Integrating Career Pathways in Public Transportation:

Rail Car Maintenance and Beyond

Welcome Webinar | October 22, 2015

TRANSPORTATION LEARNING CENTER

Today's Agenda

I. Orientation/Logistics of webinar
II. Welcome & Introductions
III. Project Overview
IV. Financials
V. Model
VI. Courseware Development
VII. Transit Core Competencies Curriculum
VIII. Wrap Up
IX. Questions and Answers
X. Resources

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 partnerships** that improve organizational performance, expand **workforce knowledge**, **skills** and **abilities**, and promote **career advancement**.

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Training Partnerships in Transit – Location Map

National sponsors and over 40 locations have worked together to build shared solutions

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

SEIU Local 1021 (Sacramento)

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

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Welcome & Introductions: Project Staff

Jack Clark, Executive Director
Workforce Development,
Training Partnerships

Xinge Wang, Deputy Director
Research, Statistical Analysis,
Return on Investment

Brian Turner, Founding Director
Training Partnerships,
Consortium Development

Liz Waller, Finance Director
Accounting, Procurement

Tia Brown, Project Manager
Project Management, Research

Mark Dysart, Senior Associate
Apprenticeship

John Schiavone, Program Director
Technical Training

Joyce Williams, Office Manager
Office Management, Meeting
Planning

Instructional Design Team

Julie Deibel, Program Manager
Instructional Design

Melissa Huber
Instructional Designer

Patricia Greenfield, Senior
Program Director
Career Pathways, CTE Programs

Amri Joyner
Instructional Designer

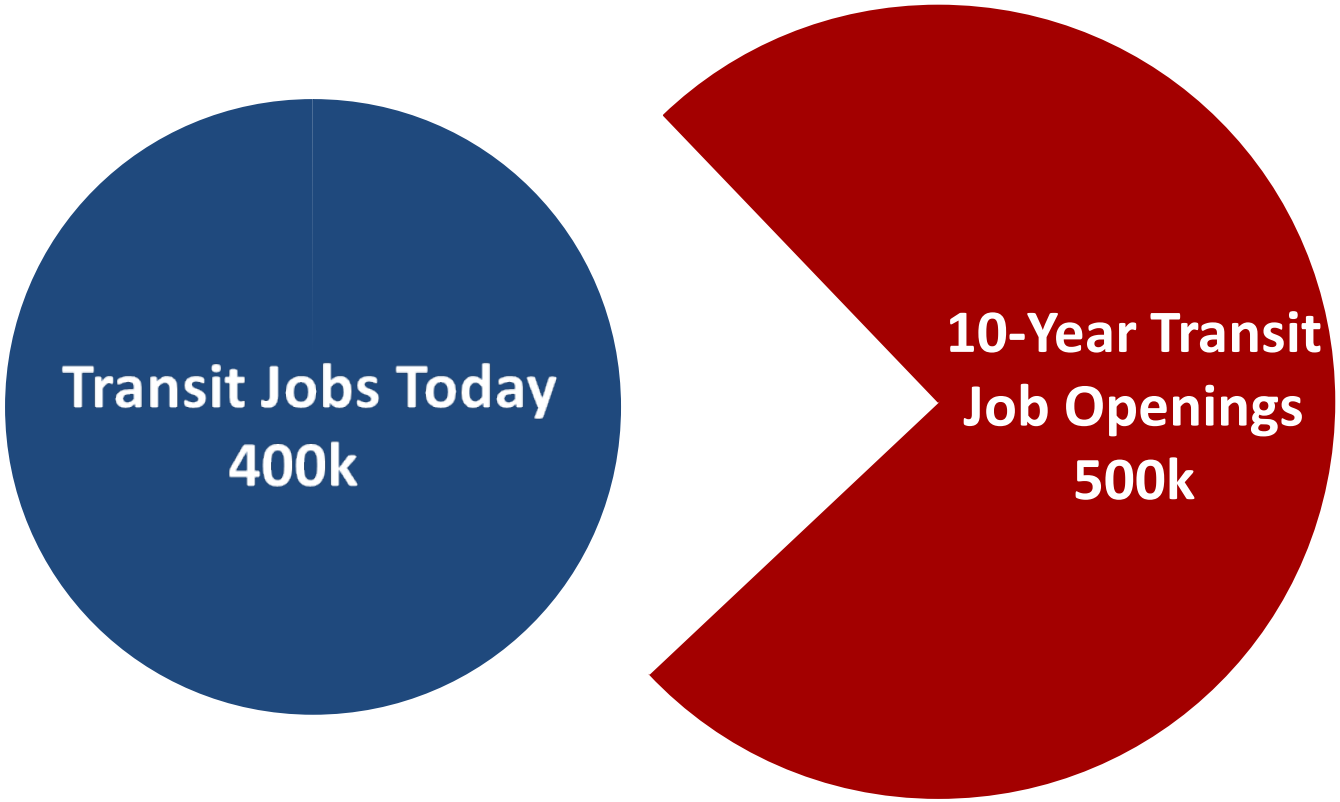
Yvonne Syphax
Instructional Designer

Project Partners

National Partners		Local Agency Partners		
Amalgamated Transit Union	Community Transportation Association of America	Bay Area Rapid Transit / SEIU Local 1021	Maryland Transit Administration/ ATU Local 1300	San Francisco Municipal Transportation Authority / IBEW Local 6
American Federation of Teachers/Shanker Institute	National College Credit Recommendation Service	Charlotte Area Transit System	Massachusetts Bay Transportation Authority/ ATU Local 589	San Mateo Transit Authority / ATU Local 1574
American Public Transportation Association	The Corps Network	Denver Regional Transportation District / ATU Local 1001	New Jersey Transit	Southeastern Pennsylvania Transportation Authority / TWU Local 234
Local Community Partners: Mile High Youth Corps (Denver); Keystone Development Partnership (PA)		Greater Cleveland Regional Transit Authority / ATU Local 268	San Diego Metropolitan Transit System / IBEW Local 465	Utah Transit Authority / ATU Local 382

Challenge and Opportunity: Retirement and Growth

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.

The Center's Work

Rail Car Technician Qualification Program (TCRP E-7)

- National Standardized Training Framework for Rail Car Technicians
- Employee Credentialing Tracking System
- Assessments
- Preliminary Courseware

National Training Consortia

- Instructor ready courseware packages
- Train-the-Trainer course
- Signals and Transit Elevator/Escalator Maintenance

Career Pathways/Career Ladders

- Incumbent worker training /career ladder promotions
- Industry-CTE high school connections
- Internship, classroom and after-school programs and curriculum modules

Integrating Career Pathways in Public Transportation:

Rail Car Maintenance and Beyond

American Apprenticeship Initiative

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Project Overview: Model

Integrated Career Pathways Model:

Linking School-Based and Work-Based Learning

Integrating Career Pathways in Public Transportation: Rail Car Maintenance & Beyond

- Funded by FTA and Transportation Agencies
- Project dates:
  - September 25, 2015 – September 25, 2017
  - 24 months
- Career Pathways and Incumbent Worker Training
- 12 Agencies Initially Involved – ongoing recruitment

Deliverables

Task	Rail Vehicle Courseware	TC3
1. Training Needs Analysis	Training Needs Analysis Survey Synthesis Report	
2. Develop Training Materials	Complete 10 instructor ready courses.	Transit Core Competencies Curriculum
	Framework/Platform for Courseware Sharing	
3. Develop & Deliver Train-the-Trainer	Train-the-Trainer Courseware Train-the-Trainer Delivery	
4. Pilot Courseware	Instructor & Participant Surveys Pre & Post Tests and Knowledge Gain Analysis	
5. Assess courseware and assessments for college credit	Assessment of Courses for College Academic Credit	

Project Overview: Major Project Deliverables

2. Desired State of Training / System Needs

1. What type of rail service do you have: (select all that apply)
   - ☐ Commuter
   - ☐ Heavy Rail
   - ☐ Light Rail

2. Does your rail service intersect with: (select all that apply)
   - ☐ Freight
   - ☐ Intercity passenger
   - ☐ Commuter
   - ☐ Run on the street (therefore tied into automobile traffic light system)
   - ☐ None

3. Is your agency under FRA regulation for signals safety?
   - ☐ Yes
   - ☐ No
   - ☐ Not sure

4. What signaling system brands (OEM) are in use on your property? (select all that apply)
   - ☐ Safetran
   - ☐ Harmon
   - ☐ Ecco
   - ☐ US&S
   - ☐ GRS
   - ☐ Alstom
   - ☐ Ansaldo
   - ☐ GE
   - ☐ Siemens
   - ☐ VPI
   - ☐ Invensys
   - ☐ Other, please specify

5. Do you have direct contact with your OEM suppliers?
   - ☐ Yes
   - ☐ No

Training Needs Analysis Survey

TABLE 4
CLASSIFICATION OF MARTA EL/ES EQUIPMENT

Elevators

Manufacturer	Type	Age (years)	Quantity
Westinghouse	Traction–4 Hydraulic–44	30+; most installed in late 1970s and early 1980s	48
Dover	Traction–2 Hydraulic–30	15–30	32
Schindler	Traction–4 Hydraulic–9	6–10	13
KONE	Hydraulic	2–10	4
CEMCO	Hydraulic	9–30	4
US	Hydraulic	30+	2
Mowrey	Hydraulic	15	2
Montgomery	Hydraulic	30 & 13	2
Otis	Hydraulic	30+	1
Millar	Hydraulic	13	1 Total 109

Escalators

Manufacturer	Type	Age (years)	Quantity
Westinghouse	Modular	30+ years	117
Montgomery	Conventional	15–23	10
O&K	Conventional	25+	17
Schindler	Conventional	7–11	5 Total 149

work to repair the unit must begin immediately and crews must work around the clock to return it to service. Stations with only one El/Es, such as the Atlanta Airport station and heavily traveled stations such as MARTA's central transfer station, are designated "special." All remaining El/Es are "critical" and carry the same requirements as those designated "special" with the exception that work can be deferred until the following day if approved by the Manager of Elevators and Escalators. When an El/Es is down for service, MARTA complies with the ADA requirement to accommodate individuals with disabilities by providing buses equipped with a wheelchair lift or ramp to transport passengers between rail stations.

Customer Communication and Education

MARTA uses several communication procedures to inform customers, especially those with disabilities, when El/Es are out of order. Equipment status is provided to MARTA patrons through public address (PA) announcements made at each station, as well as operator messages broadcast in trains and buses. MARTA's website also contains a listing of equipment out of service for extended periods. The listing shows the status of each station with green and red symbols. Green indicates the number of El/Es in service and red indicates the number out of service. Appropriate signage is also placed at station entrances to inform patrons about modernization projects and other long-term outages. Additionally, a scrolling message board located at most stations is used to post El/Es outage information as appropriate.

To educate passengers about El/Es usage MARTA plays recorded messages at regular intervals over the PA system that advise patrons to (1) hold handrails and (2) be careful entering and exiting the escalators. There are also several ways for customers to communicate El/Es issues, such as complaints, comments, and suggestions to MARTA. A community ADA committee external to MARTA also meets regularly throughout the year to address public accessibility issues, including MARTA's vertical transportation equipment. MARTA staff participate in these meetings to listen to public concerns and provide the group with information. Patrons can also provide feedback through Facebook, Twitter, MARTA's website, and the agency's Customer Service Hotline.

The type of El/Es issues communicated to MARTA by its customers in descending order based on frequency include

- Reports of equipment out of order,
- Escalators not running in a direction that is deemed convenient (i.e., one direction in the morning and the opposite in the afternoon), and
- Elevators not being located at every corner of the station.

Synthesis Report of Training Needs Analysis Survey Findings

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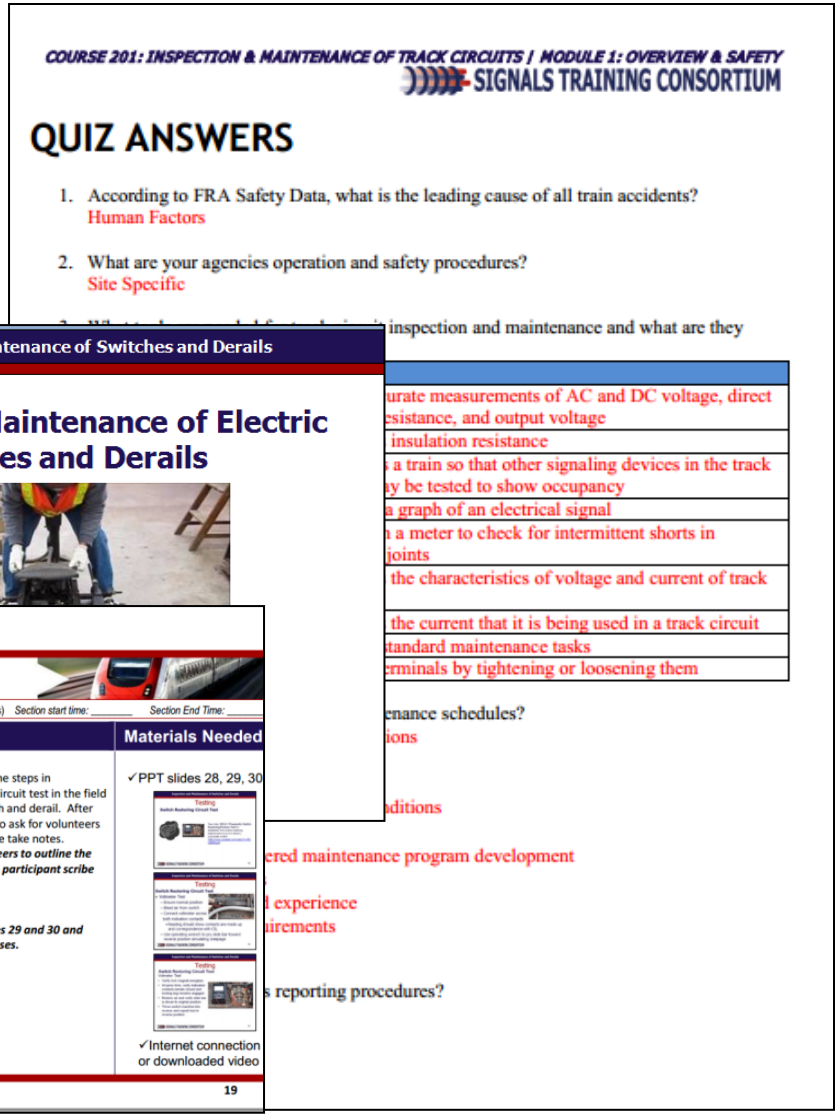
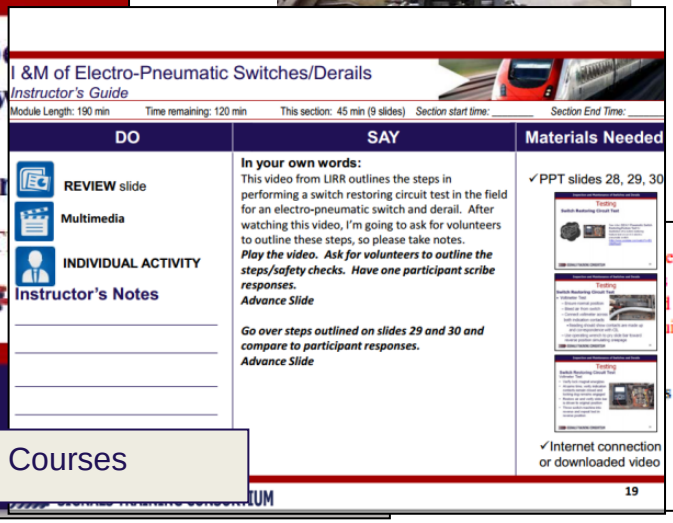
Project Overview: Major Project Deliverables





12 Instruction Ready Courses

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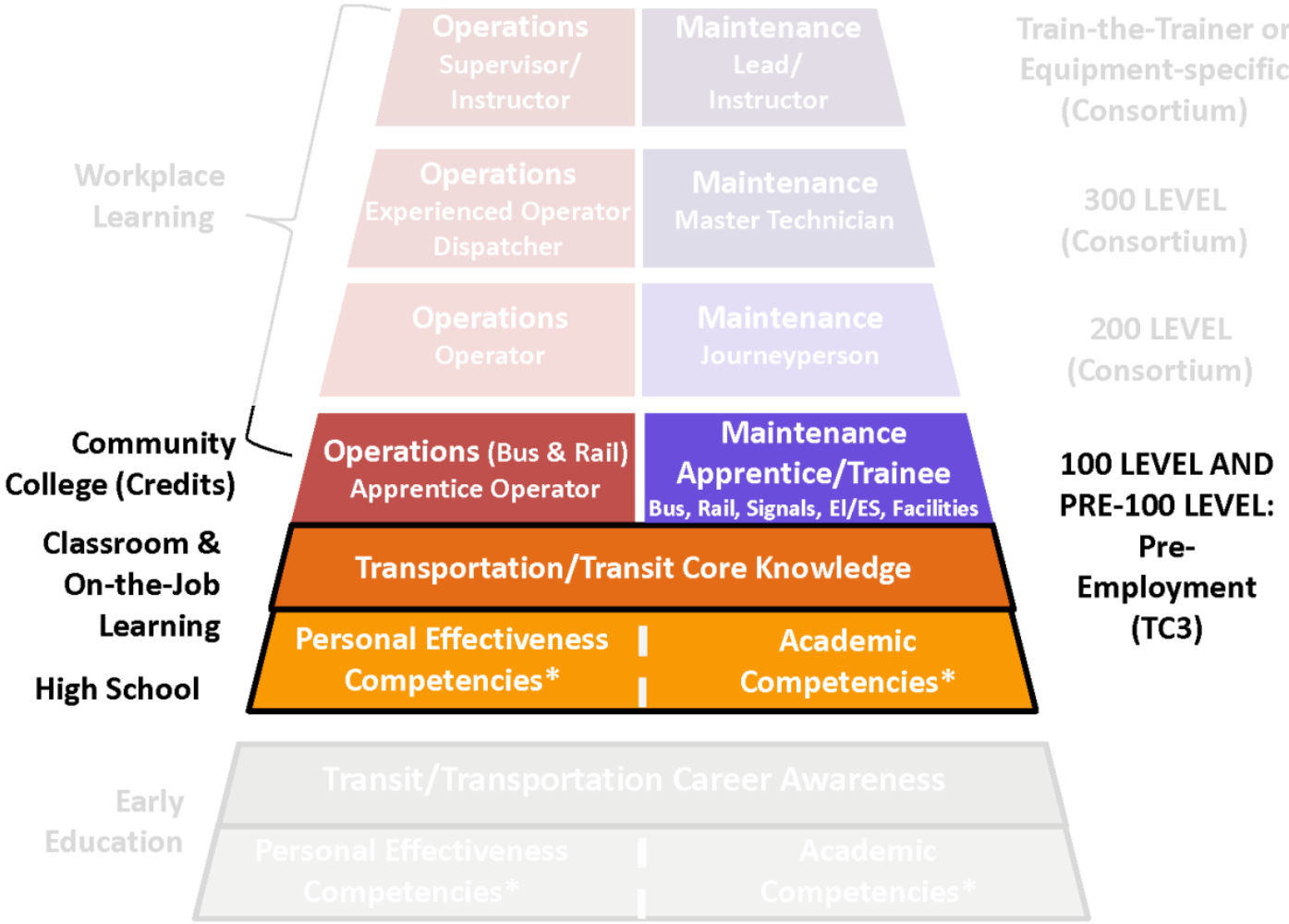
Integrating Career Pathways Model

Integrated Career Pathways Model:

Linking School-Based and Work-Based Learning



Source: TLC graphic building on US DOL Competency Model on Transportation, Distribution and Logistics.
* See DOL Competency Model for details: http://www.careeronestop.org/competencymodel/competency-models/transportation.aspx

Project Overview: Major Project Deliverables

TRANSIT TRAINING NETWORK

Home | About | Career Pathways and Ladders | Resource Library | Transit Training Forum | Contact

Transit Training Network

The Transit Training Network is part of an industry-wide effort aimed at strengthening transit training programs. This website provides a platform for industry occupational training committee members and local training practitioners to view the most updated industry training standards, and share and rate courseware developed by committees or individual agencies. For more information on the website, click "About" above.

To access restricted areas of the website, please click here and complete the sign-up form. Indicate areas of courseware you are interested in, and a site administrator will contact you to discuss any requirements that may be associated and set up your login. Once logged in, you may also share courseware and other training materials developed by your agency in the Transit Training Forums. To share courseware without a login, please email info@transportcenter.org.

Courseware Sharing Platform

Project Overview: Major Project Deliverables

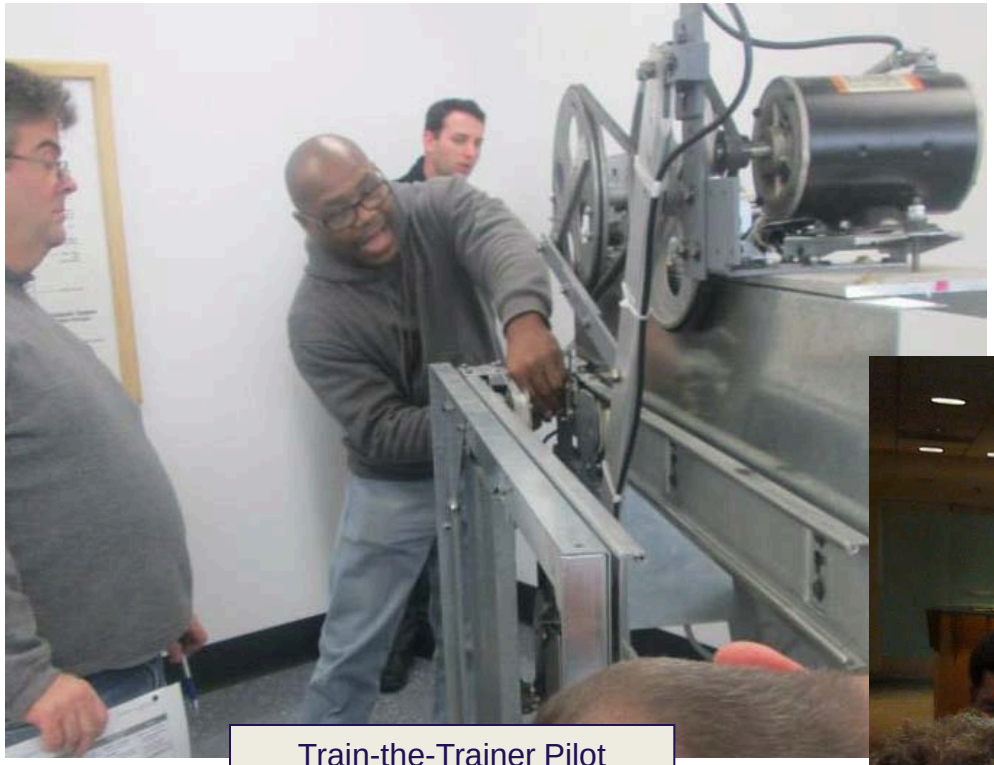
Day1 – Teaching & Learning	Day 2 – Best Practices	Day 3 – Practice Teaching	Day 4– Practice Teaching	Day 5

Module 1 – The Adult Learner
• Welcome & Introductions
• Pre-Training Analysis
• How Adults Learn
• Learning Styles
• Characteristics
	Module 3 – Teaching Tools & Demonstrations
	• Instructional Materials:
	  ○ Instructor Guide
	  ○ Participant Guide
	  ○ PowerPoint
		Module 4 – Classroom-Based Practice Teaching
		Round #1
		• Pre-Training Prep
		• Practice Teaching
			Module 5 – Lab-Based Practice Teaching
			Round #1
			• Pre-Training Prep
			• Practice Teaching
				Module 7 – Evaluations
				• Instructor Challenges and Solutions
				• Course Evaluation
				• Self-Assessment
				• Post-Training Analysis

A.M. BREAK	A.M. BREAK	A.M. BREAK	A.M. BREAK	A.M. BREAK
• Components of Instruction ○ Gagne's 9 Events	Instructor Demonstration: • Classroom-Based	Round #2 • Pre-Training Prep • Practice Teaching	Round #2 • Pre-Training Prep • Practice Teaching	• Performance Evaluations • Closing
LUNCH	BREAK + Travel to Lab	BREAK	BREAK	
Module 2 – The Effective Instructor • Characteristics • Teaching Methods • Learning Environment Preparations • Presentation Skills	Instructor Demonstration: • Lab-Based	Round #3 • Pre-Training Prep • Practice Teaching	Round #3 • Pre-Training Prep • Practice Teaching	
	LUNCH	LUNCH	LUNCH	
P.M. BREAK	Practice Teaching • Overview & Assignments • Preparation for Classroom-Based Practice Teaching	Practice Teaching • Overview & Assignments • Preparation for Lab-Based Practice Teaching	**Module 6 – Field Trip Practice** • Field Trip Best Practices • Instructor Demonstration • Participant Practice	
• Practice Presentations • Individualized Instruction				

Train-the-Trainer Courseware

Project Overview: Major Project Deliverables



Train-the-Trainer Pilot

"When they told me I was going to a Train-the-Trainer course I was like 'Why? It's like going through a driving course after you've been driving for 30 years.' Little did I know I had been driving with one eye shut."
Phill Collins, Elevator/Escalator Employee Development Specialist assessments.

Pilot at BART showed an average learning gain of 70% as measured by pre- and post-course assessments

Project Overview: Major Project Deliverables

Instructor Post Course Survey
SIGNALS TRAINING CONSORTIUM

Transit Agency:_____

Course Number:_____ **Module Title**_____

Number of Course Participants:_____

Additional Participant Information:_____

Instructor Guide

1. Did you use the instructor's guide while teaching this course?
   - **Used the instructor's guide a lot**
   - **Used the instructor's guide some**
   - **Did not use the instructor's guide to teach**

(If you did not use the instructor's guide, skip to question 5.)

2. On a scale of 1 – 10 with 1 being very challenging and 10 being very easy, how would you rate the usefulness of the instructor's guide to teach this course? (Please circle)

   1 2 3 4 5 6 7 8 9 10

3. What elements of the instructor guide seem helpful during instruction? **Please explain.**

4. What elements or parts (if any) of the instructor guide seemed confusing or not useful during instruction? **Please explain, give examples and page numbers if possible.**

5. If you did not use the instructor's guide in preparation to teach this course, why not? **Please explain.**

Participant Post Course Survey
SIGNALS TRAINING CONSORTIUM

Transit Agency:_____ **Date of Training:**_____

Course Title:_____ **Job Title**_____

Work Location:_____ **Years in Signals Maintenance:**_____

Directions: Please complete to the best of your knowledge

1. On a scale of 1-10 with 1 being not helpful at all and 10 being extremely helpful, how would you rate the helpfulness of this course in learning the content and course objectives? (please circle)

   1 2 3 4 5 6 7 8 9 10

   What elements of the course did you find most helpful?

   What elements of the course did you find least helpful?

2. On a scale of 1-10 with 1 being not helpful at all and 10 being extremely helpful, how would you rate the usefulness of this course for knowledge you need to complete your job? (please circle)

   1 2 3 4 5 6 7 8 9 10

3. On a scale of 1-10 with 1 being not helpful at all and 10 being extremely helpful, how would you rate the materials (course book, visuals such as slides and photos, etc) used in this course? (please circle)

   1 2 3 4 5 6 7 8 9 10

4. What course materials did you use during this course? (please circle)
   a. Course book
   b. PowerPoint slides
   c. Other, please list:

   What course materials did you find helpful? How were they helpful?

   What course materials did you find not helpful? Why were they not helpful?

5. Where the course visuals (diagrams, photos, slides, etc) clear and understandable? Why or Why not?

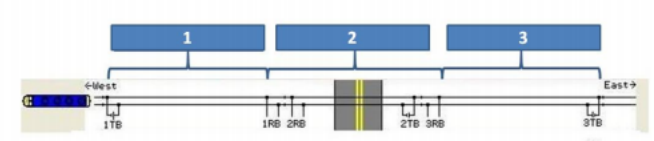
6. What recommendations or suggestions would you make for improving this course?

Post-Course Surveys

Project Overview: Major Project Deliverables

COURSE 204: INSPECTION & MAINTENANCE OF GRADE CROSSINGS
SIGNALS TRAINING CONSORTIUM

7. Which of the following is the "approach circuit"?

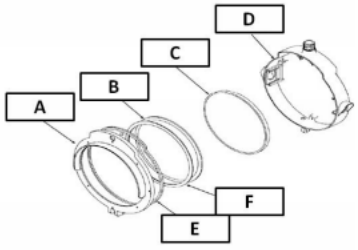


a 1
b 2
c 3
d 1 and 3
e None of the Above

8. Incandescent bulb and LEDs must operate at a minimum of _____% of voltage ratings:
   a. 90
   b. 85
   c. 80
   d. 75
   e. 70

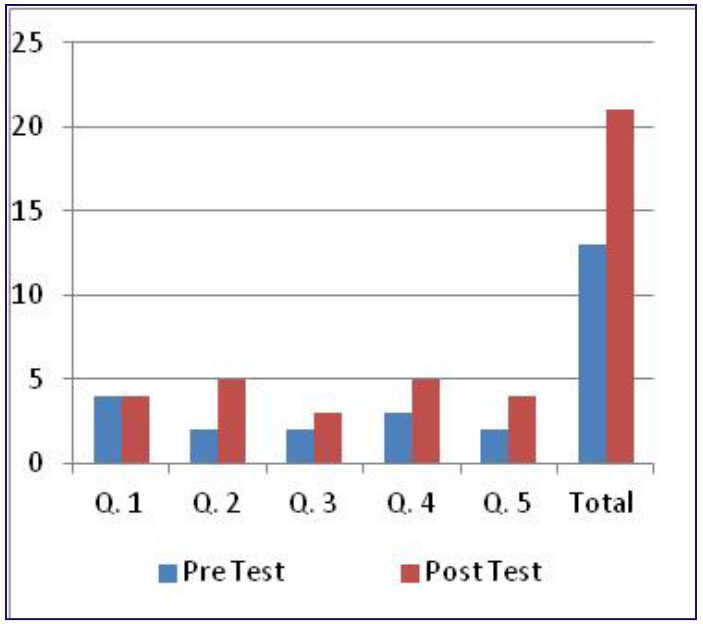
9. Flash rate refers to the number of flashes per minute and the synchronization of those flashes. For maintenance, ensure flash rate is set according to FRA regulations. Use a stop watch, count flashes for 15 seconds, and multiply by _____:
   a. 2
   b. 4
   c. 5
   d. It depends on the type of bulb
   e. It depends on the voltage going to the bulb

10. For the illustration below of a Flasher Containing an Incandescent Bulb , identify the correct name of each Housing Components



1. ___ Roundel
2. ___ Door Gasket
3. ___ Reflector
4. ___ Door
5. ___ Roundel Gasket
6. ___ Housing

11. Lamp condition refers to the luminescence of the light:
TRUE FALSE



EXAMPLE ONLY
Average Knowledge Gain = 161 Percent

Pre- and Post- Tests and Knowledge Gain Analysis

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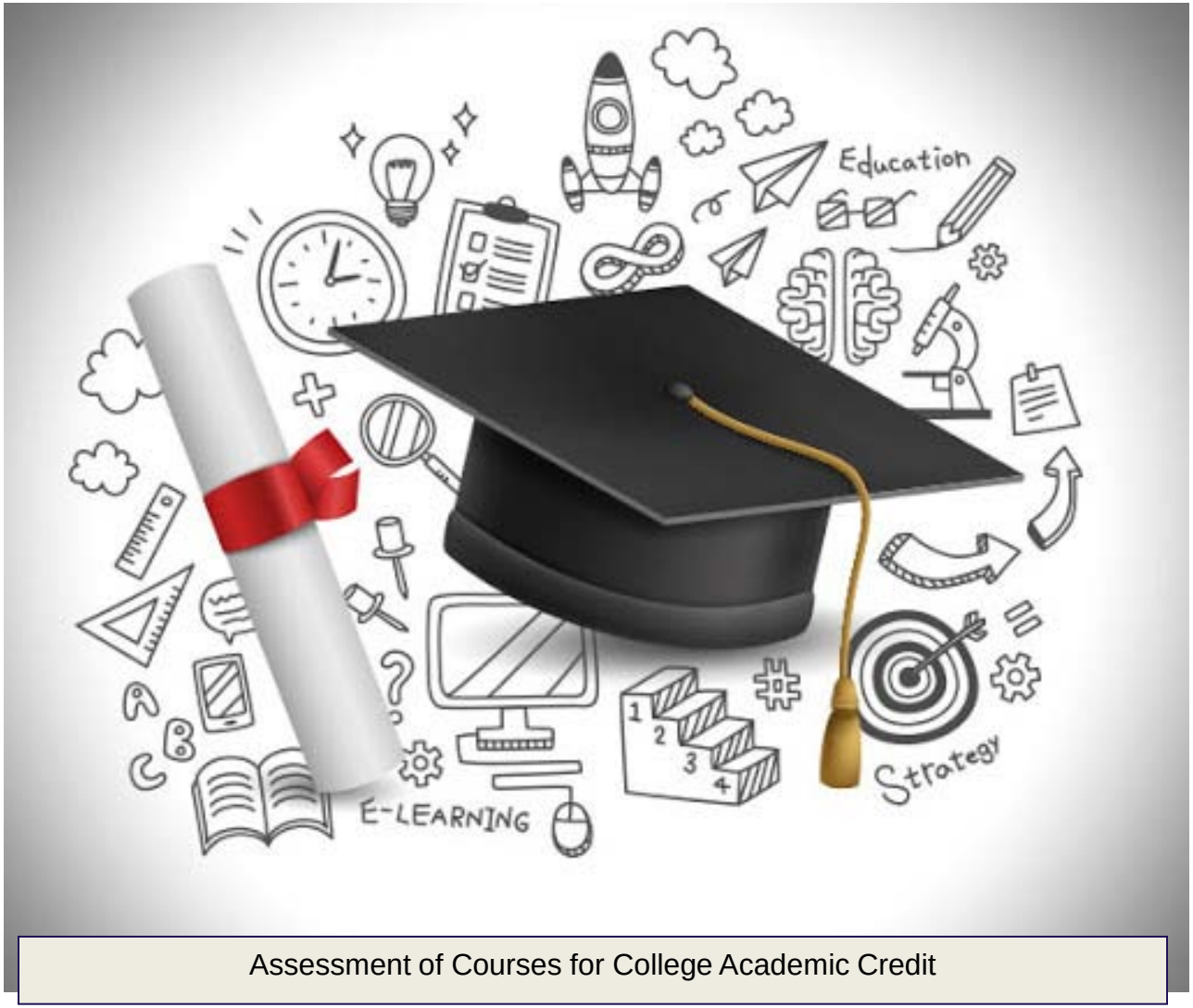
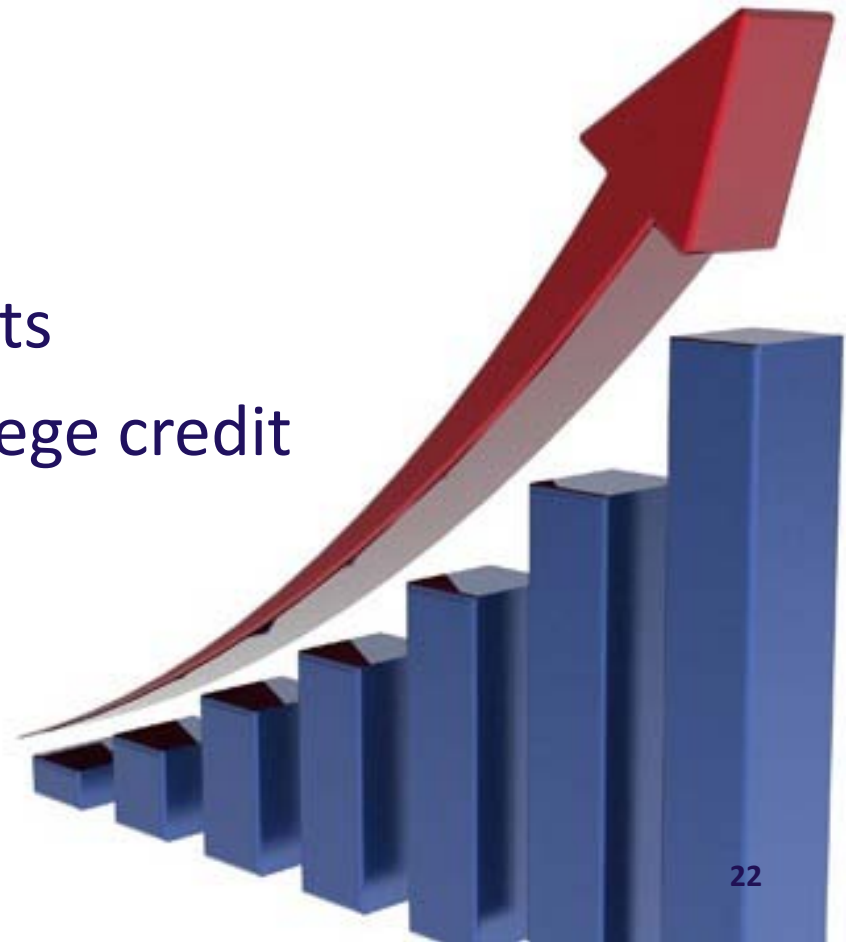
Project Overview: Major Project Deliverables



Assessment of Courses for College Academic Credit

Performance Measures

- Participant satisfaction and learning
- Number of:
  - Courses developed
  - Courses piloted
  - Students completing pilots
  - Courses assessed for college credit
  - Workers trained



Project Overview: Roles and Responsibilities

The Transportation Learning Center	Partner Locations
• Secure Funding – DONE • Recruit Partners – In Progress • Analyze needs • Orient SMEs and teach basic ISD principles • Coordinate and Facilitate Work groups • Work with SMEs to develop curriculum content • Format content into instructor ready course materials which optimize learning and retention • Provide Technical Assistance for Piloting and Delivery of Materials • Develop and Deliver Train the Trainer • Document SME participation • Report progress and outcomes to stakeholders	Agency/Union • Sign Agreements • Identify Subject Matter Experts • Identify employees to attend Train-the-trainer • Pay Invoices On Time • Document In-Kind Contributions • Pilot training delivery Provide data on outcomes evaluation • Help recruit more locations SMEs • Participate in Courseware Development

Invoicing Procedures

- Four Payments
  - One at Joining
  - Invoices for payments #2, 3 and 4 are generated and sent by APTA. Payments are made to APTA. APTA, in turn, remits the funds to the Center for program activities.
- The Center will gather invoice contact information and provide that information to APTA.
- All payments to APTA should reference the invoice number for ease of tracking.

Cash Match & In-kind Contributions

- FTA requires that 50% of the project cost be covered by cash match and/or in-kind contributions.
- Participating agency fees are considered cash match as those dollars will be put back into the project to cover expenses necessary to accomplish project objectives.
- A significant amount of in-kind contributions will be necessary to meet FTA's requirements.

Cash Match & In-kind Contributions

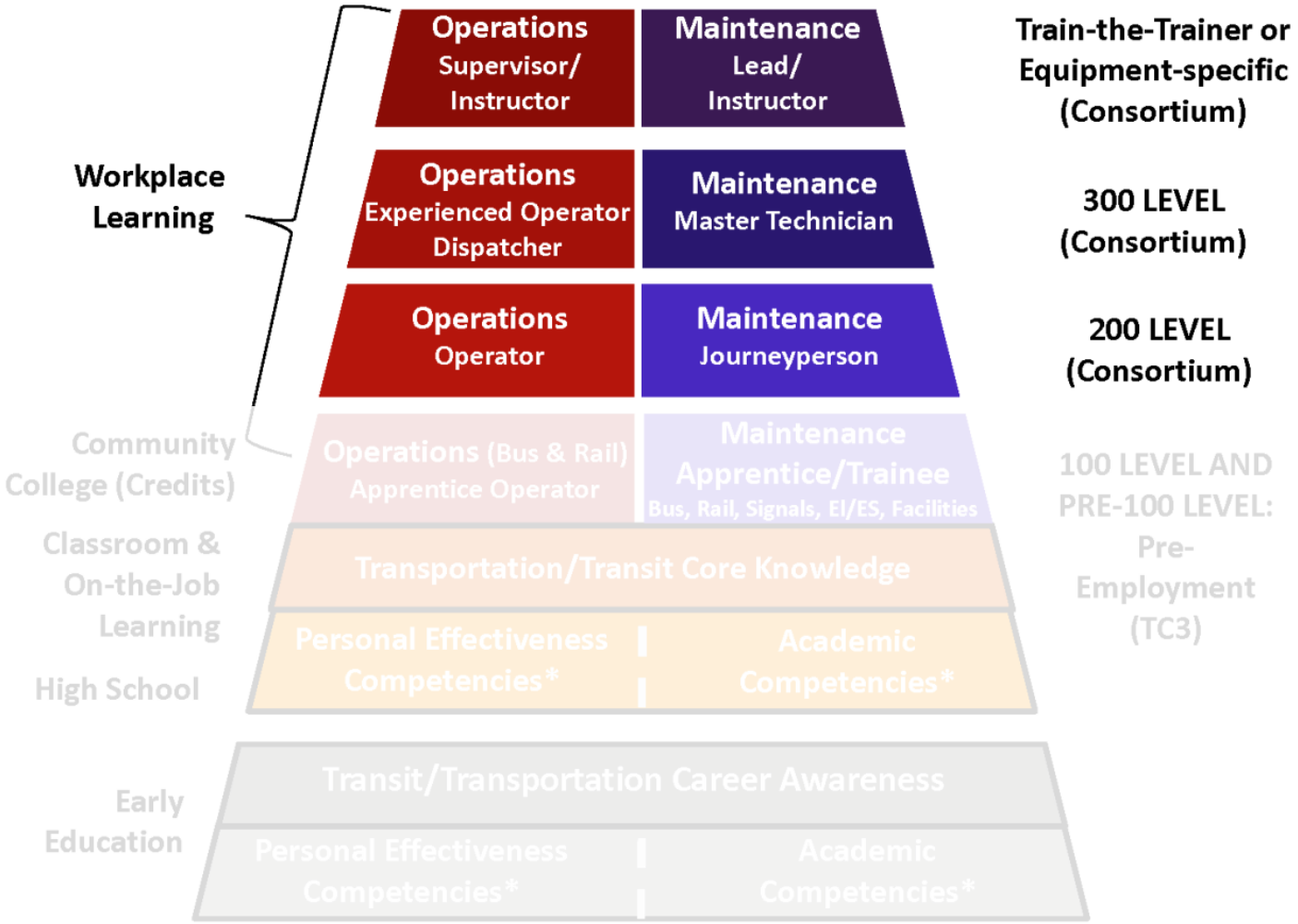
- When a third-party organization furnishes the services of an employee, these services must be valued at the employee's regular rate of pay plus an amount of fringe benefits that is reasonable, necessary, allocable and otherwise allowable, and approved indirect costs , if applicable. (2 CFR 200, Subpart D , 200.306)

Cash Match & In-kind Contributions

- Consortium agencies will be asked to provide the fully loaded hourly rate of employees (on Agency letterhead) participating in the project, so that we may capture in-kind contributions from time spent on webinars, in-person meetings, etc. Detailed minutes will be kept to verify time and attendance/participation.

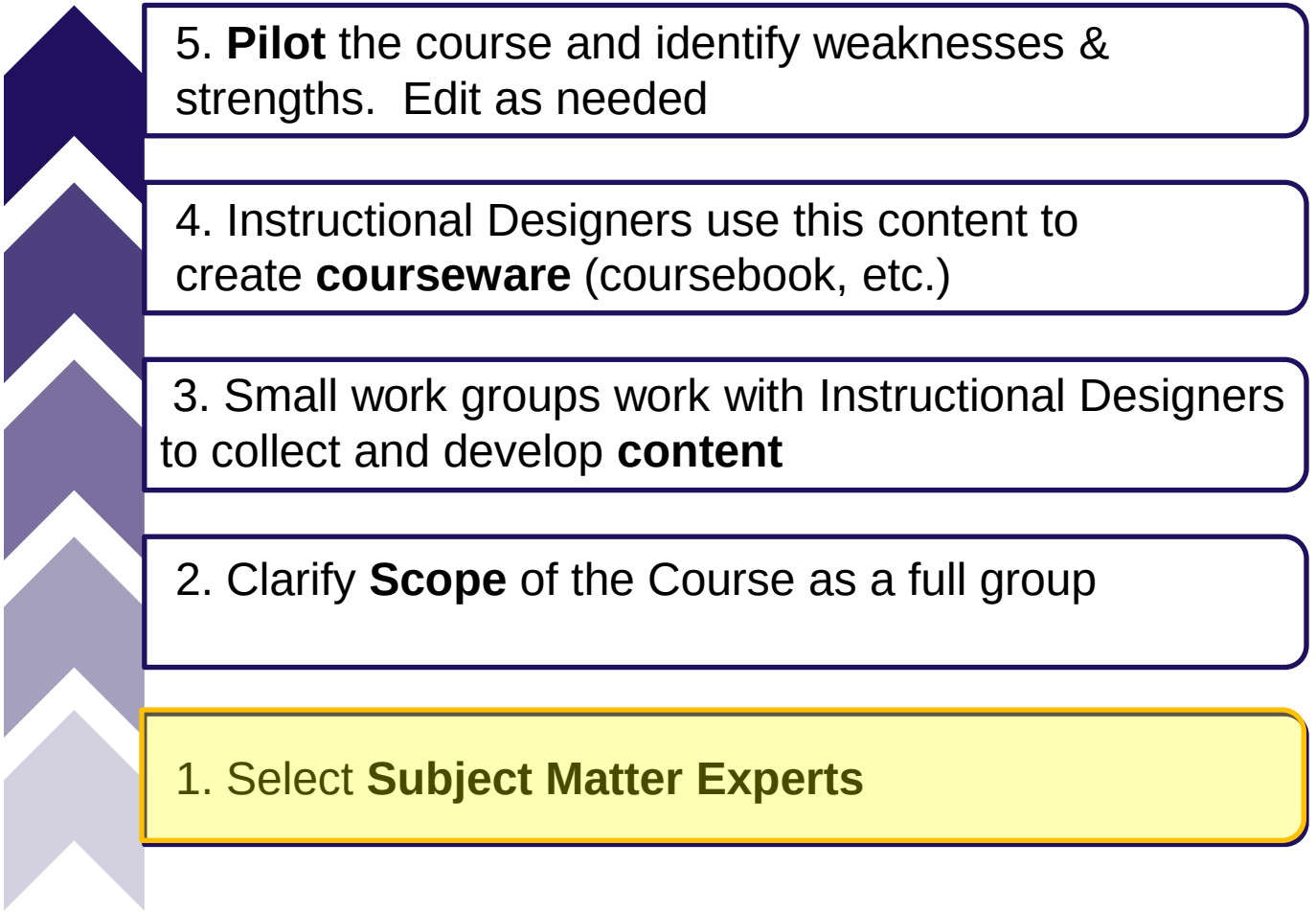
Integrated Career Pathways Model:

Linking School-Based and Work-Based Learning



Source: TLC graphic building on US DOL Competency Model on Transportation, Distribution and Logistics.
* See DOL Competency Model for details: http://www.careeronestop.org/competencymodel/competency-models/transportation.aspx

Courseware Development Process



1. Picking the Right Subject Matter Experts

- Experience
  - Relevance
  - Depth
  - Timeliness
  - Location
  - Training
  - Frontline
- General Skills
  - Communication/Sociability
  - Writing Ability
  - Time Available

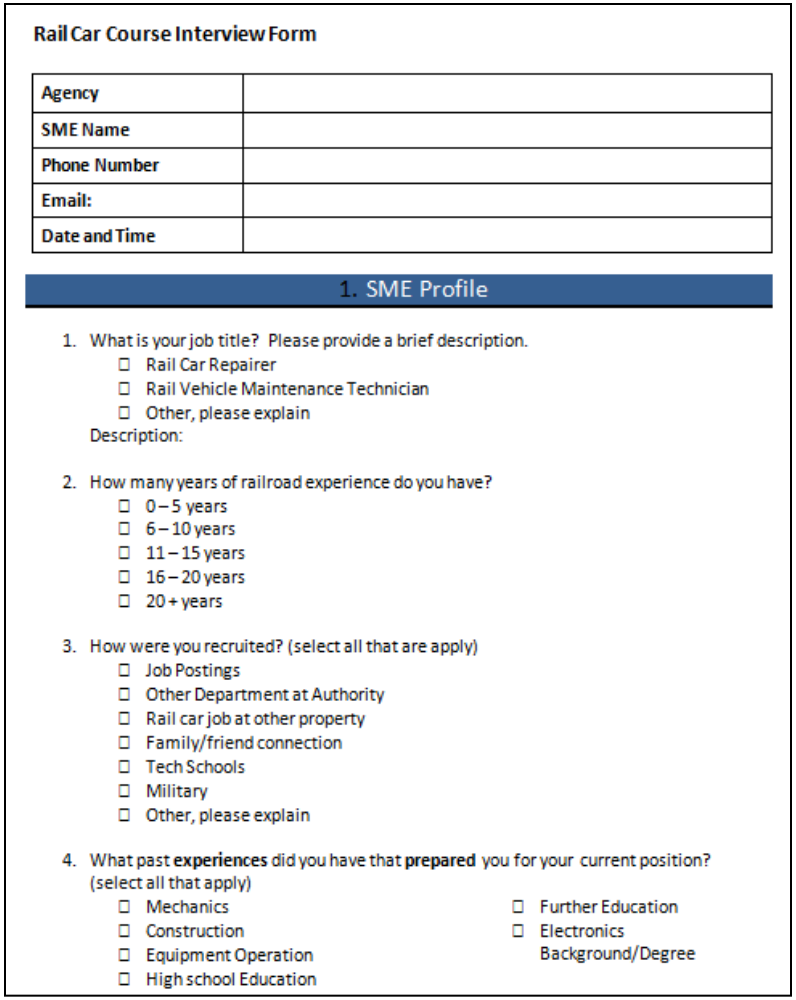
SEIU SME Explaining Controller Processes

L-M SME group working together to develop content

IBEW SME
Delivering Completed Courseware

Picking Your Site's SMEs

- 1 chosen by management
- 1 chosen by union
- By December 1, 2015:
  - Pick SMEs
  - Have SMEs complete and submit survey
- Contact the Center if you need assistance – jdeibel@transportcenter.org



Rail Car Course Interview Form

Agency	
SME Name	
Phone Number	
Email:	
Date and Time	

1. SME Profile

1. What is your job title? Please provide a brief description.
   - ☐ Rail Car Repairer
   - ☐ Rail Vehicle Maintenance Technician
   - ☐ Other, please explain

   Description:

2. How many years of railroad experience do you have?
   - ☐ 0 – 5 years
   - ☐ 6 – 10 years
   - ☐ 11 – 15 years
   - ☐ 16 – 20 years
   - ☐ 20 + years

3. How were you recruited? (select all that are apply)
   - ☐ Job Postings
   - ☐ Other Department at Authority
   - ☐ Rail car job at other property
   - ☐ Family/friend connection
   - ☐ Tech Schools
   - ☐ Military
   - ☐ Other, please explain

4. What past **experiences** did you have that **prepared** you for your current position? (select all that apply)
   - ☐ Mechanics
   - ☐ Construction
   - ☐ Equipment Operation
   - ☐ High school Education
   - ☐ Further Education
   - ☐ Electronics Background/Degree

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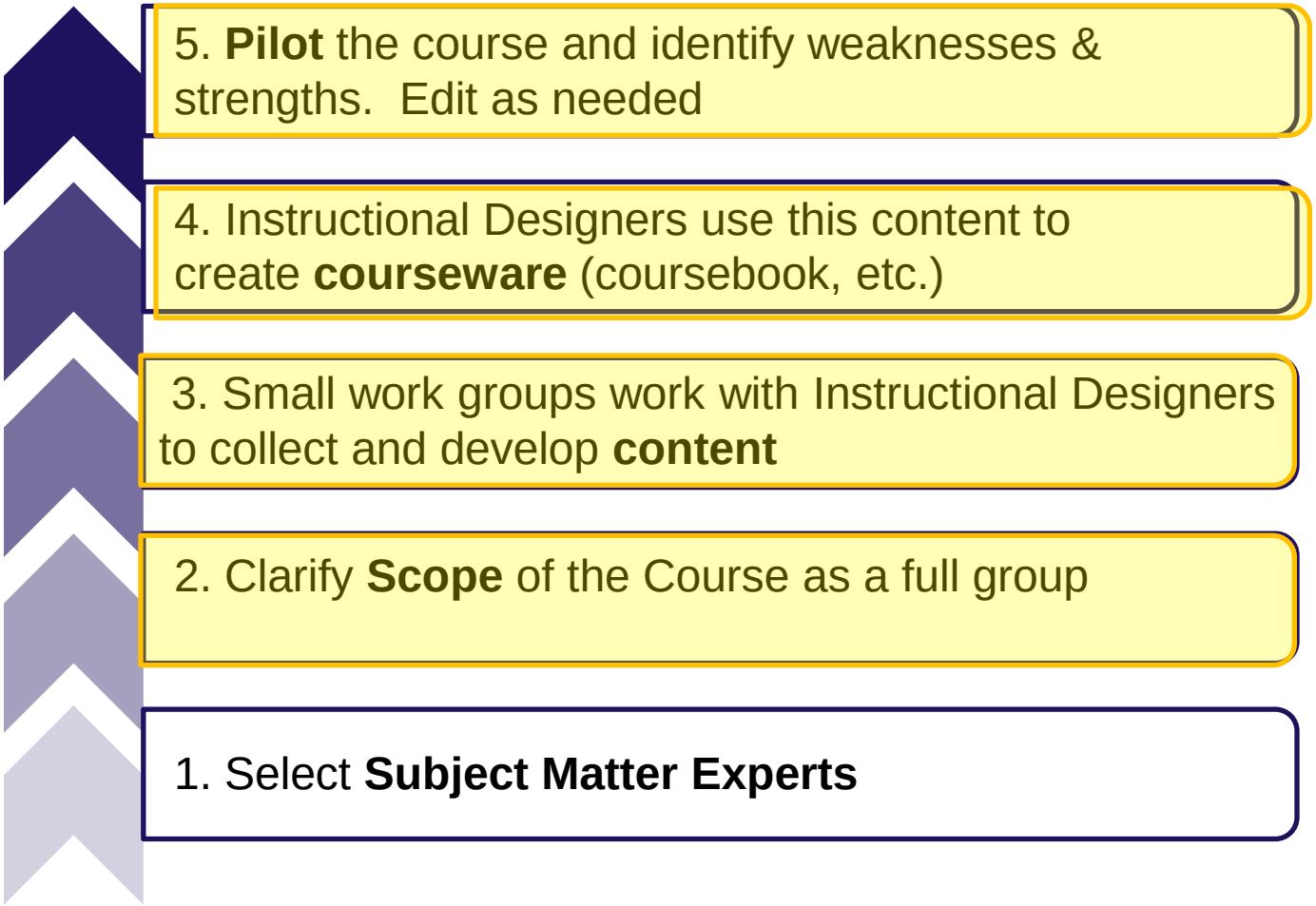
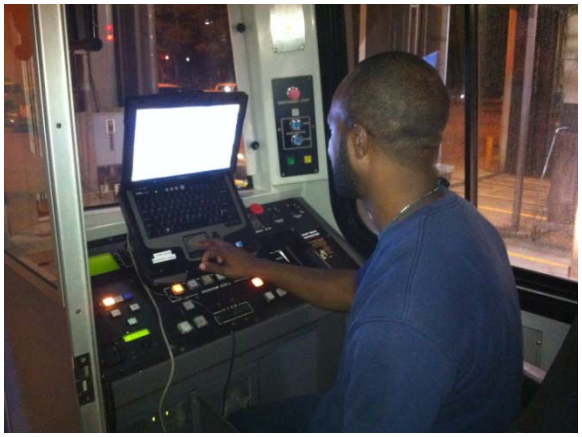
Courseware Development Process



Rail Vehicle Specific Courses to Be Developed

- Topics:
  - Friction Brakes
  - Doors
  - Trucks and Axles
  - Propulsion & Dynamic Braking
  - Train-the-Trainer



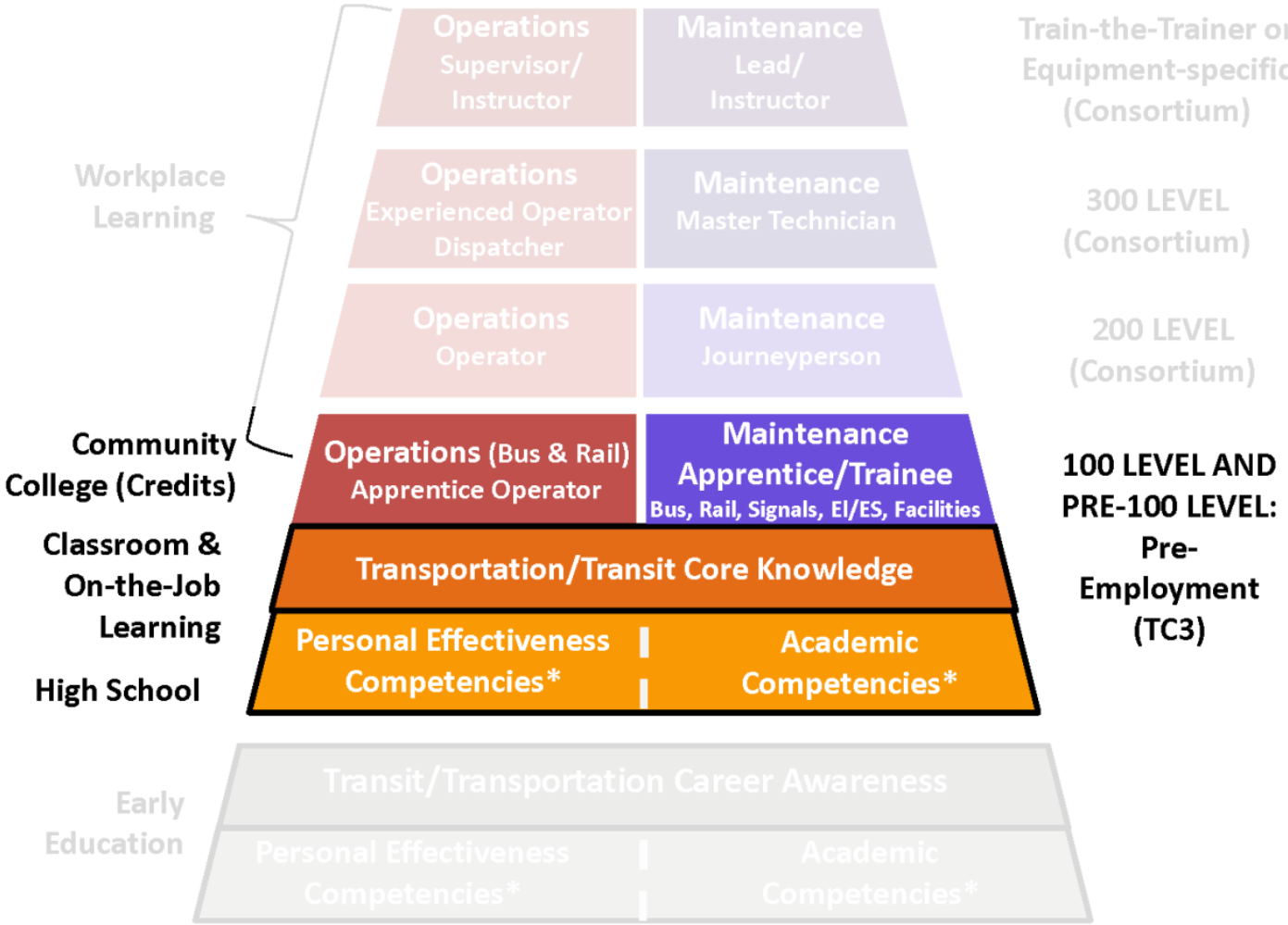
Train-the-Trainer

- Adult Learning Principles
- Effective Instruction
- Classroom Based Training
- Lab-Based Training
- Evaluating Participants

Transit Core Competencies Curriculum

Integrated Career Pathways Model:

Linking School-Based and Work-Based Learning



Source: TLC graphic building on US DOL Competency Model on Transportation, Distribution and Logistics.
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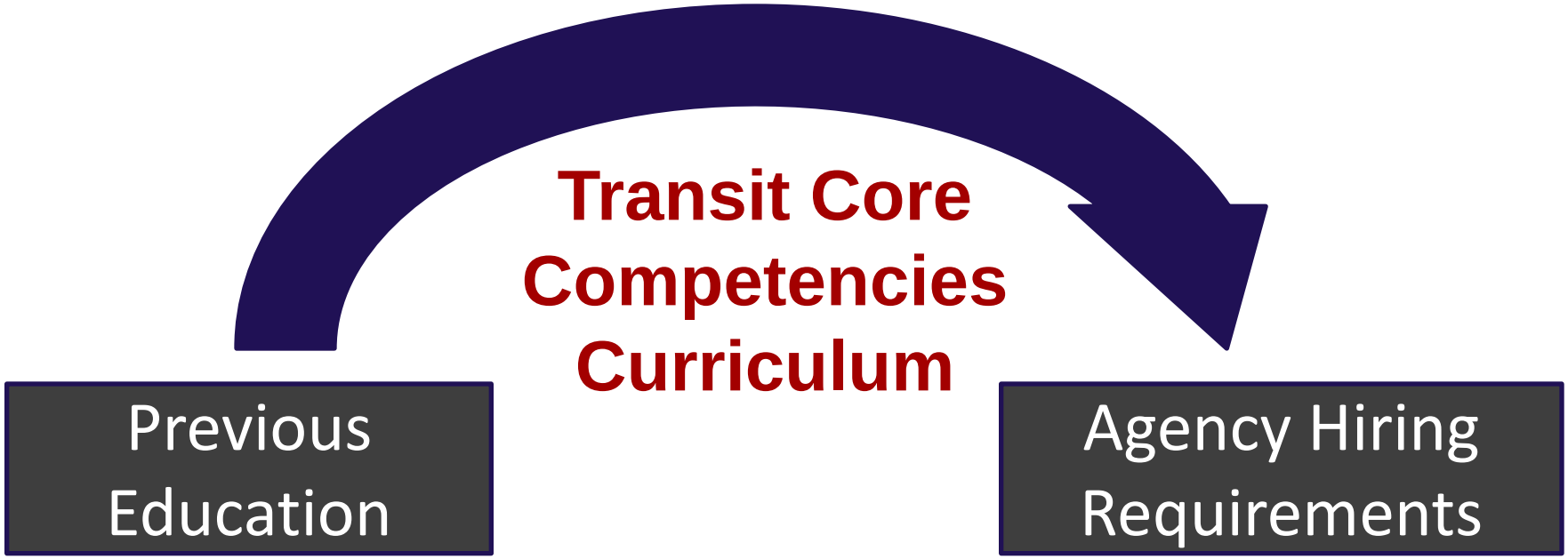
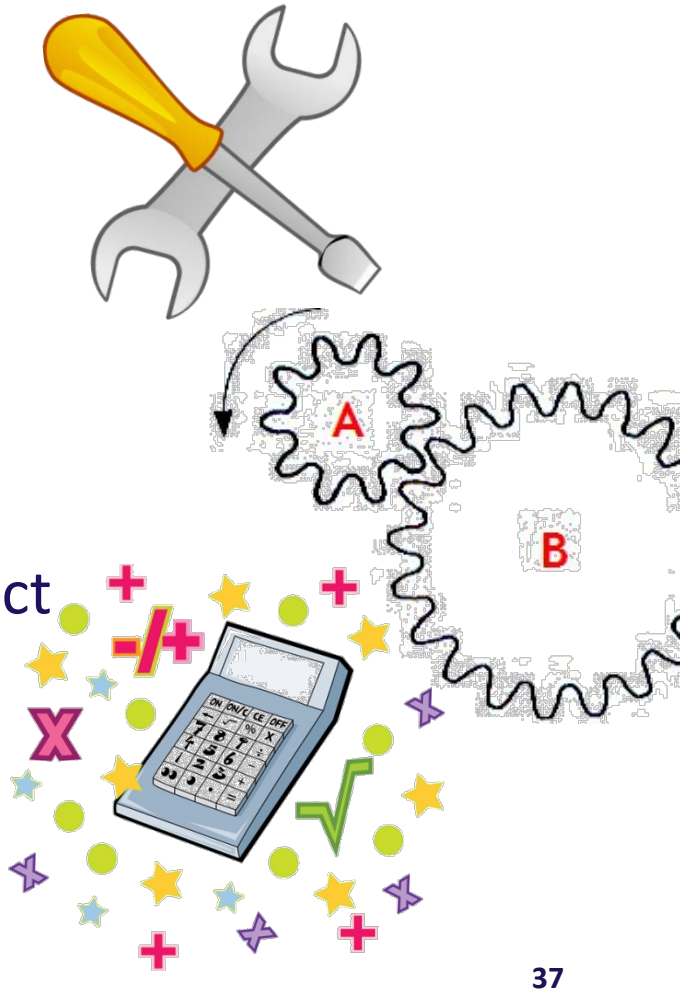
Transit Core Competencies Curriculum (TC3)

- Pre-Employment Curriculum - gather, adapt, develop
- Help to create a bridge between school and community-based preparatory programs and specific agency needs
- Train-the-trainer and pilot



TC3 Proposed Topics

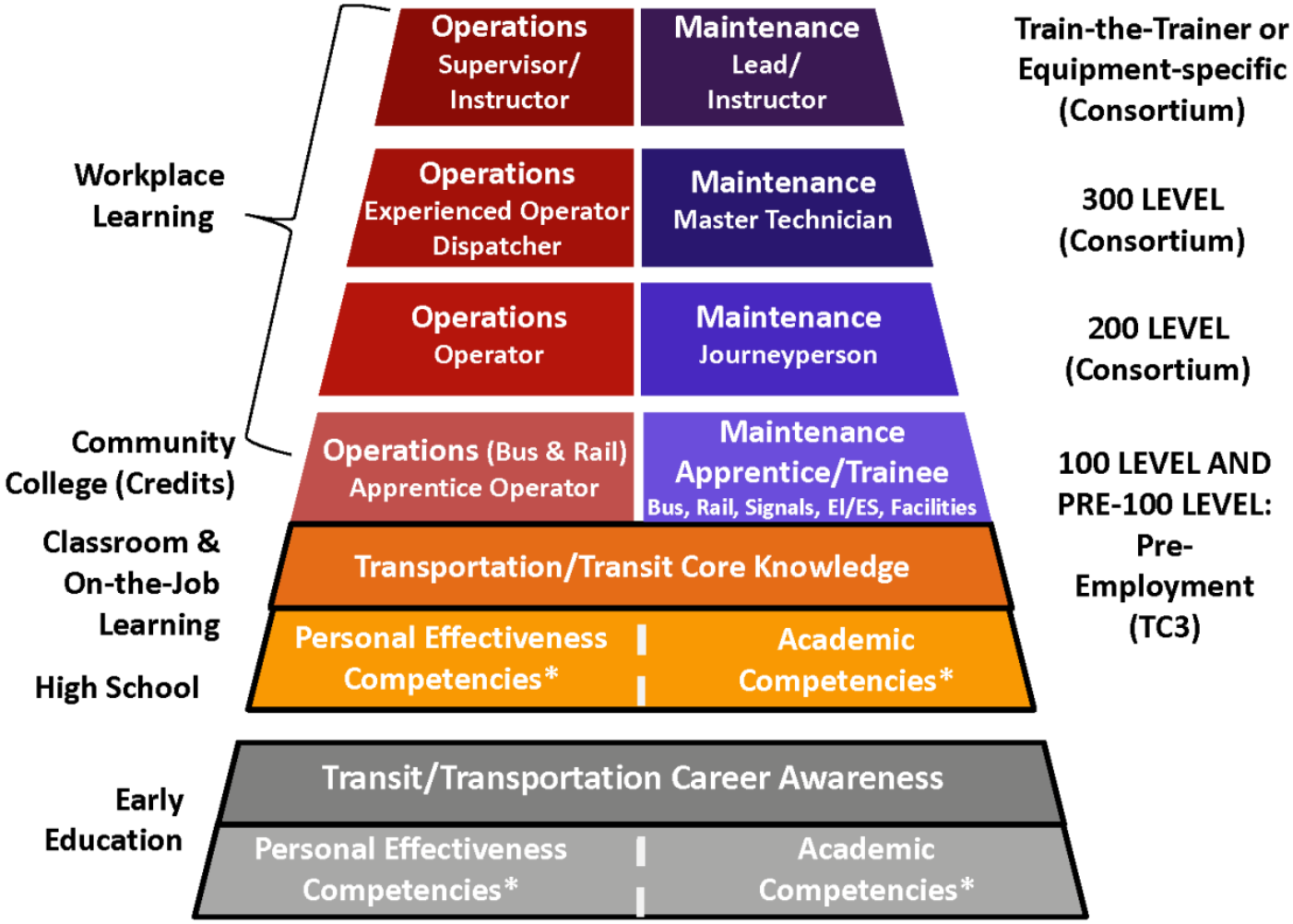
- Example Topics (as per industry training standards):
  - Industry overview
  - Workplace Safety and Health
  - Power Tools and Material Handling
  - Mathematics
  - Introduction to Electricity
  - Mechanical Theory and Application
  - Workplace issues: teamwork, conflict resolution, diversity, etc.
- SMEs will clarify scope



Integrating Career Pathways

Integrated Career Pathways Model:

Linking School-Based and Work-Based Learning



Source: TLC graphic building on US DOL Competency Model on Transportation, Distribution and Logistics.
* See DOL Competency Model for details: http://www.careeronestop.org/competencymodel/competency-models/transportation.aspx

Action Items

- Sign agreement and send payment
- Select SMEs
- Have SMEs complete and submit survey

Any Questions??