

# Metropolitan Transportation Authority – New York City Transit

---

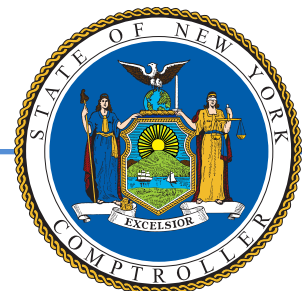
## Risk Assessment and Implementation of Measures to Address Extreme Weather Conditions

Report 2021-S-27 | September 2023

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

---

Division of State Government Accountability



# Audit Highlights

---

## Objectives

To determine whether the Metropolitan Transportation Authority (MTA) – New York City Transit (Transit) identified potential damage to its system and developed plans to mitigate the effect of extreme weather conditions and flooding. We also determined whether the MTA tested/updated the plans and inspected and maintained the equipment to ensure they can be deployed when needed. Our audit covered the period from April 2009 to August 2022.

## Background

In the decade since Superstorm Sandy, weather predicting models have indicated that, with rising sea levels, the range and depth of storm surge will increase across New York City. With the sea level rise, future storms will flood more property. Transit has experienced flash flooding due to heavy rain, which is harder to predict in terms of timing and location of impact. Coastal flooding caused by storm surge can cause severe corrosion of Transit's infrastructure and equipment. Protective measures need to be designed to function while still running services.

In September 2007, the Chair of the MTA appointed a Blue Ribbon Commission on Sustainability and the MTA (Blue Ribbon Commission) charged with making sustainability-related recommendations to the MTA and its agencies. In April 2009, the MTA issued the Blue Ribbon Commission's Final Report on Sustainability and the MTA (Report) making 93 recommendations, including the development of a climate change adaptation master plan and 11 recommendations specifically related to climate adaptation to prepare for rising sea levels, storms, and severe weather events.

According to the MTA's website, the facilities of Transit's system are an irreplaceable public asset. To restore, improve, and expand this asset, the MTA committed \$33.1 billion in capital program funding between 2010 and 2019 and another \$34.2 billion in capital projects programmed for 2020 through 2024. This includes the major restoration-resiliency projects stemming from Superstorm Sandy, which hit the New York City area in October 2012 causing significant coastal flooding and approximately \$5 billion in damage to MTA assets. Additionally, following Superstorm Sandy and in response to the Blue Ribbon Commission's Report, the MTA created a series of projects that were added to the 2010–14 Capital Program.

Inspection and maintenance of Transit's on- and off-site facilities and equipment is critical to ensure the system is prepared for future extreme weather events. Consequently, Transit is required to conduct inspections of its storm surge mitigation equipment prior to hurricane season and in advance of an expected severe weather event. In addition, Transit developed several weather plans that can be activated for extreme weather-related conditions and detailed procedures to be followed in the lead-up to a storm event and following its impact.

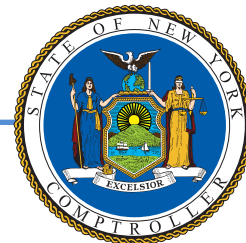
## Key Findings

To date, the MTA has not implemented one of the most important recommendations of the 2009 Blue Ribbon Commission's Report – the development of the climate change adaptation master plan. Since Superstorm Sandy, Transit has assessed and identified areas of its system that are at risk of flooding from extreme weather events and developed and carried out capital projects to both correct damage caused by Superstorm Sandy and mitigate potential flooding conditions in the Transit system. Further:

- 
- Our review of a sample of 23 of 221 capital projects intended to correct or prevent damage found that projects were often incomplete in scope of work, not finished on time or within budget, or insufficiently documented. Just two of six critical stations that Transit indicated should have been made more watertight and resistant to potential flooding were completed in one project we reviewed. Another project was initiated to prevent flood water from entering 14 fan plants; however, only 11 fan plants were mitigated. Transit officials stated the three remaining fan plants were completed but did not provide documentation to support their statements. (Fan plants are facilities with large vent gratings and fans located atop shafts connected to the Transit tunnels.)
  - Transit did not sufficiently document inspections of individual pieces of equipment. Instead, it reported more broadly by subway stations or by rooms in off-site facilities that were inspected. In one instance, because not all rooms were inspected at a facility, we were able to determine that 51 of 72 inspections were not conducted between January 2021 and August 2022.
  - While Transit has developed winter, hurricane, rain, and extreme heat plans, we found that these plans were inconsistently activated, with no documentation explaining the rationale for decision making. In our sample of 18 weather events, plans were not activated for six events that included tropical storms, hurricanes, or coastal flooding.

## Key Recommendations

- Ensure mitigation-related capital projects, including scope of work, are completed on time and within budget to prevent further damage to Transit facilities.
- When conducting inspections, include enough information to identify the equipment inspected, such as serial number, equipment tag number, and model number.
- Establish and document a process to ensure weather information and instructions from Transit officials are communicated to all responsible personnel and units.



---

**Office of the New York State Comptroller  
Division of State Government Accountability**

September 29, 2023

Janno Lieber  
Chair 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 Metropolitan Transportation Authority – New York City Transit entitled *Risk Assessment and Implementation of Measures to Address Extreme Weather Conditions*. The 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** ..... **5**
- Background** ..... **6**
- Audit Findings and Recommendations** ..... **8**
  - Blue Ribbon Commission ..... **8**
  - Capital Projects ..... **9**
  - Recommendations ..... **11**
  - Equipment Maintenance and Inspection ..... **11**
  - Weather Monitoring and Notifications ..... **13**
  - Recommendations ..... **15**
- Audit Objectives, Scope, and Methodology** ..... **16**
- Statutory Requirements** ..... **17**
  - Authority ..... **17**
  - Reporting Requirements ..... **17**
- Agency Comments and State Comptroller’s Comments** ..... **19**
- Contributors to Report** ..... **38**

# Glossary of Terms

---

<b>Term</b>	<b>Description</b>	<b>Identifier</b>
MTA	Metropolitan Transportation Authority	<i>Auditee</i>
Blue Ribbon Commission	Blue Ribbon Commission on Sustainability and the MTA	<i>Key Term</i>
C&D	MTA Construction and Development	<i>Agency</i>
Equipment	Storm surge mitigation equipment	<i>Key Term</i>
Heat Plan	Excessive Heat Emergency Plan	<i>Key Term</i>
Hurricane Plan	Hurricane and Coastal Flood Master Plan	<i>Key Term</i>
Infrastructure	Subways' Division of Infrastructure	<i>Department</i>
Maintenance Plan	MTA's Maintenance Schedule and Testing Plan	<i>Key Term</i>
Master Plan	Blue Ribbon Commission's recommended master plan	<i>Key Term</i>
PSR	Project Status Report	<i>Key Term</i>
Rain Plan	Rain Flood Plan	<i>Key Term</i>
RCC	Rail Control Center	<i>Key Term</i>
Report	Blue Ribbon Commission's Report on Sustainability and the MTA	<i>Key Term</i>
SIR	Station Island Railway	<i>Department</i>
Stations	Subways' Stations Department	<i>Department</i>
Subways	Department of Subways	<i>Department</i>
Task Force	MTA's Climate Adaptation Task Force	<i>Key Term</i>
Transit	MTA New York City Transit	<i>Agency</i>
Winter Plan	Winter Operations Master Plan	<i>Key Term</i>

# Background

---

In the decade since Superstorm Sandy, weather predicting models have indicated that, with rising sea levels, the range and depth of storm surge will increase across New York City. With the sea level rise, future storms will flood more property. Transit has experienced flash flooding due to heavy rain, which is harder to predict in terms of timing and location of impact. Coastal flooding caused by storm surge can cause severe corrosion of Transit's infrastructure and equipment. Protective measures need to be designed to function while still running services.

The Metropolitan Transportation Authority (MTA), a public-benefit corporation, has six agencies: New York City Transit (Transit), MTA Bus Company, Long Island Rail Road, Metro-North Railroad, Bridges and Tunnels, and MTA Construction and Development (C&D). Additionally, MTA Headquarters serves as the administrative arm of the authority. The MTA is North America's largest transportation network, serving a population of 15.3 million people in the 5,000-square-mile area surrounding New York City.

The Staten Island Railway (SIR), a subsidiary of the MTA, is an administratively separate operating unit and reports to Transit's Department of Subways (Subways). SIR operates a single rapid transit line that runs the length of Staten Island from St. George Terminal to the southern terminal at Tottenville (about 14 miles). SIR's management oversees capital projects at its 21 train stations and maintains the stations' structural components.

In September 2007, the Chair of the MTA appointed a Blue Ribbon Commission on Sustainability and the MTA (Blue Ribbon Commission), which was charged with making sustainability-related recommendations to the MTA and its agencies. In April 2009, the MTA issued the Blue Ribbon Commission's Final Report on Sustainability and the MTA (Report) making 93 recommendations, including having a climate change adaptation master plan (Master Plan) and 11 specifically related to climate adaptation to prepare for rising sea levels, storms, and severe weather events. The Report predicted that, without an adequate investment in adaptation measures, climate change will have even greater adverse impacts on the MTA's vital infrastructure, operations, and revenue streams in the future. The chief risks to the metropolitan region and the MTA service area include more extreme precipitation events, coastal storms and storm surges, flooding, and, in the longer term, rising sea levels.

Superstorm Sandy caused extensive damage to Transit facilities across the city in October 2012. The storm surge from Sandy caused significant coastal flooding of Transit facilities in low-lying areas that included subway stations, fan plants,<sup>1</sup> under river tubes, and subway tunnels in lower Manhattan, Queens, and Brooklyn. Flooding also occurred at grade levels and train yards in low-lying areas. The saltwater caused widespread damage to electrical, mechanical, signals, and communication systems. Overall, the storm resulted in approximately \$5 billion in damage to MTA assets.

---

<sup>1</sup> Fan plants are critical components of the New York City subway system, providing passive ventilation by enabling the piston action of moving trains to pull fresh air down into the tunnels below. In addition, in the event of a fire in the tunnels, the plants' massive fans serve to draw smoke out, giving people time to escape.

---

According to the MTA's website, the facilities of Transit's system are an irreplaceable public asset. To restore, improve, and expand this asset, the MTA committed \$33.1 billion in capital program funding between 2010 and 2019, and another \$34.2 billion in capital projects programmed for 2020 through 2024. This includes the major restoration-resiliency projects stemming from Superstorm Sandy. Additionally, following Superstorm Sandy and in response to the Blue Ribbon Commission's Report, the MTA created a series of projects that were added to the 2010–14 Capital Program.

Transit uses several methods and systems to track costs and progress on capital projects. One of these is the Project Status Report (PSR) where the current, actual, and forecasted data of each project are stored and updated monthly for the duration of the project.

To protect its assets, Subways details the inspection and maintenance requirements of storm surge mitigation equipment (equipment). Subways' Division of Infrastructure (Infrastructure) is required to stockpile and inspect equipment used in the subway system prior to the hurricane season. This includes fan plants, which are facilities with large vent gratings and fans located atop shafts connected to the Transit tunnels. Equipment that is already in place at the subway stations, such as flex-gates, marine doors, and stop logs, is required to be inspected by Subways' Stations Department (Stations).

Subways developed several different operational plans to address processes under extreme weather-related conditions, including a Hurricane and Coastal Flood Master Plan (Hurricane Plan), a Winter Operations Master Plan (Winter Plan), an Excessive Heat Emergency Plan (Heat Plan), and a Rain Flood Plan (Rain Plan).

These operational plans contain information and procedures to be referenced if an extreme weather system is forecasted to impact the NYC area. They constitute a high-level overview of department-wide activities for pre-season preparation as well as preparation for a specific weather event and serve as a guide for senior leadership and employees at all levels, covering responsibilities and expectations in the lead-up to a storm event and following its impact.



# Audit Findings and Recommendations

---

To date, the MTA has not implemented one of the most important recommendations of the Report – the development of a climate change adaptation master plan. Since Superstorm Sandy, Transit has assessed and identified areas of its system that are at risk of flooding from extreme weather events as well as developed and carried out capital projects to both correct damage caused by Superstorm Sandy and mitigate potential flooding conditions in the Transit system.

Our review of a sample of 23 capital projects intended to correct or prevent damage found that projects were often incomplete in scope of work, not finished on time or within budget, or insufficiently documented. Just two of six critical stations that should have been made more watertight and resistant to potential flooding were completed in one project we reviewed. Another project was initiated to prevent flood water from entering 14 fan plants; however, only 11 fan plants were mitigated. Transit officials stated the three remaining fan plants were completed but did not provide documentation to support their statements.

Inspection of Transit's storm mitigation equipment is critical to ensure it is prepared for future extreme weather events; however, Transit did not sufficiently document inspections of individual pieces of equipment. Instead, it reported more broadly by subway stations or by rooms in off-site facilities that were inspected. In one instance, because not all rooms were inspected at a facility, we were able to determine that 51 of 72 inspections were not conducted between January 2021 and August 2022. Additionally, no records were available for inspections prior to 2021.

Further, while Transit has developed winter, hurricane, rain, and extreme heat plans, we found that for six of 18 sampled weather events, preparation plans were not activated, with no documentation explaining the decision making.

## Blue Ribbon Commission

In September 2007, the Chair of the MTA appointed a Blue Ribbon Commission charged with making sustainability-related recommendations to the MTA and its operating agencies. In April 2009, the MTA issued the Commission's Report with 93 recommendations, including having a climate change adaptation master plan in place by 2015 with realistic timetables and financing options.

The report contained 11 recommendations regarding climate adaptation to prepare for rising sea levels, storms, and other climate changes, including two recommendations that specifically focused on developing a qualitative vulnerability and risk assessment as well as the development of the Master Plan. The MTA stated that it took no action to implement the recommendations proposed in the Report prior to Superstorm Sandy, including the development of a Master Plan, stating it did not have the funding to undertake the Report's recommendations.

---

In 2013, one year after Superstorm Sandy, the MTA Chairman and CEO formed the Climate Adaptation Task Force (Task Force). The Task Force includes the presidents and other representatives from each MTA agency – considered experts on the MTA and sustainability – who coordinate and exchange information on climate adaptation efforts with experts from other outside organizations. While the MTA amended its 2010–14 MTA Capital Program and released updated resiliency reports that identify, describe, and compare the resiliency and adaptation components of MTA capital projects within the larger context of climate change, no Master Plan was developed.

Although the Master Plan was not implemented, Transit assessed and identified areas of its system that are at risk of flooding – using federal Sea, Land, and Overland Surges from Hurricanes (SLOSH) maps and flood zone data – and planned projects to correct damage caused by Superstorm Sandy and mitigate potential flooding conditions in the Transit system.

## Capital Projects

To restore, improve, and expand Transit’s irreplaceable assets, MTA committed \$33.1 billion in capital program funding between 2010 and 2019 and another \$34.2 billion in capital projects programmed for 2020 through 2024. This includes the major restoration-resiliency projects stemming from Superstorm Sandy that were added to the 2010–2014 Capital Program to mitigate the \$5 billion in damages caused by the storm. For each project, the Project Status Report (PSR) tracks costs, documents progress on each project, and is updated monthly through completion.

Our review of the PSRs for 23 of 221 capital projects found that two projects finished in the wake of Superstorm Sandy were completed within scope, on time and within budget, and sufficiently documented. Of the remaining projects, some of the criteria were not met.

For eight of the 23 projects in our sample, we had no assurance that the tasks from the scope of work were all completed. For example:

- One project was initiated to make six critical stations more watertight to resist flooding; however, the PSR showed that just two stations were mitigated.
- Another project was initiated to prevent flood water from entering 14 fan plants; however, just 11 fan plants were mitigated.
- A project was initiated to install mechanical closure devices at six critical stations; however, the PSR showed that only five stations were mitigated.

In response to our preliminary findings, C&D – which took over responsibility for Transit capital projects as part of the MTA’s Transformation Plan in 2019-2020 – disagreed that the three projects were incomplete. For the fan plants, officials stated that the work was completed as part of another capital project (i.e., split project); however, C&D provided no documentation to support its position.

In addition, our review of the April 2022 PSR found that six of the 23 projects did not meet the original budget and/or timeline estimates. For example:

- 
- Replacement of the Automated Fare Collection equipment that was damaged and unsalvageable due to Superstorm Sandy was completed in September 2017 – 13 months later than its targeted completion date.
  - Construction on the Rutgers Tube – a subway track carrying the F line under the East River that was damaged by more than 1.5 million gallons of water during the storm – was originally supposed to start in June of 2014 but instead began in July 2020.

Further, one of the 23 projects did not have the necessary documentation in the PSRs to support the completion of the project or the reasons for additional budget. This project was initiated to replace track components damaged by the flood waters from Superstorm Sandy in the Montague Under River Tube. However, the PSR was incomplete as it was missing the scope of work to be performed.

When resiliency projects are not completed and brought in on time or within budget, resources are not available for other projects and the system remains at risk.

## Rockaway Park Yard

Four of the 23 projects in our sample were for the Rockaway area line, with two of the projects completed as an emergency to restore train service in the area. One of these emergency projects had a budget of approximately \$16 million; the request for payment showed the same amount and the PSR was closed out at \$13 million. However, the request for payment also included additional work orders totaling \$38 million. Documentation to support why the additional work orders were part of this emergency project was not provided.

We also found that the third project – the Rockaway Park Yard project – was allocated \$114 million in federal funds for the construction of perimeter protection. However, the MTA requested, and the federal government approved, the reallocation of the funds to another Transit yard. We were advised that no project will be undertaken at the Rockaway Park Yard because it would be too expensive; however, other measures will be taken to protect the yard and equipment in the event it is required. The fourth Rockaway project in our sample, a feasibility study, was completed.

## Staten Island Railway

After Superstorm Sandy, SIR had contractors perform feasibility studies at three locations – St. George Terminal, Clifton Shop and Yard, and Tottenville Terminal Station Yard – to develop an effective flood mitigation plan to protect the terminal station yards and their facilities from potential flooding conditions and recommend actions to mitigate the risk of future damage.

SIR provided documentation to support that projects were completed at the Clifton Shop and Yard and the St. George Terminal. We found that a new Clifton Shop was built with features, such as waterproof walls and flood barriers, to protect entrances to the building and shop areas. However, the project was not completed within the time frame and budget outlined in the contract. The date for substantial completion,

---

when the contract was awarded, was July 2020. The PSR indicates the delay was due to a late start of demolition activities and a change order for the disposal and transportation of contaminated soil from the property.

The St. George Terminal was delayed due to the location of the facility under a Department of Transportation bridge, which made drilling operations difficult due to the low head room. Multiple obstructions, including boulders and rock, were also encountered during the work.

The Clifton Shop was not available for use as of June 2020 and had exceeded the budget. At the St. George Terminal, work to address the damaged signal and track equipment, cable wires, and other items to enhance SIR operational safety was not done as planned.

At Tottenville Terminal Station Yard, no work had been done at the time of our visit in June 2022 despite the feasibility study having been completed in February 2014. We were advised that funding was not yet available, but that it will be part of the MTA's 2025–29 Capital Program. This leaves a section of Staten Island still in need of mitigation 10 years after the feasibility study was completed.

## Recommendations

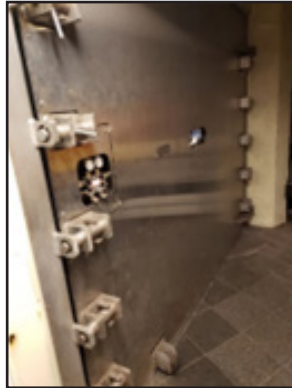
1. Evaluate the results of any future studies requested of MTA sustainability professionals and document actions taken to implement them, and where recommendations are not implemented, the reasons why.
2. Ensure mitigation-related capital projects, including scope of work, are completed on time and within the budget to prevent further damage to Transit facilities.
3. Implement a system that links projects that were split to facilitate easy access to related documents for that project.
4. Implement a system that links the awarded budget for the projects to the current budget and estimated completion cost on the PSRs.

## Equipment Maintenance and Inspection

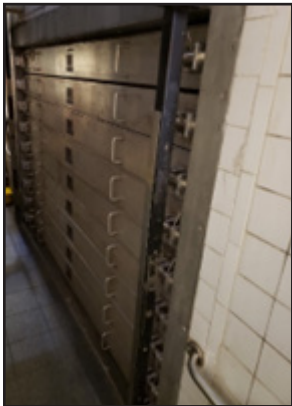
Transit's storm surge maintenance equipment is an irreplaceable asset that is critical to successful operations. It therefore must be maintained and inspected on a regular basis to ensure it's ready prior to a severe weather event. Transit's Department of Subways' plans detail the inspection and maintenance requirements of its equipment. Subways' Division of Infrastructure is required to stockpile and inspect equipment used in the subway system prior to the hurricane season. This includes fan plants, which are facilities with large vent gratings and fans located atop shafts connected to the Transit tunnels. Additionally, equipment that is already in place at the subway stations, such as flex-gates, marine doors, and stop logs, is required to be inspected by Subways' Stations Department (see Figures 1–3).



**Figure 1** – A flex-gate is a permanently installed containment box within a staircase and a deployable fabric cover, which can be locked in place when a storm event occurs. Franklin Street Station #1.



**Figure 2** – Marine flood doors are permanently installed watertight doors at the bottom of a staircase within a subway station. Whitehall and Stone Street 12/13/2021.



**Figure 3** – Stop logs consist of a deployable set of watertight vertical metal logs that can be installed around station entrances to protect against water intrusion, especially where it is not feasible to install swinging or sliding doors. Whitehall Street Station 12/13/2021.

## Infrastructure

To determine whether equipment was inspected prior to the hurricane season, we selected a judgmental sample of 72 pieces of equipment. We found the inspection reports for Infrastructure could not be used to adequately document either the inspection of the fan plants or the equipment located in or outside the fan plants because they don't include the date, name, serial number, or location of the equipment inspected. Instead, Infrastructure reported only the number of rooms inspected, meaning there was insufficient documentation to ensure that all the equipment in our sample of 72 had been inspected. Further, because not all rooms were inspected, we were able to determine that 51 of 72 inspections were not completed between January 2021 and August 2022. For example, at one fan plant, two inspections were not completed for five sets of stop logs and two marine doors, accounting for 21 of the missed inspections. Infrastructure did not provide written procedures for the maintenance of its equipment.

## Stations

To determine whether equipment was inspected prior to the hurricane season, we selected a judgmental sample of 28 pieces of equipment based on borough (excluding Staten Island). However, like Infrastructure, Stations officials advised us

---

that the information available for the inspection and maintenance of equipment is based on subway stations inspected and not specific pieces of equipment. For 2021 and 2022 – the only years for which it had records at the time of our visit – Stations provided records showing that it inspected only certain subway stations where some of the pieces of equipment in our sample were located. We were, therefore, unable to determine whether eight flex-gates in our sample were examined, including five at critical stations. (A critical station is one Transit protects for Hurricane category 2 flood level plus 3 feet.)

## Staten Island Railway

Equipment, such as flood barrier logs and panels, designed to protect assets from damage from storm surge, heavy rains, and flooding was installed at the Clifton Shop and St. George Terminal as part of the MTA's remediation efforts. SIR is responsible for the maintenance of the equipment once it is turned over by the contractor. As part of the process, the contractor trained SIR employees, tested the equipment, and provided the operations manual. This was completed at the Clifton Shop on April 2, 2022, from which point SIR became responsible for maintenance and deployment of the flood protection equipment. We reviewed the Preventative Maintenance and Inspection Form for all 23 pieces of equipment SIR is responsible for, and found all 23 pieces of equipment were maintained on August 2, 2022 and August 26, 2022. We were told that a Maintenance Schedule and Testing Plan (Maintenance Plan) for the flood barrier logs at Clifton Yard and St. George Terminal would be completed by September 30, 2022. However, as of November 1, 2022, SIR did not have a written Maintenance Plan. We requested the plan again in June 2023, but SIR indicated it would be ready by July 19, 2023. Instead of a Maintenance Plan, SIR stated that each Transit division, including SIR, intends to have completed Maintenance Plans for its flood mitigation equipment by the fourth quarter of 2023. The delay of more than a year for a Maintenance Plan is questionable.

## Weather Monitoring and Notifications

Subways developed several different operational plans to address processes under extreme weather-related conditions, including a Hurricane Plan, a Winter Plan, a Heat Plan, and a Rain Plan. These operational plans contain information and procedures to be referenced if an extreme weather system is forecasted to impact the NYC area. They constitute a high-level overview of department-wide preparation activities to serve as a guide for senior leadership and employees at all levels and cover responsibilities and expectations in both the lead-up to a storm event and following its impact.

To address operations during an extreme weather event, Subways operates a Rail Control Center (RCC) that supervises the operation of the Transit system on a round-the-clock basis. RCC's leadership directs Subways' response to weather-related events and other major causes of service disruption (e.g., power failures) and communicates/coordinates through RCC's Communications Desk to support Subways' divisions and other MTA agencies.



---

Both the Winter Plan and Hurricane Plan designate the RCC Communications Desk as responsible for communicating necessary information and directions to all stakeholders via a variety of methods including telephone and text messaging. At a minimum, this information includes the forecast (up to 3 days before a storm is due), the stage of Subways' response that has been activated (e.g., pre-storm preparation; plan number, based on the type of weather forecasted; and shutdown type, including subway lines affected); and any exceptions to the plan/service level.

Subways officials stated they receive weather reports four times a day, year-round that include a 4-day advance forecast. However, when severe weather is expected to impact Transit's subway service, the frequency of weather reports is increased. In addition, Transit has six weather stations of its own located throughout the subway system, which can be accessed by Subways' employees to monitor local conditions.

When a winter storm, coastal storm, or hurricane is forecast to impact Subways' service territory, Subways' senior leadership will hold daily weather and strategy meetings to discuss the forecast, anticipated conditions, and storm preparations. Subways' senior leadership or the RCC can activate the Hurricane or Winter Plan, as appropriate. Weather reports (covered under the Winter Plan only) that result in notifications being distributed to a specific group are required to be signed and dated by authorized RCC personnel.

To determine whether storm-specific plans were activated, and weather reports were disseminated in advance of or during severe weather events, we requested a sample of 20 weather forecast reports where plans should have been activated. Subways officials provided reports for 18 of the 20 weather events, stated they couldn't provide documents for one event due to their record retention period, and did not provide a report for May 28, 2016. In response to our preliminary findings, MTA officials said there was no precipitation recorded for May 28, 2016 and, therefore, there was no plan activated.

Subways' leadership did not activate storm-specific preparation plans for six of 18 weather events in our sample. However, such plans were in effect for other events with similar conditions (wind speed, probability, and amount of precipitation). For instance, we noted that, for August 21, 2021, there was a storm preparation plan. However, on two other dates – August 18, 2017 and August 18, 2021 – with similar weather conditions, a storm preparation plan was not prepared. Subways did not provide any documentation to show why a plan was not prepared on these two occasions.

In response to our preliminary findings, Subways claimed that the threshold for activation of a storm preparation plan did not meet the triggers set forth in the Rain Plan. The triggers for rain flooding are 1.5 inches or more of rainfall per hour or 0.5 inches of rainfall per hour for at least 3 consecutive hours. However, Subways did not create its Rain Plan to prepare for flood events until March 2022, after these events occurred.

---

Since installing storm equipment can take up to 2 days, guidance needs to be specific as to when to decide to deploy it ahead of a storm. While Subways has updated its Rain Plan, the Hurricane Plan still has limited formal guidance, leaving a great deal of discretion to Subways and RCC staff to determine when to activate a plan.

We also found the following from our sample of 18 weather events:

- Subways did not provide any weather-related documents (e.g., weather updates, activation of an incident command center) pertaining to Superstorm Sandy except for the weather forecast report it received from its vendor. We also noted the weather reports were not signed and dated, as required. Signing and dating indicate that it was reviewed.
- Four weather reports were not signed and dated in situations where Subways' senior leadership had activated the Hurricane Plan.
- For seven of the weather events where a plan was activated, Subways' field staff did not address 35 key actions in various stages of the Winter Plan, such as sanding and salting, suspension of refuse trains, or preparation plans as reported on its storm updates when plans were activated.
- On nine occasions, Subways' senior leadership did not disseminate the weather reports and other weather-related documents to other units, including Maintenance of Way Engineering, Maintenance of Way Signals, Stations, and Car Equipment. Dissemination of such reports allows those divisions to appropriately plan.

## Recommendations

5. Establish clear and complete written procedures to address the maintenance and inspection process of equipment.
6. Document sufficient information to identify the equipment inspected such as serial number, equipment tag number, and model number.
7. Ensure all equipment is maintained and inspected regularly and in a timely manner.
8. Ensure all weather reports that activate a plan are signed and dated by authorized RCC personnel.
9. Establish and document a process to ensure weather information and instructions from Subways officials are communicated to all responsible Subways personnel and units.



# Audit Objectives, Scope, and Methodology

---

The objectives of our audit were to determine whether the MTA identified potential damage to its system and developed plans to mitigate the effect of extreme weather conditions and flooding. We also determined whether the MTA tested/updated the plans and inspected and maintained the equipment to ensure they can be deployed when needed. Our audit covered the period from April 2009 to August 2022.

To accomplish our objectives and assess the relevant internal controls, we reviewed procedures and guidelines. We interviewed officials and employees to obtain an understanding of project process; equipment inspection, maintenance, testing; and preparation for severe weather. We also reviewed records for each of our samples. To determine whether the MTA identified the potential damage to its system and developed plans to mitigate the effect of extreme weather conditions and flooding, we judgmentally selected 23 projects out of 221 Transit projects from the Project and Contract Listing, based on the project's status and dollar amount. We reviewed supporting documentation such as PSRs and weather plans. To determine whether the MTA tested the plans and equipment to ensure they will work when needed and that it is prepared to implement them, we selected a judgmental sample of 78 pieces of equipment from an inventory list of 883 (741 + 142) items of mitigation equipment maintained by Subways' Infrastructure and Stations, choosing a variety of types, and reviewed their inspection records. We started with a population of 165 pieces of equipment and excluded SIR (23). The remaining 142 were to be allocated at 20% across the boroughs of the Bronx, Brooklyn, Queens, and Manhattan. However, we reviewed all four pieces of equipment in the Bronx because they are installed at the same station and allocated the remaining equipment to the other boroughs based on their population size.

In addition, we selected a judgmental sample of 18 weather events based on severity and date from a population of 4,807 weather events from January 1, 2009 to February 28, 2022 to determine whether Subways complied with its Winter Plan or Hurricane Plan. We reviewed supporting documentation such as forecasts, storm preparation plans, and weather updates. We selected 12 dates pertaining to hurricane or tropical storm events and eight dates associated with winter storm events that may have affected Transit. We relied on weather data obtained from the National Oceanic and Atmospheric Administration (NOAA), which is recognized as an appropriate source, and used this data for widely accepted purposes. Therefore, this data is sufficiently reliable for the purposes of this report without requiring additional testing.

We also tested the data used to select our samples and determined it was sufficiently reliable for the purpose of our audit objectives. These samples were not designed to be projected to the entire population.

# Statutory Requirements

---

## Authority

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.

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 the MTA, these include reporting the 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 the MTA's oversight and administration of addressing extreme weather conditions.

## Reporting Requirements

We provided a draft copy of this report to MTA officials for their review and comment. We considered their comments in preparing this final report and have attached them in their entirety at the end of it. In response to our audit report, MTA disagreed with our key findings and placed them into four categories. The first category was the Blue Ribbon Report where the response mentions work done in conjunction with city agencies in the early 2000s and 2007. However, this information was not provided during the audit field work even though the MTA had several opportunities to do so. The response also describes work done over several years and continuing to the present at a cost of nearly \$8 billion for flood resilience and to protect its infrastructure against extreme weather. Nevertheless, it did not prepare the climate change adaptation master plan called for by the Blue Ribbon Report. MTA states that implementation of this recommendation has required tremendous amounts of time and resources and has been a multi-stakeholder undertaking. Officials added the MTA Climate Action Plan will be published later this year. Despite all the time and resources that have been put into this Plan, none of the MTA officials we interviewed mentioned it. The other categories are capital projects not finished on time or within budget, inspections of mitigation equipment, and activation of Transit's weather-related plans. We provided the MTA with the results of our audit work at various points during the audit and the opportunity to provide documentation to support its statements. Where sufficient records were provided, we updated the results, and if no records were provided, we reflected MTA comments in the draft report.

---

Within 180 days after the final release of this report, as required by Section 170 of the Executive Law, the Chair 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 the recommendations were not implemented, the reasons why.

# Agency Comments and State Comptroller's Comments

---

2 Broadway  
New York, NY 10004  
212 878-7000 Tel

**Janno Lieber**  
Chairman and Chief Executive Officer



**Metropolitan Transportation Authority**

State of New York

September 21, 2023

**VIA E-MAIL**

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

**Re: Draft Report #2021-S-27 (Risk Assessment and Implementation of Measures to Address Extreme Weather Conditions)**

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, MTA New York City Transit and Jamie Torres-Springer, President, MTA Construction & Development.

Sincerely,

A handwritten signature in blue ink that reads "Janno Lieber".

Janno Lieber

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

*The agencies of the MTA*

MTA New York City Transit  
MTA Long Island Rail Road

MTA Metro-North Railroad  
MTA Bridges and Tunnels

MTA Construction & Development  
MTA Bus Company

---

2 Broadway  
New York, NY 10004  
212 878-7000 Tel



September 21, 2023

**VIA ELECTRONIC MAIL**

Mr. Janno Lieber  
Chair and Chief Executive Officer  
Metropolitan Transportation  
Authority 2 Broadway, 20<sup>th</sup> Floor  
New York, New York 10004

**Re: Response to the Office of the New York State  
Comptroller Audit #2021-S-27 – MTA/NYC Risk  
Assessment and  
Implementation of Measures to Address Extreme Weather Conditions**

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”) draft report #2021-S-27 regarding risk assessment and implementation of measures to address extreme weather conditions (the “Report”).<sup>1</sup>

As an initial matter, we note that the Report fails to acknowledge the significant measures the MTA has implemented over the past two decades to mitigate extreme weather events. During that time, the MTA has been on a steady, dedicated mission to enhance its emergency preparedness and response capabilities, and to implement well-informed strategies to mitigate the potential damage to its assets and system from extreme weather events, including but not limited to those caused by climate change.

**State Comptroller’s Comment** – The audit report recognizes that the MTA has assessed and identified areas that are at risk from extreme weather events and developed and carried out

---

<sup>1</sup> The response to this Report is being submitted jointly by MTA Construction & Development Company (“MTA C&D”) and the New York City Transit Authority (“NYCT” and, collectively, with MTA C&D, the “MTA Agencies”). The reason is that the Metropolitan Transportation Authority (“MTA”) consolidated the management of its capital program under one agency -- MTA C&D -- as part of its agency- wide transformation in 2019. As a result, MTA C&D is now responsible for the oversight of all capital projects for all MTA agencies, including projects that address weather risks. Since the audit period for the Report runs for a very lengthy 13 years (i.e., from April 2009 – August 2022), the Report’s findings and recommendations cover actions that span both pre and post consolidation.

*The agencies of the MTA*

MTA New York City Transit  
MTA Long Island Rail Road

MTA Metro-North Railroad  
MTA Bridges and Tunnels

MTA Construction & Development  
MTA Bus Company

capital projects to correct damage and mitigate potential flooding conditions. We also recognize the development of several operational plans to address processes under extreme weather-related conditions, including hurricanes and coastal flooding, winter, excessive heat, and rain flood.

The MTA-OIG issued a report in September 2022 that found problems with the process followed by Transit's CPM, now part of C&D, regarding the shortcomings in the design master plan phase of a project that resulted in an additional work order that was more than 10% of the total amount awarded. In response to the report, C&D agreed to take corrective action to improve the capital planning process. We urge the MTA to do the same with the conclusions and recommendations in our report because several of the projects that took longer and cost more were due to issues with the master plan budget and scope of work.

The agency has a long history of partnering with other government agencies and regional stakeholders in the development of climate-mitigation efforts and has established dedicated teams within our agency for emergency preparedness and climate-resilience planning. Our recent accomplishments include the creation of an updated coastal storm plan, obtaining surface flood studies, the buildout of a situation room to manage multi-agency events and the implementation of nearly \$8B in capital improvements for flood resilience, such as the installation of over 3,000 flood protection devices at 31 stations, rehabilitation of 11 under-river tunnels, construction of flood walls around yards and other locations, hardening of critical facilities, and elevating of critical equipment.

In continuing these efforts, the MTA is currently undertaking a system-wide climate vulnerability assessment that considers multiple climate hazards, including storm surge, stormwater, sea level rise, heat, wind, wildfire, and winter weather. Findings and recommendations from this assessment will be published in the MTA's Climate Action Plan later this year and will inform the agency's upcoming twenty-year needs assessment and future capital plans.

We note our disagreement with major findings in this report that are based on factual or analytical errors. While we acknowledge that over the course of 16 years the MTA's responses to climate risk were limited by budget and resources, the MTA has made major proactive investments that the OSC fails to acknowledge in its Report. That being said, the MTA Agencies respond to the Report as follows:

**State Comptroller's Comment** – The facts in the report reflect information provided during the audit by the MTA. The reference to "analytical errors" does not provide any specific issues that can be addressed.

#### **RESPONSE TO OSC FINDINGS**

MTA would first like to clarify four key findings in the draft report, each of which is based on a misunderstanding of data or otherwise includes inaccuracies.

Key Finding #1: The MTA Agencies did not: (i) take any action in response to the 2009 Blue Ribbon Commission's Report (the "Blue Ribbon Report") until 2013, after Superstorm Sandy significantly damaged the subway system; or (ii) implement the Blue Ribbon Report's

recommendation to develop a climate change adaption master plan.

First, it is incorrect that the MTA Agencies failed to take any action in response to the 2009 Blue Ribbon Report until 2013. The Blue Ribbon Report contained recommendations regarding climate adaptation to prepare for rising sea levels, storms and other climate change events, upon which the MTA has taken great strides. For over two decades now, tremendous investments and advancements have been made within the MTA in terms of extreme-weather risk mitigation, including but not limited to strategic planning, capital work, asset acquisition, resource management, and emergency plan management. Indeed, MTA personnel have worked extensively to identify system vulnerabilities and evolve our preparedness strategies to better mitigate the potential effects of future storm-surge flooding and other climate change related events. Furthermore, the MTA is implementing nearly \$8B in capital improvements for flood resilience to better protect our infrastructure against extreme weather. As noted above, this includes the installation of 3,000 flood protection devices at 31 stations, rehabilitation of 11 under-river tunnels, construction of flood walls around multiple subway yards as well as numerous bridges, signals, substations, and other critical infrastructure, hardening of critical facilities, and elevating of critical equipment.

**State Comptroller's Comment** – The MTA states that for over two decades now, tremendous investments and advancements were made regarding extreme weather conditions and to prepare for rising sea levels, storms, and other climate events. However, documentation was not provided during the audit. In fact, some of the activities mentioned in the response were not brought to our attention prior to the release of the draft report. Nevertheless, the climate change adaptation master plan called for by the Blue Ribbon Report was not prepared. MTA states that implementation of this recommendation has required tremendous amounts of time and resources and has been a multi-stakeholder undertaking. They also added that the MTA Climate Action Plan will be published later this year. While none of the MTA officials we interviewed mentioned it, we are pleased to hear that the recommendation is being implemented.

MTA provided a long description of activities related to weather-related projects over several years. However, the response does not reflect that most of the information was not provided to the auditors. Moreover, we interviewed 18 officials and only four of them indicated they were involved in an action related to the report. However, no one could provide documentation.

In relevant part, NYCT has been partnering with key emergency management colleagues in both New York City and New York State to advance emergency preparedness and response efforts to extreme weather events. Indeed, in the early 2000s, NYCT's Operations Planning unit and Subways' Division of Rapid Transit Operations and Maintenance of Way Engineering actively coordinated with the Mayor's Office of Emergency Management to develop a coastal storm plan for New York City and the evacuation of coastal and low-lying neighborhoods.<sup>2</sup> Among other things, NYCT analyzed the projected impacts to agency operations that could result from differing levels of wind, rainfall, and storm surge, all of which significantly informed the final version of the storm plan that the city released in 2006.

---

<sup>2</sup> The Division of Rapid Transit Operations is now known as the Division of Service Delivery and the Mayor's Office of Emergency Management is now known as New York City Emergency Management.

Then, in 2007, following a severe rainstorm, NYCT partnered with various NYC agencies to conduct a surface flood study, analyzing the historic effects of rainfall and resultant flooding throughout the subway system. In 2008, aided with this information and other input from Columbia University's Center for Climate Change Research, NYCT began implementing asset-specific protection measures (e.g., raising ventilation gratings above street level) in the subway system's most flood-prone locations.



**Fig. 1:** Raised Ventilator / Streetscape Preventing Water Ingress during Storm Flooding

**State Comptroller's Comment** – This is new information that was not made available during the audit.

As a result of these collaborative efforts (both within the MTA and with key external partners) and associated capital investments, NYCT found itself well prepared to mitigate the potential impacts of Hurricane Irene, which approached NYC in August 2011 (one year before Superstorm Sandy). The subway system fared extremely well during this storm, which was primarily a heavy rain event with minimal storm surge.<sup>3</sup>

Following Hurricane Irene, NYCT received and reviewed a revised Sea, Lake, and Overland Surges from Hurricanes ("SLOSH") model (2010 NY3 Basin Model) for New York City. Armed with this data, NYCT engineers reevaluated the height of surge at subway facilities from Category 1 and 2 Hurricanes and recomputed the extent of subway-tunnel flooding that could ensue. This resulted in a recalculation of tunnel flooding maps and updates to layup plans for NYCT rolling stock so that these assets could be protected from storm-surge flooding in future events.

In 2012, when Superstorm Sandy was approaching New York City, NYCT, in coordination with NYC's Office of Emergency Management, evacuated people from low-lying neighborhoods and then suspended its subways and bus services to customers 24-hours ahead of the storm to ensure that people were not stranded and were safe at home to the maximum extent possible.

Using information on projected vulnerabilities, NYCT also prepared the subway

---

<sup>3</sup> Storm surge accompanying coastal storms depends on a number of factors, including the wind velocity, direction and speed of approach, point of landfall, time of landfall with respect to high tide, and astronomical effect on tides. The damage that can be caused to NYCT Subways' infrastructure and rolling stock is significantly greater when dealing with *saltwater* storm surge versus rainwater.



system for the storm by relocating rolling stock from flood-prone yards, sealing ventilation gratings, barricading station entrances, removing vital signaling systems from the Canarsie Tube, and constructing flood barriers at known vulnerable locations. Due to the strategic plan to relocate NYCT trains away from low-lying areas, less than 0.3% of the entire fleet (only about 20 cars out of a fleet of more than 5,400) suffered any kind of flood-related damage. Equally, the subway signal system was able to be brought back quickly because new technology parts had been removed ahead of the storm. In short, if not for the preparation which took place prior to 2012 (as a result of the Blue Ribbon Report and otherwise), the impacts of Sandy would have been even more significant.

That said, Hurricane Sandy was unprecedented in the NYC region and forced NYCT to, once again, develop new strategies to harden its system. This included, among other things, hiring a dedicated team of Recovery and Resiliency Fellows to conduct extensive research into plans for future storm-surge events. It also included historic capital investments focused on resiliency. The MTA has committed \$6.3 billion in capital investment – a scale unparalleled among transit agencies in the United States. This funding has allowed NYCT to advance the critical flood protection measures described above.

The MTA's work continued beyond the direct response to Sandy to protect the subway system. In 2021, the MTA formed a cross-agency stormwater task force with representatives from the MTA Agencies and New York City's Department of Transportation, Department of Environmental Protection, and Office of Emergency Management. This task force led to the identification of over 180 locations vulnerable to stormwater flooding, which the task force then jointly investigated to identify and address the root-causes of flood risk. As a result of the task force, MTA is installing stormwater flood mitigation measures at 45 stations. In addition to the task force, the MTA established a board working group on resiliency in 2022, which recommended creation of a climate adaptation unit and integration of climate resiliency into long-term planning.

In addition to the hardening of our system, the MTA determined it would be best to use an Enterprise Asset Management ("EAM") system as the primary tool for electronically scheduling and tracking the inspection, maintenance, and repair of virtually all of its critical assets. This is relevant in that, as of May 2022, all of NYCT's subway storm-surge mitigation assets (inclusive of those belonging to Staten Island Railway) are now successfully migrated into EAM. In turn, NYCT can now utilize this advanced asset management system to track, monitor, and record the inspection and maintenance activities of these thousands of storm-surge mitigation assets at an asset-specific level.

Beyond these major advancements of installing thousands of location-specific flood-mitigation assets and modernizing how they will be managed/tracked, NYCT has also made major strides in strengthening its emergency-preparedness resources. Starting in 2017, NYCT Subways began staffing a full-time emergency preparedness professional and, as of 2023, its Emergency Response and Preparedness group is now a three-person team. These industry experts work year-round on driving relevant business-process improvements, maintaining NYCT Subways' emergency plans (to ensure that they align with operational advancements),

and conducting drills and exercises (with both internal stakeholders as well as external partners such as Con Edison).

In alignment with NYCT, MTA Headquarters has also built out a full-time emergency management team. This team, in coordination with emergency management liaisons from within the operating agencies, has developed improved emergency plans, as well as enhanced the skills of senior leadership throughout the MTA Agencies by engaging their participation in a variety of planning, response, recovery, and mitigation activities. One such example is that they conduct annual exercises with the MTA executive team in preparation for severe weather events, including winter storms, coastal storms, flooding and other weather-related hazards. In addition, this team has also helped to formalize the response structure for a multi-agency emergency with the adoption of an Incident Command System structure, which includes 25 defined positions with specific preparedness, response, and recovery objectives. They also maintain a situation room, which provides clear and real-time information to the MTA's executives, operation centers, and external stakeholders by monitoring MTA communication channels, surveillance systems, and open-source intelligence. Through this situational awareness, the MTA is better positioned to evaluate events that require authority-wide coordination. As a result of these various planning, training, and coordination efforts, the MTA was able to successfully respond to multiple multi-agency extreme weather events in recent years (e.g., January 28<sup>th</sup> – 29<sup>th</sup> blizzard of 2022 and the December 23<sup>rd</sup> – 24<sup>th</sup> storm of 2022).

Second, in terms of evaluating the development of a climate-change adaption master plan, it is critical to understand that the implementation of this recommendation has required tremendous amounts of time and resources and been a multi-year, multi-stakeholder undertaking. It has involved ongoing collaboration amongst key stakeholders both within and outside of the MTA, and required extensive amounts of research, implementation, and real-world testing of different mitigation strategies. All of these efforts, as outlined above, have enabled the MTA to not only update its various climate-related emergency weather plans (including the development of an agency-level Coastal Storm Plan), but also to develop an MTA Climate Action Plan that will be published later this year and informs the upcoming twenty year needs assessment and future capital plans.

Key Finding #2: Twenty-three out of 221 MTA capital projects intended to correct or prevent extreme weather damage were incomplete in scope of work, not finished on time or within budget, or insufficiently documented.

**State Comptroller's Comment** – The findings are based on the master plan data, which according to procedures, should have a well-defined scope of work, as well as additional records provided that relate to the construction phase of the projects, dates when contracts were awarded, and, for some projects, information provided in progress notes.

This finding is inaccurate in that it is based upon early-stage project planning documents, which by design do not yet incorporate high-confidence cost or schedule information.

The MTA has a track record of completing its Sandy-related projects on time and on budget, especially since the consolidation of the capital program into MTA C&D. This is

evidenced by the quarterly milestone data, which is publicly available on MTA’s Capital Program Dashboard at <http://web.mta.info/capitaldashboard/CPDHome.html>. This data shows that as of Q1 2022, 86% of NYCT’s Sandy-related capital projects were at or below budget (including 42% that are under budget) and that the overall budget variance for all projects combined is 1%:

<b>NYCT / SIR BUDGET PERFORMANCE BY ACEP N=233</b>		
<b>ACEPs On or Below Budget</b>		<b>ACEPs Over Budget</b>
<b>Below</b>	<b>On</b>	<b>Over</b>
81	90	19
10	8	14
1	5	0
1	4	0
<b>93</b>	<b>107</b>	<b>33</b>
<b>40%</b>	<b>46%</b>	<b>14%</b>

In addition, as of Q1 2022, 75% of NYCT’s Sandy-related capital projects were on or ahead of schedule:

<b>NYCT / SIR SCHEDULE PERFORMANCE BY ACEP N=162</b>		
<b>ACEPs On or Ahead of Schedule</b>		<b>ACEPs Behind</b>
<b>Ahead of</b>	<b>On</b>	<b>Over</b>
11	110	41
<b>7%</b>	<b>68%</b>	<b>25%</b>

In addition, the findings that MTA C&D only completed two of the six critical stations that were meant to be more resistant to potential flooding and only completed flood mitigation at eleven of fourteen fan plants is mistaken. Flood mitigation work was completed as part of the agency’s Six Stations Resiliency Initiative and the Fourteen Fan Plants Initiative, which work split between several capital projects. Documents evidencing the completion of this work were previously provided to the OSC and can be re-sent upon request.

**State Comptroller’s Comment** – The documentation provided was reviewed, but it did not support the work being completed. We made a recommendation that the MTA develop a system to link projects that are split. MTA C&D replied that this was implemented as part of its business operations; however, this information was not provided during the audit.

As noted above, the consolidation of capital planning and delivery functions under MTA C&D is directly intended to deliver projects faster and more cost-effectively.

Key Finding #3: NYCT did not sufficiently document inspections of individual pieces of equipment. Instead, it reported more broadly by subway stations or by rooms in off-site

facilities that were inspected.

For the reasons discussed during NYCT’s audit meetings with the OSC, NYCT sufficiently documented these inspections in accordance with NYCT policies and procedures. As discussed, the migration of NYCT’s critical assets into the EAM program has been a large, multi-year undertaking, which began in 2016. As of May 2022, all of NYCT’s subway related storm-surge assets are now in EAM, which enables the agency to document its inspection activities at an asset-specific level. However, between January 2021 and August 2022, when many of these storm-surge mitigation assets were being transferred in ownership from MTA C&D to NYCT, EAM was still in the early phases of production. Due to the magnitude of building out EAM, numerous assets had to be migrated into the system in coordinated stages; naturally, the work orders associated with these assets also had to evolve in stages.

**State Comptroller’s Comment** – We disagree with dates in the response of when SSME records were in EAM. While the response states that Transit’s SSMEs were in EAM by May 2022, this was not the case in August 2022 when the auditors met with Transit officials to obtain records for the inspections done for the sampled SSMEs. The information available in EAM included only the station where the equipment should be located. We visited SIR on November 1, 2022, and the equipment was not in EAM. Information about EAM at Transit-Stations and SIR was provided by representatives working on the system. Moreover, the response does not address why Stations did not have any inspection records for 2019, 2020, or 2021.

For the storm-surge mitigation assets that, during the time of the audit were under the ownership of NYCT Stations Division, personnel were utilizing a version of EAM in which all storm-surge mitigation assets were not yet fully migrated (i.e., more time would be needed to produce all required *asset-specific* inspection files). In turn, they needed to create a temporary means by which station-specific EAM-generated work orders could capture the fact that storm-surge mitigation assets were being inspected. This was done by not only titling the work order something like, “Station Flood Mitigation Equipment Inspection” but also by including a checklist for these work orders in which the inspectors had to answer 26 questions related to a variety of types of storm-surge mitigation assets that might be found within the given station. In turn, when a work order for the inspection of a station was completed and closed, it was understood, at that time, to include a completed inspection for all the associated flood-mitigation assets located within that station and under the ownership of NYCT Stations.

For the storm-surge mitigation assets that were originally under the ownership of NYCT’s Maintenance of Way (“MOW”) Division, EAM was also not-yet-ready to generate asset-specific work orders. In turn, similar to NYCT Stations, NYCT MOW personnel needed to create a temporary means by which their asset inspections records could capture the fact that storm-surge mitigation assets were being inspected. At first this was done without any modifications to inspection forms; however, in Summer 2021, as more storm-surge mitigation assets began to be acquired and had upcoming inspections due, the form that was being used by NYCT MOW to inspect fan plants was updated to include a box that specifically stated, “Inspect Flood Mitigation Devices,” to which the inspector had to note their acknowledgement and, as needed, their findings.

While NYCT realizes that these may not be the records that the OSC was hoping for,

during the midst of a global pandemic that had a crippling impact on most of the world, it could have jeopardized safety and operations for NYCT to allocate maintenance personnel to develop more detailed paper records outside of EAM (and train personnel on how to complete the updated forms) in order to produce asset-specific inspection records for that temporary time period during which we were transitioning from paper to digital records.

The MTA Agencies further note the following: When an asset transitions in ownership from MTA C&D to NYCT Subways, it undergoes a final inspection to ensure the asset is in a state of good repair; this is overseen by MTA C&D and witnessed by NYCT. The final inspection before transition is documented as the date of beneficial use (i.e., “BU Date”). Once an asset is transferred to NYCT (i.e., the BU Date), NYCT personnel are then responsible for future inspections and maintenance of the asset; however, given that the asset has just been inspected, the first in-service inspection by NYCT Subways personnel is required by the final date of the calendar year following the BU date (e.g., if the BU date is June 1, 2021, the asset would need to be inspected by the end of 2022 and its inspection would not be considered *past due (or incomplete)* until January 1, 2023\_.

This means that if the OSC’s audit concluded in August 2022, for any asset which had a BU Date in 2021, that asset would not have been required to have had a completed inspection on record until the end of 2022. Although the MTA Agencies discussed these issues with the OSC auditors, they do not appear to have been taken into consideration by the OSC in their evaluation of NYCT’s inspection records and the OSC’s determination of what constitutes an “incomplete” inspection.

**State Comptroller’s Comment** – Our audit results reflect the BU date as well as the substantial completion date, which is closer to the date the project is completed or the equipment is turned over by the contractor. We did not include inspections that would have been due after August 2022.

In addition, the OSC seems to draw inaccurate conclusions based upon the OSC’s mistaken statements that NYCT did not provide the OSC with documents requested. For example, the OSC found that inspection reports for NYCT Infrastructure could not be used to adequately document either the inspection of the fan plants or the equipment located in or outside the fan plants because they don't include the date, name, serial number, or location of the equipment inspected. But in fact, even prior to the migration of NYCT’s storm-surge mitigation assets into EAM, the agency’s Annual Inspection Form for fan plants contained the date of inspection, names (of both the employee doing the inspection and their supervisor), and the location of the inspection. These documents have already been provided to the OSC in connection with this audit.

**State Comptroller’s Comment** – The audit results regarding Transit Infrastructure equipment inspections are correct. In response to our preliminary findings, Infrastructure officials requested a meeting to discuss the audit results. We met with Transit Infrastructure officials and changed the results based on their verbal explanation of the inspection process. Thus, the report reflects the new information provided about how equipment is counted and dates when SSMEs were turned over by the contractor. MTA’s claim that Transit Infrastructure always had written procedures is also incorrect.

Similarly, the OSC indicates that NYCT did not have written procedures for the

maintenance of its flood mitigation equipment. This is not accurate, as any time an asset is transferred from MTA C&D to NYCT, the transfer includes drawings, training and the Manufacturer's Operations and Maintenance Manual ("OMM"), which details the manufacturer's recommended inspection and maintenance protocols. Unless there is safety or operational reason to deviate from the OMM, NYCT Subways' personnel follow the manufacturer recommendations. The OSC is welcome to review any of our Storm Surge Mitigation Equipment ("SSME") asset OMMs.

**State Comptroller's Comment** – Transit did not have procedures as to when inspections and maintenance are required. The audit does not question what steps are done for maintenance. As stated in the report, SIR replied on July 19, 2023 that it did not have a written maintenance plan for its mitigation equipment.

The OSC also states that it never received a written maintenance schedule and testing plan for the flood barrier logs at Clifton Yard and St. George Terminal. That testing schedule is complete and available to the OSC for review. That schedule requires that Staten Island Railways' ("SIR") flood-mitigation assets be inspected every six months. More specifically, flood-mitigation asset inspection work orders will be generated on the first of every August and first of every February. SIR will then have 30 days to complete the associated inspections / perform the required maintenance.

Key Finding # 4: NYCT activated its winter, hurricane, rain, and extreme heat plans inconsistently, with no documentation explaining the rationale for decision making.

This finding suggests a misunderstanding of the relevant processes. The triggers that require an NYCT Subways emergency plan to be activated are detailed within each specific plan. When those triggers are met, the respective plan is activated, and event-related records are maintained. That said, a plan can be activated without the required triggers being met at the discretion of NYCT Subways Senior Vice President or their designee. The OSC auditors may have observed differences in NYCT's historical activations if their sample included dates where there was no requirement to activate, but an activation was initiated at the Senior Vice President's discretion as documented in NYCT Subways emergency plan documentation. All such documentation that was requested by the OSC has been provided and can be re-sent upon request.

Because no two events are ever identical, and no emergency plan can ever account for every possible factor that must be considered by leadership in order to effectively command real-time events (including but not limited to the influence of external stakeholders), NYCT Subways' emergency plans are intentionally designed to lay out the requirements for when we must activate, but also allow for flexibility and the discretion of leadership. This is a key strength of these plans.

The Report also finds that NYCT did not provide the OSC with any weather-related documents (e.g., weather updates, activation of an incident command center) pertaining to Superstorm Sandy, except for the weather forecast report it received from its vendor. NYCT has a wealth of historical information related to its preparation for and response to Superstorm Sandy, including but not limited to evidence of its pre-storm preparation activities (e.g., planned

activation of our Incident Command Center). If the OSC requires this information, NYCT is happy to provide it.

**State Comptroller's Comment** – This offer was not made during the audit.

Although not key findings, there are four other inaccuracies contained within the Report that should be noted:

1. The Report states that the OSC requested a sample of 20 weather forecast reports where plans should have been activated and that NYCT officials provided reports for 18 of those 20 weather events, but couldn't provide documents for one event due to their record retention period, and did not provide a report for May 28, 2016 because there was no precipitation recorded for May 28, 2016. The Report also found that out of the OSC sample of 20 weather events, plans were not activated for seven events, including tropical storms, hurricanes, or coastal flooding.

**State Comptroller's Comment** – We revised the report based on information in the response.

The 20 dates for which the OSC requested emergency planning documentation were not all “weather events.” Based on the final section of the OSC’s draft report, it appears that the OSC considers every calendar date identified to be a weather event.

**State Comptroller's Comment** – The audit did not consider every calendar date as a weather event. The dates were selected based on conditions reported by NOAA. We checked Transit’s plans for actions based on the weather conditions. We maintain our position that decisions not to take actions because it was determined by Transit officials that no action was necessary should be documented.

However, the vast majority of calendar dates do not constitute a weather event for NYCT Subways, which operates throughout all types of unfavorable weather conditions that do not necessitate activation of one of its emergency preparedness plans. This is largely because NYCT Subways has an experienced team at the Control Center that operates 24-7-365 and handles various operational conditions and isolated emergencies around the clock. This includes managing weather-related conditions in the absence of an activated plan (e.g., when sustained wind speeds reach certain thresholds, service modifications on elevated lines are made, as needed, for the safety of our customers and personnel; this does not require the activation of an emergency plan). Furthermore, the subway system is designed to handle the equivalent of 1.5 inches of rain per hour by using pumps which direct water into city drains. Moreover, rain-related flooding events do not pose nearly the same type of risk to NYCT customers or the subway system’s infrastructure as salt-water storm-surge events.

Further, in multiple instances, the dates for which the OSC requested weather forecasts and related event documentation were non-events for NYCT Subways. In turn, there would be no documentation to provide beyond the weather forecast because the agency does not require its control center personnel to document their



rationale for not activating an emergency plan in the absence of triggers that would require them to do so. Any other path would be illogical.

Finally, within these requested dates there were not any weather events that, pursuant to NYCT Subways' emergency plans, would have warranted plan activation and for which plan activation did not occur.

2. The Report finds that on nine occasions, NYCT Subways Department senior leadership did not disseminate weather reports and other weather-related documents to other units, including MOW Engineering, MOW Signals, Stations and Car Equipment.

The MTA Agencies disagree with this conclusion as this information was disseminated in accordance with agency policy, which the MTA considers to be the proper and most effective method of dissemination. NYCT Subways' Operations Control Center (formerly known as the Rail Control Center) ("OCC") Communications Desk reads the forecast out loud during their daily Subways conference calls (now referred to as the SOAR Call), during which NYCT Subways managers and leaders from units across the department convene to discuss service-impacting matters.

In addition, the MTA Agencies note that NYCT has a functional process in place to ensure a quick response by the agency to weather related events. To this end, NYCT Subways operates an OCC that supervises the operation of the subway system, around the clock, under all operating conditions (i.e., during both normal and emergency operations, including but not limited to extreme weather conditions). In the absence of an emergency plan activation, OCC leadership takes the lead in directing NYCT Subways' response to all types of significant service disruptions (including isolated emergencies, power failures, etc.) and can act largely independently. The OCC Communications Desk also takes the lead in disseminating relevant information related to ongoing service disruptions, in accordance with internal protocols.

When an emergency plan is activated, OCC leadership continues to direct NYCT Subways' response to service disruptions, while also assuming additional responsibilities relevant to emergency preparedness and response, as outlined in the respective emergency plan. These additional activities are often done in more direct coordination with senior NYCT Subways leadership. The OCC Communications Desk will also continue to disseminate service-related information, while also taking on additional communication responsibilities related to the event (which are also outlined within the respective emergency plan).

Further, during an activation of a NYCT Subways' emergency plan (Winter, Hurricane, Flood), the OCC Communications Desk is responsible for communicating the following information to various stakeholders, to the extent of relevancy to the specific event:



- The emergency plan being activated (and, for winter plans, the plan level/number).
- Information pertaining to any weather-related conference calls (i.e., where the forecast is read out loud), or virtual meetings related to the activation.
- Notification of activation of the Incident Command Center.
- Information on the agreed upon staging of equipment and personnel related to the activation.
- Absent an Incident Command Center, a chronology of events and local conditions related to the weather event.
- Safety advisories for personnel associated with weather-related hazards.
- All service impacts and deviations, including those weather-related.

In addition, the OCC Communications Desk communicates with key stakeholders via a wide range of mediums, including telephone calls, broadcast text messages/alerts (e.g., Everbridge), conference calls, emails, and six-wire/radio communications. It is important to understand that to reach all NYCT Subways employees, it is necessary to use this range of mediums (not all of which have recorded/auditable records). For example, NYCT train operators are not permitted to bring cell phones into their cabs. They also do not have email addresses. To communicate key information to them during an event, the safest means to get the message out to them quickly and effectively is via radio and/or six-wire. NYCT remains confident that these operations are the appropriate method for communication.

3. The Report finds that NYCT weather reports that result in notifications (i.e., the weather forecast and activities occurring in the track yards) being distributed to a specific group are required to be signed and dated by authorized RCC personnel.

The signing of weather forecasts is an outdated NYCT protocol that was originally implemented by control center personnel in relation to winter operations. This was never instituted as a protocol for any other type of weather events, which is why Superstorm Sandy forecasts, as well as other non-winter-event forecasts, would not have been signed.

**State Comptroller's Comment** – The protocol should be updated to reflect what is required.

4. The Report finds that guidance on the installation of storm equipment needs to be specific as to when to decide to deploy it ahead of a storm. It further finds that while NYCT Subways has updated its Rain Plan, the Hurricane Plan still has limited formal guidance, leaving it to the discretion of NYCT Subways and OCC staff to determine when to activate a plan.

While the OSC is correct that the updated Rain/Flood Plan has specific activation triggers (related to the amount of rainfall predicted per hour), the MTA Agencies disagree that the Hurricane plan lacks specificity regarding when to activate. As

made clear in the plan itself, the plan is required to be activated anytime there is a declared Hurricane (Category 1-5) projected to make landfall near NYCT Subways' service territory.

Furthermore, the Hurricane Plan details specific steps that must be taken 72, 48, 12 and 8 hours prior to "Zero Hour". All activities that NYCT Subways can accomplish *on its own authority* are initiated as early as possible, including but not limited to the staging of people and equipment, deployment of portable generators and pumps to anticipated areas of need, inspection and cleaning of drains and pump rooms, and other key tasks. That said, if the forecast were to be particularly dire, the complete shutdown of operations would include the sealing off of subway and tunnel entrances and the cessation of train and rail service. Because this action may impede the evacuation of people from low-lying areas and raises other safety concerns, NYCT leaders consult with MTA executive leadership (such as the Chair and Chief Safety Officer) and make this decision in coordination with local and state counterparts.

### **RESPONSE TO RECOMMENDATIONS**

#### **Recommendation No. 1:**

Evaluate the results of any future studies requested of MTA sustainability professionals and document actions taken to implement them, and where recommendations are not implemented, the reasons why.

#### **MTA Response to Recommendation No. 1:**

The MTA Agencies acknowledge this recommendation and note that the MTA already evaluates the results of its future studies and discusses actions to implement or reject the findings.

#### **Recommendation No. 2:**

Ensure mitigation-related capital projects, including scope of work, are completed on time and within the budget to prevent further damage to NYCT facilities.

#### **MTA Response to Recommendation No. 2:**

The MTA Agencies acknowledge this recommendation and note that, as discussed above, MTA C&D has been completing our Sandy-related projects on time and on budget.

#### **Recommendation No. 3:**

Implement a system that links projects that were split to facilitate easy access to related documents for that project.

MTA Response to Recommendation No. 3:

The MTA Agencies acknowledge this recommendation and note that this is already being done as part of MTA C&D's business operations. The Project Status Report ("PSR") system is the budget reporting application used for capital projects. All MTA C&D capital projects are given certain identifiers that can be used to query an electronic report within the PSR system. These identifiers include planning numbers, contract numbers, bundle numbers, and capital project "ACEP" numbers, and can provide a single record or groups of records for a project. Additionally, certain project descriptions can be used to group records together to ensure easy access to all project documents. For example, all PSR records associated with the "14 Fan Plants" resiliency initiative would include "14 Fan Plants" in the project description so that all relevant project documents appear in response to a PSR search.

Recommendation No. 4:

Implement a system that links the awarded budget for the projects to the current budget and estimated completion cost on the PSRs.

MTA Response to Recommendation No. 4:

The MTA Agencies acknowledge this recommendation and note that the functionality already exists as part of MTA C&D's business operations. Individual records on the PSR are made up of tasks representing major cost elements of a capital project such as construction (third party, in-house), in-house labor, engineering force account, consultants, etc. When a capital project is awarded, the budget of each task is adjusted to its latest estimate through established procedures, and the sum of the resulting task current budgets shown on the PSR equals the awarded budget for the project. If the total cost of a contract is split between multiple records on the PSR, the records are linked together by the contract number found on the construction task and/or the bundle number. The total current budget from all the connected PSRs shows the total awarded budget for the contract. Similarly, each task and record on the PSR shows an estimate at completion ("EAC") number. If a contract is split between multiple records on the PSR, the EACs can be added together to determine the total EAC of the contract.

At the end of each month, all the data saved in the PSR – including budget, EAC, milestone dates, and others – is captured and archived. This data is available for view in the PSR for all records dating back to the month the record was created in the system. The user-friendly functionality enables MTA C&D staff to easily compare the current budget to the awarded budget by simply viewing the current month's data to the data from the month that the project was awarded. If more specificity is needed, the exact date and time the changes were made can be traced using the "Audit Trail" feature of the PSR.

Recommendation No. 5:

Establish clear and complete written procedures to address the maintenance and inspection process of equipment.

MTA Response to Recommendation No. 5:

The MTA Agencies acknowledge this recommendation and note that NYCT already has clear written guidance on how to inspect and maintain every storm-surge mitigation asset, as outlined by each asset's Operations and Maintenance Manual ("OMM"). The OMMs provide clear and complete (source-driven) written instruction and guidance on how to properly inspect and maintain storm-surge mitigation assets. Unless there is justified reason for a deviation, NYCT Subways personnel follow the OMM-defined manufacturer recommendations for each asset.

**State Comptroller's Comment** – This recommendation is focused on documenting that the inspection was done and the equipment is maintained. It does not cover the steps carried out during the inspection.

Recommendation No. 6:

Document sufficient information to identify the equipment inspected such as serial number, equipment tag number, and model number.

MTA Response to Recommendation No. 6:

The MTA Agencies acknowledge this recommendation. Every storm-surge mitigation asset owned by NYCT Subways (inclusive of SIR) has been populated into EAM. Furthermore, each asset has been associated with multiple identifiers, including but not limited to asset UID (unique identification code), asset description, asset class, responsible division, in/nearest station, latitude and longitude coordinates, and storage location.

**State Comptroller's Comment** – While Transit may identify its equipment for inventory, it does not record when the inspection or maintenance was completed to ensure the equipment works properly.

Recommendation No. 7:

Ensure all equipment is maintained and inspected regularly and in a timely manner.

MTA Response to Recommendation No. 7:

The MTA Agencies acknowledge this recommendation and note that this is already part of NYCT's existing business practices. As noted above, the development of NYCT's EAM system was a large, multi-year undertaking that began prior to this OSC audit. All of NYCT Subways' storm-surge mitigation assets are now populated in EAM. This will enable NYCT not only to ensure that its Subways Department assets continue to be inspected and maintained as required, but also to have more audit-friendly (i.e., asset-specific) inspection/maintenance records going forward.

Recommendation No. 8:

Ensure all weather reports that activate a plan are signed and dated by authorized OCC personnel.

MTA Response to Recommendation No. 8:

The MTA Agencies will continue to evaluate its processes but disagree with this

recommendation. The signing of weather reports is an informal, outdated NYCT Subways' Control Center protocol relevant only to winter operations that does not warrant implementation across all of NYCT Subways' emergency plans. NYCT believes that the suggested revisions would introduce inefficiencies to this process.

Recommendation No. 9:

Establish and document a process to ensure weather information and instructions from NYCT Subways officials are communicated to all responsible NYCT Subways personnel and units.

MTA Response to Recommendation No. 9:

The MTA Agencies acknowledge this recommendation and note that it is already part of NYCT's business processes. As the OSC is aware, many operations NYCT personnel (such as Subways Train Operators) do not have emails and cannot carry phones while performing their duties due to safety risks. Similarly, not all weather-related instructions need to be communicated to all NYCT Subways personnel. That said, the NYCT OCC Communications Desk communicates with all necessary stakeholders using a variety of communications methods that are customized and targeted to each audience (e.g., Everbridge text alerts, six-wire communications, email messages, etc.) and aligns with operational information management best practices during emergency events.

As per the Weather Forecast Monitoring and Notification Protocol which is included in all of Subways' emergency response plans, it is the responsibility of OCC Communications Desk to summarize and read aloud the forecast and hazards on daily operations calls (SOAR) as well as emergency operations (e.g., storm) calls.

In an effort to have more audit-friendly documentation readily available in the future, Subways is working toward incorporating the following actions into their current emergency management protocols:

- any time an email notification of plan activation is sent out by the OCC Communications Desk to key stakeholders (including but not limited to Subways Division Heads), the most recent weather forecast will be included as an attachment; and
- any time NYCT Subways' Incident Command Center opens, the OCC Communications Desk will send out an email notification to key stakeholders (including but not limited to NYCT Subways Division Heads), alerting them that the ICC has officially been activated.

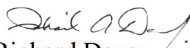
Furthermore, NYCT is committed to continuing to build our Emergency Management and Preparedness SharePoint site, which serves as the official repository for all emergency management-related content and record-keeping activities for NYCT Subways, including but not limited to NYCT Subways' official emergency plans, daily weather forecasts, and event-specific records.


---

Letter to Janno Lieber  
September 21, 2023  
Page 18 of 18

We appreciate the OSC's work and their consideration of this response in issuing a final report. In the interim, should they 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

  
Jamie Torres-Springer  
MTA C&D President

cc: Paige Graves, MTA General Counsel  
Evan M. Eisland, MTA C&D Executive Vice-President and General Counsel  
David Farber, New York City Transit General Counsel  
Diane M. Nardi, MTA C&D Senior Vice-President and Deputy General Counsel  
Mark Roche, MTA C&D Deputy Chief Development Officer - Delivery  
Monica A. Murray, New York City Transit Chief Administrative Officer  
Demetrius Critchlow, Senior Vice-President, Department of Subways

# Contributors to Report

---

## Executive Team

**Andrea C. Miller** - *Executive Deputy Comptroller*

**Tina Kim** - *Deputy Comptroller*

**Stephen C. Lynch** - *Assistant Comptroller*

## Audit Team

**Carmen Maldonado** - *Audit Director*

**Robert C. Mehrhoff** - *Audit Manager*

**Erica Zawrotniak** - *Audit Supervisor*

**Katrina Lau** - *Examiner-in-Charge*

**Peter Teelucksingh** - *Examiner-in-Charge*

**Jean-Renel Estime** - *Senior Examiner*

**Brenda Maynard** - *Senior Examiner*

**Anuradha Baldeo** - *Staff Examiner*

## Contact Information

(518) 474-3271

[StateGovernmentAccountability@osc.ny.gov](mailto:StateGovernmentAccountability@osc.ny.gov)

Office of the New York State Comptroller  
Division of State Government Accountability  
110 State Street, 11th Floor  
Albany, NY 12236

