

# Freight Rail & Automated Track Inspections

**Key Takeaway:** The FRA should permit railroads that have used expanded ATI inspections in conjunction with a reduced level of visual inspections to continue and expand their programs because ATI systems reduce derailment risks and allow for better maintenance scheduling.

Sustained railroad infrastructure investment and ongoing efforts to advance track safety via the adoption of inspection technologies such as automated track inspections (ATI), the development of better track components, and advancements in track inspection and maintenance practices, among other efforts, have resulted in substantial track safety gains. The freight rail industry is among the safest industries in the nation.

Technological solutions are imperative to railroads' goal of an accident-free future. While not mutually exclusive, ATI technologies that track geometry conditions outperform mandated manual inspections done with the human eye and handheld tools required by outdated regulations. Data show that the blended use of ATI with visual track inspections increases rail safety.

## **Track inspection regulations are as old as 8 track tapes.**

In 1971 (before the Staggers Act of 1980 reduced railroad economic regulation), FRA set the frequency visual track inspections must occur. These inspections involve a track inspector visually looking at railroad tracks and using handheld measuring tools either on foot or while traveling in a truck specially designed to drive on railroad tracks (known as a hi-rail vehicle).

Today, trucks drive themselves, drones deliver food and virtual assistants help run our everyday lives. But still, freight railroads are forced to operate under the same visual track inspection regulations from 1971 — a time when the 8-track tape player was considered cutting-edge technology.

## **Railroads want to use updated technology to make the network safer.**

ATI enables railroads to measure how the track structure performs under the load of a train. ATI systems use lasers and cameras mounted onto locomotives or rail cars and inspect track as the train travels across the network. The system tests each foot of track under the same force as exerted by a loaded train. The data from the inspection devices transmits to a centralized location where employees schedule maintenance as necessary.

Railroads can inspect hundreds of thousands of miles per year by placing the automated equipment on a locomotive or in a boxcar. Railroads are looking to apply to expand testing along mainline routes, which covers most Class I trackage. At the same time, visual inspections will still be done at a reduced level.

- **Speeding Up Safety Inspections:** ATI systems have proven an extremely valuable railroad safety tool to reduce track-caused derailments. Not only have freight railroads invested millions of dollars in ATI, but so has the FRA. Experience has shown that ATI detects track geometry defects with more accuracy, consistency and frequency than do visual inspections, leading to quicker repair or elimination of those defects.

The ATI technology also allows railroads to collect huge amounts of safety data to better understand and evaluate the safety of their track infrastructure and to develop improved preventative track maintenance practices. This technology also allows railroads to better develop short-term and long-term capital expenditures and where to best allocate resources.

- **Safeguarding Employees:** Another safety benefit flowing from the use of ATI technology is a reduction in employee — usually track inspectors — risk exposure along the railroad right of way. FRA safety data indicates reportable accidents involving hi-rail vehicles occur regularly, specifically at highway-rail grade crossings with motor vehicles.

The use of ATI to partially fulfill track inspection mandates via the use of already occurring train movements (oftentimes along higher speed main tracks) eliminates unnecessary potential risk exposures. Risk is reduced via the decreased need for inspectors to physically occupy track solely to fulfill outdated visual inspection frequencies.

- **Improving Efficiency & Capacity:** The blended use of ATI with visual inspections reduces the need for track inspectors to halt or slow down train traffic to fulfill a visual inspection frequency. This aspect of ATI improves network capacity and reduces the number of opportunities for blocked crossing occurrences. FRA has been using automated track inspection geometry vehicles to improve track safety for over 30 years.

## **Railroads are looking for the green light from the FRA.**

In 2018, the Class I railroads began requesting to conduct autonomous ATI test programs to collect safety data that would help inform FRA rulemaking and ultimately make railroads even safer. BNSF received FRA approval to conduct an autonomous ATI test program on certain routes in September 2018, and FRA successfully defended that approval in federal court after it was challenged by a labor organization. Thereafter, Norfolk Southern (NS), CSX, Union Pacific, Canadian Pacific (now CPKC) and Canadian National received similar FRA approvals to conduct test programs.

## Test Programs Have Been Successful

The ATI test programs are phased and involve a blended approach of performing some of the required visual inspections in concert with added ATI inspections. This approach allows for the continued detection of certain track defects not detected by current ATI technology (e.g., overgrown vegetation) while embracing ATI's superior safety outcomes for identifying and remedying unprotected track geometry defects.

The data railroads have submitted to FRA as a condition of the test programs show positive track safety developments during the test programs, namely the reduction in FRA geometry defects present on main track. In some instances, there have been over 90% fewer unprotected defects that require remedial actions under FRA regulations.

## Railroads Want to Expand the Use of ATI

In January 2021, BNSF obtained approval from FRA for a waiver of compliance for a period of five years from the required visual inspection frequencies on two subdivisions of its rail lines. BNSF's waiver accommodates the blended use of ATI in conjunction with visual inspections.

FRA granted BNSF's waiver after what the agency recently described to Congress as the "successful results of the [BNSF] test program", and due to cited improvements under the "BNSF track geometry measurement test program based on the established defect metric, FRA monitoring procedures, and consistency of number of defects located by visual track inspection."

Given the ongoing success BNSF has seen under its existing waiver, on June 15, 2021, BNSF applied to expand the waiver to additional subdivisions on its network. Similarly, on March 22, 2021, NS also applied for a waiver, requesting relief to allow for the blended use of existing visual inspections in concert with ATI inspections. The NS waiver petition also was premised on the positive results from its test program.

## The FRA is impeding freight rail's safety progress.

Despite the success of the ATI programs, FRA is impeding the forward safety progress of the industry's ATI programs and the accompanying long overdue regulatory reforms. In 2021, FRA let one of the ATI test programs expire, delayed action on Canadian National's request to move to the next phase of its still-in-effect test program and denied NS' request to continue its expired test program.

In March 2022, FRA denied BNSF's request to expand its existing waiver, as well as NS' request to begin an ATI waiver that had been submitted a year earlier. BNSF has challenged FRA's decision to deny its request to expand the existing waiver in a federal appeals court, while NS filed a petition for reconsideration with FRA of the agency's decision to deny its initial waiver requests. Both matters remain pending.