



MXV RAIL: ADVANCING RAIL TRANSPORTATION SAFETY

- MxV Rail advances safety through world-class research and testing.
 - It leads AAR initiatives on inspection tech, tank car safety, and infrastructure.
 - FAST Loop and SERTC enable real-world testing and responder training.
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As the safest mode of surface freight transportation, rail continues to improve thanks to sustained private investment. Class I railroads invest a portion of their \$23 billion in annual capital spending into MxV Rail's research and development. This investment helps prevent derailments, strengthen infrastructure, and modernize operations while exceeding federal safety standards.

[MxV Rail](#), formerly the Transportation Technology Center, Inc. (TTCI), is the world's leading rail research, testing, and technology organization. It is a wholly owned subsidiary of the AAR and has been a trusted advisor to railroads, suppliers, and federal agencies for decades. They develop science-based solutions that make North America's rail network safer, more efficient, and more reliable.

What MxV Rail Does

With over 40 years of experience, MxV Rail leverages advanced technologies and engineering expertise to address critical transportation safety and operational challenges. Its team of more than 250 professionals includes track engineers, data scientists, vehicle dynamicists, and substructure analysts. Collectively, they bring 2,700 years of experience from 12 countries, representing deep and diverse global knowledge.

A central focus of MxV Rail's mission is its leadership of the [AAR Strategic Research Initiatives \(SRI\) Program](#), a key driver of innovation within the freight rail sector. This initiative develops and advances technologies aimed at improving safety, operational efficiency, and system reliability. Guided by MxV Rail, the Program has yielded significant advancements—from enhanced inspection techniques to the development of safer tank car designs. These innovations are shared widely through the Annual Research Review and the MxV Rail e-Library. This makes important research accessible across the industry.

- **Consulting:** Positioned as the industry's research partner and independent advisory, MxV Rail meets evolving railroad challenges with proven problem-solving. This approach shapes a better future for all. For example, MxV and Swisspod are working on the world's second operational test track for Hyperloop testing. It is to be built at MxV Rail's new test site.
- **Testing:** MxV Rail operates state-of-the-art test facilities—such as the new Pueblo, Colorado campus. These facilities assess the performance, durability, and safety of railcars, track components, and signaling systems under real-world conditions. Take for instance the MxV Rail Impact Track and Wall, a half-mile track with a 1.5% downhill grade that allows testing at speeds up to 30 mph. The wall, reinforced with 108 tons of rebar and over 700 cubic yards of concrete, provides crucial data on impact forces.

- **Research:** Working with a support team of dedicated railroad professionals, more than 110 mechanical, civil, industrial, and electrical engineers and metallurgists lead MxV Rail's scientific research work.
- **Standards:** MxV Rail supports the development of AAR's industry standards and specifications. This ensures consistency, interoperability, and compliance across North America's railroads. Technical Services, a division of MxV Rail, plays a critical role in managing, executing, and enforcing many of the key aspects of AAR interchange service.

Technical Services joins the forces of the Mechanical Inspection Department (MID), the Bureau of Explosives (BOE), Damage Prevention and Loading Services (DPLS), and Technical Standards groups. Together, they lead the quality, safety, and technological initiatives for the entire North American rail industry.

- **Training:** The Security and Emergency Response Training Center (SERTC) at MxV Rail is a globally recognized program. It brings transportation experts and first responders together in a one-of-a-kind training experience. As a member of the National Domestic Preparedness Consortium (NDPC), SERTC is a world leader in hazardous materials response to all forms of surface transportation incidents. It also offers unique hands-on learning in a real-world environment.