

You are Not Alone: Workforce Perspective from the Transportation Sector



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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
 4. Small Operations
- IV. You are not alone: Transit and Other Infrastructure Industries

The Transportation Learning Center

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



EVERETT TRANSIT

● Everett
● Seattle
● Tacoma



PIERCE TRANSIT

● Portland
TRI MET



● Sacramento
● San Francisco
● Oakland
● San Jose
● San Mateo



BART

● Salt Lake City
UTA



SFMTA

● Los Angeles
● San Diego



VTA



ACE TRANSIT

● Metro



MTS

● Denver
RTD



DART

Des Moines

● Minneapolis
Metro Transit

Metro Transit



PACE



CTA



RTA

Chicago



INDYGO

Indianapolis



NFTA



CENTRO

Buffalo



CDTA

Syracuse

● Boston



MBTA



PATCO



CamTran



NJ



PATH

● Newark

● Allentown

● Altoona

● Philadelphia

● Harrisburg

● Baltimore, MD

● Washington, DC



SEPTA



MTA

● Hampton Roads

● Virginia

● West

● Louisville

● Nashville

● Charlotte



MTA Maryland

Port Authority



HAMPTON ROADS TRANSIT



GTS

● Atlanta

● Dallas



DART

Austin

● Houston



METRO



AATU

AARON E. HENRY



UNION BROTHERHOOD OF ELECTRICAL WORKERS

1915



MIAMI-DADE COUNTY



amtran



LANta



CAT



TWU LOCAL 100



IBEW Local 6 (San Francisco)
IBEW Local 9 (Chicago)
IBEW Local 103 (Boston)
IBEW Local 465 (San Diego)
IBEW Local 1245 (Sacramento)



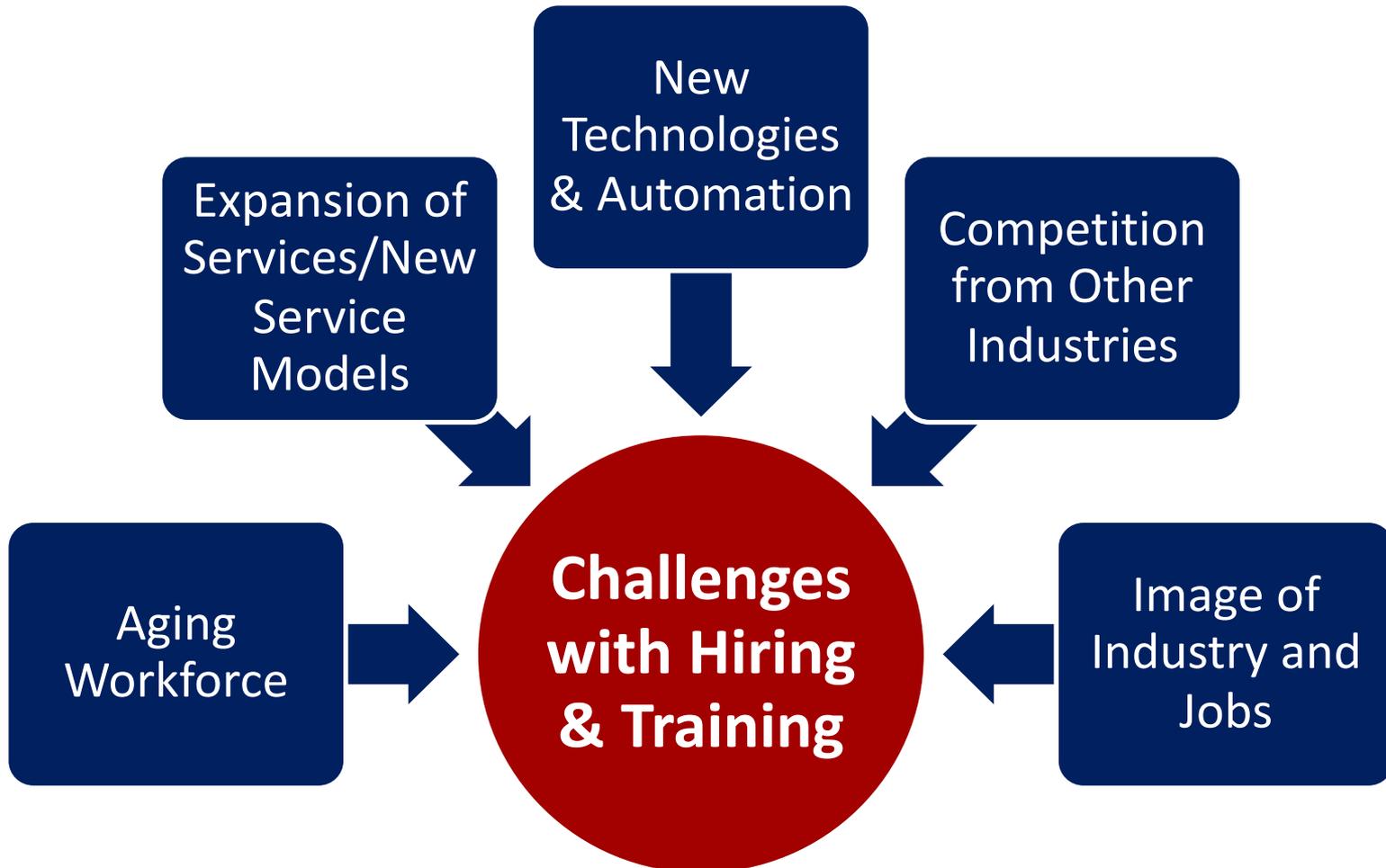
SEIU Local 1021 (Sacramento)

TWU Local 100 (NYC)
TWU Local 208 (Columbus)
TWU Local 234 (Philadelphia)



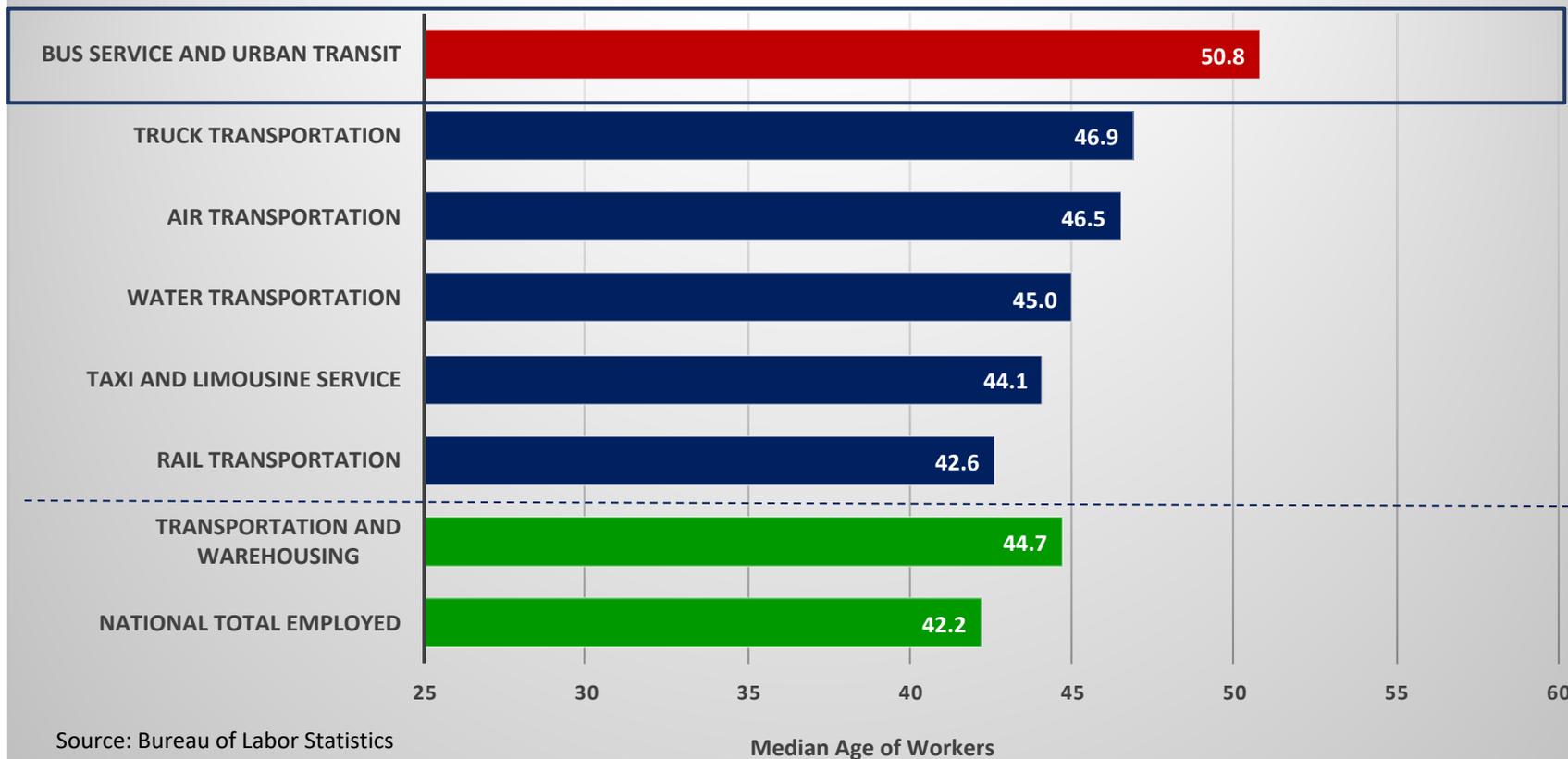
TRANSPORTATION LEARNING CENTER

Transit Frontline Hiring and Training Needs

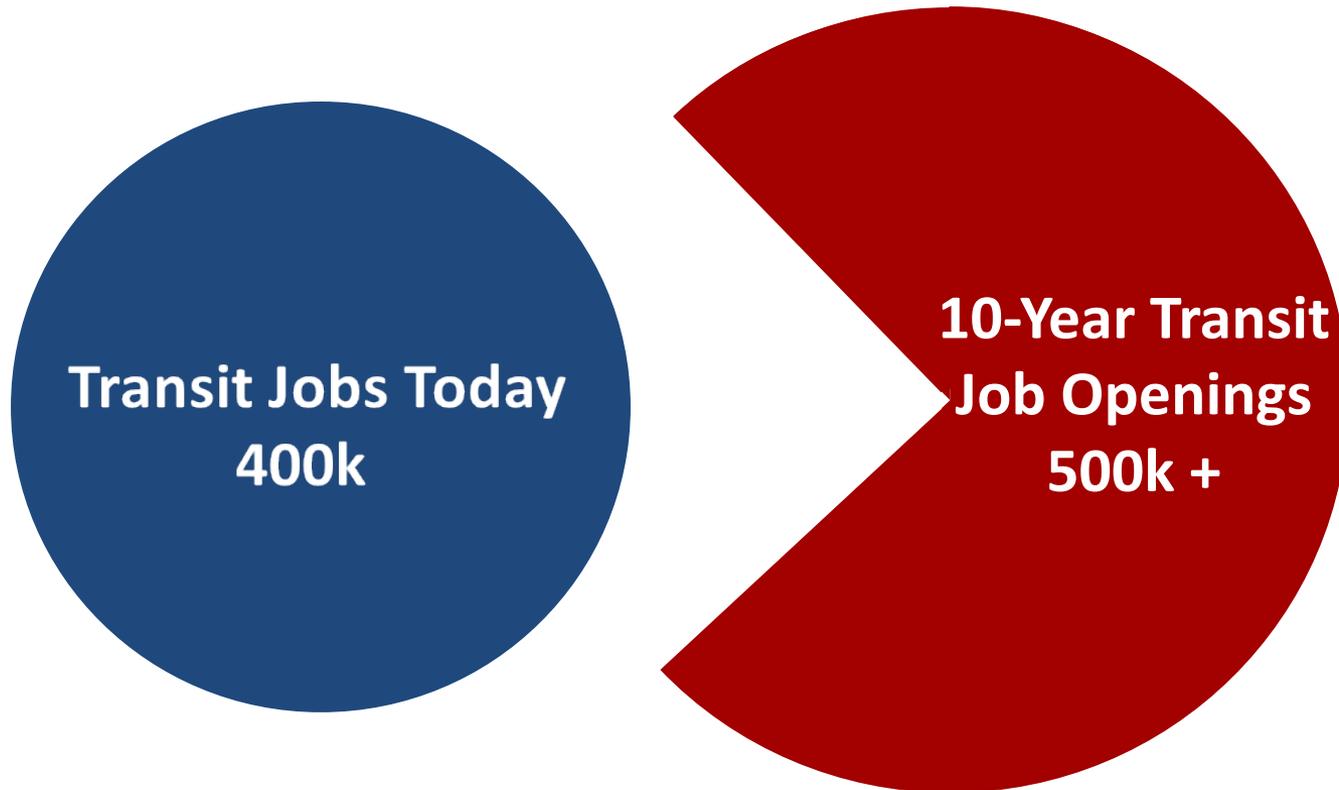


Transit has the oldest workforce among all transportation sectors

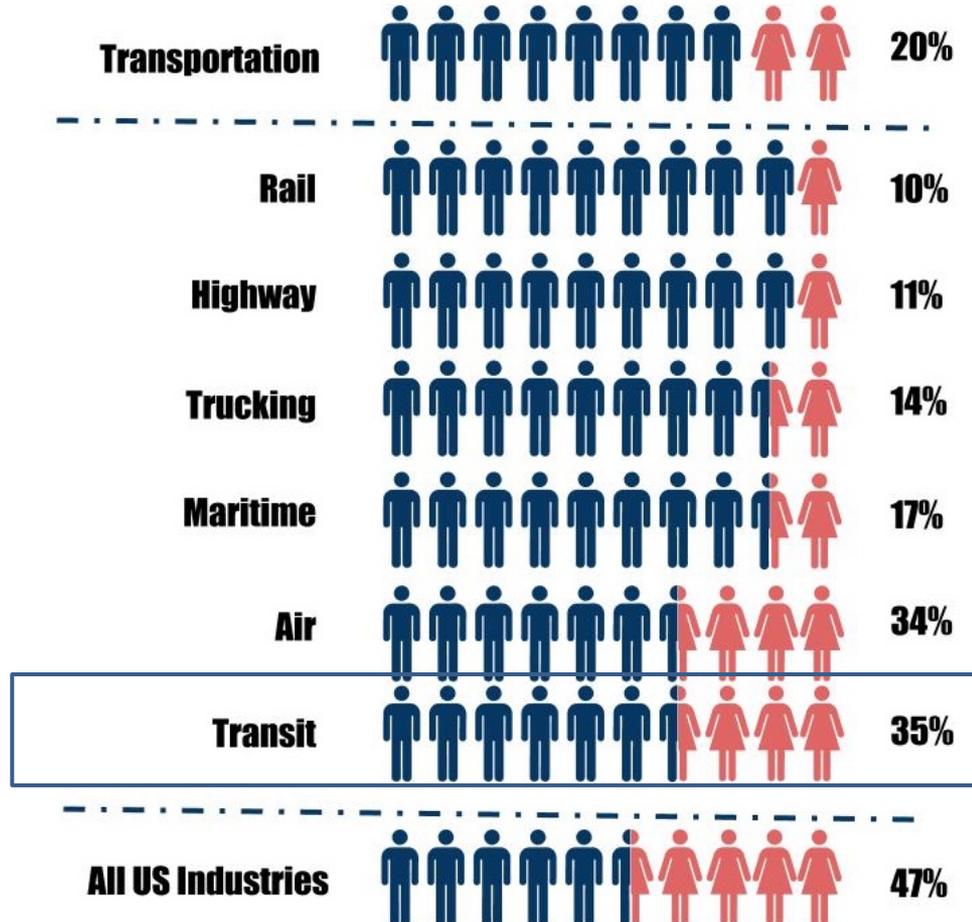
2018 Median Age of Workers for Selected Transportation Sectors



**126 Percent of Today's Transit Workforce
Will Have to Be Hired and Trained in the Next 10 Years;
90 percent are frontline workers**

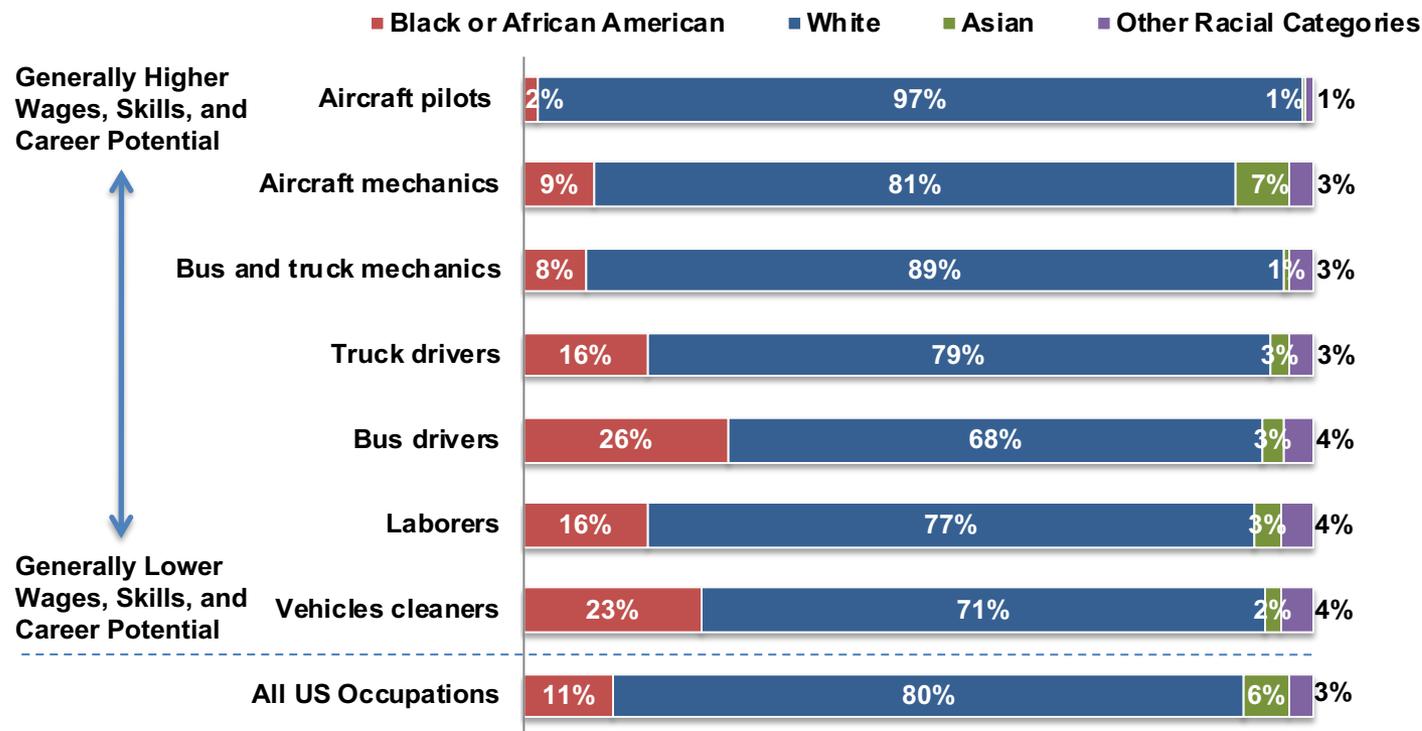


Women under-represented, esp. in technical positions



African-Americans and Hispanics underrepresented in higher paid and skilled transit & transportation jobs (1)

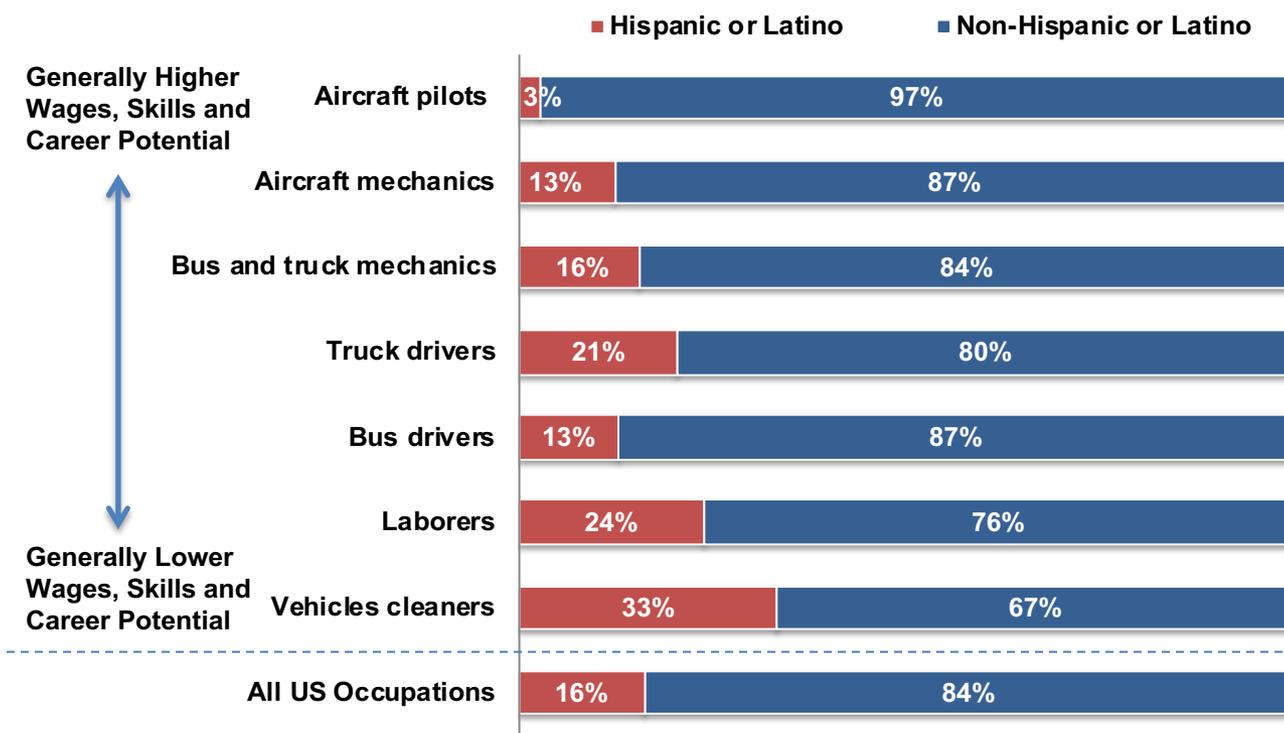
2014 Employment in Transportation Jobs by Race
(Annual Averages)



Source: Data Report on Transportation Workforce Needs by the U.S. Department of Education, Transportation and labor.

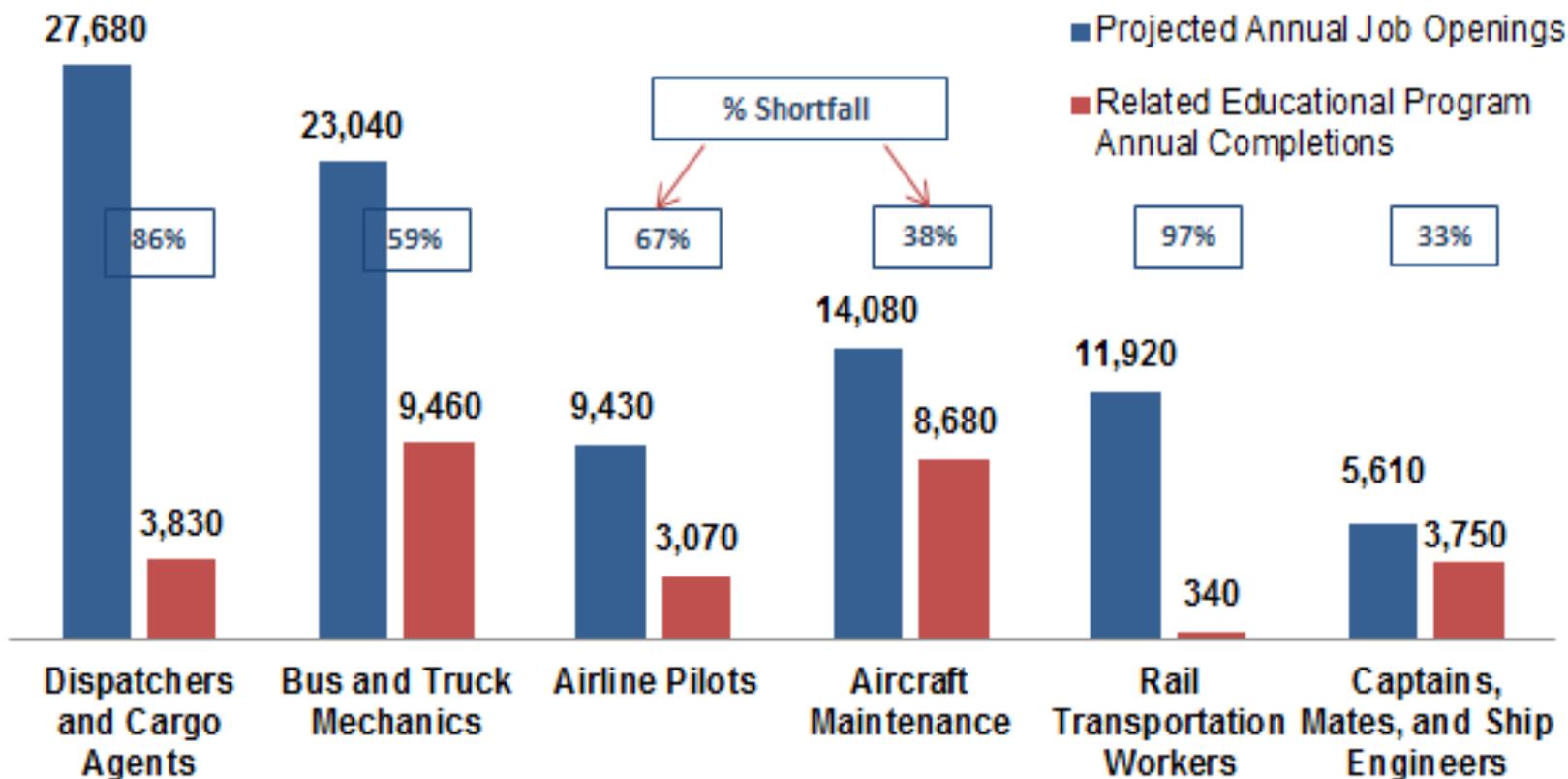
African-Americans and Hispanics underrepresented in higher paid and skilled transit & transportation jobs (2)

2014 Employment in Transportation Jobs by Ethnicity
(Annual Averages)



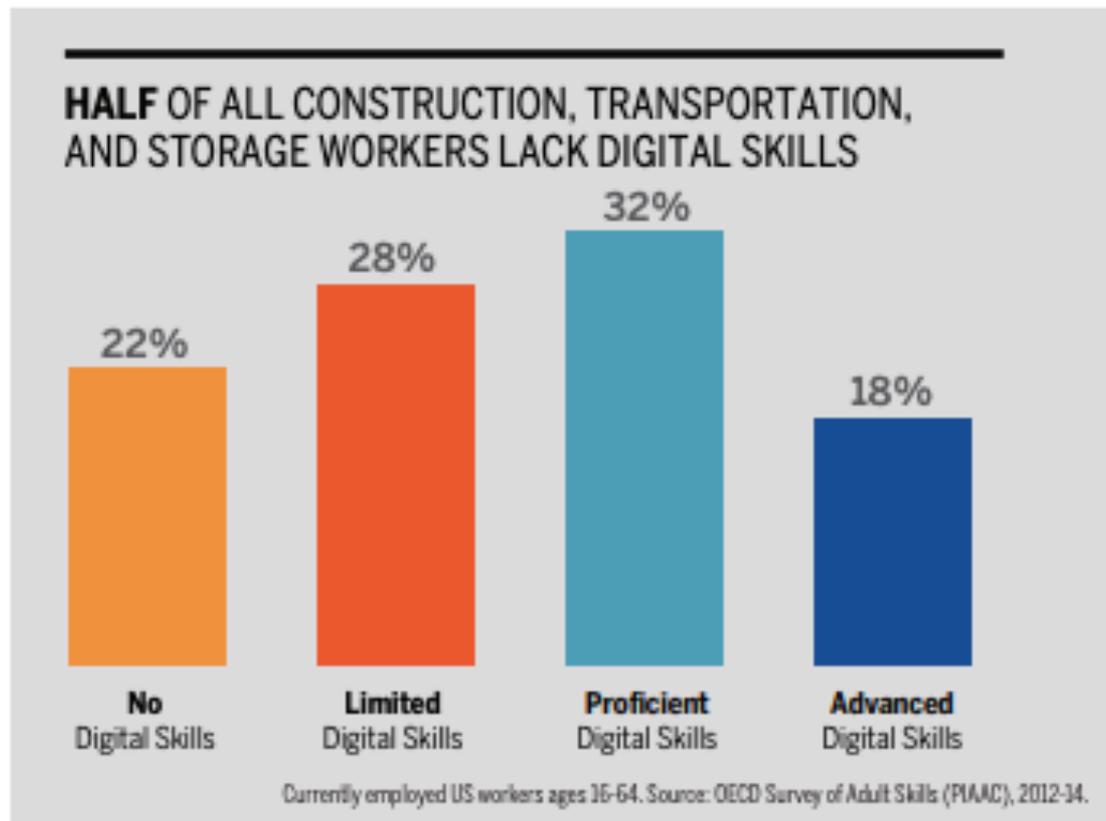
Source: Data Report on Transportation Workforce Needs by the U.S. Department of Education, Transportation and labor.

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.

More than one in five (22 percent) construction, transportation, and storage workers have no digital skills. Workers lacking digital skills are more prevalent among those aged 45 to 54.



Source: Digital Skills Factsheet for Construction and Transportation, National Skills Coalition

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**



APTA STANDARDS DEVELOPMENT PROGRAM
RECOMMENDED PRACTICE
American Public Transportation Association
1666 H Street, NW, Washington, DC, 20006-1215

APTA RT-RMT-RP-001-10
Approved June, 2010
Vehicles Training Joint Steering Committee

Rail Vehicles Maintenance Training Standards

Abstract: This *Recommended Practice* establishes standards for a program of rail vehicles maintenance training.

Keywords: training, rail vehicles

Summary: In response to the transit industry's need for rail vehicles maintenance training, the Transportation Learning Center has partnered with APTA, transit agencies and unions representing transit workers to develop these joint labor-management training guidelines and recommended training practices.

Scope and purpose: The curriculum, courseware and training guidelines adopted by the group and contained in this *Recommended Practice* are designed to meet or exceed the licensing requirements of jurisdictions, which currently or in the future, may legislate professional licensure or certification for rail vehicle technicians. The apprenticeship program will ultimately be registered by the U.S. Department of Labor's Office of Apprenticeship.

This Recommended Practice represents a common viewpoint of those parties concerned with its provisions, namely, transit operating/planning agencies, manufacturers, consultants, engineers and general interest groups. The application of any standards, practices or guidelines contained herein is voluntary. In some cases, federal and/or state regulations govern portions of a rail transit system's operations. In those cases, the government regulations take precedence over this standard. APTA recognizes that for certain applications, the standards or practices, as implemented by individual rail transit agencies, may be either more or less restrictive than those given in this document.

National Training Consortia

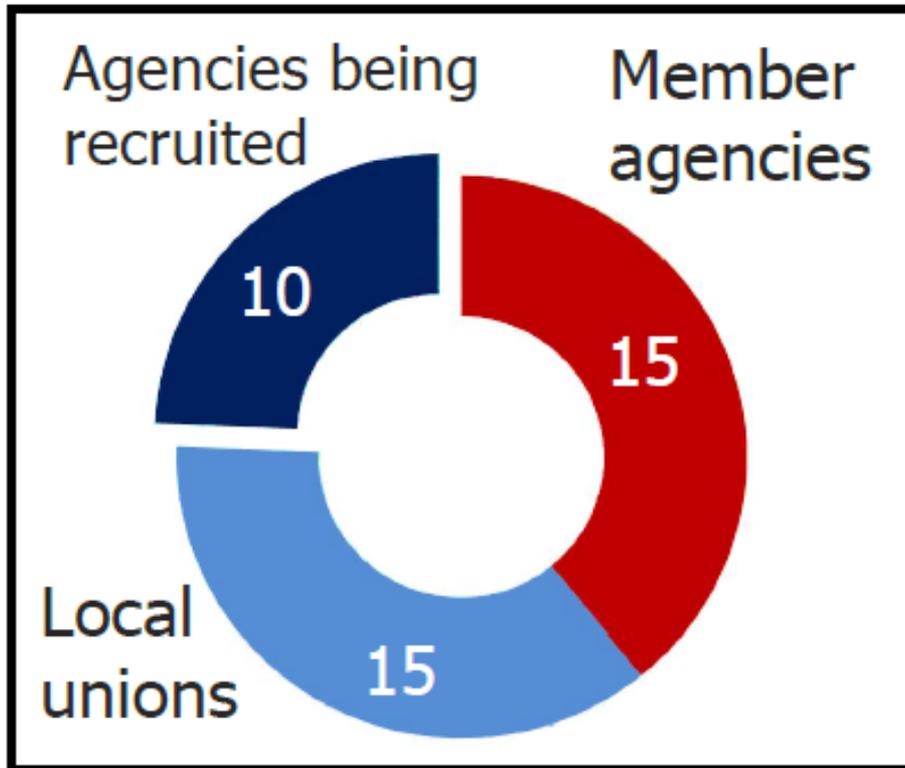
- Transit Maintenance Occupations
 - Elevator/Escalator ; Signals Maintenance; Rail Car Maintenance
- Transit agency contribution matched by DOT/FTA
- Joint Development by Local SMEs and Center ISDs
- Instruction-ready course materials, safety integrated
- Train-the-Trainer courses



"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 Membership



National Standards-based Courseware

Course 106: Introduction and Overview of HVAC Systems

Tags: rail car, introduction, hvac

The purpose of the *Introduction and Overview of HVAC Systems* course is to provide participants with an orientation to rail car HVAC, basic principles and key components.

Rating: Not yet rated | Contains 25 Documents | [More information »](#)

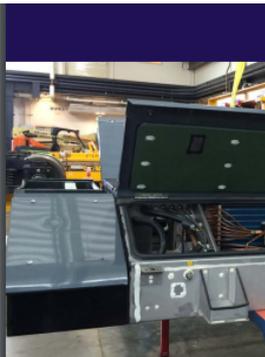
Course 104: Introduction to APS and Battery Systems

Tags: rail car, overview, introduction, Course 104, Introduction and Overview of APS and Battery Systems, module course that provides participants with an overview of APS and battery systems and prepares participants for work in a rail car maintenance facility.

Rating: Not yet rated | Contains 29 Documents

Course 204: Inspection and Maintenance of APS and Battery Systems

Tags: rail car, maintenance, inspection, Course 204, Inspection and Maintenance of APS and Battery Systems, three-module course that provides participants with the skills and knowledge for inspecting and maintaining APS & B



Inspection and Maintenance of APS and Battery Systems

Module 2

Auxiliary Power Supply Systems

COURSE 104: INTRODUCTION AND OVERVIEW TO APS UNITS AND BATTERIES

RAIL CAR TRAINING CONSORTIUM

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.

of HVAC Systems

Course 106

PARTICIPANT GUIDE

RAIL CAR TRAINING CONSORTIUM

Test Download Full No Preview

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Module 2: Power Collection and Shop Power

Course 104 Module 1 Quiz ANSWERS for Instructor Download Full No Preview

Course 104 Module 2 Instructor Guide Download Full View Preview

Course 104 Module 2 PowerPoint Slides Download Full No Preview

Course 104 Module 2 Quiz for Participants Download Full No Preview

Course 104 Module 2 Quiz ANSWERS for Instructor Download Full No Preview

Module 3: Auxiliary Power Supply

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

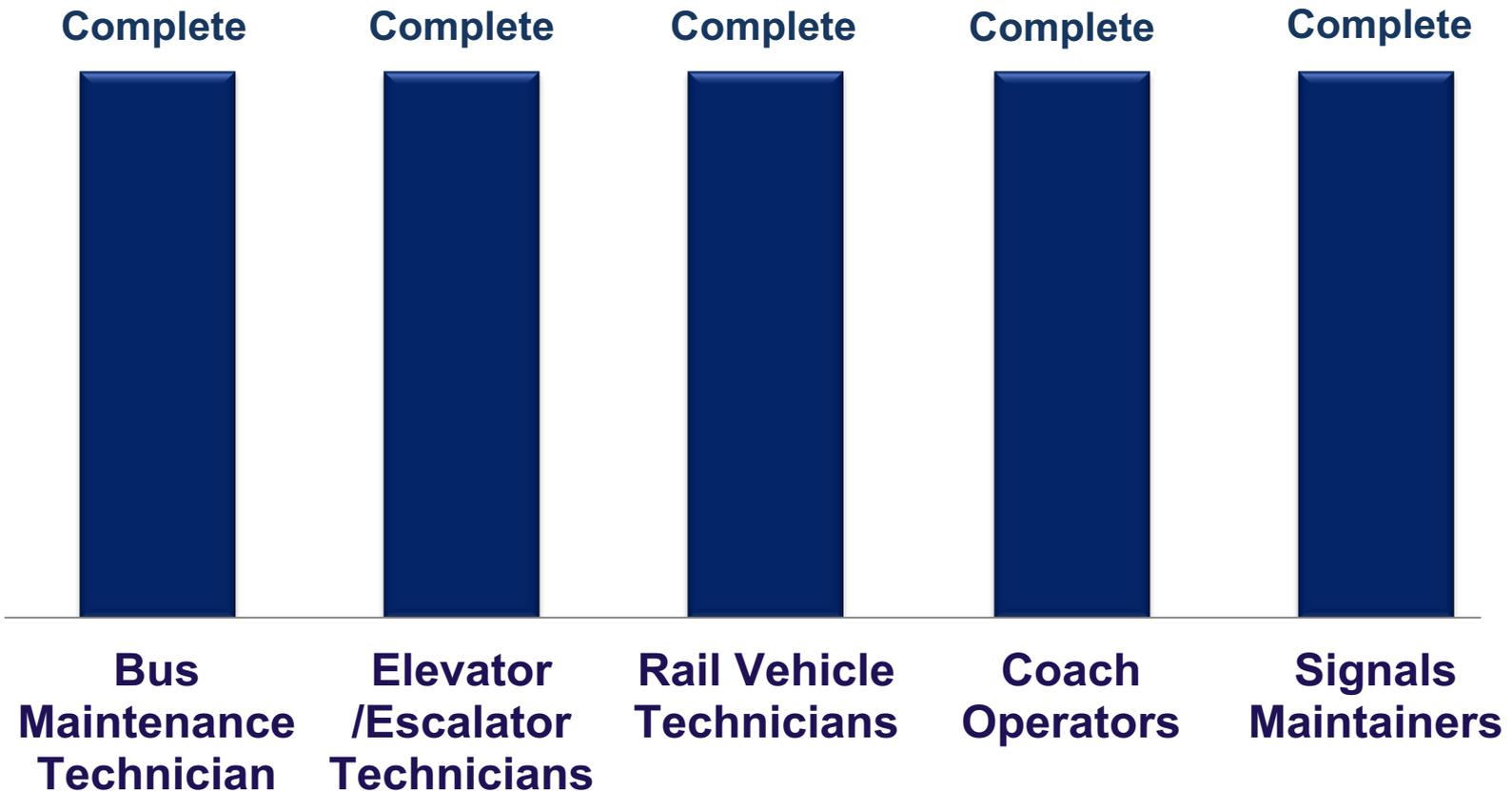
Hear from Consortium Subject Matter Experts

- <https://vimeo.com/270145282>

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



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)

Graduates from VTA/ATU 265 Apprenticeships for Coach Operators, Service Mechanics and Track Workers



Center Certifies BART Technical Trainers after Train-the-Trainer



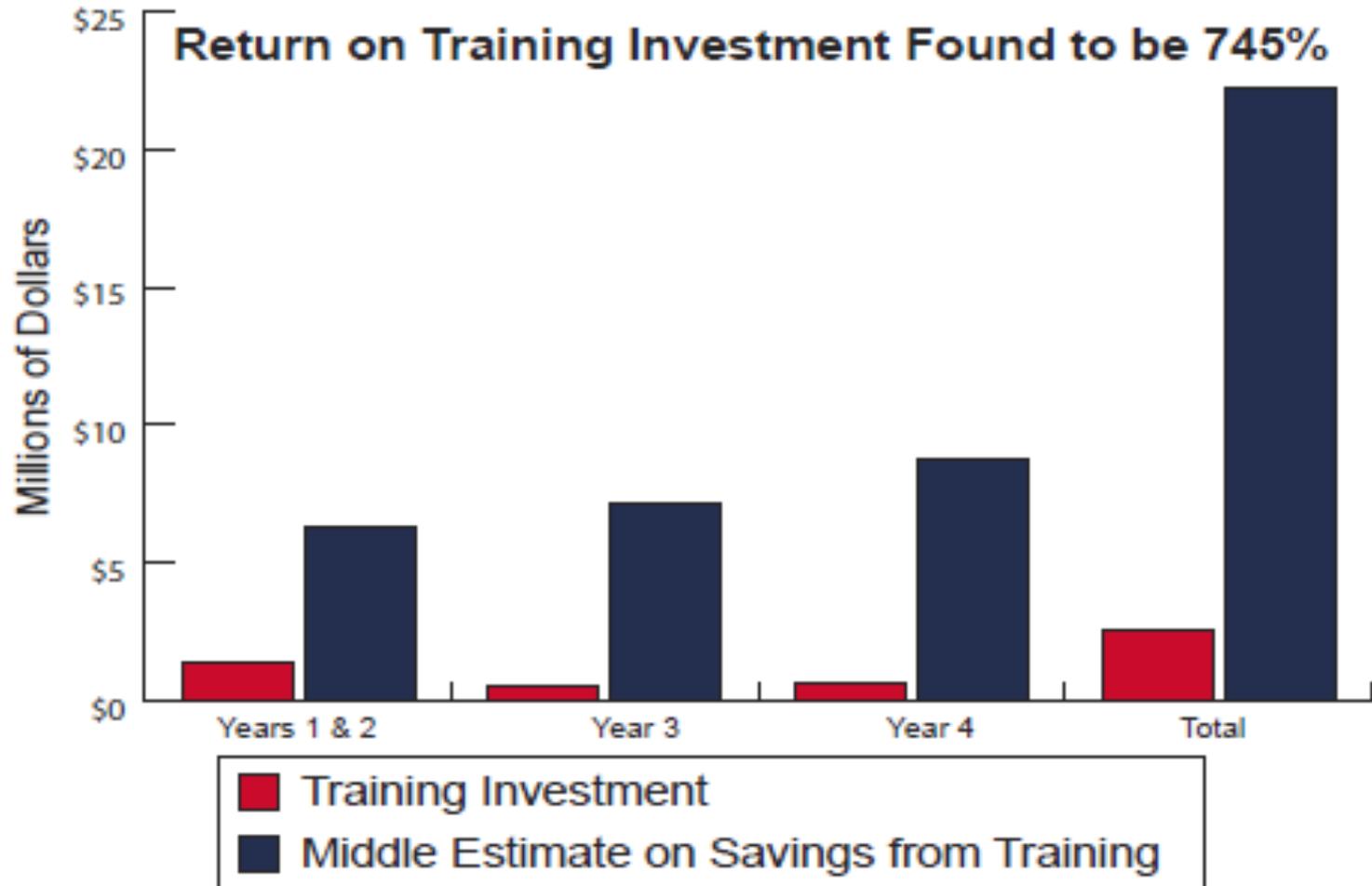
Small Operators: Regional and Distance Learning

- **Small urban and rural transit agencies struggle with in-house training capacity**
 - No on-site trainer
 - No curriculum
 - Limited release time for training
- **Models:**
 - Circuit Rider (Floating Trainer)
 - Tapping into training of larger agencies in the region (SEPTA)
 - Shared training sessions
 - Instructor-led Distance Learning paired with local OJT

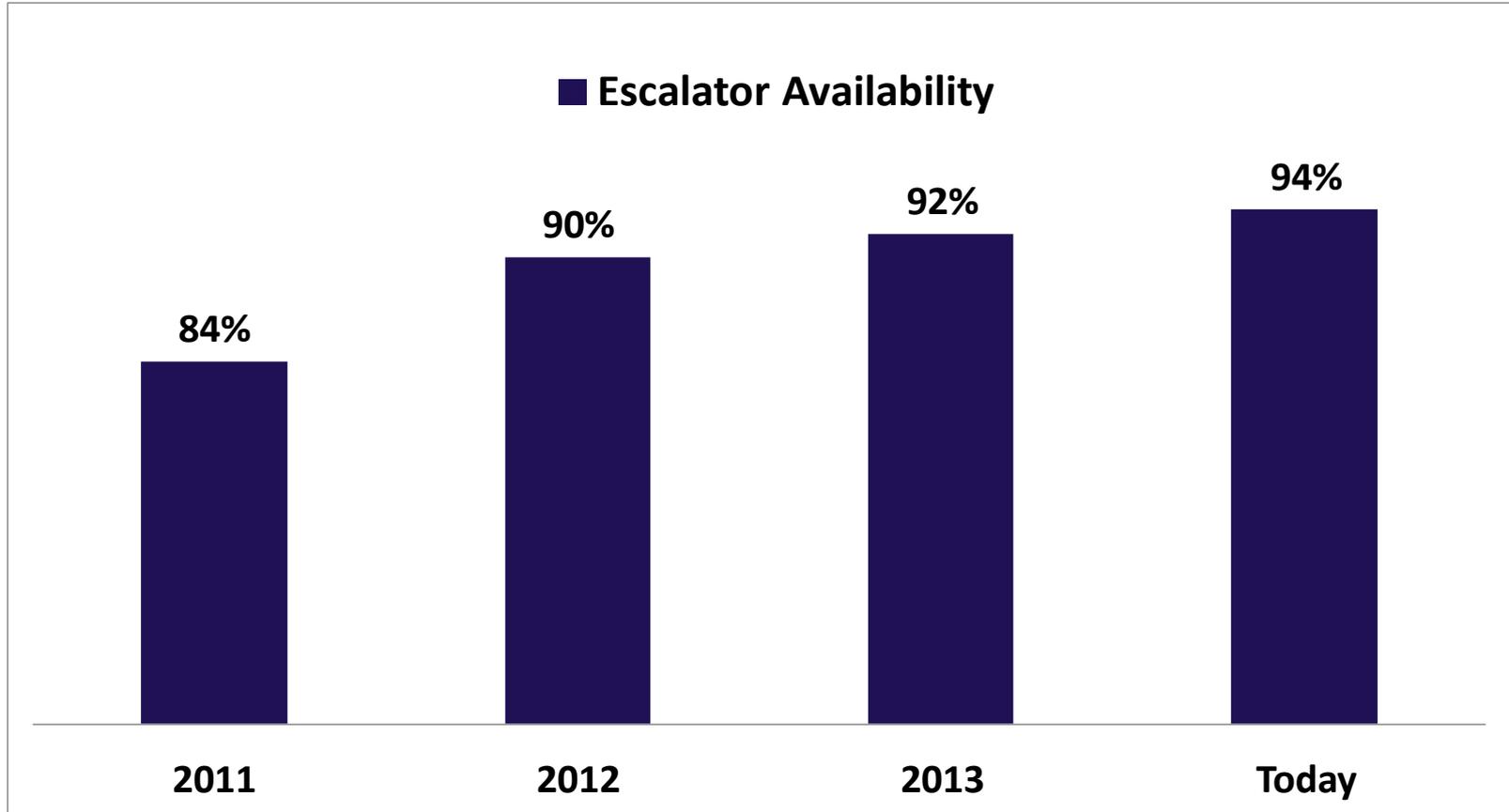
Potential Sources of Funding



Training Pays for itself Many Times Over



WMATA Escalator Availability Improves



Consortium Cultivates In-house Expertise and Saves EI/Es Maintenance Costs

**EI/Es Maintenance Labor Cost Comparisons
External vs. In-house for 2-Technician Crews**

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

Source: TLC preliminary analysis based on raw data from two EI/Es consortium member organizations

You are not alone

Transit and Other Infrastructure Industries

I. Similar Characteristics

- I. Public agencies started around the 70s
- II. Local – hard to outsource
- III. Rooted in and recruits from local community
- IV. High paying skilled jobs with low entry req.

II. Similar Challenges

- I. Wave of retirement, new technologies, images
- II. Need for pipeline of frontline workers & diversity
- III. Physical capital vs. Human capital
- IV. Large, medium and small operations

III. Similar Solutions and Collaboration?

Questions?

Comments?