

Status

Bus Maintenance Training

FTA Peer-to-Peer Exchange

John Schiavone

Transportation Learning Center

October 10, 2019

Transportation Learning Center

Mission:

**Advance Frontline Worker Training
Joint Labor-Management Basis**

Bus Maintenance

Bus Operators

Rail Maintenance

Rail Signals

Traction Power

Elevator/Escalator

Status of Bus Maintenance Training?

**Short Answer:
Depends on Agency**

Excellent Programs Exist at:

- ❖ Oakland, San Jose, Utah, Seattle
- ❖ Philly, Dallas, DC
- ❖ LA with So Cal Consortium & Several Others

All Have:

- ❖ Instructors, Training Facilities
- ❖ Curriculum, Mock-ups, Labs
- ❖ Strong Management Support for Training + \$\$\$

Sad Reality:

Most Agencies Have No Training Dept.

- ❖ Think About That!!
- ❖ Increased Complexity of Bus Technology
- ❖ On-Board Electronics, BEBs
- ❖ Yet no in-house training for most agencies
- ❖ Vendors play important role
- ❖ ... But can't be expected do it all
- ❖ Result = Severe Skills Deficient

Lack of Training has Consequences

Default Diagnostics = Change Parts

- ❖ Maintenance Audit – Review PMs & WOs
- ❖ Many repeat defects, some understandable
- ❖ Many repeats due to lack of training & skills
 - ❖ Most in electrical and air conditioning
- ❖ **First Diagnosis** = “no trouble found”
- ❖ **2nd, 3rd Steps** = change parts until problem solved
- ❖ Many Perfectly Good Parts Being Scrapped

Trial & Error Process Wasteful

- ❖ Inefficient use of resources
- ❖ Wastes time and money
- ❖ Affects ability to make pull-out
- ❖ Delays maintenance on other buses
- ❖ Adds to service interruptions

How Much \$ Wasted Due to Skills Gap?

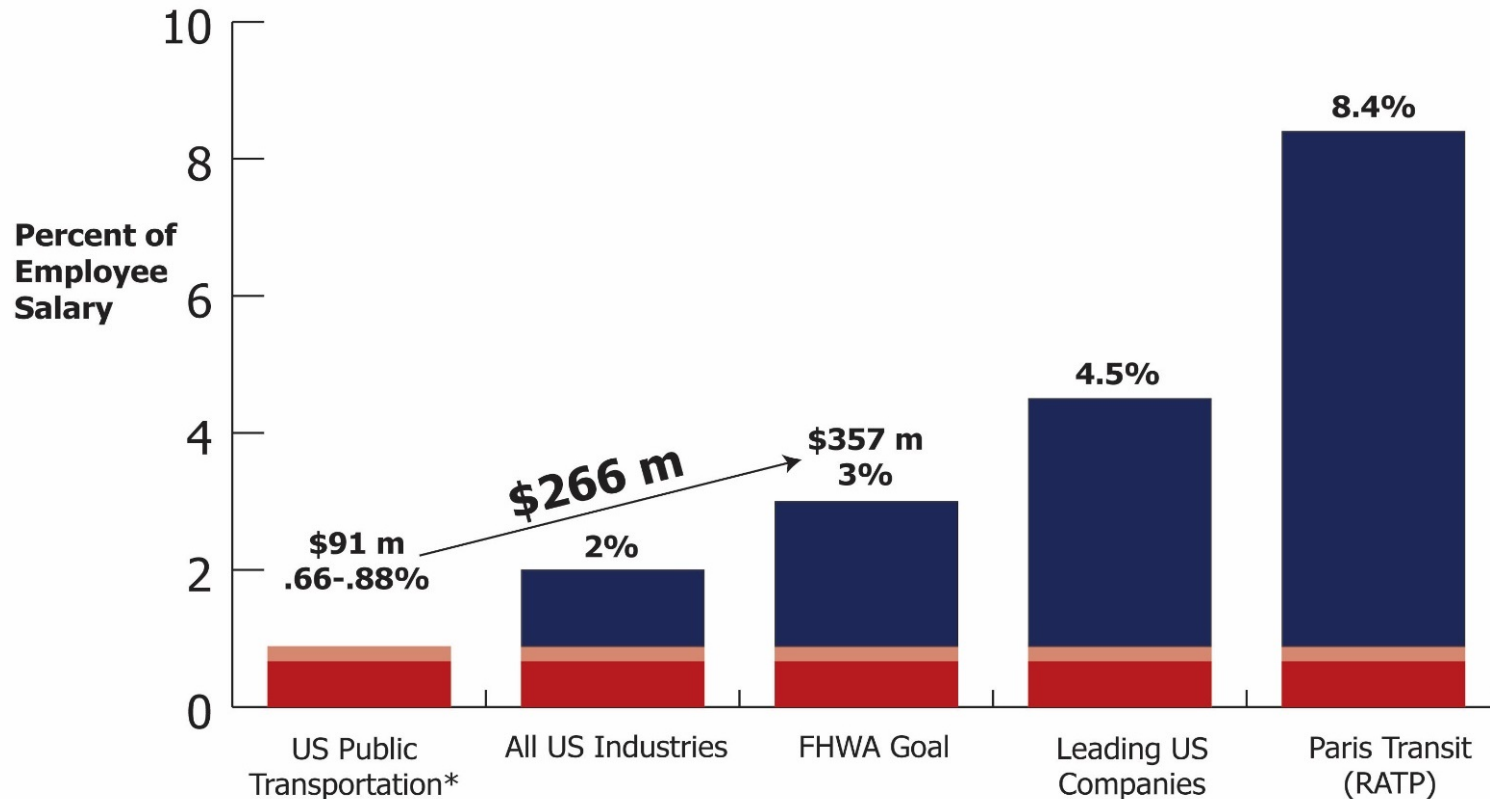
- ❖ \$64,000 question
- ❖ Or is it a multi-million \$ question?
- ❖ Fortunately/Unfortunately we don't know
- ❖ My guess:

We could pay for training with fraction of money saved by providing needed training

Status Bus Maintenance Training

Why Such a Skills Gap in Transit? Underinvestment in Training!

Public Transportation Behind the Curve on Training Investment



*Estimated by the Transportation Learning Center based on a 2010 survey of the transit industry

Why Don't We Invest in Training?

Here's My Take

1) We've Failed to Adapt to Changing Times

- ❖ Baby boomers came to job w/mechanical aptitude
 - ❖ erector sets, bicycles, motorcycles, cars
 - ❖ buses were relatively basic; limited electronics
 - ❖ relatively easy for mechanics to adapt to buses
 - ❖ limited training required back then; OJT typically sufficient

New Generation Not into “Things Mechanical”

- ❖ Parents discourage manual labor, emphasis on college

At Same Time: Buses Are More Complex

- ❖ Especially electronics

Lack of Aptitude + Bus Complexity Increases Training Needs

- ❖ Yet most agencies have little/no training capacity
- ❖ Much of training not engaging ...
- ❖ Not appealing to younger workers
- ❖ PowerPoints don't cut it

2) Slow to Recognize Impending Crisis

- ❖ Baby-Boomers retiring in great numbers, median age 52
- ❖ Virtually every agency short-staffed on mechanics
- ❖ Yet little being done on Natl. level to attract mechanics
- ❖ Operator shortage getting most attention ...
- ❖ But mechanics take far longer to acquire needed skills

How to Provide Training When Agencies are Understaffed?

- ❖ Industry needs to address this question!!
- ❖ Can't train when understaffed, time constraints

3) Managers Underestimate Training Needs

- ❖ Tend to have simplistic viewpoint
 - ❖ “Toyota Syndrome” – “maintenance free”
 - ❖ “Laptop tells you which part to change”
- ❖ Reality = Being technician is extremely difficult
 - ❖ *Shop Class as Soulcraft : An Inquiry into the Value of Work*
- ❖ Misunderstanding Reduces Emphasis on Technical Training
- ❖ Some Managers Reduce Training Budgets

4) Transit Can Get Away With Limited Training

- ❖ Private Car & Truck Sectors Need Profits to Survive
- ❖ Cars = CSI (customer satisfaction index) essential
 - ❖ Customers don't like repeat failures
- ❖ Trucking = highly competitive industry
 - ❖ UPS ties maintenance cost to single package delivery cost
- ❖ Trained Technicians Essential to Car/Truck Profits

Transit is Different

Profit Not a Motivating Factor

- ❖ Some (larger) Agencies Monitor Costs & Maint Performance & tie them to Training Needs
 - ❖ Most do not, lack ability & resources
- ❖ All Agencies Monitor Road Calls
 - ❖ But definitions not standardized
 - ❖ Data typically not used to identify skill gaps
 - ❖ **Tracking repeat failures in specific areas would help**

Solutions

- ❖ **National Effort to Recruit Maintenance Workers**
 - ❖ Video touting quantitative & qualitative benefits
- ❖ **Establish “Parachute Training”**
 - ❖ Retired trainers provide on-site training to smaller agencies
- ❖ **Expand Collaborative Training**
 - ❖ WMATA, SEPTA, NJT & So Cal Consortium
 - ❖ TLC Training Consortiums (to include bus maint)
- ❖ **Help Agencies Use Data to ID Training Needs**

Status Bus Maintenance Training

- ❖ **Expand Vendor Training to Include Fundamentals**
 - ❖ Already provide on-site training
- ❖ **Develop Natl. BEB Training (3-part approach)**
 - 1 - Generic BEB Familiarization, On-Line Course
 - 2 - Enhance Underlying E/E skills
 - 3 - Vendors Provide OEM-Specific Training
- ❖ **Convert More “Mechanics” to “Technicians”**
 - ❖ What defines technician? ASE Certifications?
 - ❖ Ability to use digital meters & laptops to diagnose?
 - ❖ Intelligent person who decided to work with their hands

Last, But Not Least...

- ❖ **Make Upper Managers Aware of Training Needs**
 - ❖ Staffing Shortages are Real
 - ❖ Situation Will Only Get Worse
 - ❖ Bus Technology Has Surpassed the Ability of Most Mechanics to Efficiently Repair Bus Equipment
 - ❖ Training Has Not Kept Pace with Skills Deficient
 - ❖ Maintenance Cost will Increase & Service Quality Suffer Without Skilled Workforce!