



## SHORT LINE SAFETY INSTITUTE: 2022 SYSTEMATIC REVIEW

### SUMMARY

The Short Line Safety Institute (SLSI) is dedicated to the continuous improvement of safety and safety culture across all short line and regional railroads in the United States. 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 the industry. This report summarizes findings from a systematic review of the 18 SLSI Safety Culture Assessment Reports created in 2022 and discusses industry trends in the strengths and gaps related to safety culture practices. These strengths (e.g., employees are willing to talk to their coworkers when they see an unsafe action or condition) and gaps (e.g., hazmat drills are not conducted/have not been conducted recently) provide insight into the status of safety culture in the short line and regional 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 (Kidda & Howarth, 2019). SLSI's Safety Culture Assessment (SCA) model, which includes interviews, on-site observation, and surveys, continues to provide tangible, action-oriented results for participating railroads.



**Figure 1. SLSI created 18 Assessment Reports in 2022**

After an SCA is conducted, 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" (i.e., Opportunities). 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 April 2023, SLSI has conducted 125 SCAs.

### OBJECTIVE

The objective of the systematic review is to examine the strengths and gaps in safety culture across the short line and regional railroad industry, based on SLSI's 2022 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 2022 SCA Assessment Reports (N = 18). SLSI analyzed the Findings (both positive and negative) and Opportunities in each report (see Figure 2).

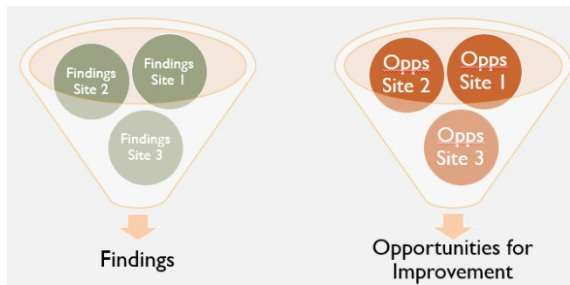


Figure 2. Findings and Opportunities for each site were identified

**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, thus indicating a gap. 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 use across all crafts and ensure that PPE is readily available.

## ANALYSIS

The strengths and gaps 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 (Kidida & Coplen, 2016).



Figure 3. Overview of the data hierarchy

## RESULTS

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

### Safety Culture Strengths

- Approaching Management with Safety Concerns: Employees feel comfortable communicating safety-related issues and concerns.
- Continuous Improvement: Railroads have taken specific actions that demonstrate a commitment to continuous improvement.



- Management Response to Safety Concerns: Railroads consistently address safety issues in a timely manner.
- Approaching Coworkers with Safety Concerns: Employees are willing to talk to their coworkers when they see an unsafe action or condition.
- Safety Communication Quality/Quantity: Bulletins and alerts are used as a learning opportunity on how to prevent safety incidents.
- Provision of PPE: Railroads provide PPE to employees as needed and it is readily available.
- New Hire Training: Some railroads' new-hire training programs could be enhanced.

#### Safety Culture Gaps

- Recognition of Safe Work Practices: Some employees express a desire for more recognition and reinforcement in the field for engaging in safe practices.
- Job Specific Training: Some employees desire more in-depth training for their specific job functions.
- Safe Work Practices: There is a perception at some railroads that work practices sometimes allow unsafe behaviors in order to get the job done faster.
- Hazmat Exercises/Drills: Some railroads do not conduct Hazmat drills or have not conducted them recently.
- Leadership/Management Training: Some railroads do not have formal training programs for management or non-management employees. Such programs that align with a strong safety culture are those that include training for supervisors or senior employees on how to become effective leaders.

#### CONCLUSIONS

SLSI's systematic review of 18 Safety Culture Assessment Reports from 2022 suggests there are prominent strengths in safety culture across the short line and regional railroad industry, including approaching management and coworkers with safety concerns. However, there are noteworthy gaps in the industry as well, such as new hire and job specific training. By assessing safety culture and examining the practices of the short line and regional railroads, SLSI can gain insight into the industry at large. With this information, SLSI can report generally on the needs of the industry and take action to create and offer resources that address identified railroad safety Opportunities.

#### FUTURE ACTION

The 2022 systematic review demonstrates industry needs that can be addressed by SLSI. For example, SLSI continues to expand and improve its Hazardous Materials Training Programs to further educate short line and regional railroads. Informed by the systematic review, exercises and drills will be highlighted in communications to the stakeholders.

SLSI also continues to provide training in mentoring and coaching through its Leadership Development Training, which is offered online and in person. As of April 2023, SLSI has conducted 23 training courses and frequently offers them to interested railroads across the country. SLSI aims to adapt its current curriculum to include a specific activity on recognizing safe work practices.

SLSI's online Resource Library provides additional assistance to railroads to further address the demonstrated needs of the industry (i.e., safety action plan template). SLSI aims to create and/or provide new hire and job specific training resources to further populate the



Resource Library and address gaps in the industry.

## REFERENCES

Kidda, S., & Coplen, M. (2016) [Short Line Safety Institute Pilot Safety Culture Assessment Project: Development of Assessment Tools](#) (Report No. RR 16-03). Federal Railroad Administration.

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Morrow, S., & Coplen, M. (2017). [Safety Culture: A Significant Influence on Safety in Transportation](#) (Report No. DOT/FRA/OR-17/09). Federal Railroad Administration.

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## KEYWORDS

freight railroads, regional railroads, short line railroads, safety culture assessment, safety culture measurement, state of rail industry

## CONTRACT NUMBER

F33315-86-C-5169

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