

> ***Previous Recommendation 13***: "Ensure that all required documentation reflecting work performed by field crews (inspection, PM and SMS reports and machine room logs) are completed by work crews and retained. Also, require that some record of repair crews' completed work assignments be regularly maintained."
>
> ***Previous NYCT Response***: "We concur. Once the E&E subdivision implements the internal audit outlined in recommendation #9, we will be able to ensure that all documentation is tracked, recorded and stored for future reference."
>
> **Current Status:** PARTIALLY IMPLEMENTED

NYCT has improved its filing and tracking practices to provide assurance that documentation of work performed by work crews are appropriately signed off, stored, and maintained. We observed that all inspection and PM reports related to the 57 sampled machines were kept on

file in cabinets located in the E&E office, neatly organized by machine number and year. Further, we noted that E&E now requires that repair crews' work assignments must be documented in EERMS in detail, including the description of work performed, the names of the employees involved, and the date of the assignment.

As to the completion of required reports and documentation, we found that E&E made improvements, yet it needs to ensure that all documentation is appropriately completed. For our 57 sampled machines, 10 (8 percent) of the 122 inspection reports supporting the completion of required inspections in 2011 were not signed by the maintenance crew. For our sub-sample of 20 machines, machine room logs did not have entries corresponding to 11 (7 percent) of the 163 PM service assignments performed in 2011.

Previous Finding: "Certain Deficiencies Not Addressed Promptly"

At the time of the prior audit, E&E categorized defects observed during an inspection according to their severity. The prior audit report noted that "Type A defects are severe safety hazards that present an immediate danger to customers and require the equipment to be taken out of service until the defects are corrected; Type B defects violate the safety code but are considered minor, do not present an immediate danger to customers, and do not require the equipment to be taken out of service; and Type C are considered minor, do not violate the safety code, and do not require the equipment to be taken out of service."

The previous audit noted that the actual classification of deficiencies (Type A, B, or C) was judgmental; there was no detailed list by which conditions were rated. In addition, E&E did not act quickly to address Type B and Type C deficiencies identified during safety inspections. Moreover, E&E did not have an established timeframe for addressing these deficiencies. Further, there were delays in generating work orders for deficiencies identified during inspections.

> ***Previous Recommendation 14***: "Develop a standard goal for the timeframe within which deficiencies found during inspections are to be addressed; and develop procedures for identifying, prioritizing, assigning, and correcting deficiencies in work orders that remain open past the established time limit."
>
> ***Previous NYCT Response***: "We concur. Defects found during the inspection process will be addressed as follows: Type A defects must be corrected before the machine is restored to service. The E&E subdivision will revisit the scheduling of B & C type defects so they are addressed in an appropriate timeframe. A comprehensive Type A defects listing will be developed and maintained by the E&E operation."
>
> **Current Status:** PARTIALLY IMPLEMENTED

As of September 2010, NYCT developed a comprehensive list of Type A defects that are used in EERMS to identify and prioritize Type A defects, which in turn should also make assigning those defects for repair a priority. Although not a formal measure, officials stated that Type A defects are promptly addressed, usually within one day (within one to two work tours). With regard to the lesser defect types, NYCT eliminated the Type C defect classification, leaving Type B to categorize all defects noted during an inspection that do not pose a danger and can be remediated at a later date.

However, we found that NYCT did not develop a standard goal or timeframe for addressing defects observed during an inspection. Our review of the details of 24 Type A defects associated with our sub-sample of 20 machines during the period January 1–October 13, 2012, and recorded in EERMS found that seven of these defects were accurately classified as Type A. Although NYCT officials stated that Type A defects are generally addressed within one day, we found that NYCT took an average of 46 days (ranging from less than one day to up to 126 days) to address these seven Type A defects. Regarding the remaining 17 defects, we found that they were actually Type B defects, based on the cited condition and had been misclassified as Type A defects.

> ***Previous Recommendation 15***: Ensure that work orders for Type B and Type C deficiencies are addressed in a reasonable amount of time.
>
> ***Previous NYCT Response***: NYCT generally agreed, stating: "We concur. Once the E&E subdivision implements the internal audit outlined in recommendation #9, we will be able to ensure that all documentation is tracked, recorded and stored for future reference, in addition to all defects being corrected in an appropriate timeframe. The current database will be evaluated to assure that we have adequate control functions."
>
> **Current Status:** PARTIALLY IMPLEMENTED

As noted earlier, NYCT eliminated the Type C defect classification, leaving Type B to categorize all defects noted during an inspection that are considered non-critical and can be remediated at a later date. In addition to still not establishing a timeframe for remediating Type B defects, our tests involving work orders demonstrated that NYCT still needs to ensure that work orders for Type B defects are addressed in a reasonable amount of time. Specifically, we noted that of the 1,863 work orders with Type B defects that were identified in 2011 through an inspection and closed as of December 26, 2012 (test date), it took NYCT an average of 179 days (ranging from less than one day up to 689 days) to address the defects and complete (or close) those work orders. Moreover, we found that as of December 26, 2012, NYCT had a backlog of 509 open work orders with Type B defects. Those work orders had remained open an average of 771 days (ranging 10 days up to 1,105 days) and were dated as early as December 17, 2009.

Even though NYCT does not consider Type B defects to be critical, there is a possibility that, if left uncorrected, they could worsen over time and eventually contribute to a machine breakdown.

At the exit conference, NYCT officials told us that since 2011, E&E has worked to address the backlog of open work orders for reported defects while addressing new work orders covering current defects and repair issues. Based on our review of certain minutes from E&E weekly staff meetings, since 2011, E&E has reduced the backlog from 5,317 open work orders to 1,139 as of July 24, 2013, which officials expect to have cleared up by the end of calendar year 2013. Based on this information, we consider the prior recommendation partially implemented.

Previous Finding: "Lack of Formal Operating Procedures"

The previous audit found that while E&E had detailed procedures for performing elevator and escalator inspections and preventive maintenance, it lacked complete administrative and operating procedures for activities carried out by the zone shops, the handing of work orders, recordkeeping, data entry, etc. Moreover, NYCT lacked sufficient supervisory oversight and

monitoring of inspectors, repair workers, and maintainers to provide assurance that assigned work was appropriately carried out and that the workers reported to their assigned field sites.

> ***Previous Recommendation 16***: Develop comprehensive policies and procedures manual that addresses all internal processes and functions carried out by E&E supervisors and personnel at the central office and zone shops, and distribute the manual to appropriate personnel. The manual should be updated periodically to address newly implemented or revised procedures.
>
> ***Previous NYCT Response***: "We concur. The E&E subdivision is currently working on developing procedures to address all internal processes and functions carried out by the E&E subdivision personnel, and will ensure all procedures are available to all E&E subdivision employees once implemented. As internal processes and functions are changed, they will be reflected in the procedures."
>
> **Current Status:** IMPLEMENTED

Since the previous audit, NYCT has developed procedure manuals for both central control desk personnel and maintenance supervisors. Our review of E&E's "Elevators and Escalators Control Desk Procedure" issued in May 2011 showed that it has detailed instructions on control desk personnel's responsibilities.

In addition, E&E's training manual for maintenance supervisors in each zone issued in March 2012, addresses the Maintenance Supervisors' daily responsibility as they pertain to operating EERMS; reviewing basic Lift-Net control desk operations; and performing payroll procedures. NYCT also provided training to control desk personnel and maintenance supervisors on the above operating procedures in August 2011 and April 2012, respectively. Further, we found that E&E's procedures for performing elevator and escalator preventive maintenance were revised in March 2011 and again in April 2012.

> ***Previous Recommendation 17***: Formally require supervisors to perform unannounced visits of work teams during the work shift and document those visits, and to periodically compare PM and inspection reports submitted by work crews to the outages recorded in Lift-Net.
>
> ***Previous NYCT Response***: "We concur. Supervisor's field inspections are currently recorded in the "Work Order" section of EERMS. Once the internal audit as outlined in recommendation #9 is implemented, this will address the accuracy of the Lift-Net data and the PM and inspection reports."
>
> **Current Status:** IMPLEMENTED

NYCT E&E now requires each supervisor, at his/her discretion, to perform field visits of work teams and submit a "Daily Activity Report" (DAR) indicating the field locations visited. NYCT officials stated that this requirement was initially communicated to the maintenance supervisors and is reinforced through weekly meetings. Our review of DARs for December 2012 (the most recent month ended at the time the test was performed) for eight judgmentally-selected supervisors (two from each zone shop) showed that this procedure had been implemented and is being followed. Specifically, we noted that all eight supervisors made field visits to their respective work teams during December 2012. On average each supervisor made 15 visits during the month, ranging from three to 30 visits.

Recommendations

To address the issues that still exist, we recommend that NYCT should:

1. Ensure that all instances of non-performance of scheduled PM assignments are appropriately investigated and followed up on.

NYCT Response: "NYCT concurs with the recommendation. The E&E Division has developed a formal procedure for documenting preventive maintenance compliance, which includes documentation requirements for follow-up on missed PMs."

2. Ensure that weekly tracking sheets are appropriately maintained, signed by supervisors, and kept on file to evidence completion of scheduled maintenance work.

NYCT Response: "NYCT concurs with the recommendation. E&E requires that each Supervisor responsible for performing preventive maintenance to submit a 'weekly maintenance tracking form.' The form provides a summary of the preventive maintenance activities that were completed and requires that an explanation be provided for a scheduled preventive maintenance that was not performed. E&E management has implemented a new requirement for the responsible Zone Superintendents to review and sign the 'weekly maintenance tracking forms' submitted by their Supervisors."

3. Continue its efforts to ensure that its monthly and annual inspection goals are aligned with the actual number of inspections required each year.

NYCT Response: "NYCT concurs with the recommendation and will continue efforts to ensure that the monthly and annual inspection goals are aligned with the required number of inspections. At the beginning of each calendar year, E&E management will review the inspection schedule to ensure the number of inspections is in accordance with the amount of machines that are currently in service."

4. On an ongoing basis, continue to emphasize to E&E work crews and repair personnel the importance of completing all required documentation (e.g., machine room logs) detailing repairs, inspections, and maintenance performed.

NYCT Response: "NYCT concurs with the recommendation and will continue efforts to ensure that the Division's work crews complete all of the required documentation pertaining to their assigned tasks. In addition, commencing with the third-quarter of 2013, E&E established a plan to perform twenty-five internal audits per quarter to ensure that all documentation related to PM activities is properly completed."

5. Ensure that all required safety inspections and tests are performed as required and that second or additional inspections, if required, are conducted at the time intervals prescribed by ASME criteria.

NYCT Response: "NYCT concurs with the recommendation and has developed a revised equipment inspection schedule. The Division of E&E reorganization, which included a General Superintendent responsible for Asset Management and Support Operations, provides increased managerial oversight for the group responsible for performing equipment inspections at intervals recommended by ASME."

6. Continue to remind and train central control desk personnel of the requirement and importance of ensuring that all machine outages be recorded in EERMS.

NYCT Response: "NYCT concurs with the recommendation and will continue efforts to ensure that control desk personnel properly document all equipment outages. The Division of E&E reorganization, which included a managerial position responsible for Control Desk Operations, provides increased oversight for all reporting functions. By the end of the third quarter of 2013, the control desk operating procedures will be revised and the control desk personnel will be instructed on the revised requirements."

7. Ensure that defects identified during inspections are appropriately classified as either Type A or Type B based on E&E's defect list.

NYCT Response: "NYCT concurs with the recommendation and will, by the end of the third quarter of 2013, provide revised guidelines for selecting the proper priority code when a work order is created in the EERMS database."

8. Work to improve the response time to addressing and remediating Type A defects. In addition, develop a standard timeframe within which Type B deficiencies are to be addressed and corrected.

NYCT Response: "NYCT concurs with the recommendation and has made significant progress in reducing the backlog of open work orders. This effort will continue and work orders with a Type B priority that are created as of January 1, 2014 will be addressed within 90 days."

DETAILED SCOPE AND METHODOLOGY

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. This audit was conducted in accordance with the audit responsibilities of the City Comptroller as set forth in Chapter 5, §93, of the New York City Charter.

Overall, the audit scope covered January 1, 2011, through December 31, 2012. To accomplish our objective, we carried out various audit procedures as detailed below.

We gained an understanding and evaluated E&E's inspection, repair, and maintenance activities, assessed the current status of the prior recommendations, and ascertained any changes since the prior audit in E&E's organization, internal controls, and procedures. To do so, we interviewed various officials, staff, and supervisory personnel at the E&E central office, Inspection Unit, and four zone shops and conducted walk-throughs of related processes. We also reviewed NYCT's Agency Implementation Plan (AIP), dated November 7, 2011, submitted to the Comptroller's Office in response to a request for an update on the prior audit recommendations.[6]

We reviewed NYCT and E&E procedural documents, including "Elevators and Escalators Control Desk Procedure" issued May 2011. In addition, we reviewed new procedures instituted since the prior audit that address (1) performing and tracking PM service for each machine (elevator and escalator) by maintenance supervisors; (2) scheduled PM service assignments not being performed; (3) supervisors' field visits of work teams; and (4) monthly audits of a sample of machines. These procedures were used as audit criteria and, as discussed below, were tested to assess their implementation.

As of December 2011 (and July 25, 2012, as well), there was a population of 419 machines, consisting of 239 elevators and 180 escalators (including two power walks) in the subway system. We stratified the machines by zone and randomly selected a sample of 60 machines (30 elevators and 30 escalators) for audit testing. Three of the originally selected machines (two elevators and one escalator) were later found to have been newly placed into service in mid-2011. Therefore, they were excluded and our sample was reduced to 57 machines (28 elevators and 29 escalators).

To gain an overview of EERMS and Lift-Net, we interviewed E&E officials and users of the systems. We reviewed available user manuals and supplemental information, reviewed reports, and ascertained the type of data recorded and tracked in each system. We were also provided with read-only access to EERMS and accessed Lift-Net with the assistance of E&E personnel to obtain data and to generate reports relevant to the audit tests.

To assess the reliability of EERMS and Lift-Net for audit purposes, we judgmentally selected 20 of the original sample of 57 machines. For the months of July and August 2012 (representing the two most recent months ended at the time the test was performed), we identified 199

[6] *Audit Report on New York City Transit Efforts to Inspect, Repair and Maintain Elevators and Escalators* (#MJ10-065A), issued July 23, 2010

service outages in the machine room logs for the 20 machines and traced them to Lift-Net and EERMS and determined whether these events were recorded therein. Based on the results of this test and other tests discussed later, we were reasonably assured that EERMS and Lift-Net were reliable for audit purposes. This test also served to provide assurance that machine outage–events were appropriately detected and recorded in Lift-Net and EERMS (discussed later).

We evaluated NYCT's efforts to address Lift-Net connectivity and other issues disclosed in the prior audit. Specifically, we observed communication lines and reviewed documentation confirming installation of new telephone lines to increase dial-up service between elevators and escalators and Lift-Net. Further, we determined whether Lift-Net data is being backed up and NYCT has established a standard data back-up and archive routine.

To assess NYCT's activities to address weaknesses previously disclosed with inspections, we determined whether NYCT conducted five-year safety tests on 39 elevators that had not been tested in 2008 or 2009, as required. We reviewed timesheets for two judgmentally-selected weeks in December 2012 to ascertain whether NYCT assigned the Inspection Unit to perform inspections during the overnight shift. Further, to assess the effectiveness of NYCT in conducting inspections and to determine whether all required inspections (periodic, routine, and five-year safety tests) were performed in 2011, we reviewed 122 inspection reports and related documentation associated with the 57 sampled machines for 2011. We determined the frequency of inspections required and performed for the same period. Further, we determined whether NYCT had reassessed its inspections goals and evaluated the effectiveness of such changes. Specifically, we ascertained the number of routine and periodic inspections required of all 413 machines installed prior to 2011 (233 elevators and 180 escalators) for 2011.

We assessed NYCT's activities to address issues related to preventive maintenance, disclosed in the prior audit. To ensure that required PM service is performed and work is appropriately supported by PM reports in accordance with NYCT's new procedure, we identified 495 scheduled service assignments for 2011 for the 57 sampled machines, based on the corresponding machine type. We reviewed corresponding PM reports and other related records to assess whether the scheduled PM assignments had been performed and the reports completed and signed by both the maintenance teams and maintenances supervisors. Further, to obtain assurance that NYCT follows the new procedure for tracking, documenting, and following up on instances of non-performance of scheduled PM service assignments, we requested and reviewed NYCT-provided documentation for 10 sampled devices for which PM assignments were scheduled but not performed in 2011. We ascertained whether the instances of non-performance were appropriately documented, reviewed and investigated by supervisory personnel, and communicated to senior officials.

To address weaknesses and deficiencies cited in the previous audit regarding NYCT's response to addressing Type A (critical) and Type B and C (non-critical) defects identified during an inspection, we determined whether NYCT developed: (1) a standard goal or timeframe for addressing and remediating such defects; (2) procedures to assign and correct deficiencies cited in work orders that remained open for a period of time; and (3) a comprehensive list of defects to identify and prioritize such defects in EERMS.

To assess NYCT's activities to address critical defects, we reviewed the details of 24 work orders classified with Type A defects associated with 20 (of the original 57) sampled machines for the period January 1 – October 13, 2012 (test cut-off date), and recorded in EERMS. We determined whether the defects were appropriately classified and calculated the time it took NYCT to address the defects. To determine whether NYCT had made improvements in its

handling of Type B defects, we calculated the time NYCT took to address 2,372 (1,863 closed and 509 open) work orders (recorded in EERMS) with Type B defects identified through an inspection and/or the time those work orders had remained opened as of our December 26, 2012, test date.

In addition to tracing logbook entries to EERMS and Lift-Net, we determined whether NYCT, in accordance with its new procedure, required monthly audits of machines to ensure that outage events were appropriately recorded and aligned with the log books, Lift-Net, and EERMS. Specifically, we evaluated 16 E&E audit reports conducted in July and August 2012 (the two most recent months ended at the time the test was performed) along with their supporting documentation.

We determined whether NYCT had improved its filing and tracking practices to provide assurance that documentation of work performed by work crews is appropriately signed off, stored, and maintained. Specifically, we observed the file room and, with the assistance of a NYCT staff member, attempted to retrieve the hard-copy inspection and PM reports for the 57 sampled machines from the files.

To ascertain whether repair crews' work assignments are documented in EERMS in detail and to determine whether required reports and documentation were appropriately completed, we reviewed and determined whether PM reports for 483 PM assignments performed in 2011 for 57 sampled machines were appropriately completed by work crews and signed by staff and supervisors. For the same 57 sampled machines, we determined whether E&E had 122 inspection reports to support the completion of required inspections for the sampled machines in 2011 and that they were appropriately signed by the maintenance crews. Further, as discussed previously, we determined whether E&E had logs in the machine rooms for all 20 machines tested (out of the original 57 sampled machines) and we traced 163 PM hard-copy reports (stored in the E&E office filing cabinets) for 2011 associated with the 20 machines to the log books.

To determine whether maintenance supervisors made unannounced visits of work teams at assigned work sites, reviewed work performed, and approved work crew reports, we judgmentally selected eight supervisors (two from each zone). We then reviewed the daily activity reports for each of the sampled supervisors for December 2012 (the most recent month ended at the time the test was performed). We reviewed these reports, determined whether the sampled supervisors had made field visits, and calculated the average number of such visits per supervisor for the same period.

The results of audit tests involving sampled elevators and escalators and related documentation were not projected to their respective populations. Nevertheless, they provided a reasonable basis for us to assess NYCT's inspections repair and maintenance of elevators and escalators.

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Thomas F. Prendergast
Chairman and Chief Executive Officer

Metropolitan Transportation Authority
State of New York

August 30, 2013

Ms. Tina Kim
Deputy Comptroller for Audits
The City of New York
Office of the Comptroller
1 Centre Street, Room 1100
New York, NY 10007-2341

Re: Draft Report #MJ12-129F (Follow-up Audit Report on NYC Transit's Efforts to Inspect, Repair, and Maintain Elevators and Escalators)

Dear Ms. Kim:

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 Carmen Bianco, Acting President, NYC Transit, which address this report.

Sincerely,

Thomas F. Prendergast
Chairman and Chief Executive Officer

Attachment

Memorandum

MTA New York City Transit

Date August 27, 2013

To Thomas F. Prendergast, Chairman and Chief Executive Officer, MTA

From Carmen Bianco, Acting President, NYCT

Re Draft - Follow-up Audit Report on New York City Transit's Efforts to Inspect, Repair and Maintain Elevators and Escalators MJ12-129F

New York City Transit management has reviewed the August 19, 2013 draft "Follow-up Audit Report on New York City Transit's Efforts to Inspect, Repair and Maintain Elevators and Escalators, MJ12-129F." We concur with the findings of the report, and will continue our efforts to achieve full implementation of the recommendations.

As you know, for the past several years, MTA New York City Transit has redoubled its efforts to improve the maintenance practices and the organizational structure of our elevators and escalators organization. In July 2011, we created a new Division of Elevators and Escalators reporting directly to the Vice President & Chief Officer, Maintenance of Way, provided additional hourly and first-line operating personnel, increased management oversight, and established quality assurance and auditing capability. The results are clear—the availability of our elevators and escalators has met or exceeded our goals every quarter starting with the fourth quarter of 2011.

We understand there is more to be done and our efforts will include an improvement in the execution of the recommendations found in the report. More specifically, we will address these improvements as detailed below.

Recommendation #1:
Ensure that all instances of non-performance of scheduled PM assignments are appropriately investigated and followed-up.
NYCT Response: NYCT concurs with the recommendation. The E&E Division has developed a formal procedure for documenting preventive maintenance compliance, which includes documentation requirements for follow-up on missed PMs.

Recommendation #2:
Ensure that weekly tracking sheets are appropriately maintained, signed by supervisors, and kept on file to evidence completion of scheduled maintenance work.
NYCT Response: NYCT concurs with the recommendation. E&E requires that each Supervisor responsible for performing preventive maintenance to submit a "weekly maintenance tracking form." The form provides a summary of the preventive maintenance activities that were completed and requires that an explanation be provided for a scheduled preventive maintenance that was not performed. E&E management has implemented a new requirement for the responsible Zone Superintendents to review and sign the "weekly maintenance tracking forms" submitted by their Supervisors.

Recommendation #3:
Continue its efforts to ensure that its monthly and annual inspection goals are aligned with the actual number of inspections required each year.
NYCT Response: NYCT concurs with the recommendation and will continue efforts to ensure that the monthly and annual inspection goals are aligned with the required number of inspections. At the beginning of each calendar year, E&E management will review the inspection schedule to ensure the number of inspections is in accordance with the amount of machines that are currently in service.

Recommendation #4:
On an ongoing basis, continue to emphasize to E&E work crews and repair personnel the importance of completing all required documentation (e.g., machine room logs) detailing repairs, inspections and maintenance performed.
NYCT Response: NYCT concurs with the recommendation and will continue efforts to ensure that the Division's work crews complete all of the required documentation pertaining to their assigned tasks. In addition, commencing with the third-quarter of 2013, E&E established a plan to perform twenty-five internal audits per quarter to ensure that all documentation related to PM activities is properly completed.

Recommendation #5:
Ensure that all required safety inspections and tests are performed as required and that second or additional inspections, if required, are conducted at the time intervals prescribed by ASME criteria.
NYCT Response: NYCT concurs with the recommendation and has developed a revised equipment inspection schedule. The Division of E&E reorganization, which included a General Superintendent responsible for Asset Management and Support Operations, provides increased managerial oversight for the group responsible for performing equipment inspections at intervals recommended by ASME.

Recommendation #6:
Continue to remind and train central control desk personnel of the requirement and importance of ensuring that all machine outages be recorded in EERMS.
NYCT Response: NYCT concurs with the recommendation and will continue efforts to ensure that control desk personnel properly document all equipment outages. The Division of E&E reorganization, which included a managerial position responsible for Control Desk Operations, provides increased oversight for all reporting functions. By the end of the third quarter of 2013, the control desk operating procedures will be revised and the control desk personnel will be instructed on the revised requirements.

Recommendation #7:
Ensure that defects identified during inspections are appropriately classified as either Type A or Type B based on E&E's defect list.
NYCT Response: NYCT concurs with the recommendation and will, by the end of the third quarter of 2013, provide revised guidelines for selecting the proper priority code when a work order is created in the EERMS database.

Recommendation #8:
Work to improve the response time to addressing and remediating Type A defects. In addition, develop a standard timeframe within which Type B deficiencies are to be addressed and corrected.
NYCT Response: NYCT concurs with the recommendation and has made significant progress in reducing the backlog of open work orders. This effort will continue and work orders with a Type B priority that are created as of January 1, 2014 will be addressed within 90 days.

We appreciate the opportunity to review and comment on the draft report. If you require any further information, please do not hesitate to contact me.

Information Page
Thomas F. Prendergast
August 27, 2013

Re: Draft - Follow-up Audit Report on New York City Transit's Efforts to Inspect, Repair and Maintain Elevators and Escalators MJ12-129F

cc: J. Leader
M. Fucilli

bcc: A. Suarez
D. Knights
J. Joyce
D. Jurgens
S. Librera

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