

# Freight Rail & Automated Track Inspections

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track geometry conditions outperform mandated manual inspections done with the human eye and handheld tools required by outdated regulations.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.

## Key Takeaway

The Federal Railroad Administration (FRA) should permit railroads that have utilized expanded ATI inspections in conjunction with a reduced level of visual inspections to continue and expand their programs. FRA should modernize its regulations to account for ATI and other future technologies that are proving to enhance safety. It is unconscionable for a safety regulator to impede safety gains.

## Track inspection regulations are 50 years old.

In 1971 (before the [Staggers Act of 1980](#) reduced railroad economic regulation), FRA set the frequency of visual track inspections. 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 are driving themselves, drones are delivering food, and virtual assistants are helping run our everyday lives. But still, freight railroads are forced to operate under the same visual track inspection regulations from 1971 —when the 8-track tape player was considered cutting-edge technology.

## Technology increases track safety and network fluidity.

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 annually by placing the automated equipment on a locomotive or 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 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 understand better and evaluate the safety of their track infrastructure and to develop improved preventative track maintenance practices. This technology also allows railroads to develop better short-term and long-term capital expenditures and where to best allocate resources.
- **Safeguarding Employees:** Another safety benefit from the use of ATI technology is a reduction in employee risk exposure along the railroad right of way, usually track inspectors. 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 (often along higher-speed main tracks) eliminates unnecessary potential risk exposures. Risk is reduced via the decreased need for inspectors to occupy track solely to fulfill outdated visual inspection frequencies physically.

- **Improving Up Efficiency, Network Capacity & Supply Chain Flow:** 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 want to use technology to make their networks even safer.

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 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 a labor organization challenged it. After that, 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, over 90% fewer unprotected defects 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 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 the 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.

## FRA is impeding 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 and NS's request to begin an ATI waiver submitted a year earlier. BNSF has challenged FRA's decision to deny its request to expand the existing waiver in a federal appeals court. At the same time, NS filed a petition for reconsideration with FRA of the agency's decision to deny its initial waiver requests. Both matters remain pending.