

CRISI Project Executive Summary

Building a Home-Grown Rail Workforce: National Needs Assessment



CALIFORNIA STATE UNIVERSITY
LONG BEACH



Project Overview

Montana State University, the University of Memphis, and California State University Long Beach are partnering to build sustainable, skilled, multidisciplinary rail talent pipelines to meet increased industry demand resulting from recent historic federal and private investments in next generation freight and passenger rail.



A skilled workforce supports a resilient rail industry capable of delivering local, regional, and national economic, mobility, and environmental benefits.

Regional Workforce Context

The three participating project states intentionally represent very different rail environments to support national replication of workforce development strategies appropriate to different regional contexts.

Region	Rail Characteristics	Key Workforce Implications
California	Large freight and passenger rail hub with high-speed rail expansion	Demand for electrification, advanced rail systems, and passenger rail expertise
Tennessee	Major multimodal freight distribution center anchored by Memphis	Need for logistics, intermodal operations, and rail maintenance talent
Montana	Expansive freight corridors and emerging passenger rail opportunities	Need for corridor systems planning expertise and access to operations/maintenance workforce in rural communities

Key Findings from the Needs Assessment

Why Rail Matters

- ▶ Rail generates \$233B in economic output and supports approximately 750,000 jobs nationwide.
- ▶ Historic federal, state, and industry rail investments are accelerating demand for workers in operations, engineering, logistics, advanced manufacturing, technology, cybersecurity, construction, and maintenance.
- ▶ Passenger rail expansion, high-speed rail development, enhanced technology capabilities, and sustainability initiatives are reshaping workforce competency needs.
- ▶ Many regions face recruitment, retention, and succession planning challenges as experienced rail employees retire.
- ▶ Education and training opportunities remain fragmented, limiting awareness of rail career pathways among students and job seekers.

Workforce capacity should not be the limiting factor jeopardizing progress on rail infrastructure expansion, service improvements, safety upgrades, or technology and sustainability advancements.

Workforce Challenges

Aging Workforce

Retirements lead to loss of insitutional knowledge

Pipeline Gaps

Limited exposure to rail careers

Outdated industry image

Few rail-specific education programs

Recruitment Barriers

Low awareness of careers

Demanding schedules

Competing industries

Retention Issues

Environment & culture

Fatigue and stress

Limited advancement & competing industries

Representation Gaps

Underrepresentation of some demographics limits talent pool

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Workforce Skills Evolution

► Automation, digitization, and increasing demands for sustainable and efficient operations are reshaping skill needs

► Growth in technology, engineering, and data roles contrasts with declines in some traditional roles

Traditional Skills
(Operations, mechanical, maintenance)

Emerging Skills
(data analytics & AI, cybersecurity,
advanced signaling, electrification,
systems engineering)

Result:
Need for both on-the-ground operations/
maintenance staff & multidisciplinary
'Smart Rail' workforce

How Our Project Connects

Early Awareness

K-12 outreach + Summer
Rail Academies



Community colleges +
universities



Educational Alignment

Experiential Learning

Project-based learning
curriculum, faculty
fellows



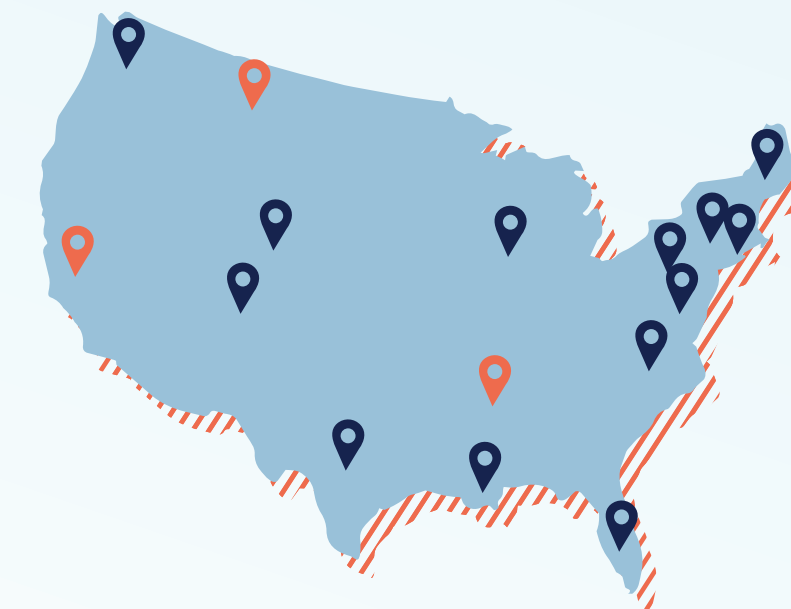
Mapping of
multidisciplinary rail
careers



Career Pathways

Design of locally-relevant strategies with Multisector Working Groups

National Scale



National knowledge-sharing
hub, National Industry Advisory
Group