



MTA Press Releases

[Select Language](#) ▼

Press Release

December 17, 2007

[Metro-North](#)

IMMEDIATE

MTA Metro-North Railroad Sails Through 2007 Leaf Season

High- and low-tech solutions combined to combat successfully the 2007 "slippery rail" season and led to a November on-time performance of 98.1%, the best November in Metro-North history, the railroad reported today at its monthly meeting.

An aggressive program to combat "low adhesion" showed positive results with fewer delayed trains and a big reduction in wheel defects. Low adhesion or slip-slide is caused by the gelatinous residue of crushed, wet leaves on the running rails. Slippery rails can cause train wheels to skid along the running rail causing flat spots that require a train to be taken out of service so that the wheels can be re-rounded or "trued."

Comparing the period October 15 through December 9 of last year and this year, the total delay minutes due to low adhesion was 4,467 in 2006 but just 1,425 in 2007, a 68% reduction.

Also, on the worst day in 2006, there were 255 electric train cars out of service for wheel defects, compared to just 32 on the worst day this year, an 88% reduction.

"A dedicated group of Metro-North employees worked all year long on ways to improve performance in slippery condition and I'm gratified to report that their effort paid off for our customers," said Metro-North President Peter A. Cannito.

The most important change involved programming changes for the on-board computers on the new M-7 electric cars in use on the Hudson and Harlem line. Sensors feeding data to the complex, computer-controlled propulsion and braking systems had interpreted skidding as a train going faster than the allowable speed resulting in an application of the emergency brakes. Once an emergency brake is applied automatically, an engineer cannot override the safety system. The train would skid until it came to a complete stop. And when it stopped, the wheels would have flat spots.

The programming change still will not allow an engineer to override an automatic brake application - that's an important safety feature. But based on the longer distances Metro-North's signal system uses to ensure the safe separation of trains, on-board computers have been reprogrammed to safely stop the train by gradually applying the brakes without triggering an emergency stop. When leaves and water reduce the friction between the wheel and the rail, less severe braking is more effective braking.

The railroad also implemented slow speed orders at the first sign of slip-slide conditions. The slow speed order did not negatively affect on-time performance, because only certain stretches of track are susceptible to slippery rail so only a portion of each trip would be at slower-than-normal speeds.

Railroad employees also increased use of "Waterworld," a Metro-North invention that uses 10,000 pounds per square inch of water pressure to clean leaf slime off the rails. These two machines ran virtually all night every night during leaf season this year.

And based on a chemical analysis done of the residue scraped from the rail and sent to a laboratory that showed the goo was slightly acidic, for the first time an alkaline solution was added to the water used by Waterworld to help break down the slime.

Another piece of machinery developed by Metro-North employees was a rail scrubber, a pair of rotating steel brushes, powered by souped-up lawn mower engines and mounted on the back bumper of a pick up truck. The truck, called a high-rail vehicle, also has small steel wheels that enable it to ride over the highway or the rails. At the first sign of slippery rail, the trucks can be dispatched to the trouble spot to clean the rail. They are more versatile than Waterworld because they can operate during the day and get to a particular spot. Waterworld has a maximum speed of 30 mph and is only used overnight so as not to hold up train traffic.

Finally the railroad updated its operating instructions for train engineers regarding low adhesion conditions and continually notified engineers via radio about when and where low adhesion existed.