Leveraging National Resources to Build a Skilled Transit Frontline Workforce

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Transportation Learning Center
Overview

I. About the Transportation Learning Center

II. Transit Workforce Challenge and Opportunity

III. Industry-wide Solutions
   1. Industry Training Standards
   2. National Training Consortia
   3. Registered Apprenticeship in Transit
The Transportation Learning Center is a nonprofit organization dedicated to improving public transportation at the national level and within communities. To accomplish this mission, the Center builds labor-management training and apprenticeship partnerships that improve organizational performance, expand workforce knowledge, skills and abilities, and promote career advancement.
Engagement: Transit and Rail Training Partnerships Location Map
National Sponsors and over 40 locations that have worked together to build shared solutions.
Transit Frontline
Hiring and Training Needs

Challenges with Hiring & Training

- New Technologies & Automation
- Expansion of Services/New Service Models
- Competition from Other Industries
- Aging Workforce
- Image of Industry and Jobs

Competition from Other Industries

Expansion of Services/New Service Models

New Technologies & Automation

Challenges with Hiring & Training

Image of Industry and Jobs

Aging Workforce
Transit has the oldest workforce among all transportation sectors.

2018 Median Age of Workers for Selected Transportation Sectors

<table>
<thead>
<tr>
<th>Sector</th>
<th>Median Age of Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS SERVICE AND URBAN TRANSIT</td>
<td>50.8</td>
</tr>
<tr>
<td>TRUCK TRANSPORTATION</td>
<td>46.9</td>
</tr>
<tr>
<td>AIR TRANSPORTATION</td>
<td>46.5</td>
</tr>
<tr>
<td>WATER TRANSPORTATION</td>
<td>45.0</td>
</tr>
<tr>
<td>TAXI AND LIMOUSINE SERVICE</td>
<td>44.1</td>
</tr>
<tr>
<td>RAIL TRANSPORTATION</td>
<td>42.6</td>
</tr>
<tr>
<td>TRANSPORTATION AND WAREHOUSING</td>
<td>44.7</td>
</tr>
<tr>
<td>NATIONAL TOTAL EMPLOYED</td>
<td>42.2</td>
</tr>
</tbody>
</table>

Source: Bureau of Labor Statistics
126 Percent of Today’s Transit Workforce Will Have to Be Hired and Trained in the Next 10 Years; 90 percent are frontline workers.

Source: TLC Analysis of BLS and NTD data.
Women under-represented, esp. in technical positions

Transportation 20%
Rail 10%
Highway 11%
Trucking 14%
Maritime 17%
Air 34%
Transit 35%
All US Industries 47%

Source: Data Report on Transportation Workforce Needs by the U.S. Departments of Education, Transportation and Labor.
African-Americans and Hispanics underrepresented in higher paid and skilled transit & transportation jobs (1)

2014 Employment in Transportation Jobs by Race
(Annual Averages)

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Black or African American</th>
<th>White</th>
<th>Asian</th>
<th>Other Racial Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft pilots</td>
<td>2%</td>
<td>97%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Aircraft mechanics</td>
<td>9%</td>
<td>81%</td>
<td>7%</td>
<td>3%</td>
</tr>
<tr>
<td>Bus and truck mechanics</td>
<td>8%</td>
<td>89%</td>
<td>1%</td>
<td>3%</td>
</tr>
<tr>
<td>Truck drivers</td>
<td>16%</td>
<td>79%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Bus drivers</td>
<td>26%</td>
<td>68%</td>
<td>3%</td>
<td>4%</td>
</tr>
<tr>
<td>Laborers</td>
<td>16%</td>
<td>77%</td>
<td>3%</td>
<td>4%</td>
</tr>
<tr>
<td>Vehicles cleaners</td>
<td>23%</td>
<td>71%</td>
<td>2%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Generally Higher Wages, Skills, and Career Potential

Generally Lower Wages, Skills, and Career Potential

Source: Data Report on Transportation Workforce Needs by the U.S. Department of Education, Transportation and labor.
African-Americans and Hispanics **underrepresented** in higher paid and skilled transit & transportation jobs (2)

### 2014 Employment in Transportation Jobs by Ethnicity  
(Annual Averages)

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Hispanic or Latino</th>
<th>Non-Hispanic or Latino</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft pilots</td>
<td>3%</td>
<td>97%</td>
</tr>
<tr>
<td>Aircraft mechanics</td>
<td>13%</td>
<td>87%</td>
</tr>
<tr>
<td>Bus and truck mechanics</td>
<td>16%</td>
<td>84%</td>
</tr>
<tr>
<td>Truck drivers</td>
<td>21%</td>
<td>80%</td>
</tr>
<tr>
<td>Bus drivers</td>
<td>13%</td>
<td>87%</td>
</tr>
<tr>
<td>Laborers</td>
<td>24%</td>
<td>76%</td>
</tr>
<tr>
<td>Vehicles cleaners</td>
<td>33%</td>
<td>67%</td>
</tr>
<tr>
<td>All US Occupations</td>
<td>16%</td>
<td>84%</td>
</tr>
</tbody>
</table>

Source: Data Report on Transportation Workforce Needs by the U.S. Department of Education, Transportation and labor.
Projected annual job openings are 68% larger than annual completions of related education programs across selected transportation job groups.

Source: Data Report on Transportation Workforce Needs by the U.S. Department of Education, Transportation and Labor.
Overview of Industry-wide Solutions

Industry-wide Solutions

- Industry Training Standards
- National Training Consortia
- Registered Apprenticeships
Industry Training Standards

- Developed by subject matter experts through a joint labor/management process – started 10 years ago
- Adopted by American Public Transportation Association as National Standards
- Used by instructors and trainers to ensure minimum standards are met when curriculum is developed
- Backbone of courseware development
- Should be continuously reviewed/updated
- Rail Car Maintenance alone Contains over 3,000 learning objectives
National Training Consortia

• Transit Maintenance Occupations
  – Elevator/Escalator; Signals Maintenance; Rail Car Maintenance
• Transit agency contribution matched by DOT/FTA
• Joint Development by Local SMEs and Center ISDs
• Instruction-ready course materials, safety integrated
• Train-the-Trainer courses

“One of the big problems that we've had is that when new cars come on the property, the employees that are there at that time get a lot of training—and the cars may be on the property for 20-30 sometimes even 40 years... Over time those resources disappear, and so as people retire the knowledge leaves. So in working with the other authorities around the country in this Consortium, we're really able to rebuild a library of training material to be able to deliver to our employees.”

Doug MacElhiney -- Maintenance Instructor -- MBTA, Boston
## Rail Car Consortium Member Locations

<table>
<thead>
<tr>
<th>Region</th>
<th>Union 1</th>
<th>Union 2</th>
<th>Union 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bay Area Rapid Transit</td>
<td>SEIU 1021</td>
<td>SFMTA (MUNI)</td>
<td>IBEW 6</td>
</tr>
<tr>
<td>MBTA (Boston)</td>
<td>ATU 589</td>
<td>Sac RT</td>
<td>IBEW</td>
</tr>
<tr>
<td>Denver RTD</td>
<td>ATU 1001</td>
<td>Metro Transit</td>
<td>ATU</td>
</tr>
<tr>
<td>Greater Cleveland RTA</td>
<td>ATU 268</td>
<td>Charlotte Area Transit System</td>
<td>PATCO</td>
</tr>
<tr>
<td>DART (Dallas)</td>
<td>ATU 1338</td>
<td>San Diego MTS</td>
<td>VTA and ATU 265 (Pending)</td>
</tr>
<tr>
<td>Maryland MTA</td>
<td>ATU 1300</td>
<td>NFTA</td>
<td>ATU 1342</td>
</tr>
<tr>
<td>WMATA</td>
<td>ATU 689</td>
<td>CTA</td>
<td>ATU 308</td>
</tr>
</tbody>
</table>

### Pie Chart: Agencies being recruited
- **Local unions**: 15
- **Member agencies**: 10

### Pie Chart: Individual Agency’s Share of Cost
- **Cost Sharing**: 3%
National Standards-based Courseware

Course 106: Introduction and Overview of HVAC Systems
Tags: railcar, introduction, hvac
The purpose of the Introduction and Overview of HVAC Systems course is to provide participants with an orientation to railcar HVAC, basic principles and key components.

Course 104: Introduction and Overview to APS and Battery Systems
Tags: railcar, overview, introduction
Course 104, Introduction and Overview to APS and Battery Systems, is a three-module course that provides participants with an orientation to APS and battery systems and prepares them for future railcar maintenance facility.

Course 204: Inspection and Maintenance of APS and Battery Systems
Tags: railcar, maintenance, inspection
Course 204, Inspection and Maintenance of APS and Battery Systems, is a three-module course that provides participants with an orientation to inspecting and maintaining APS & Battery Systems.

Module 2
Auxiliary Power Supply Systems

Pre-Assessment Test
1. True or False: A battery is a cluster of electromagnetic cells connected together to produce a required nominal DC voltage.

2. True or False: Transversing motions may be described as back-and-forth or up-and-down motion.

3. Which two organs in the human body are most sensitive to electrical shock?
4. List three examples of typical AC loads on a railcar.
### Accomplishments

#### El/Es Consortium
- 6 Large Transit Agencies
- 40 courses

#### Signals Consortium
- 23 Agencies: Commuter & Transit Rail
- 31 courses

#### Rail Car Consortium
- 16 Agencies: Transit Rail
- 35 courses

- **Train-the-Trainer**
- **Mentor Training**
- **College Credit**
- **Updating Training Standards and Courseware**
- **Courseware Validation**
- **Local Registered Apprenticeship**
Transit Apprenticeship Initiative

• A program overseen by US DOL that connects job seekers looking to learn new skills with employers looking for qualified workers

• Combine/alternate work-based with school-based learning; classroom and structured OJT

• Prevalent in European countries

• US Goal - doubling the number of Americans in registered apprenticeship

• Transit’s unique position to expand apprenticeship to address future workforce needs

• College Credit
Registered Apprenticeships in Transit: Five Frontline Occupations Approved by US DOL

- Bus Maintenance Technician
- Elevator /Escalator Technicians
- Rail Vehicle Technicians
- Coach Operators
- Signals Maintainers
Local Implementation

• More than 40 transit agencies and their unions partnering under the national program
• Local Joint Apprenticeship and Training Committees
• Partnership with schools and workforce systems
• Mentor Training and Train-the-Trainer
• Classroom and structured OJT (mentorship)
• Courseware available to Signals, Rail Car and El/Es Training consortium members
• Apprenticeship Readiness using the Transit Core Competencies Curriculum (TC3)
Registered Apprenticeship in Transit

Greater Cleveland RTA Rail Technician Apprenticeship
Training Pays for itself Many Times Over

Return on Training Investment Found to be 745%
WMATA Escalator Availability Improves

Source: WMATA Escalator Status Report
Consortium Cultivates In-house Expertise and Saves El/Es Maintenance Costs

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>External Contractors (2 person crew)</th>
<th>In-house Specialists (2 person crew)</th>
<th>Hourly Savings (2 person crew)</th>
<th>Annual Savings (based on 20 F/T technicians)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agency A</strong></td>
<td>Low</td>
<td>$380</td>
<td>$136</td>
<td>$217</td>
<td>$4,336,000</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>$558</td>
<td>$163</td>
<td>$422</td>
<td>$8,440,000</td>
</tr>
<tr>
<td><strong>Agency B</strong></td>
<td>Low</td>
<td>$400</td>
<td>$130</td>
<td>$270</td>
<td>$5,400,000</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>$550</td>
<td>$130</td>
<td>$420</td>
<td>$8,400,000</td>
</tr>
</tbody>
</table>

Source: TLC preliminary analysis based on raw data from two El/Es consortium member organizations
Key Take-aways

• A skilled, knowledgeable frontline workforce needs to carry out any SOGR plan
• Overall, the transit industry isn’t doing enough to address frontline workforce training and a growing skills gap
• Transit can build on successful models (e.g. registered apprenticeship, industry-wide courseware) to address the challenges ahead
Questions? Comments?

Contact the Transportation Learning Center

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