

National Committee on Transit Rail Car Training Standards

FINDINGS AND RECOMMENDATIONS: 2012

IMPLEMENTING STANDARDS-DRIVEN, PARTNERSHIP-
BASED TRAINING:
A NATIONAL TRANSIT PRIORITY

Companion PowerPoint Highlights the Committee's Findings & Recommendations

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National Committee on Transit Rail Car Training Standards: Findings and Recommendations

Implementing Standards-Driven, Partnership-Based Training: A National Transit Priority

The Problem

America's transit industry is facing a skills crisis for its frontline technical workforce. As documented in numerous TCRP reports, skilled transit mechanics are the industry's most difficult group to recruit and retain. This is especially true for technicians in transit rail – specialized rail car mechanics and technicians who maintain transit rail signals and power systems.

The shortage of qualified front-line transit technicians is driven by three converging factors:

1. The increasing technological content of modern transit equipment, which demands sophisticated digital skills beyond those of prior generations
2. Significant and continuing growth of transit ridership, particularly in the expanding number of rail systems around the country. Many transit rail agencies have imported retired rail car technicians from the railroad industry and have relied on training provided by original equipment manufacturers for new rail lines; these organizations typically have limited internal training capability for training rail technicians.
3. The pending bulge of Baby Boomer retirements, the most senior incumbent technicians. Many had to delay their retirements with the collapse of the real estate and stock market bubbles starting in 2008, but they will be retiring sooner rather than later. Many agencies are looking at 35 percent or more of their technical workforces being eligible to retire within five years. Many agencies are down to one or two senior technicians who can carry out critical maintenance and repairs in key areas.

These new pressures for more and better technical training impact transit training arrangements that have been under stress for years.

- The transit industry's legacy system of technical training requires each transit agency to invent its own training system from the ground up, determining for themselves what their technicians need to know and be able to do, how to teach them, how best to develop training materials and systems and then how to determine whether the needed skills have been mastered.
- A result of this very expensive, inefficient and inconsistent "system" of training is that agencies have significantly under-invested in workforce training. The transit industry currently spends less than 1 percent of its payroll on workforce training – among the lowest investment in workforce skills of any US industry. (Most recent survey results, prior to the 2008 Great Recession, show training investment of between 0.66 and 0.88 percent of payroll.) Federal policy in the transit industry has provided extremely limited support for workforce development – especially for meeting the training needs of the frontline workforce. Eighty percent of the transit

workforce - the frontline transit technicians who deliver and maintain public transportation services – have received less than 20 percent of the limited DOT funds available for workforce training. On a per-employee basis, that's less than one-sixteenth as much funding for these training critical frontline technical jobs.

Building Effective Skills Solutions: A National Response from the Transit Industry

Starting in the early 2000s, leaders of transit management and labor started working together to develop much more effective solutions for the transit skills crisis. Major commitments were made by leaders of transit agencies and local unions and by national transit organizations representing the industry's major stakeholder constituents - APTA for rail transit authorities/management and the two major transit unions, the Amalgamated Transit Union and the Transport Workers Union - including Subject Matter Experts such as trainers and supervisors. Following the successful examples in other US industries and in other countries, leaders from these transit stakeholder organizations started developing *industry-wide training standards* in key transit rail occupations.

Working together over the past seven years on the critical occupation of rail car maintenance technicians, over 30 transit rail experts in the National Committee on Transit Rail Car Training Standards have now developed the components of a highly efficient, cost-effective, high quality training system that can be applied throughout the industry. Sponsored broadly by transit management and labor organizations in the industry and staffed by the Transportation Learning Center, the National Committee has been funded by grants to the Center from the US Department of Labor, the Federal Transit Administration, and the Transportation Research Board and its Transit Cooperative Research Program (TCRP).ⁱ

National Training Standards provide the foundation for an industry-wide training system. The standards are an agreed common set of goals for rail car maintenance training throughout the industry. The rail car training standard, including over 3,700 specific learning objectives, was adopted as part of the APTA standards program in 2010, after four years in development.

The Framework for a System of Qualification for Rail Car Technicians was developed by the Committee to connect specific courses, combining classroom and on-the-job learning, leading to mastery of the needed knowledge and skills. Building on best-practice training experience for other frontline technical jobs, this system of qualification is designed so that it can be easily customized to match up with the fleets and practices at each transit agency. A cornerstone is **grandparenting** of incumbent technicians to assure that current workers are not disadvantaged. A commitment to **expanded training** for incumbent and newly hired workers will expand skill levels, opportunities for career ladder advancement, and strengthen job security with better skills.

A National Framework for Transit Rail Apprenticeship Training was developed and submitted to the US Department of Labor to provide model language and support for local apprenticeships.

A System of Mentoring provides a proven mechanism for coordinating on-the-job learning with classroom instruction to assure effective development of shop floor capabilities.

Existing Courseware is Being Validated for Sharing across Agencies by making sure it meets the requirements of the national training standards. Sharing courseware provides another avenue for making quality training more affordable, since locations can avoid duplicate spending for good training materials.

Hands-on and Written Assessments have been developed by the National Committee for workers who have received standards-based training.

Course Master Sheets and Curriculum (in progress) identify the objectives for courses ranging from common core skills for technical transit jobs (the 100 level) to the twelve key systems in transit rail cars (the 200 level) to trouble shooting and diagnosis (the 250 level) and to specific models of rail cars (300 level).

Train the Trainer Systems provide the final component to support local training programs in implementing standards-based system of training across the industry.

Rail Car System of Qualification: Milestones Over Seven Years

2006-2010 – National Training Standards
2008-2011 – Design Framework for System of Qualification
2009-2011 – Design & Submit National Rail Car Apprenticeship System
2009-2010 – Prepare System of Mentoring and On-the-Job Learning
2010-2012 – Validated Shareable Courseware – 100 and 200 Levels
2011-2012 – National Learning Information Management System (LIMS)
2011-2012 – Hands-on/ Written Assessment to Confirm Training Success
2010-2012 – Design Course Master Documents and Curriculum: 100, 200, 250, 300 levels
2011-2013 – Train the Trainer for Standards-Based Training and Apprenticeship in Each Location and validation of On-The-Job Training for 300 level training materials

Why Implement Standards-Based Training?

Four critical reasons mandate a change to standards based training. All these reasons point in the same direction:

1. Cost Savings.

With the financial pressures facing all US transit agencies, they cannot afford to continue with inefficient, costly, and inconsistent training programs for their rail technicians.

Documented research demonstrates:

- When transit agencies shift to standards-based joint training programs, the new programs pay for themselves within a year through more efficient and effective diagnostic and maintenance practices, fewer wasted replacement parts, etc.
- After the first 18 months standards-based training saves agencies five to twelve times their investment in standards-based training partnerships.
- Transit equipment maintained by these better trained workers is more reliable, with major improvements in MDBF, in equipment useful lifetimes, and direct savings by

reducing spare ratios, reducing equipment out of service time and maintaining an improved state of good repair.

Cost-benefit analysis demonstrates that *transit agencies cannot afford **not** to shift to effective standards-based jointly supported training programs.* Those who say “we can’t afford to make this change” are actually applying a faulty analysis and passing up opportunities for major savings in operations and maintenance and in their capital budgets.

2. Safety

A well trained workforce and properly maintained equipment are prerequisites for system safety. With safety transit’s number one priority, quality training is a must for reliable and safe operations. This is especially relevant to the use of new technologies.

3. Risk Analysis and Risk Mitigation

Substandard technical workforce training directly increases the risk to the public and increases the financial exposure of the agencies. When the transit industry has developed a cost-effective national system of quality training, agencies can show that their technicians have been properly trained and certified to the industry’s new skill standards.

4. A Sustainable Workforce

The predictable, temporarily delayed retirement of more than a third of the industry’s senior technicians is threatening to run head-on into the *lack of quality training capacity* in the industry. The industry has no choice but to increase training capacity: the industry has no feasible alternative to increasing training capacity with a high quality, cost-effective system whose development has been undertaken by the industry as a whole over the past seven years.

More effective training is critically needed for incumbents workers as well as for new hires. The incumbent workforce has major skill gaps that are not being adequately addressed by existing under-funded training programs. Skill Gap Analysis comparing the skills of transit rail car workforces with the requirements of the national training standards uniformly show important shortfalls of skill, particularly related to the new technologies at the heart of modern transit rail systems. Documented case studies demonstrate that this kind of training pays for itself many times over: therefore not investing in quality standards-driven, partnership-based training makes no economic sense. Moreover, there is support at FTA and in Congress to require higher levels of training investment in the future – one percent of federal capital grants in one formulation – so new resources may be available for investments to build training systems.

D. Steps toward a More Affordable, Sustainable Future within Transit Systems

1. Develop customized standards-based curriculum and training at each agency, using Skill Gap Analysis, and register training results with transit’s national Learning Information Management System

2. Get trainers, operations managers and workers working together as joint stakeholders in a quality training partnership, with expanded training investment
3. Start using the new industry-wide curriculum and available training material now available for sharing across the industry
4. Assure adequate investment in frontline workforce human capital – utilizing industry standards and partnerships to create *more efficient and effective human capital*
5. Assure that today's workers are not put at any disadvantage in the implementation of standards-based training and apprenticeship by a *robust approach to grandparenting incumbents*
6. Improve integration of classroom and shop floor learning systems with support from trained mentors and structured shop floor learning
7. Proceed to formal workforce certification only after strong training systems are in place, and only with affirmative approval by management and labor representatives that effective training has been provided
8. Start building *toward* strong apprenticeship systems for both incumbents and new hires, utilizing validated assessments to demonstrate that training has been successful in building the knowledge and skill of transit's technical workforce.
9. Achieve college credit recognition for training and apprenticeship built on national standards.

The most important thing is for each location to start moving forward toward a systems-based, standards-driven training partnership that will be a winner for transit agencies, transit workers and the riding public.

ⁱ Federal Transit Administration, US DOT: Transit Technology Career Ladder Program.
US Department of Labor: Bus Electronics, Standards for Training; Building Capacity for Transit Training.
Transportation Research Board, Transit Cooperative Research Program: Extending and Deepening Transit Training Standards (E-6); Building a Joint System of Qualification for Transit Rail Technicians (E-7).