

W H I T E P A P E R



Telematics for Trailer Fleets:
**Rich, Informed Data
to Proactively Improve
Safety Outcomes**

What's Inside

- 2 Overview
- 3 The Challenges of "Today's Way"
- 4 Trailer Safety Reality
- 5 Focus On: The Call to Innovate Maintenance Practices
- 6 FleetPulse for Fleet Safety and Compliance
- 7 Transform Fleet Safety and Extract Value
- 8 Conclusion

Overview

In 2024, fleets were hit with costly violations and rising out-of-service rates.

The [2024 International Roadcheck](#) results by the Commercial Vehicle Safety Alliance (CVSA) uncovered stark statistics on commercial vehicle safety. The report points out that of nearly 49,000 inspections conducted over three days, 23% of the vehicles were placed out of service (OOS) due to violations.

What can this mean for fleets in 2025?

If the trend continues, 2025 could bring even greater challenges for fleet operators. The financial strain from penalties, downtime, and CSA point impacts may escalate, cutting deeper into profit margins. With OOS rates already at their highest in five years, fleets may face increased scrutiny, leading to tighter compliance requirements and the potential for more vehicles being sidelined.

To stay competitive and mitigate risk, fleet managers will need to prioritize proactive maintenance, adopt advanced telematics solutions, and strengthen compliance strategies. Emphasizing efficiency and safety will be crucial to navigating the shifting regulatory landscape and ensuring uninterrupted operations in the coming year.



Top Violations: 2024

Category	OOS Violations	Percentage of Total
Defective Service Brakes	3,387	25.0%
Tires	2,821	20.8%
Other Brake Violations	2,486	18.3%
Lights	1,569	11.6%
Cargo Securement	1,303	9.6%

These violations cost fleets an estimated \$500,000 to \$2,000,000, factoring in fines only, not including downtime and loss of business from rising Compliance, Safety, Accountability (CSA) penalties—which added up to 66,000 points to fleets' impacted Vehicle Maintenance category. With a 33% OOS rate, the highest in five years, nearly 70,000 vehicles were sidelined in 2024.

The Challenges of "Today's Way"

Despite decades of effort with traditional maintenance practices such as routine inspections, training, and meticulous record-keeping, these issues persist and, in many cases, continue to worsen. In addition, the methods' limitations cannot answer modern pressures associated with stringent safety standards, growing operational complexities, and higher customer expectations.

To not only address these ongoing issues but also prepare for future challenges, fleets should build a comprehensive asset maintenance strategy with three key pillars:

1) Predictive Maintenance with Advanced Telematics

Real-time data to identify issues before inspections

2) Automated Workflows

Digital tools for seamless inspections, compliance check and repairs

3) Data-driven training

Insights to focus on training on historically problematic areas

This paper will focus on #1, and lay out points to improve safety outcomes with advanced trailer telematics.

**3 out of 4 trailers with a violation
are found unsafe to operate.**

According to data from the CVSA and FMCSA, three times out of four, the violation to put a tractor-trailer OOS is due to a trailer-related issue.

Trailer Safety: The Reality

Trailers significantly influence fleet safety outcomes, contributing up to 75% of OOS violations. Each year, trailers are required to undergo one federal inspection by the owning company, while tractors undergo regular inspections four times.

With a 33% OOS rate, the stakes are high—and trailer-specific issues account for 25% of that risk. From low tire pressure and failed turn signals to unpowered ABS, the potential for defects is significant, even after diligent pre-trip inspections. External factors, such as highway conditions and weather, further exacerbate the risk.



Smart Trailer Technology Offers a Proactive Solution

Upholding efficiency, compliance, and safety of fleet operations is reliant on an active shift that leverages trailers as strategic assets, rather than containers for hauling cargo. Connecting fleets with robust specifics on tire pressure and brake systems, lights, location, and overall trailer health bridges the gap to:

Avoid Downtime: Address low tire pressure or brake malfunctions before reaching inspection stations.

Improve Inspection Outcomes: Ensure compliance, reducing the likelihood of OOS violations at enforcement sites.

Mitigate Risk: With 32 commercial vehicle enforcement stations in Illinois alone, the probability of inspection is high. Having real-time data minimizes avoidable stops.



With proactive alerts and easy access to maintenance records, we're already realizing savings directly related to improved compliance and uptime.

*Fleet Safety Officer
FleetPulse Customer*

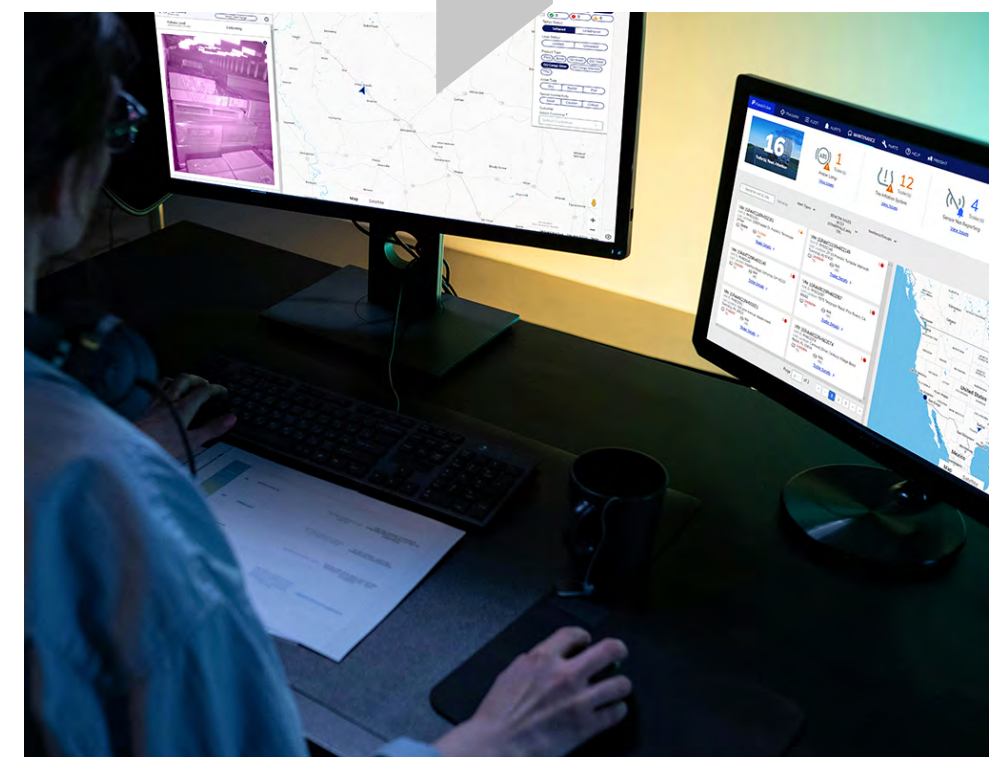


Focus On: The Call to Innovate Maintenance Practices

Proactive maintenance keeps fleets on the road, protects revenue, and ensures smooth operations—from both the asset and human capital standpoints. By staying ahead of potential issues, fleets can maximize trailer availability, meet delivery schedules, and maintain strong customer trust. Preventative measures like regular inspections, tire checks, and lighting maintenance reduce the risk of costly disruptions while promoting operational efficiency.

For example, well-maintained brake systems ensure trailers remain in service, avoiding delays caused by enforcement inspections with OOS violations. Properly inflated tires with adequate tread prevent blowouts, keeping shipments on track and minimizing the need for expensive roadside assistance. Functioning lamps and signals not only enhance safety by improving visibility but also ensures compliance during inspections, reducing the risk of downtime.

What's more, minimizing violations brings broader benefits, including protecting fleet reputation, maintaining low insurance premiums, and strengthening customer relationships. By investing in proactive maintenance, fleets safeguard their assets, reduce unexpected costs, and create a reliable operation that consistently delivers on promises.



Innovative fleet maintenance begins with streamlining critical trailer data into a centralized dashboard. There, proactive measures can be employed to mitigate risks and drive more efficient operations.

Enter FleetPulse for Fleet Safety and Compliance

FleetPulse offers a distinct pathway to enhanced preventative maintenance, helping customers with efficient asset utilization to stay ahead of safety and compliance challenges.

Value-add Solutions

Through continuous monitoring and reporting of fleet health and behaviors via the [FleetPulse platform](#), potential issues are identified and addressed before they lead to costly downtime or safety violations.

Fleet Challenges	FleetPulse Solutions
Managing Trailer Assets	Real-Time Monitoring and Insights Track condition of all trailer components and maintenance needs to keep trailers safe and in optimal, working order
CSA Score Management and Non-compliance Risks	Driver Behavior Analytics Identify risk patterns, and implement targeted training programs to modify behavior to manage incidents, improve CSA scores, reduce insurance costs, stay ahead of regulatory requirements, and avoid potential loss of business
Upholding Reputation	Incident Reporting and Management Streamline the reporting process, and identify root causes to avoid high-profile incidents and deterioration of trust
High Frequency of Reportable Incidents	Historical Data Proactively address safety issues and compliance requirements

[Optimize and Future-proof Your Fleet](#)

FleetPulse Customer Success

The Key to Transitioning from Traditional Practices to a Smart Trailer Maintenance Program—with Ease

While FleetPulse's advanced trailer telematics provide rich insights to improve fleet safety, the agility built into our platform ensures customers can adapt as their needs evolve.

That's where the FleetPulse Customer Success Team adds another layer of value, making sure customers are never locked into rigid solutions. As a complementary service, they focus on tailoring the platform configuration to align with customer priorities and expected outcomes.

Well beyond onboarding and implementation, Customer Success remains engaged to help customers leverage the platform's flexibility as their business needs grow.



The FleetPulse Customer Success team is motivated by figuring out how they can solve customers' pressing challenges and set them up for future success.

The FleetPulse Customer Success Promise



- Innovation is at the core of our partnerships
- We prioritize continuous learning with clients
- We proactively identify opportunities to elevate outcomes
- Starting Day One, a dedicated team member engages to shape the customer's smart trailer journey

Conclusion

Transform Fleet Safety and Extract Value

The persistent challenges in fleet safety require innovative solutions. FleetPulse's innovative technologies, such as [FleetPulsePRO](#), redefine compliance while delivering measurable value, including:

Maximized Uptime: Real-time alerts detect issues early, minimizing downtime and keeping fleets on the road.

Improved Asset Utilization: Insights into asset health and performance for proactive measures that ensure top-level fleet performance and usage.

Improved Operational Efficiency: Standardizing maintenance and monitoring practices to reduce the risk of out-of-service violations.

Enhanced Customer Satisfaction: Fewer delays, incidents, and damage claims lead to better service delivery and stronger customer relationships.

Proactively Optimizing Operations

With FleetPulse, fleets can confidently navigate the complexities of compliance, reduce costs associated with violations, and protect their reputation. Smart trailer technologies empower fleets to outsmart OOS, paving the way for a safer, more efficient future.

By empowering fleets with real-time insights, FleetPulse transforms traditional maintenance into a predictive, preventative model. This innovation not only lowers the costs of fines, downtime, and Compliance, Safety Accountability (CSA) severity points but also elevates operational efficiency and safety across the board.

[Request a 1:1 FleetPulse Demo](#)

[Explore FleetPulse Solutions](#)



Address risks before they escalate with FleetPulse, your solution for proactive maintenance alerts, comprehensive driver behavior monitoring, and tools for regulatory compliance.