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SHORT LINE SAFETY INSTITUTE: 2024 SYSTEMATIC REVIEW

SUMMARY

The Short Line Safety Institute (SLSI) is dedicated to the continuous improvement of safety and safety culture across all short line, regional, passenger, commuter, historic, and tourism railroads in the United States (i.e., “targeted railroads”). Strengthening a railroad’s safety culture may result in less frequent or severe accidents and create a safer working environment. SLSI defines safety culture as the shared values, actions, and behaviors that demonstrate a commitment to safety over competing goals and demands, based on the U.S. Department of Transportation (DOT) Safety Council’s safety culture definition (Morrow & Coplen, 2017).

SLSI conducts an annual analysis to assess the status of safety culture in targeted railroads. This report summarizes findings from a systematic review of the 20 SLSI Safety Culture Assessment (SCA) Reports created in 2024 and discusses industry trends in the strengths and opportunities for improvement related to safety culture practices. These strengths (e.g., employees feel comfortable communicating safety related issues/concerns to management) and Opportunities for Improvement (e.g., employees express a desire for more recognition of safe work practices in the field) provide insight into and indicators of the status of safety culture in the targeted railroad industry. Lastly, this report introduces new ways SLSI can continue to serve the industry.

BACKGROUND

Since 2015, SLSI has conducted voluntary, non-punitive, and confidential assessments of the safety culture at participating short line and

regional freight railroads (i.e., Class II and Class III railroads) across the United States. SLSI uses a multi-method model, which has been recognized as “the most robust assessment model in the industry” by a Volpe National Transportation Systems Center evaluation (Kidida & Howarth, 2019). SLSI’s Safety Culture Assessment (SCA) model, which includes interviews, on-site observations, and surveys, continues to provide tangible, action-oriented results for participating railroads.

After an SCA, the participating railroad receives an Assessment Report. Organized around the 10 Core Elements of a Strong Safety Culture (Morrow & Coplen, 2017), this report presents “Findings” about the strength of safety culture at that railroad, as well as “Opportunities for Improvement.” SLSI offers technical assistance to railroads that seek to implement changes with the goal of strengthening their safety culture. In addition, SLSI can conduct follow-up SCAs to further assist participating railroads in their efforts to improve safety culture. As of May 2025, SLSI has conducted 167 SCAs. As of FY22, SLSI also serves passenger, commuter, historic, and tourism railroads.

OBJECTIVE

The objective of the systematic review is to examine the strengths and opportunities for improvement in safety culture across the targeted railroad industry, based on SLSI’s 2024 SCAs. The annual systematic review informs SLSI of the industry’s needs as it continues to develop its programs, resources, and service offerings.



METHODS

SLSI collected and reviewed the 2024 SCA Reports (N = 20; 13 first time SCAs and 7 second or third time SCAs) (see [Figure 1](#)).



Figure 1. SLSI created 20 Assessment Reports in 2024.

SLSI analyzed the Findings (both positive and negative) and Opportunities in each report (see [Figure 2](#)).

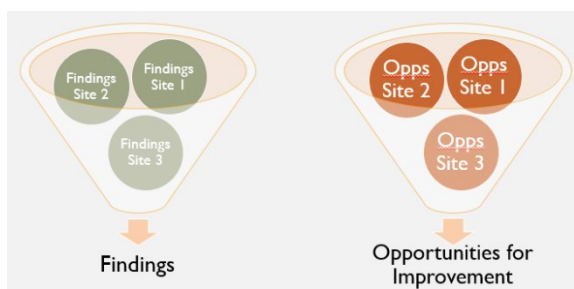


Figure 2. Findings and Opportunities for each site were identified.

Report Elements. The Findings are descriptions of safety culture indicators that the Assessors identified at a railroad. These indicators are based on the 10 Core Elements of a Strong Safety Culture (Morrow & Coplen, 2017). SLSI aggregated, analyzed, and then classified the Findings as either positive or negative across the reports.

The Findings classified as “positive” identify areas in which a railroad demonstrates a characteristic supporting strength in safety culture. The Findings classified as “negative” identify areas in which a railroad demonstrates a weakness in characteristics supporting a strong safety culture, indicating an area for improvement. Following the Findings in the SCA Assessment Reports, Assessors list Opportunities that suggest organizational

changes or actions that, if implemented, may strengthen a railroad’s current safety culture. Assessment Reports present Opportunities that address any identified gaps in safety culture (i.e., negative Findings). For example, a Finding may be that employees do not always use Personal Protective Equipment (PPE) provided by the railroad. Subsequently, an Opportunity may be that the railroad could clearly define and communicate criteria for PPE usage across all crafts and ensure that PPE is readily available.

ANALYSIS

The strengths and opportunities for improvement in safety culture identified in the reports were reviewed, themed, and coded into a two-level categorical hierarchy (see [Figure 3](#)). The prevalence of themes and the categories that comprised them were then estimated by calculating their frequencies across reports. The high-level themes that were identified in these reports closely align with safety culture constructs that have previously been established in the scientific literature. These themes and their measures have further been adapted and used as part of the SCA process (Kidda & Coplen, 2016).



Figure 3. Overview of the data hierarchy

RESULTS

Frequency analyses revealed the prevalence of the strengths and opportunities for improvement as organized by the safety culture categories. Key results in order of prevalence are listed below.



Safety Culture Strengths

- Provision of PPE: Railroads provide PPE to employees as needed and it is readily available.
- Approaching Management with Safety Concerns: Employees feel comfortable communicating safety related issues and concerns.
- Employee Empowerment: Employees feel empowered to work safely.
- Accountability/Responsibility for Safety: Employees at all levels take personal responsibility for their safety, as well as the safety of their coworkers and the public.
- Coaching/Mentoring/Modeling: Managers/supervisors are modeling safe behaviors while in the field and during interactions with employees.

Safety Culture Opportunities for Improvement

- Safety Action Plan: Some railroads could create a safety action plan or make improvements to or better communicate an existing one.
- System for Reporting Safety Concerns/Resolutions: Some railroads could improve their systems for tracking and reporting employee concerns and resolutions to these concerns.
- Housekeeping: The organization or maintenance of the property at some railroads could be improved.
- Recognition of Safe Work Practices: Some employees express a desire for more recognition (beyond awards) and reinforcement in the field for engaging in safe work practices.
- Efficiency/Operational Testing: Operational testing is conducted but feedback to employees could be improved.

Additional Analyses

SLSI also investigated any differences between the Final Reports for railroads who completed

their first SCA (T1) or second or third SCA (T2/3) in 2024. There were slightly more positive findings and fewer negative findings among T2/3 railroads compared to T1 railroads. Although this difference was not statistically significant, it is a positive trend for railroads over time and may indicate the effectiveness of SCAs.

CONCLUSIONS

SLSI's systematic review of 20 Safety Culture Assessment Reports from 2024 suggests there are prominent strengths in safety culture across the targeted railroad industry, such as employees feeling comfortable approaching management with safety concerns and feeling empowered to work safely. However, there are also noteworthy opportunities for improvement in the industry that require additional attention, such as a need for creating safety action plans and greater recognition of safe work practices while in the field. By assessing safety culture and examining the practices of targeted railroads, SLSI gains insight into the industry at large. With this information, SLSI can report generally on the needs of the targeted railroad industry and take action to create and offer resources that address identified railroad safety opportunities for improvement.

FUTURE ACTION

The 2024 systematic review demonstrates various needs of the targeted railroad industry that can be addressed by SLSI. SLSI continues to reflect and take action on these needs year-over-year. Actions being taken based on this year's review are described below.

SLSI will place a greater emphasis on the importance and function of a safety action plan during interactions with railroads. A safety action plan is a living document that shows what a railroad has done and what it is planning to do regarding safety. This plan encompasses many aspects of safety, some of which identified Opportunities in this 2024 review (e.g., systems for reporting safety concerns and resolutions, housekeeping, exercises and drills). This document takes time, energy, and dedication to



maintain, but the safety benefits greatly outweigh the required effort.

During the final Close-Out meetings with railroads at the end of an SCA, SLSI Assessors will provide a Safety Culture Resource Guide comprised of hard copies of its various online resources and tear-out pages (e.g., templates and best practices). This will help promote more meaningful discussions in these meetings around how to use SLSI resources and where they are located online. Assessors can answer questions and help clarify the intended use of these resources.

Assessors will also be spending time during Close-Out meetings discussing housekeeping and how the use of a housekeeping checklist may be beneficial. This may help railroads understand what to look for in terms of housekeeping and safety throughout their properties.

Lastly, SLSI has developed protocols to promote a continued relationship with the railroads they serve. Conducting an SCA is not the last step, but rather just the beginning of the work to promote a stronger safety culture. SLSI now engages in more frequent post-assessment communications to discuss progress and any barriers related to improving safety culture. This enhancement to the SCA model will provide railroads with additional assistance to continue improvements in rail safety.

REFERENCES

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