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IMMEDIATE

MTA Takes Action to Improve Storm Performance

Report to Governor Spitzer Identifies Improvements in Operations, Engineering and Communications

Partnerships with City and State Agencies Key to Planning for Future.

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[Water Diversion Conceptual Designs](#)

The Metropolitan Transportation Authority (MTA) today released its report to Governor Eliot Spitzer assessing its performance during the August 8 storm and its vulnerability to future storms. The report identifies a series of actions that the MTA will pursue to ensure better operations, engineering and communications performance in future events.

The report concludes that the severity, timing and lack of warning of the August 8 storm hindered storm preparations and exposed the vulnerabilities of several aspects of the MTA's transportation system. The system flooded due to enormous amounts of water pouring into subways and low-lying rights-of-way from flooded streets, overwhelmed pumps or backflow from external drainage sources, and some drainage blocked by debris from the storm itself. At the height of the disruption, in many cases the MTA could not provide alternative travel options, and customers had difficulty gaining access to timely and accurate information.

To directly address these issues, the MTA will pursue a series of improvements in operations, engineering and communications. Operationally, Doppler radar is being installed in each agency's operations center, an MTA-wide Emergency Response Center has been created, and new storm protocols will be put in place to guide alternative service.

Engineering solutions target the top ten flood-prone locations – six operated by NYC Transit, two by Metro-North Railroad and two by Long Island Rail Road – with an action plan already in place. Solutions for the remaining locations will be developed over the next 60-90 days, working with NYC DOT and DEP, drawing from a toolbox of potential fixes to both prevent water inflow and to remove it once it flows in, including installing check valves to prevent backflow, pursuing better sewer connections, increasing pumping capacity, pre-deploying portable pumps and personnel, installing closeable vents and constructing step-ups at station stairwell entrances that flood. Innovative street furniture will be considered to raise vents at key locations.

Communications solutions include email and text message alerts, cell phone service on subway platforms, web site upgrades, advancing new public address technologies and improving communications between ops centers and field personnel with PDAs and Blackberries.

To begin implementing these solutions, the MTA has committed \$30 million to fund initiatives that can be put into place quickly. Just as importantly, the MTA will quantify the costs of the longer-term capital fixes needed to permanently prepare the system for operating in future storms and communicating with customers

in all types of emergencies. These initiatives will be considered for inclusion in the MTA's expedited Capital Program, due to be presented to the State Legislature early next year.

"While the August 8 storm was the most severe in memory, it is clear that the MTA must do more for our customers in extreme situations," said Elliot G. Sander, MTA Executive Director and Chief Executive Officer. "The solutions identified in this report will dramatically improve our ability to handle future emergencies and ensure that we will better communicate with our customers 365 days a year. We look forward to working with our government partners to address issues that affect us all."

The report was the product of a taskforce that included the presidents of the MTA's operating agencies, representatives from New York City's departments of Transportation and Environmental Protection, the MTA Inspector General, and consultants from the University Transportation Research Center and Columbia University's Center for Climate Change Research.

"These recommendations are far-reaching and underscore the primary responsibility the MTA has to its riders - that of providing effective service - and when faced with overwhelming circumstances, of having contingency plans and clear, useful customer communications," said MTA Inspector General Barry Kluger. "I look forward to continued participation on the taskforce and working with Mr. Sander, as well as the agency presidents and their staffs in the months to come."

"It is so important that we work collaboratively with our transportation partners," said NYC Transportation Commissioner Janette Sadik-Khan. "We look forward to developing strategies that will assist the MTA in reducing flooding without compromising our streetscapes."

"The Department of Environmental Protection is committed to work in partnership with other government agencies to address issues presented by more frequent and very intense rain storms," said NYC Department of Environmental Protection Commissioner Emily Lloyd. "DEP will continue to work with the

MTA as we implement PlanYC, which calls for developing innovative adaptations to changing storm patterns that will range from green roofs to new storm sewers."

Findings and Recommendations

The MTA's performance on August 8 was assessed in terms of operations, engineering, and communication, and specific recommendations were made to respond directly to each identified shortcoming. Some have already been implemented. Others will take time, financial resources, and the cooperation of a number of regional partners. They will enable the MTA to prevent most future flooding and better serve its customers.

Operations

The timing of the storm at a morning shift change increased the difficulty of responding with a coordinated operating plan, especially as many key employees struggled to get to work. Once personnel were in place, however, the men and women of the MTA recovered to complete a Herculean recovery effort in time to provide close to normal service on most operations by the evening rush hour.

Findings:

The storm was not predicted early enough by weather forecasters, hindering the MTA's response.

While in most instances MTA agencies worked together to maximize service options, communication across agencies was not as well-coordinated, efficient, and frequent as possible.

In many cases, MTA agencies failed to provide disrupted customers with travel alternatives

Recommendations:

Create Early Warning and Response Capability – The MTA agencies will collaborate on a common and redundant weather forecasting system/capability and install Doppler radar monitoring in all agency operations centers. This will allow pre-deployment of operating personnel when potentially threatening weather is indicated. (30 days)

Create an MTA Emergency Response Center – The MTA ERC will provide a formal structure for coordinating activities across agencies during emergencies. MTA ERC will provide the status of MTA-wide operations during emergencies and give the Executive Director and CEO immediate access to agency operations centers. (In place)

Revise Agency Storm Operating Protocols – Amend all agency operations and emergency plans/protocols to ensure that the MTA's agencies work together to maximize travel options in an emergency. (End of 2007)

- Standardize Storm Category Designations
- Formalize Inter-Agency Coordination/Notification Plans
- Develop Bus Service Alternative Plan
- Coordinate Interagency Service Alternatives
- Standardize Procedures for Communicating with Operating Personnel, Customers, and Other External Stakeholders
- Ensure key employees get to critical work locations during severe weather

Six Month Progress Review – the MTA Chief Operating Officer will conduct a review every six months of progress made in each of the aforementioned areas.

Engineering and Regional Inter-Agency Issues

The August 8 storm was extraordinary in its severity. Using hourly rainfall as a guide, it would be classified as a ten-year storm; more relevant to the MTA's network is that the rain was concentrated in a two-hour period, outpacing the ability of the regional sewer systems and MTA's pumps to keep up. The MTA's network is especially vulnerable at many locations identified in this report. While not all of these locations flooded during this storm, these are the most likely to flood in the future and the focus of the MTA's action plan.

Findings:

Flooding occurred at points throughout the MTA's system for three primary reasons:

Extraordinary amounts of water entering subways or low-lying rights-of-way (ROW) areas. These areas have been subject to water entry or flooding in the past.

Overwhelmed pumps or backflow caused by water levels above design capacity. While only one pump in the system malfunctioned, the remainder could not remove the water inflow fast enough and in some instances had no place to pump it. In other areas, excessive water inflow came from backflow from external drainage systems where the MTA currently has no check valves.

Debris blocked interior and exterior drainage structures. Regular cleaning along rights-of-way (ROW) or roadways is necessary to ensure proper functioning of drainage systems. The initial downpour washed debris into drains that may not have been clogged. The MTA and our regional partners must do whatever they can to keep drains clean in advance and do whatever they can to clear them of debris during storms.

Recommendations:

Implement corrective action plan for top flood-prone locations – An action plan has already been

developed for the top 10 locations including both short-term action and long-term solutions to flooding at the MTA's most vulnerable locations. Solutions for the remaining locations will be developed over the next 90 days in conjunction with NYCDEP and NYCDOT.

This effort will draw from a toolbox of potential fixes to both prevent water inflow and to remove it once it flows in, including installing check valves to prevent backflow, pursuing better sewer connections, increasing pumping capacity, pre-deploying portable pumps and personnel, installing closeable vents and constructing step-ups at station stairwell entrances that flood.

One of the most promising tools to fight sidewalk vent gratings/station entrance issues is street furniture designed to raise vent heights to prevent water inflow. MTA, NYCT, and DOT sponsored a design charrette with top urban design experts to develop conceptual solutions for locations along the Queens Boulevard Line on Hillside Avenue.

In cooperation with the city, the MTA will also evaluate sites for the use of Best Management Practices (BMPs) as suggested in PlaNYC. Possible BMP projects could include:

- Blue roofs/green roofs to capture and/or detain runoff from buildings adjacent to the identified sites
- Tree pits designed to retain water for absorption by trees
- Greening and use of porous pavement in area parking lots
- Possible enhancement of nearby green spaces to retain more storm water

Create Permanent Inter/Intra-Agency Flooding Task Force – engineering and operations staff from all MTA agencies, NYCDEP, NYCDOT, other regional Departments of Public Works will meet twice a year (Feb/March and Aug/Sept) to:

- Ensure that all sewers, catch-basins, siphons, etc. in flood-prone locations are inspected and cleaned prior to rainy season(s). Explore the formation of joint inter-agency teams to expedite such efforts.
- Assess progress on implementing engineering solutions in flood-prone areas.
- Identify emerging factors, such as construction projects or zoning issues that could affect drainage in and around MTA facilities (as recommended in Columbia report).

Ensure that all recommendations in the MTA Inspector General Report and MTA Board Task Force Report on the September 2004 flooding incident have been implemented or otherwise appropriately addressed (within 60 days).

Six-month review of progress – The MTA Chief Operating Officer will conduct a review every six months of progress made in all the aforementioned areas.

Communication

The magnitude and unexpected nature of the storm highlighted gaps in communication both between agency operations centers and employees, and between the agencies and their customers. This situation was paralleled by inconsistent internal communication among most MTA operating agencies and with other regional stakeholders.

Findings:

Customers did not always have access to accurate information in stations.

Customers lacked access to real-time service information on the go.

Many customers had difficulty accessing the MTA's website, www.mta.info, or easily finding critical information on the site.

Information on the severity of the NYC Transit disruption was delayed reaching media outlets.

Recommendations:

Develop Capacity for Real-time Email and Text Messaging Service Alerts – to increase the number of emails/text messages that can be sent and reduce the time it takes to send them out. Currently, email service alerts take as long as 1.5 hrs to “push out” to recipients (i.e., to LIRR's 24,000 subscribers). The MTA is issuing an RFP to secure a provider capable of handling as many as 800,000 real-time email alerts simultaneously.

Increase Website Capacity, Clarity and Access to Service Alerts

- Replace Firewalls and Load Balancers and Use Hosting Vendors – to provide 7 to 10 times existing capacity (by September 30)
- Redesign Homepage With Focus on Service Status – to improve visibility and terminology of “Service Advisories” and “Service Alerts.” (First Quarter of 2008)
- Provide Universal PDA Access to www.mta.info – to expand access to web-based service alerts. (Completed as of September 1)
- Provide RSS Service Alert Feeds to Public and the Media, and NYC's 311 System – will allow current service information to be delivered automatically to public and media subscribers, eliminating the need to search the MTA website for service information. As a direct link to NYC's DoITT 311 system, service information will be shared with both the

311 hotline and the NYC website, both of which can help communicate service messages to the public. (by November 1)

Improve communication between operations centers and field personnel – Include use of PDAs and Blackberrys to increase the speed and accuracy with which information is shared with station and operating personnel. (Immediate implementation.)

Implement consistent agency-wide media protocol – NYC Transit will adopt the successful media outreach protocol employed by LIRR and MNR and upgrade technology to ensure staff is reachable at all times. (Effective immediately.)

Improve customer information by developing clear emergency communications protocols and designating communications specialists at operations centers.

Advance public address and video screens technologies to better communicate with customers in-system – In addition to long-term technology projects, such as PA-CIS, MTA is exploring a range of interim solutions that could maximize technologies already being employed in the system (e.g., wireless connectivity to service info). (Meetings with vendors are under way)

Utilize and expand MTA's current inventory of wireless video displays – Currently the MTA has 80 wireless video displays over station entrances which are used for advertising but can be hooked into agency operations centers during emergencies to provide real-time service information. (Agency hook-ups and associated message protocols will be implemented within six months)

Provide cell phone service on subway platforms – Later this month the MTA Board will consider a contract for providing this service that would allow customers to communicate with the outside world in case of service disruption or emergency. (2008)