SHORT LINE SAFETY INSTITUTE: 2016 SYSTEMATIC REVIEW

SUMMARY

Since 2015, the Short Line Safety Institute (SLSI) has been conducting voluntary, non-punitive Safety Culture Assessments of short line and regional railroads (i.e., Class II and Class III railroads). Participating railroads' identities are held confidential. The railroad receives an Assessment Report, which presents findings and opportunities for improvement about the strength of safety culture, at that specific railroad, in relation to the *10 Core Elements of a Strong Safety Culture*, as identified by the U.S. Department of Transportation's Safety Council (Morrow & Coplen, 2017). The SLSI has adopted the Safety Council's definition of "safety culture:" *The shared values, actions, and behaviors that demonstrate a commitment to safety over competing goals and demands*.

A systematic review of the SLSI's 2015–2016 Assessment Reports revealed industry trends in the strengths and gaps related to safety culture practices. These strengths, such as *employees feel personal responsibility for safety*, and gaps, such as *lack of formal safety concern reporting systems*, provide insight to and indicators of the status of safety culture in the short line and regional railroad industry.

BACKGROUND

Safety Culture Assessments are the core activity in support of the SLSI's organizational mission and vision:

Vision: The short line and regional railroad industry performs at an increasingly high level of safety.

Mission: To enhance the safety culture and safety performance of short line and regional railroads through meaningful and productive partnerships.

The SLSI was launched in March 2014 as a pilot project focused on the development and testing of the Safety Culture Assessment process. The pilot project was a collaboration between the American Short Line and Regional Railroad Association (ASLRRA), the Federal Railroad Administration's (FRA) Office of Research, Development and Technology (RD&T), University of Connecticut (UConn), and the Volpe National Transportation Systems Center (Volpe). The SLSI Pilot Project was supported by funding from FRA's RD&T.

In 2015, the Pilot Project concluded, and the SLSI became a non-profit organization. Since then, the SLSI has continued to build its program by implementing lessons learned from the Pilot Project and scaling the Safety Culture Assessment program area as well as developing the other three SLSI program areas: *Education & Training*, *Research,* and *Communication*. (See earlier publications for more details about the history of the SLSI: Assessor Job Analysis, Pilot Project Site and Assessor Recruitment, and Development of Assessment Tools (Coplen & Kidda, 2014) (Kidda & Coplen, 2015) (Kidda & Coplen, 2016).

OBJECTIVES

Each collaborator serves a role in the ongoing development of the SLSI. FRA's RD&T commissioned Volpe, through an Inter-Agency Agreement, to conduct a program evaluation to determine the quality and to support the

improvement of the SLSI's programmatic activities, beginning with the Pilot Project and continuing through the current implementation phase. Volpe uses multiple methods in the ongoing program evaluation including observation, interview, and document review with the purpose of documenting decision-making, collecting field data, and providing evidence-based feedback about the SLSI's development, implementation, and preliminary outcomes.

This report summarizes the findings from a systematic document review of the 22 SLSI Safety Culture Assessment reports, created in 2015 (Pilot Project) through 2016 (Implementation Year 1), as part of Volpe's larger effort to answer the key evaluation question: *To what extent is the SLSI addressing the safety culture needs of the short line and regional railroad industry?*

Volpe conducted the systematic review of the Assessment reports to provide the SLSI with a preliminary indication of the strengths and gaps in safety culture across the short line and regional railroad industry, based on its Safety Culture Assessment process at 22 railroads. This is intended to inform the SLSI of the industry needs as it develops its other program areas, particularly Education & Training.

METHODS
After collecting and reviewing final versions of an Assessment report, Volpe analyzed in each report the Findings and the Opportunities for Improvement.

Report Elements
The Findings are descriptions of safety culture indicators that through the Assessment process, the Assessors identified as present in terms of its strength at the railroad, based on the *10 Core Elements of a Strong Safety Culture* (Morrow & Coplen, 2017). Volpe aggregated, analyzed, and then classified the Findings as either positive or negative across the reports.

The Findings classified as "positive" are those that identify areas in which the railroad demonstrates a characteristic supporting *strength* in safety culture. Whereas, the Findings classified as "negative" are those that identify areas in which the railroad demonstrates a weakness in characteristics supporting a strong safety culture, thus indicating a *gap*.

Following a Finding in the reports, the Opportunities for Improvement (Opportunities) are listed to suggest organizational changes or actions that may strengthen the railroad's current safety culture if implemented. At a minimum, the reports present Opportunities that address any identified gaps in safety culture (i.e., negative findings).

For example, a Finding may be that job-safety briefings are not being conducted on a regular basis. Subsequently, an Opportunity may be that the railroad could develop a job-safety briefing guide for conducting them when a crew starts a shift, but also anytime the job changes.

Analysis
The *strengths* and *gaps* in safety culture identified in the reports were reviewed, themed, and coded into a 2-level categorical hierarchy using an inductive approach. Theme prevalence then was estimated by calculating the frequency of each theme across reports.

High-level themes for *strengths* and *gaps* were a 75 percent match for safety culture constructs previously established in the scientific literature. These constructs, and their measures, were adapted by UConn for both the Safety Culture Survey and the onsite interview protocols utilized a part of the Safety Culture Assessment process (Kidda & Coplen, 2016).

RESULTS
Frequency analyses revealed the prevalence of the *strengths* and *gaps* as categorized by the safety culture constructs. Key results in order of prevalence are as follows:

Safety Culture Strengths

- Safety Values: Across all levels of the railroad, safety is perceived as a priority over competing demands, and safety is valued above all.

- Approaching Management with Safety Concerns: Employees believe they are able to bring safety concerns to management without fear of retribution.

- Accountability/Responsibility for Safety: Employees are aware that their actions affect the safety of their coworkers and the public; they will approach others to help them work safely.

- Job-Safety Briefings: Most railroads regularly conduct job-safety briefings as a fundamental safety practice across crafts.

Safety Culture Gaps

- Consistency/Communication of Formal Discipline Policy: Employees are unaware of the existence of a formal discipline policy, or have the perception that the policy is applied inconsistently across the railroad.

- System for Reporting Safety Concerns and Resolutions: Many railroads either do not have or do not utilize formal systems for reporting, tracking, or communicating safety concerns. Employees are not consistently made aware of whether or not safety concerns have been resolved by the railroad.

- Coaching/Mentoring/Modeling: Many railroads do not have formal coaching or mentoring 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 mentors or how to role model safe behaviors when in the field.

- Organizational Safety Documents: Many railroads either do not have in place or employees (management and non-management) are not aware of key safety documents, such as a safety vision statement, a Safety Action Plan, and other formal documentation demonstrating that the railroad values safety over competing goals and demands.

CONCLUSIONS

This systematic review of the SLSI's initial 22 Safety Culture Assessment reports suggests that there are significant strengths in safety culture across the short line and regional railroad industry. Nonetheless, there are significant gaps in the industry, but if addressed, could strengthen industry safety culture.

Assessing safety culture strengths and gaps by examining the practices of the short line and regional railroads provides insight into the industry at large. With this information, the SLSI can report generally on the strides or needs of the industry, and take action to create and communicate resources that address opportunities for improvements at railroads.

FUTURE ACTION

Volpe will systematically review the SLSI Safety Culture Assessment reports from 2017 and 2018 to continue to identify the most prevalent industry opportunities. The SLSI uses the results of the reviews to portray a more accurate representation of industry needs, which in turn the SLSI uses as target topics for external safety culture education and for internal training for the team of SLSI Assessors that conduct the Assessments.

REFERENCES

Coplen, M., & Kidda, S. (2014). *Development of a Short Line Railroad Safety Institute: Phase I – Job Analysis*. Washington, DC: Federal Railroad Administration.

Kidda, S., & Coplen, M. (2015). *Short Line Safety Institute Pilot Safety Culture Assessment Project: Recruitment and Selection of Sites and Assessors*. Washington, DC: Federal Railroad Administration.

Kidda, S., & Coplen, M. (2016) *Short Line Safety Institute Pilot Safety Culture Assessment Project: Development of Assessment Tools*. Washington, DC: Federal Railroad Administration.

Morrow, S., & Coplen, M. (2017). *Safety Culture: A Significant Influence on Safety in Transportation*. Washington, DC: Federal Railroad Administration.