

# Storm performance review

MTA Operating Committees  
June 27, 2011



# The December 2010 storm impacted the entire metropolitan region

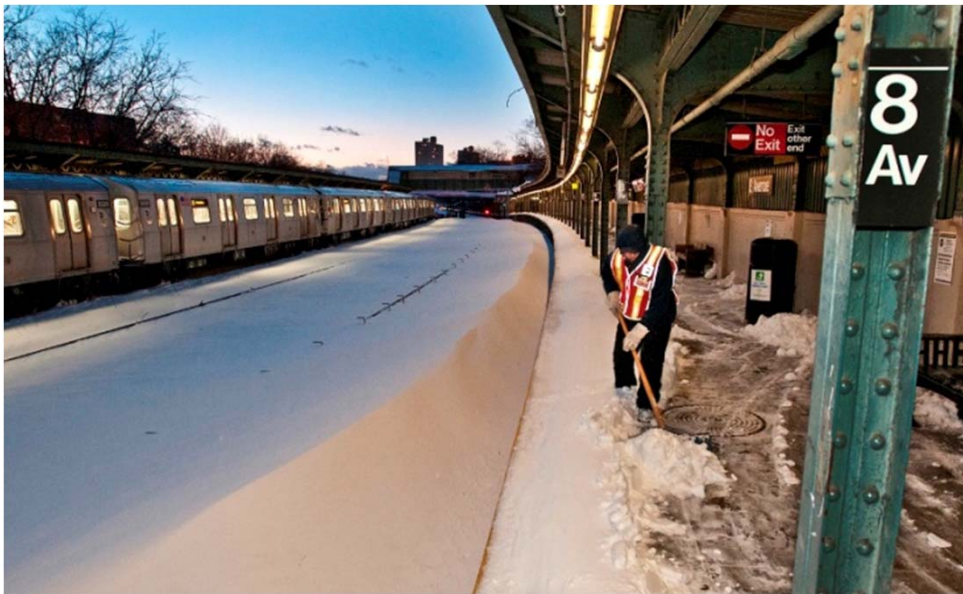
<b>Pre-December 25</b>	<ul style="list-style-type: none"> <li>Storm severity downgraded but forecasts volatile</li> </ul>
<b>Dec 25 (Sat)</b>	<ul style="list-style-type: none"> <li>Storm severity upgraded</li> <li>Blizzard warning issued</li> <li>Subway cars stored underground, General Orders suspended</li> </ul>
<b>Dec 26 (Sun)</b>	<ul style="list-style-type: none"> <li>MTA activates special snow advisory homepage</li> <li>Continued deployment of snow-fighting equipment across agencies</li> <li>Snowfall begins</li> <li>Service difficulties across region begin (1800+) <ul style="list-style-type: none"> <li>Storm rapidly intensifies</li> <li>Amtrak suspends NYC-Boston service</li> <li>JFK/LGA/EWR close; JFK AirTrain service suspended</li> <li>NJT suspends all bus service</li> <li>NYCT service affected due to stranded trains in outdoor areas</li> <li>LIRR suspends all service</li> <li>Many in-service buses begin to become immovable due to rapidly accumulating snow</li> </ul> </li> </ul>
<b>Dec 27 (Mon)</b>	<ul style="list-style-type: none"> <li>Significant service disruptions across region <ul style="list-style-type: none"> <li>MNR service suspensions begin</li> <li>Bus service curtailed severely</li> <li>Several Subway and MNR trains are stuck and then eventually rescued</li> <li>Significant snowfall ends but high winds and drifting continue</li> <li>Amtrak resumes NYC-Boston service with delays</li> <li>Limited LIRR and MNR service resumes</li> <li>Suspended Subway services begin to be resumed</li> <li>JFK/LGA/EWR reopen with limited capacity</li> </ul> </li> </ul>
<b>Dec 28 (Tue)</b>	<ul style="list-style-type: none"> <li>MNR operates Saturday schedule</li> <li>Majority of suspended Subway services restored</li> <li>Majority of suspended Bus services restored</li> <li>NJT resumes bus service</li> <li>JFK AirTrain service resumes</li> </ul>
<b>Dec 29 (Wed)</b>	<ul style="list-style-type: none"> <li>Regular service restored at MNR and LIRR (except buses provided east of Ronkonkoma until 12/31)</li> <li>All runways clear at JFK/LGA/EWR</li> <li>Stuck buses fully retrieved</li> </ul>
<b>Dec 30 (Thur)</b>	<ul style="list-style-type: none"> <li>All routes restored for Subways and Buses, with some modified bus routes until Jan 2 (Sun)</li> <li>All NYC streets plowed</li> </ul>

## Heavy snowfall led to service disruptions across the MTA





## Several days were needed to clear snow and restore MTA-wide service



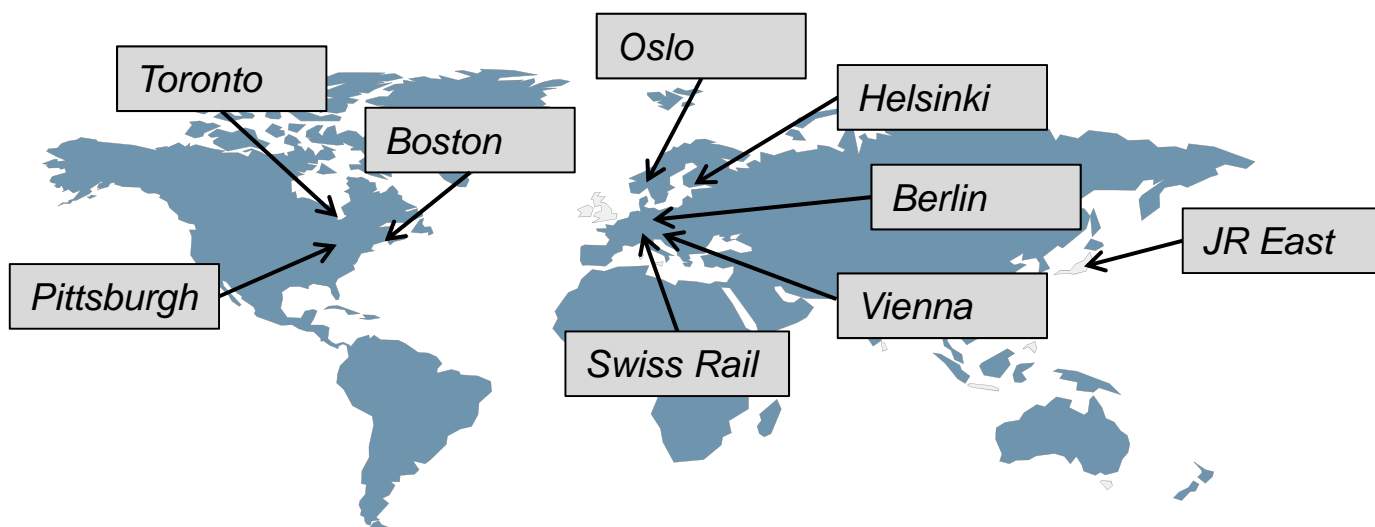
## In the wake of the storm, the MTA commenced a two-phase review process to identify actions that would improve storm performance

### Agency-led initial reviews

- Preliminary assessment of Agency performance
- Immediate actions that led to improved performance in Jan and Feb storms

### MTA-led in-depth review

- Interviews with over 40 executives and senior managers across the MTA
- Review of other storm reports by MTA (2004 and 2007), NYC, Eurostar, etc.
- Outreach to peer properties to learn about good practices:



MTA storm report issued today, with recommendations and Agency action plans

## The review process generated 25 MTA-wide recommendations for improving storm performance, including:

### Operations

- MTA-wide coordination facilitated by a dedicated Emergency Coordinator
- Preemptive service curtailment when conditions render normal service untenable
- Procedures for managing stuck vehicles, including attending to customer needs

### Customer communication

- Proactive outreach to alert the public to possible service curtailments
- Multiple channels of communication including *mta.info* site, 311, social media
- Procedures for providing service updates to customers already in system

### Staffing

- Procedures for maximizing work force availability during storms
- Flexible use of labor including geographic assignments and work functions
- Transportation staff training on winter operations, including disruption management

### Equipment

- Real-time monitoring such as GPS to enable proactive operations management
- Appropriate snow-fighting equipment maintained in a state of good repair
- Ongoing capital investment to ensure fleet and infrastructure preparedness

# Review of LIRR performance in the December storm has resulted in a series of already-completed improvements

## Dec storm strengths

- Early activation of highest Level 4 storm response
- Preemptive service curtailment kept trains from becoming stuck between stations
- Effective deployment of comfort trains for passengers stranded overnight
- Coordination with Subways to move stranded customers from Penn to Jamaica

## Dec storm issues

- Infrastructure problems developed early and quickly hampered service
- Limited availability of staff and equipment contributed to slow recovery
- Poor customer communications about service recovery plans
- Insufficient capacity to meet rush hour demand during recovery

## Completed improvements

- Introduced procedures for concentrating resources on clearing vulnerable switches
- Developed improved strategy for operating reduced-service storm schedules
- Upgraded AVPS customer information system to enable faster service updates

## **LIRR is also pursuing an action plan of additional improvements, most of which will be completed by next winter, including:**

### **Operations**

- Update and expand winter storm protocols to improve documentation of events
- Implement revised storm operating procedures to reduce the number of switches that must be cleared around Jamaica station

### **Customer communication**

- Improve procedures for proactively informing customers about train storm service schedules and status before and during storms
- Provide customer information on station parking lot plowing status

### **Staffing**

- Explore options for increasing staff availability or securing other resources to enable more rapid clearing and recovery of infrastructure
- Re-introduce mass-call system to facilitate rapid mobilization of hourly staff

### **Equipment**

- Procure enhanced plow and jet blowers for clearing snow from tracks
- Complete modifications to diesel fleet to prevent snow ingestion



# Review of MNR performance in the December storm has resulted in a series of already-completed improvements

## Dec storm strengths

- Early meeting of Emergency Management Task Force (EMTF)
- Early pre-positioning of staff and snow-fighting equipment
- Customer Information Center (CIC) remained open through night of Dec 26/27
- Effective coordination of recovery, leading to rapid service restoration

## Dec storm issues

- Services curtailed only after several trains became stuck
- Insufficient capacity to meet rush hour demand during recovery
- Vulnerable DC legacy fleet (primarily issue in subsequent storms)

## Completed improvements

- Designated customer advocate in situation room to monitor stuck customers
- Developed procedures for preparing longer trains to maximize recovery capacity
- Updated procedures for operating patrol trains (without customers) to clear tracks
- Introduced pre-positioning of diesel trains for first AM services after storms

## **MNR is also pursuing an action plan of additional improvements, most of which will be completed by next winter, including:**

### **Operations**

- Develop improved strategy for operating reduced-service schedules during storms and subsequent recovery

### **Customer communication**

- Coordinate with NYCT to provide subway service status information at GCT and other key stations
- Complete upgrades to public address system at outlying stations

### **Staffing**

- Explore options for increasing staff availability or securing other resources to enable more rapid clearing and recovery of signals infrastructure

### **Equipment**

- Evaluate benefits of fitting support vehicle fleet with GPS tracking
- Continue to accept and put into service new M8 trains to reduce dependency on DC legacy fleet (i.e., M2, M4, M6)

# Review of Subways performance in the December storm has resulted in a series of already-completed improvements

## Dec storm strengths

- Advance preparations were mobilized (e.g., storing trains underground)
- Large portion of network delivered uninterrupted service
- Customer communications were generally clear and consistent
- Ongoing NYPD and NYFD representation at the RCC to facilitate coordination

## Dec storm issues

- Delayed formal declaration of highest-alert Plan IV storm procedures
- Preemptive service curtailments not effectively used as conditions degraded
- Extended time period required to rescue customers stuck aboard A line train
- Limited availability of staff and equipment contributed to slow recovery

## Completed improvements

- Reorganized to centralize command and control
- Created Incident Command Center (ICC) at the RCC
- Designated customer advocate role at the ICC to monitor stuck customers

## **Subways is also pursuing an action plan of additional improvements, most of which will be completed by next winter, including:**

### **Operations**

- Develop new Plan V storm alert level with enhanced procedures for controlled service curtailment
- Review procedures for managing stuck train events

### **Customer communication**

- Introduce cell phone coverage on subway platforms
- Develop improved protocols for using customer information displays and public address system to update customers already traveling in system

### **Staffing**

- Implement mass-call system to facilitate rapid mobilization of hourly staff
- Develop procedures for mobilizing administrative staff in support roles during severe storms

### **Equipment**

- Complete procurement of eight new snow throwers
- Revise control software on New Technology fleets to improve tolerance for poor third rail contact

## Review of Buses performance in the December storm has resulted in a series of already-completed improvements

### Dec storm strengths

- Night and articulated buses equipped with chains as planned
- Some services that could not be operated effectively held back
- Strong displays of employee commitment (e.g., bus operators volunteering to dig out stuck buses, stuck passengers given rides in Buses operations vehicles)

### Dec storm issues

- Highest red alert status never declared
- Preemptive service curtailments not effectively used as conditions degraded
- Failure of bus radio system interfered with operational communications
- Poor customer communications about bus service status

### Completed improvements

- Created situation room for coordinating response to storms and other events
- Designated customer advocate in situation room to monitor stuck customers
- Modified radio system to improve robustness



## **Buses is also pursuing an action plan of additional improvements, most of which will be completed by next winter, including:**

### **Operations**

- Develop enhanced winter manual including alert levels aligned to prospective storm conditions and procedures for controlled service curtailment
- Develop improved radio communications strategy

### **Customer communication**

- Develop outreach for proactively communicating potential service curtailments or “snow routes” to customers
- Continue deployment of Bus Time real-time customer information

### **Staffing**

- Review and improve driver training curriculum on winter driving practices
- Develop procedures for mobilizing administrative staff in support roles during severe storms

### **Equipment**

- Continue deployment of GPS tracking across bus fleet
- Continue evaluation and testing of fleet storm readiness and update procedures regarding tires and use of snow chains

# Review of Paratransit performance in the December storm has resulted in a series of already-completed improvements

## Dec storm strengths

- Paratransit storm center available to coordinate response
- Use of Automatic Vehicle Location Monitoring (AVLM) to track and communicate with drivers on the road
- Use of automatic calling system to alert customers to disruptions following storm

## Dec storm issues

- Inability to set alert level independently of Buses
- Preemptive service curtailments not effectively used as conditions degraded
- Ineffective plans for rescuing customers
- Few 4-wheel drive vehicles available to field supervisors

## Completed improvements

- Implemented independent setting of alert levels and service curtailments
- Introduced dashboard storm monitoring system to track stranded vehicles and customers, OEM notifications, and trip cancellations on half-hourly basis
- Introduced one-day-only advanced trip booking prior to forecasted storms
- Introduced protocols for only deploying vans in storms (better snow handling)

## **Paratransit is also pursuing an action plan of additional improvements, most of which will be completed by next winter, including:**

### **Operations**

- Develop Paratransit-specific Storm Action Plan including processes for curtailing non-medically essential service
- Coordinate with OEM and City agencies to develop improved procedures for rescuing stuck customers

### **Customer communication**

- Launch Interactive Voice Response (IVR) customer calling system to aid in communicating service suspensions
- Work with media outlets to ensure that service status is communicated in a way that avoids confusion over paratransit in NY and NJ

### **Equipment**

- Replace life-expired supervisor vehicles with 4-wheel drive vehicles, to enable field supervisors to operate in inclement road conditions

## **B&T had strong performance in the December storm and a series of actions is being undertaken to further improve storm readiness**

### **Dec storm performance**

- Early mobilization of storm response
- Uninterrupted availability of bridges and tunnels
- GPS-tracking of snow-fighting vehicles
- B&T snow-fighting vehicles used to assist Buses
- Quick assessment and assurance of fleet serviceability following storm

### **Completed improvements**

- Updated storm management procedures, including formalized posting of Technology Department staff during severe storm mobilization
- Develop formalized procedure for providing snow-fighting equipment or other assistance to other Agencies during storms or other significant operating events

### **Planned improvements**

- Include line items in future engineering contracts requiring contractors to provide snow removal assistance during severe storms