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Press Release January 23, 2020

NYC Transit IMMEDIATE

MTA Issues Final After-Action Report Following Success of Subway Action Plan

Findings Include Improvements on Every Metric for Stabilization of Subway System Contributing to Record On-Time Performance Above 80 Percent, Lowest Number of Weekday Major Incidents, 40 Percent Decrease in Weekday Delays;

Lessons Learned from SAP Emergency Measures Now Incorporated into Long-Term Operations to Support System Cleaning and Asset Maintenance

The SAP Final After-Action Report is Available Here

The Metropolitan Transportation Authority (MTA) today released the final after-action report for the Subway Action Plan, a comprehensive $836 million initiative first implemented in 2017 to stabilize the subway system and create a modern management plan based on lessons learned to elevate the operations and performance of the entire system.

“The Subway Action Plan helped us identify both quick fixes and long-term solutions that are now resulting in sustained improvements in subway service. We thank the Governor for his support and his laser focus to ensure that the State’s investments realize tangible results for our customers,” said MTA Chairman and CEO Patrick J. Foye. “The system has shown continued improvements thanks to these changes, and we will keep pushing ourselves onward because we know that we have more to do”.

The Subway Action Plan implemented a number of initiatives to stabilize the subway system, which was suffering from a troubling number of disruptive incidents that had a clear impact on customers. Governor Andrew M. Cuomo declared a state of emergency, clearing the path for accelerated emergency measures to immediately arrest further decline of subway service and reliability. Phase One of SAP sought to stabilize the system, and Phase Two focused on developing and institutionalizing the successes from Phase One work to establish a long-term focus on the system modernization, improvements and sustain SAP progress.

Subway Action Plan Final Actions:

Category	Phase One Actions & Results	Phase Two Permanent Changes
Tracks	*Action:* NYC Transit tripled the rate at which it replaced jointed rail with CWR, installing approximately 55 miles from July 2017 through December 2019. The rail grinding program was accelerated. In 2019 alone, rail grinders covered more than 187 miles of track. *Result:* Track-related major incidents decreased by 55% from more than 15 per month in 2017 to fewer than seven per month in 2019.	NYC Transit now has three rail grinders running through the entire system to remove rail imperfections and prevent defects.
Track maintenance	*Action:* Maintenance workers cleaned the entire underground track network spanning more than 418 miles. *Result:* Fires related to debris along the track right-of-way are down by 44 percent from 462 in 2017 to	Three new vacuum trains maintain that new baseline of cleanliness, cleaning more than 3,000 miles in 2019 alone.

	261 in 2019.	
Signals	*Action:* NYCT completed an unprecedented full system inspection of signaling along the entire subway right-of-way. Crews repaired and rebuilt more than 2,000 signal components to date. Maintenance workers replaced signal stops, air lines, and cables, focusing on those most likely to affect service. *Result:* Signal-related major incidents have fallen by nearly 30% from 2017 to 2019.	Prior to SAP, 40 percent of signaling and communications equipment was half a century old, and equipment was deteriorating at an increasing rate. NYCT now uses new types of components and tools that are more reliable. NYCT now prioritizes track, signal, and car equipment repairs for assets that are the most critical, that exhibit performance problems, or those located in areas where failure is especially detrimental. By tracking the performance of priority switches, the agency can dedicate vital resources to maintenance that will provide the best benefit to subway performance.
Water management and mitigation	*Action:* NYCT and its contractors sealed more than 8,200 leaks, which can cause signal problems, lead to fires, and deteriorate track and stations. The agency doubled the resources to address leaks from 5 teams using 10 grouting machines to 10 teams using 20 machines. The entire system of subway drain lines, which serve 418 miles of track, were also cleaned and repaired. Debris was cleared from the entire system of more than 40,000 street grates. *Result:* These improvements in water management have enhanced the subway's ability to handle incidents such as downpours and water main breaks, so these types of incidents now rarely have a significant effect on subway service.	NYCT developed an inventory of track drains during the SAP cleaning process, creating a complete map of its underground drainage system for the first time. NYCT is also developing a new schedule to maintain drains based on measurements of silt buildup taken throughout 2019. NYCT has added 5 new staff teams, and doubled the number of heavy cleaning equipment. NYCT will also prioritize repairs based on data, history and location, such as leaks with high flow rate and high risk of impact on nearby electrical components. Prior to SAP, NYCT aimed to clean street vents every 2 to 3 years. The entire network was cleaned again in 2019 and is scheduled to be cleaned annually going forward.
Fleet maintenance	*Action:* NYCT accelerated its Scheduled Maintenance System (SMS), the cycle for major car overhauls by a year, from seven to six years. Inspections and repairs for car mechanisms with frequent issues were expedited, such as power converters, master controllers, and door components. More than 3,000 subway cars were also deep cleaned. *Result:* The Mean Distance Between Failures (MDBF), a measure of how long a vehicle can run before it must be taken out of service, consistently improved, increasing year-over-year by 13.5 percent from 118,854 to 134,947 miles in December 2019. The 12-month average MDBF reached its highest performance in nearly four years to 127,743 miles. Work equipment availability also improved. By restoring 38 flatcars, the available fleet was expanded by 20 percent, making more equipment available for in-house and contractor crews for performing capital or maintenance work. The	NYCT is maintaining its new accelerated car maintenance and repair schedule.

	addition of rail car movers in yards freed up diesel locomotives for work sites.	
Stations	*Action:* NYCT accelerated efforts to clean stations through various new initiatives, including increased use of mobile washing that improved the quality and frequency of station cleaning. New tools, materials, and mobile wash trucks were added to the fleet. To support the cleaning effort, NYCT formed multi-disciplinary teams to address the backlog of maintenance items at the stations including ceilings, platforms, walls, lighting, plumbing, and benches. More than 100 stations also received deep cleanings to elevate them to higher baseline standards. *Result:* Recent customer surveys show customer satisfaction with cleanliness increased 5.8 percentage points from 56 percent in mid-2018 to nearly 62 percent for the same period in 2019.	SAP's in-house cleaning and repair campaign continues, now led by Group Station Managers, and has enhanced more than 200 stations. Through SAP, NYCT also identified deep cleaning initiatives that were most effective and reorganized the deep cleaning team structure and processes. The agency added field-level accountability to enhance heavy duty cleaning quality assurance, and introduced new chemicals and equipment for in-house work.
Escalators & Elevators	*Action:* Increased proactive maintenance and new strategies implemented systemwide, such as prioritizing locations with the use of contractors to supplement in-house crews. *Result:* In one instance, dedicated contractor resources were allocated to Washington Heights, where station elevators are particularly vital due to the station's depth. Elevator availability in Washington Heights rose to more than 97.1 percent in early 2019 from a low of 86 percent in 2017. System-wide elevator availability reached a peak of 97.5 percent, the highest level since to 2013 before a temporary reduction related to the systemwide inspection and upgrade campaign.	NYCT instituted maintenance procedures and a schedule for elevators and escalators to ensure every machine is checked with greater frequency. It is also focusing on reducing response time to outages and has developed a new metric that is tracked weekly.
Power	*Action:* NYCT conducted a full inspection of all signal-related structures receiving power from the utility Con Edison, more than 100 in total. It led to the replacement of thousands of electrical components. More than 2,000 Con Edison smart meters have been put in place, covering all locations where power enters the subway system. These devices allow communication between the MTA system and Con Edison to help track the status of the power being supplied. Con Edison also put in place 384 sag correctors, which are devices that even out momentary voltage drops (or "sags") to protect signal equipment. Such voltage fluctuations routinely occur from power suppliers. *Result:* In 2019, 986 separate voltage drops were recorded in the Con Edison network. Before SAP,	Ongoing SAP funding ensures proper maintenance of the new "sag" equipment. In addition, Con Edison has installed newly designed third rail insulators in 550 fire-prone areas to prevent smoke conditions, and more will be installed in the future.

	these could have caused power disruptions to thousands of signals. With the new “sag” equipment, subway service interruptions related to power quality variations are now extremely rare. Con Edison also installed more than 200 new emergency generator “quick connects” in high priority locations to enable faster restoration of power during outages.	
Customer communication	*Action:* NYCT added more than 50 new dedicated announcers to better inform customers about service status and delays. Specially-trained MTA customer representatives were placed at high-traffic stations to provide guidance to riders in real time and retrained staff to improve communication with customers. NYCT also accelerated the system-wide completion of countdown clock installations. The MTA also overhauled its digital communication assets, including the launch of MYmta, a new integrated smartphone app. *Result:* NYCT increased its social media activity by 77 percent, providing more than 15,000 social media responses in December 2019. Customer satisfaction ratings for service and delay communication are up 5.2 percentage points from mid-2018 to mid-2019.	
Incident response times	*Action:* NYCT tripled the number of Combined Action Teams (CAT) from eight to 24, which deploy Track, Signal, and Third Rail personnel to strategic locations to rapidly respond to and resolve emergency incidents. NYCT also strategically deployed EMTs at key stations around the system to respond quickly to medical situations. *Result:* All of this has led to faster response and resolution times. The average Combined Action Teams response time improved by 32 percent, and the average CAT resolution time improved by 39 percent. The strategic deployment led to quick assistance for hundreds of sick customers and a faster response time by six minutes.	NYCT added 20 new car inspectors to address in-service subway car issues, and established new teams to address any infrastructure emergencies.
Service outage processes	*Action:* NYCT created longer active work periods, called wrench time, to increase worker efficiency. Overnight track work periods were moved up to 10 p.m. from midnight. New protocols were also instituted to secure the track, remove power, and move work trains into place efficiently. SAP established a dedicated dispatcher for planned track outages and a dedicated work train coordinator to support routing movements.	The process for taking tracks out of service, which are necessary for maintenance and capital improvements, was completely revamped to increase efficiency.

	Result: These initiatives made the work setup periods more efficiently, halving times from an hour to approximately 30 minutes. The plan also increased average wrench time by 62 percent, to about 5 hours and 40 minutes for the work that begin at 10 p.m.	

The SAP initiatives include power disruption mitigation programs in collaboration with the New York State Public Service Commission and Con Edison; accelerated fleet maintenance and inspections; accelerated installation of Continuous Welded Rail (CWR) and rail grinding; whole-network cleaning of underground tracks; deep station cleaning; unprecedented full system inspection of all signals and proactive repairs; widespread water mitigation efforts such as grouting, leak repairs, street grate clearing and drain cleaning; faster incident response times; and an intense focus on elevator and escalator maintenance that prioritizes proactive repairs. These worked concurrently with NYC Transit campaigns such as a back-to-basic approach to service management and Save Safe Seconds efforts to increase speeds, which included the SPEED (Subway Performance Evaluation, Education and Development) unit to identify and fix miscalibrated signal timers, encouraging employees to look for opportunities to improve service, and the Group Station Manager program.

Following the state and the city's initial investment of $836 million to implement SAP, the MTA will invest more than $300 million per year to NYC Transit's operating budget to support SAP initiatives and to ensure that its success and progress are sustained.