



Transit



Managing Railcar Maintenance

A Primer on Practices and Improvement Opportunities for the U.S. Transit Industry

Background

The U.S. transit industry has an active service fleet of more than 20,000 railcars, which continues to grow through the expansion of existing transit rail systems and the development of new systems. The fleets of many of the largest rail transit agencies are aging, even as their expected service requirements and performance are rising. Moreover, recent reports have identified a major capital investment backlog for transit infrastructure in general and rolling stock in particular. As the single largest source of funding for railcar acquisitions, the Federal Transit Administration (FTA) has a natural interest in ensuring the cost-effective maintenance and preservation of the national transit railcar fleet.

Based on this context, FTA is supporting research identify maintenance practices that can help promote more cost-effective fleet management throughout the U.S. rail transit industry. National transit performance data show significant variation in performance and cost among transit fleets, which may imply that differences in fleet management approaches explain, in part, differences in fleet performance outcomes. This research report presents established maintenance management practices and methods together with examples of successful implementation.

Objectives

To explore this opportunity, the objectives of this research project included:

- To learn from best practice – asset management practices in the passenger rail industry have steadily evolved from the scheduled systematic replacement of equipment to lean production methods based on continuous improvement. This research report highlights practical examples of standard and best practice in fleet management.
- To improve state-of-good-repair through improved railcar maintenance practices – this research report identifies effective maintenance management practices as a critical foundation for maintaining the state-of-good-repair of transit rolling stock. The report identifies the critical elements of an effective fleet management approach.
- To provide context to the role of rolling stock maintenance in overall transit performance – this research reports explores how an effective fleet maintenance program not only promotes fleet performance but also overall transit agency goals such as improved overall financial performance, expanded capacity, and higher levels of customer satisfaction.
- To disseminate effective fleet management practices to U.S. transit agencies – this research report includes a variety of practical methods appropriate for immediate or short-term implementation at transit agencies, as well as a longer-term vision of effective fleet management.

Findings and Conclusions

This report documents standard maintenance management approaches for rail transit rolling stock and emphasizes the need for ongoing improvement efforts to sustain and raise program performance.

An effective maintenance management function, supported by a high quality performance improvement framework, is critical to successful fleet management. In interviews at diverse transit maintenance programs, management staff indicated frontline supervisors and foremen are often missing core skills and knowledge necessary for effective fleet management, including areas such as planning, performance management, and performance improvement. This research report provides a primer on the core knowledge necessary for a comprehensive understanding of railcar fleet maintenance.

A central focus of the study was the need to have in place an ongoing performance improvement function to confront emerging challenges and exploit opportunities to sustain and improve fleet performance. The research report focuses on two widely-recognized and complementary performance improvement frameworks: Reliability-Centered Maintenance, which, broadly speaking, addresses the effectiveness of maintenance carried out, and Total Productive Maintenance, which addresses maintenance quality and efficiency. This report also addresses standard practices, common issues, and potential improvement methods in maintenance strategy, planning, performance measurement, procurement, information systems, and materials management.

Benefits

The research conducted documents standard maintenance management approaches for rail transit rolling stock. It is intended to be a practical resource for experienced but especially new managers in fleet management and related areas who are not necessarily familiar with specific aspects of fleet management or who are looking for new performance improvement opportunities and approaches. With no single existing resource for railcar maintenance management, the report addresses an important gap in the existing transit management literature and provides an important baseline of practice for the industry build upon.

The report also emphasizes the need for ongoing improvement efforts to sustain and raise program performance—for example, to improve reliability and customer experience and reduce fleet lifecycle costs. The improvement methods presented in the report provide managers at all levels tools to respond to the steady stream of challenges a fleet maintenance program confronts. Moreover, the report provides frameworks to help readers diagnose negative maintenance syndromes and a vision of a highly-functioning fleet maintenance program.

Project Information

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