



Workforce Development: A University-Based Approach to Supporting A National Strategy

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Welcome/Agenda

- Importance of workforce development
- Concept for national and regional summits
- Results from summits to date
- Planning for upcoming regional summits
- UTC roles and roadmap



Why Focus on Workforce Development?

- Workforce development critical to industry
 - Increasing demand for transportation
 - Workforce shrinking with population shifts
 - Competition among industries
 - Broader set of skills needed in future
 - New policies and technologies could change the game
- Need to maximize use of resources
 - Address gaps in skills & resources
 - Promote knowledge exchange



Why Focus on Workforce Development?

Academia plays a major role:

- Implementing innovations
- Attracting next generation into the industry
- Developing the knowledge, skills, and abilities (KSAs) of next generation and current professionals and technicians



UTC Roles

- **Education**
- **Training**
- **Collaboration**
- **Information dissemination**
- **Workforce research**
- **Other research**



Framework for a National Strategy

- KSAs needed in future?
- Key gaps between current & future labor/KSA needs?
 - Projected shortfalls, surpluses?
- Types of education & training resources available?
 - Key shortfalls, surpluses?
- Types of programs & activities to address gaps?
 - Best practices in workforce development?



National Summit: The Opportunity

- Number/scope of regional summits reaching critical mass
- Workforce issues becoming widely visible
- New Administration focused on integrative approaches (e.g., transportation workforce investments support multiple national goals)



National Summit: The Concept

- Set stage for detailed crafting & implementing of national strategy over next 2-3 years
- Summarize results of regional summits & kindred efforts
- Integrate across regional views
- Present recommendations to key decision-makers to shape national policies & legislation



Previous Summits

- Marshall University, Rahall Transportation Institute
 - Robert Plymale, Director
 - Diana Long, Transportation Workforce Coordinator
- University of Massachusetts Transportation Center
 - John Collura, Director
- University of Wisconsin, National Center for Freight and Infrastructure Research and Education (CFIRE)
 - Teresa Adams, Director



Suzanna Long, PhD

Assistant Professor of Engineering
Management and Systems Engineering
Missouri University of Science and
Technology



Synthesis of Results

- Similar, but tailored format
- Slightly different perspectives and targets
- Similar conclusions
- Excellent results!



Synthesis of Results

Rahall Transportation Institute

- Summit themes
 - Engineering Education
 - National and Regional Transportation Perspective
- Summit Structure
 - Baseline: workforce shortage and future projections
 - Panel of Decision Makers: needs and recommendations



Attendees

- State of West Virginia
 - Department of Education
 - Department of Transportation
 - Workforce Development
- West Virginia Legislators:
 - Senate Committee on Education
 - Economic Development Committee
- Community and Technical College System
- Transportation Firms
 - Amherst Industries



Attendees

- Universities:
 - Marshall University / RTI
 - Pennsylvania State University
- Associations:
 - Contractors Association of West Virginia
 - Association of American Railroads
 - American Council of Engineering Companies of West Virginia
 - West Virginia Motor Truck Association
- Others



Synthesis of Results

University of Massachusetts at Amherst

- Summit theme
 - Develop comprehensive Transportation Strategic Workforce Plan for Massachusetts
- Summit structure:
 - Presentations
 - Panel discussions
 - Work break-out sessions



Attendees

- Transportation Agencies:
 - Massachusetts Bay Transit Authority (MBTA)
 - UMass Transit
 - UMassSafe Program
 - Pioneer Valley Planning Commission
 - Massachusetts Highway Department
- Academia:
 - University of Massachusetts, Amherst
 - Springfield Technical Community College
 - University of Rhode Island
 - University of New Hampshire
 - University of Vermont
 - Rutgers University



Attendees

- Government:
 - Federal Highway Administration
 - Research and Innovative Technology Administration
 - Massachusetts Office of Executive Transportation and Public Works
- Private Sector:
 - MS Transportation Systems, Inc.
- Others



Synthesis of Results

University of Wisconsin-Madison

- Summit Themes
 - Develop an understanding of the needs of a 21st Century Workforce
- Summit Structure
 - Surveys and interviews
 - Presentations
 - Break-out sessions



Attendees

– State Departments of Transportation

- Wisconsin DOT, Michigan DOT, Missouri DOT, Ohio DOT, Kansas DOT, Illinois DOT

– Educational Institutions

- University of Wisconsin, University of Southern California, University of Toledo, Georgia Tech, North Dakota State University, University of Dayton, Purdue University, Wayne State University, University of Southern California, University of Minnesota, Illinois Institute of Technology, University of Illinois-Chicago, Iowa State University, Missouri Science and Technology, University of Northern Iowa, University of Nebraska



Attendees

– Private Sector

- C2HM Hill
- NHTB
- KnowledgeBank, Inc.
- Earth Tech AECOM
- CTC & Associates
- Strand & Associates
- Ayres & Associates

– Government

- Federal Highway Administration
- Office of Representative Petri

Common Themes

	U-Mass Amherst	Rahall	U-Wisconsin
Need study to link projected shortfalls to actual workforce needs	X		X
Need for Clearinghouse of Resources	X	X	X
Recruitment and Retention	X	X	X
Skills mapping	X		X
Greater levels of partnering: DOTs, Universities, Private Sector	X	X	X
Must increase STEM knowledge, interest K-20	X	X	X



National Clearinghouse Development

- Internships
- Training
 - Community College Partnership
 - Retraining for downsized industries
- Resources
- Transportation Curriculum
 - Graduate Certificates
 - Engineering Skills
 - Management Skills



Recruitment and Retention

- Recruitment
 - Generate interest in STEM topics at K-12
 - Promote transportation careers
 - Partnering
- Retention
 - Salaries
 - Workplace benefits: job sharing, flex time, etc.
 - Mentoring
 - Sabbaticals and Professional Development



Skills Mapping

- Greater integration of industry needs into university and college transportation curriculums
- Broader technical and management skills
 - outsourcing, accountability requirements, etc.
- Graduate certificates in emerging areas
 - Sustainability
 - Intelligent Transportation Systems



Partnering

- Innovation in transportation education
 - Residency programs
 - Mentoring programs
 - Job shadowing/internships
- Greater efficiencies
- Improved understanding of constraints
- Practical opportunities for students, faculty, and practitioners
- Better definition of transportation professional image



Research Needed

- Comprehensive short- and long-term transportation workforce needs
- Development of innovative pedagogy
- Analysis of demographic trends as part of organizational workforce assessment and planning
- Program assessment of existing transportation curriculum through direct and indirect measures



Questions?



Regional/Local Summits

- Planned summits
 - Confirmed
 - Planning
 - Outcomes
- Templates / guides to next summits
- Expected outcomes of next summits



Next Regional Summits - Confirmed

- Pennsylvania State University (in cooperation with University of Maryland, University of Virginia, Morgan State University, and Virginia Tech)
 - Martin Petruccha
- University of Tennessee
 - David Clark
- California (North & South)
 - San Jose State University, Rod Diridon
 - University of Southern California, Gen Giuliano
- North Dakota State University
 - Jill Hough



Next Regional Summits - Planned

- University of Texas + Texas Transportation Institute
 - Randy Machemahl
- University of Denver
 - Patrick Sherry



Expected Outcomes of Next Summits

- Skill Sets: Identification of what's needed today and in future
- Labor: Identification of gaps and shortages
- Workforce Investment: Identification of current sources and gaps
- Workforce Development Practices: Identification of successful programs and efforts
- Results in **Recommended Actions**



Templates / Guides

- Lead Times and Schedule
 - Invitations
 - Summit Designs
 - Revenue Sources ?funding
 - Partnerships
 - Aggregated Data for National Summit:
 - Workforce and Labor Data
 - Skill Sets Identification
 - Best Practices Identification
- ❖ If interested, can hold a webinar to walk through all templates and guides



Where Do We Go From Here?

Curt Tompkins

Director, University Transportation Centers
Program

U.S. DOT / Research and Innovative
Technology Administration



- *What will the transportation workforce needs be in 2010, 2015, 2020, 2025 and 2030?*
- *Who will be eligible to enter the transportation workforce in those years?*
- *Will they want to do so?*
- *What education and training will be needed for those people?*



UTC Roles

- Deliver next summits
- Talk about recommended actions
- Deliver information on both needs and on current practices and successes
- Bring partners to the table (WIA, DoL, Dept. of Ed., etc.)
- Assist in developing national summit agenda



Related Efforts *Programs*

Organization	Target Groups	Focus
APTA	Pre-professionals and professionals in transition	Image development and promotion
FHWA	High school, undergraduate, and graduate students	Exposure to profession and research/training opportunities
NCHRP Synthesis 323	State DOTs	Retention and recruitment of state workforce
NSF	Researchers and K-12 educators	Educational programs and teachers' tools
RITA	Students and Faculty	Experience for students and research opportunities for faculty



Related Efforts

Partners

- U.S. DOT's Professional Capacity Building (PCB) Programs
- National Highway Institute (NHI)
- National Transit Institute (NTI)
- Local Technical Assistance Programs (LTAP)
- State Agency Training Programs
- Transit Agency Training Programs
- Professional Association Programs
 - AASHTO, ITE, APTA, ARTBA, ENO, WTS



Related Efforts

- FHWA
 - Workforce Task Force; Developing competency classifications
- APTA
 - Blue Ribbon Panel on Workforce Development
- U.S. Office of Personnel Management
 - Human Capital Assessment and Accountability Framework Strategic Alignment System



Related Efforts

Themes

- Go beyond traditional engineering/technician frame
- Expand life cycle to go from primary schools to existing workforce
- Expand providers of KSAs
- Encourage non-traditional collaboration
- Focus on retention as well as on recruitment
- Define metrics to determine effectiveness



Roadmap

