



The MTA Long Island Rail Road LaserTrain Prototype Test & 2019 Results

The Long Island Rail Road is a commuter rail system in the southeastern part of New York, USA, stretching from Manhattan to the eastern tip of Suffolk County on Long Island. It is the busiest commuter railroad in North America and one of the world's few commuter systems that runs 24/7 year-round.

CHALLENGE

Like many rail companies, the Long Island Rail Road’s aim is to keep improving the safety and reliability of their passenger service through the Autumn months. Wheel slip and emergency braking was forcing them to take much needed equipment out of service for repairs. It was vital to address traction issues that cause poor acceleration, braking and maintenance.

SOLUTION

During prototype testing, we demonstrated successful rail cleaning, delivering three times higher adhesion after one pass of the laser at 12mph (against a target of 9mph).

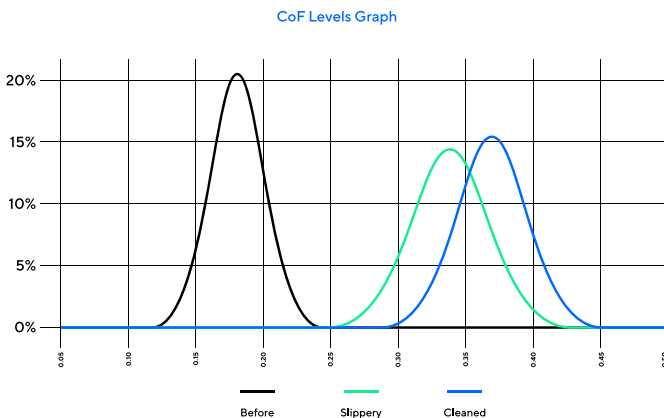
- A cleaned piece of track was measured by a tribometer, showing an average CoF level of 0.34.
- It was made slippery by crushing leaves and applying water then measured again. A 0.18 average CoF was measured.
- It was passed over with one pass of the LaserTrain and measured again. This time with an average CoF of 0.37, which is considered optimal traction on the railhead for driving.

This convinced LIRR to commission us to produce an operational prototype, capable of working from a non-passenger train at 25mph. Deployed for 12 hours a day in Autumn 2019 over extensive parts of the LIRR network prone to low adhesion. A reliability of 99% was achieved.



Before

After



RESULTS

While the LaserTrain was only deployed on specific branches, it helped reduce slip-slide for the entire network by 17%. Compared with 2018, LIRR also reported:

- Slip-slide reduced by **65%** on the lines the LaserTrain cleaned
- Weather-related delays in November fell **65%**
- Train cancellations were down **48%** (due to fewer units awaiting wheel flat repairs)
- **32%** fewer shortened trains (due to less needing wheel flat repairs)
- On-time performance in November was **90.7%** – an improvement of 3.8 percentage points

“These figures show that our technology works, and it’s saving customers valuable time while saving the LIRR valuable funding.”

LIRR President Philip Eng.

Benefits



Safety



Capacity



Service