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on the Implementation of Positive Train Control

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Chairman Thune, Ranking Member Nelson, and to other Members of the Commerce Committee, thank you all for the opportunity to be here today. My name is David Mayer and I am the Chief Safety Officer for the New York Metropolitan Transportation Authority (MTA), the nation's largest transportation network.

As Chief Safety Officer, I am tasked with crafting, implementing, and overseeing a variety of safety initiatives at MTA's agencies, working closely with agency Presidents and staff from across our agencies. Prior to joining the MTA, I spent 23 years with the National Transportation Safety Board and was Managing Director, the senior career official, from 2009 to 2014. I was recruited to the MTA to use my two decades of experience in the transportation safety field as part of an effort to usher in a renewed focus on safety across the MTA family agencies.

I am here today to share with you the status of implementation of Positive Train Control (PTC) on the MTA's two commuter railroads: the Long Island Rail Road (LIRR) and Metro-North Railroad (MNR). This hearing is timely as just last week, MTA PTC implementation staff updated the MTA Board on the remaining schedule and our progress to meet the 2018 deadline. As stated to our Board, the MTA's schedule calls for us to meet all statutory requirements by the end of 2018.

And while there are risks and challenges to our schedule, the MTA is working diligently to implement PTC in a safe, incremental, and controlled roll-out. Our approach to PTC implementation, coupled with other safety and cultural enhancements, has already yielded safety benefits. The LIRR and MNR are confident that they will continue to operate safely as PTC is implemented on schedule.

MTA's two railroads are the nation's busiest commuter railroads. With over 1,400 revenue trains per day, the railroads provide nearly 588,000 trips on an average weekday morning, with a total of more than 177 million trips annually. These two railroads operate some 2,400 rail cars along 1,381 track miles. The combined service territory spans nearly 5,000 square miles fanning out from New York City, and it serves a regional population of 15 million. Between the LIRR and MNR, we support 2,200 train movements of both passenger and work trains each day; this translates to as many as 303 trains per hour during peak service. To put this in context, the LIRR and MNR provide more commuter annual rail trips than the commuter rail agencies in Chicago, Philadelphia, Boston, Salt Lake City, and Los Angeles combined.

Nowhere in this country has a fully designed PTC system been implemented on passenger rail networks as large, complex, and with as dense operations as the LIRR and MNR. During rush hour periods, hundreds of trains move in close succession through a series of complex switches and interlockings in Queens and the Bronx and into and out of our terminals in Manhattan and Brooklyn. During peak periods, we dispatch trains every 90 seconds at both Penn Station and Grand Central Terminal.

MTA Service Area & PTC Landscape

The MTA has taken an aggressive design-build approach to the development and implementation of PTC. The MTA has committed approximately $1 billion to support the development, testing, purchasing, and installation of PTC, and, significant progress has been made at our railroads toward meeting the statutory PTC requirements.

PTC is not an 'off the shelf' technology; there is no plug-and-play PTC system. The PTC statute requires specific PTC functions; each railroad must design the technology from the ground up, prove that it works as intended and test technology in a phased roll-out on a network that is essentially running trains 24/7. And we have to ensure that we do not introduce any new safety hazards that weren't present before. To fulfill our statutory obligations, we are designing, testing, and installing concurrently. There are significant challenges in this design-build approach, but we have embraced these challenges and have risk mitigation strategies to remain on schedule.

Let me start by providing the Committee with a snapshot of the railroad's current signal systems, which already provide critical protections against the types of accidents that PTC is intended to prevent. I will then discuss our implementation status, identify high-level risks to implementation and then outline our remaining schedule and risk mitigation strategies.

MTA's Current Signal System Safety Benefits

Both Metro-North and LIRR already operate with a high degree of safety because of functionality provided by their existing signal systems. The railroad's PTC design is an overlay onto each railroads existing signal systems and I would like to explain briefly the protections already provided by our existing systems, and how PTC will supplement those protections.

One of the primary goals of PTC is to prevent overspeed derailments like the DuPont, Washington derailment last December. Since December 2013, both MNR and LIRR have lowered the maximum allowable speed difference to no more than 20 mph at a number of critical locations. LIRR's existing network is already protected against derailments caused by overspeeding across its signaled network. I am pleased to tell you that as of yesterday, all of MNR's territory in New York and Connecticut has been equipped with Civil Speed Enforcement, and ACSES-equipped trains are currently protected from derailments due to exceeding permanent speed limits nine months ahead of the PTC deadline. Once PTC is fully installed, it will additionally enforce temporary speed restrictions, which is a layer of additional protection to the railroads' already robust systems.

Another goal of PTC is the prevention of incursions into work zones. MNR implemented a system known as its Enhanced Employee Protection System, or EEPS, in 2013. This system, which won the APTA Gold Award for Safety, has been heralded as an industry model and already satisfies this portion of the PTC mandate at MNR. LIRR currently has track blocking and will implement an electronic Roadway Worker Protection System with PTC.

Finally, PTC is intended to guard against train to train collisions and the movement of a train over a misaligned switch. At both railroads, both of these risks are already mitigated by our existing signal systems, which limit speeds at red stop signals and switches at interlockings to 15 miles per hour. The additional functionality to be provided by PTC will be to bring trains to a complete stop at these locations.

Status of MTA's PTC Implementation

I would now like to describe our current implementation efforts of the required PTC components. MTA's PTC design is overlaid onto our existing signal systems, as I described above; the idea is to provide a supplemental safety system, layered on top of the existing protections. And railroad's PTC system must be fully interoperable with every other railroad operating on the same network.

For the MTA's two railroads, we have installed 80% of the wayside transponders and 87% of wayside interface units, 66% of the radio cases, and antennas necessary to transmit PTC instructions to our trains. Both railroads have secured 100% of the necessary radio spectrum. For on-board equipment, the railroads have equipped 423 locomotives, or 56%. PTC will be installed in control centers for both our railroads, and the Systems Integrator (contractor) is continuing to develop and refine the software needed. The MTA has also trained 68% of their train and engine crews, rail traffic controllers, train maintenance personnel and signal maintainers. Those trainings are scheduled to advance at an aggressive pace and be completed by the end of 3rd Quarter 2018.

As the MTA advances its installation of these components, our railroads are preparing to test pilot segments. The importance of pilot testing cannot be overstated. Both railroads have begun pilot testing in preparation for their application to the Federal Railroad Administration (FRA) for Revenue Service Demonstration (RSD). Getting the pilot lines into RSD is the most critical milestone that the railroads now face. Both railroads intend to submit their RSD applications to FRA this June. Both railroads have completed all hardware installations on their respective pilot segments, and in the months leading up to the filing of the applications, the railroads will be working closely with the System Integrator to complete the development of the core PTC software and to conduct site performance testing. This will enable the railroads to compile the necessary documentation to support the RSD Application and obtain FRA approval to proceed.

Our schedule estimates FRA approval to allow RSD by the fall of this year. At the present time, we do not know how long the RSD period will last, but we are already engaged with FRA on our

progress and the assumptions in our approved PTC Implementation Plan. Once the FRA determines that RSD has been successful, the railroads will be able to implement PTC on the rest of their territory.

Implementation Risk Mitigation

The MTA has set a highly aggressive schedule to meet all the statutory requirements for PTC but do not control all of the activities of this schedule. Railroads around the country are taxing the resources of a limited set of suppliers. When these suppliers' schedules slip, our schedules slip. As the deadline approaches, railroads across the country will be dependent on the FRA for timely review and approval of our plans and documents.

The MTA is making every attempt to meet our schedule. Though not a federal requirement, we have retained a third-party independent engineer work independently of our PTC implementation teams to identify areas of schedule risk and actions to reduce or eliminate these risks. We have pressed our Systems Integrator to hire additional staff and expend additional resources to complete the integrated testing necessary to prove the PTC system is safe and works as intended, and to resolve any unknown technical issues that may occur during testing. FRA staff have been and continue to be good partners in guiding the MTA in the development of the RSD and all other PTC matters.

MTA PTC Development & Funding

Since the passage of the original PTC mandate, the MTA has worked to meet regulatory milestones, collaborated with Amtrak and other railroads on interoperability issues, worked to secure the required spectrum, and competitively procured a System Integrator. The nearly $500 million contract awarded to the SI encompasses the engineering, design, and provision of all material components, wayside, onboard, and communication equipment.

In 2015, U.S. DOT awarded a $968 million Railroad Rehabilitation and Improvement Financing (RRIF) loan to the MTA. The loan, which at the time was the largest ever awarded, is being used towards the installation of PTC, as well as for funding signal upgrades to some sections of non-signaled (dark) territory that were previously exempted from PTC protections due to low traffic density. As the MTA is committed to ensuring maximum safety, we are upgrading our dark territories to bring PTC safety benefits to our entire network. Thus far, the MTA has submitted approximately $350 million in reimbursable expenditures for funding via the RRIF Loan and we will continue to submit invoices twice a year as we accept delivery of PTC components and as vendors continue to submit invoicing. As you know, RRIF is a reimbursement based loan program; and per MTA's loan agreement, repayment of the loan begins in 2018 and continues over the next 35 years.

Additional MTA Safety Initiatives

Though I have stated this before, it bears repeating: the MTA is committed to operating its railroads safely and reliably. PTC, while a promising life-saving technology, is only one important part of the safety of our transportation network.

Despite a lack of federal requirements, the MTA has developed and implemented the first-in-the nation comprehensive sleep disorder screening and treatment program. We plan to have screened every train operator, bus operator, and locomotive engineer – about 17,000 employees total – by the end of May 2018.

Our railroads have also implemented the Confidential Close Call Reporting System (C3RS). As you know, C3RS is an FRA sponsored, voluntary, confidential program allowing railroad employees to report close calls. And this program is already providing safety tangible safety improvements at both railroads.

Grade crossing safety has also been a major facet of the MTA's safety efforts. The MTA has increased its grade crossing awareness through public information campaigns and a partnership with Operation Lifesaver, as well increased police enforcement for grade crossing violations, and is currently performing a long-term study of the conditions at our crossings. A key aspect of this work is an unprecedented partnership with the local authorities responsible for the roadways that cross our tracks. Through this partnership, we are realizing important incremental safety improvements, one grade crossing at a time.

Our safety program includes technological advancements that improve safety, including on-board cameras and alerters on our trains, and expanding track geometry programs to identify track problems before derailments occur.

Conclusion

PTC implementation at the MTA remains a vast undertaking—one that will not only make our system safer now but also long into the future. To be sure, our work schedule still faces significant schedule risks and technical challenges. We are working diligently every single day to overcome these risks and challenges. By the time we are done, a billion dollars will have been expended on this effort. We thank the States of New York and Connecticut and the Federal government for helping us marshal the necessary resources to move this enormous effort across the finish line, including a $968 million RRIF loan sponsored by the FRA. The MTA continues to aggressively work toward full PTC compliance by December 31, 2018, even though our challenges are significant and unique. Thank you for giving us this opportunity to share with you and the public the efforts of the MTA to bring the promise of PTC safety into reality.