



TRANSPORTATION INDUSTRY



Identifying and Addressing Workforce Challenges
in America's Transportation Industry



Identifying and Addressing Workforce Challenges in America's Transportation Industry

High Growth Job Training Initiative

The U.S. Department of Labor
Employment and Training Administration

This report was prepared by the U.S. Department of Labor, Employment and Training Administration in partnership with DTI Associates, A Haverstick Company.

March 2007

Preface

The High Growth Job Training Initiative is a demonstration of the Employment and Training Administration's (ETA) commitment to long-term skills training and economic development in key high-growth sectors that will have a lasting impact on the American economy. To fully implement an effective training and development program for the transportation industry, as for each of the targeted industries, ETA recognizes the need to sustain partnerships among industry, education, all levels of government, and the public workforce investment system.

This report presents the findings from an information gathering process that involved a variety of transportation industry stakeholders reflecting on workforce issues and catalogs their proposed solutions. The report outlines the process where ETA, the transportation industry business community, education, and government representatives formed partnerships and developed model solutions to address key workforce challenges.

The U.S. Department of Labor and ETA would like to thank the transportation industry High Growth Job Training Initiative stakeholders for their leadership, commitment, and participation in this process. Though not all stakeholders agreed with every solution, recommendation, or option described in this document, the report has been made possible through their dedication to address the challenges and to the partnership model employed.

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Executive Summary

The High Growth Job Training Initiative was conceived to provide national leadership for a demand-driven workforce system, which seeks to ensure that no worker is left behind. It is a strategic effort to prepare workers for new and increasing job opportunities in high-growth, high-demand, and economically vital industries and sectors of the American economy. Through this initiative, the Employment and Training Administration (ETA) of the U.S. Department of Labor (USDOL) has been working with high-growth/high-demand industries, such as transportation, to determine their key workforce challenges, and investing in demonstration projects that provide training in the higher and often technical skills required for individuals to get good jobs with good wages in the high-growth industries.

The transportation industry has been selected as one of 14 targeted industries in the High Growth Job Training Initiative. Each selected industry must meet at least one of the following criteria:

- A substantial number of new jobs will be added in the industry.
- The industry has a significant impact on the overall economy.
- The industry has an impact on the growth of other industries.
- The technology required in the targeted industry requires workers to have new skill sets.
- The industry includes emerging businesses that are projected to grow.

The Bureau of Labor Statistics (BLS) projects both job and output growth in the transportation industry between 2004 and 2014: 22 percent job growth, or more than 900,000 jobs. In addition, countless industries depend on this sector to transport the materials and workers that are vital to their daily operations.

Identifying Transportation Industry Workforce Challenges

ETA conducted two forums for transportation industry executives in September 2004. One forum focused on employers involved in freight transportation, warehousing, and logistics, and one focused on employers involved in transit and ground passenger transportation. At each forum, Assistant Secretary of Labor Emily DeRocco explained ETA's goals for the forum: to identify employers' challenges, to share how employers can access public workforce services, and to obtain feedback from employers on what their needs are and what the public workforce system should look like.

Executives at these forums identified a broad array of workforce challenges shared by multiple sectors of the industry:

- The transportation industry has a fairly low public image, consisting of low public esteem, low wages, undesirable benefit packages, and limited advancement opportunities.
- The industry is not well connected to One Stops and the public workforce system
- The industry faces an inadequate pipeline of young and/or new workers.
- The industry does not have particularly good access to non-traditional labor pools (e.g., individuals with disabilities, demobilizing military personnel, women).
- The industry faces high costs for training for both new and incumbent workers.

After the forums were completed, an initial analysis was conducted to discern common themes and priorities voiced by the industry executives. It led to the identification of four clusters of challenges that were deemed to be critically important to the industry. These challenges became the focus of mixed stakeholder workgroups at a Workforce Solutions Forum convened in Austin, Texas, on November 16-17, 2004. The challenges and clusters of issues identified were:

Challenge #1: Image, Outreach, and Recruitment

- Demand for workers is increasing in select sectors including rail, transit, and trucking.
- Negative perceptions of wages and advancement opportunities lend a negative image of the industry.
- Educators and guidance counselors lack of awareness of career opportunities in the industry.
- Recruiting youth and from non-traditional labor pools is particularly challenging.

Challenge #2: Retention and Advancement

- Retention of entry-level workers is a challenge in several sectors.
- Entry-level employees often lack the skills needed to advance.
- It can be difficult to recruit talented managers.

Challenge #3: Training: Entry-Level Workers

- Some entry-level workers lack soft skills and/or other occupational skills (e.g., safety skills, using new technology).
- In some sectors, national certifications could be beneficial, as well as standard training models.
- Barriers to training include the cost (e.g., the cost of equipment) and location of training.

Challenge #4: Training: Incumbent Workers

- Some incumbent workers could benefit from training in technology, management, and other skills.
- A key barrier to training incumbent workers is time spent in training, away from the job.

Identifying Transportation Industry Workforce Solutions

ETA invited to the solutions forum industry employers, education and training providers, representatives of the public workforce system, and other key stakeholders to identify innovative solutions to address the industry's workforce challenges. Participants worked in groups to brainstorm and prioritize innovative workforce solutions, propose foundational models, and document the critical attributes, key stakeholders, resources, implementation barriers and other pertinent information in a "solutions matrix," or roadmap, to help inform ETA's investments in strategies for workforce development in the transportation industry. Over 50 transportation industry stakeholders proposed some 146 solutions and developed 48 solutions matrices during the Transportation Industry Workforce Solutions Forum.

Next Steps

ETA supports comprehensive business, education, and workforce development partnerships to develop innovative approaches and replicate models that effectively serve the workforce needs of business while helping workers find good jobs with good pay and promising careers.

Based on the challenges identified by the transportation industry and highlighted in this report, ETA has made a series of investments totaling nearly \$4 million to address industry workforce needs, funding solutions that address challenges in outreach, competency models and training, and the capacity of education and training providers. The demonstration projects address the needs of the industry broadly as well as specific sub-sectors.

The next steps in this process include the implementation of these demonstration projects and sharing the successful models with the public workforce investment system so that their replication by other transportation industry partnerships may ensure job growth for this key sector of the American economy.

Introduction

Background

The High Growth Job Training Initiative was conceived to provide national leadership for a demand-driven workforce system, which seeks to ensure that no worker is left behind. It is a strategic effort to prepare workers for new and increasing job opportunities in high-growth, high-demand, and economically vital industries and sectors of the American economy. Through this initiative, the Employment and Training Administration (ETA) of the U.S. Department of Labor (USDOL) has been working with high-growth/high-demand industries, such as transportation, to determine their key workforce challenges, and investing in demonstration projects that provide training in the higher and often technical skills required for individuals to get good jobs with good wages in the high growth industries.

The foundation of this initiative is the development of partnerships between the public workforce investment system, business and industry, and education and training providers, such as community colleges. The goals of this initiative have been to document the workforce development challenges and priorities of the demand side of the economy, and to propose innovative solutions that may fill gaps in education and training capacity of the targeted industries and help ensure the supply of qualified workers to these high growth/high-wage sectors.

This report presents the findings from an information gathering process that involved a variety of transportation industry stakeholders reflecting on workforce issues and catalogs their proposed solutions. The report outlines the process where ETA, the transportation industry business community, education, and government representatives formed partnerships and developed model solutions to address key workforce challenges.

About This Report

This report summarizes the process used to propose solutions to address the transportation industry workforce development challenges. It is divided into four major sections:

- **Section I: Background on the Industry and Workforce Issues** introduces the transportation industry and its workforce. The overview provides background on the transportation industry and its primary sectors, included projected employment and output growth and educational and skill requirements of a number of jobs in the industry.
- **Section II: The High Growth Job Training Initiative** describes the process by which the High Growth Job Training Initiative engaged the transportation industry.
- **Section III: Workforce Challenges and Solutions in the Transportation Industry** discusses transportation industry workforce development needs, challenges, and priorities, and also stakeholder-proposed solutions for ETA to consider when making strategic demonstration investments.
- **Section IV: Implementation of Solutions and Conclusion** describes ETA's investments in potential solutions and offers concluding comments.

Additional Resources

For additional background information about the industry and details on grants, information about employment and training opportunities, and workforce development tools for employers, educators, and workforce professionals please refer to the following, www.doleta.gov/BRG, www.careervoyages.gov, www.careeronestop.org, and www.workforce3one.org.

Section I: Background on the Industry and Workforce Issues

Overview of the Transportation Industry

The 2002 North American Industry Classification System (NAICS) identifies establishments that provide transportation of passengers and cargo, warehousing and storage for goods, scenic and sightseeing transportation, and support activities related to modes of transportation as components of the transportation industry. According to the Bureau of Labor Statistics (BLS), there were 4,346,700 individuals employed in transportation and warehousing in 2005. BLS projections suggest that employment in the industry is likely to increase by nearly 12 percent between 2004 and 2014, only slightly below the 15 percent projected growth for all industries. If this projection is realized, there will be 4,755,900 employed in transportation by 2014.¹

Major Sectors of the Transportation Industry

BLS analysis of the transportation industry distinguishes eight major sectors:²

- Transit and Ground Passenger Transportation (NAICS 485)
- Warehousing and Storage (NAICS 493)
- Truck Transportation and Couriers and Messengers (NAICS 484 and 492)
- Scenic and Sightseeing Transportation and Support Activities for Transportation (NAICS 487 and 488)
- Air Transportation (NAICS 481)
- Pipeline Transportation (NAICS 486)
- Water Transportation (NAICS 483)
- Rail Transportation (NAICS 482)

Transit and Ground Passenger Transportation

This sector includes urban transit systems, including subway, commuter rail, and bus services; interurban and rural bus transportation; taxi and limousine service; school and employee bus transportation; charter buses; and other transit and ground passenger transportation, including special needs transportation.

Warehousing and Storage

Businesses in the warehousing and storage sector are primarily engaged in operating warehousing and storage facilities for general merchandise, refrigerated goods, and other warehouse products. Warehousing and storage services are often provided by companies that are primarily engaged in truck transportation.

¹ *BLS Occupational Outlook Handbook* - <http://www.bls.gov/iag/transportutil.htm>

² The Local Government Passenger Transit sector also provides transportation services; however, BLS classifies this sector as “government” rather than including it in the transportation industry.

Truck Transportation and Couriers and Messengers

The truck transportation sector provides over-the-road transportation of cargo using motor vehicles, such as trucks and tractor trailers. It has two main divisions: general freight trucking, which involves handling a wide variety of general commodities, and specialized freight trucking, which is the transportation of cargo that, because of size, weight, shape, or other inherent characteristics, requires specialized equipment for transportation.

Couriers and messengers provide intercity and/or local delivery of parcels that may be handled by one person without using special equipment. Couriers are part of an intercity network that provides delivery services between metropolitan areas or urban centers, while messengers provide only local delivery services.

Scenic and Sightseeing Transportation and Support Activities for Transportation

The scenic and sightseeing transportation sector utilizes transportation equipment to provide recreation and entertainment. Activities carried out in this sector occasionally make use of obsolete vehicles, such as steam trains, to provide ambience. They are local in nature, usually involving a same-day return to the point of departure.

The support activities for transportation sector provides support services to transportation carrier establishments and the general public. Services include support for air transportation, including airport operations and air traffic control; support for rail transportation; support for water transportation, including port and harbor operations, marine cargo handling, and navigational services to shipping; support for road transportation, including motor vehicle towing; freight transportation arrangement; and other support activities, such as packing and crating.

Air Transportation

These businesses provide air transportation of passengers and/or cargo using airplanes and helicopters.

Pipeline Transportation³

The pipeline transportation sector uses transmission pipelines to transport products, such as crude oil, natural gas, refined petroleum products, and slurry. It also includes the storage of natural gas because storage is usually done by the pipeline establishment and because a pipeline is inherently a network in which all the nodes are interdependent.

Water Transportation

Businesses in the water transportation sector provide water transportation of passengers and cargo using ships, barges, and boats. The sector is composed of two industry groups: one for deep sea, coastal, and Great Lakes; and one for inland water transportation.

³ While BLS includes Pipeline Transportation in the Transportation Industry, for the High Growth Job Training Initiative, ETA considered challenges to this sector in conjunction with its efforts in the energy industry.

Rail Transportation

Rail transportation includes movement of passengers and/or cargo using railroad rolling stock. The railroads primarily operate either on networks, with physical facilities, labor force, and equipment spread over an extensive geographic area; or over a short distance on a local rail line.

Projected Transportation Industry and Sector Employment and Output

The transportation industry has been selected as one of 14 targeted industries in the High Growth Job Training Initiative because it meets at least one of the following criteria:

- A substantial number of new jobs will be added in the industry.
- The industry has a significant impact on the overall economy.
- The industry has an impact on the growth of others.
- The technology required in the targeted industry requires workers to have new skill sets.
- The industry includes emerging businesses that are projected to grow.

BLS projections suggest that transportation will be one of the fastest-growing industries in the next decade, adding both jobs (12 percent projected growth between 2004 and 2014) and significant output (44 percent projected growth between 2004 and 2014) to the nation's economy. Projected growth in employment and output in Transportation Industry sectors is summarized in Table 1.

The warehousing and storage sector is projected to have the highest job growth rate, expanding from 556,000 to 664,000 jobs between 2004 and 2014. Transit and ground transportation is projected to grow nearly as rapidly, expanding from 385,000 to 476,000 jobs. More moderate growth of about 10 percent is projected for the trucking, couriers, and messengers sector, and the sightseeing transportation and support activities for the transportation sector.

Prior to September 11, 2001, BLS had projected that the air transportation sector, already one of the largest sectors of the transportation industry, would see considerable gains in employment and output, due to increases in population, disposable income, and domestic and foreign business activity. Subsequent projections have shown more moderate growth of about 9 percent between 2004 and 2014 in employment, though output growth is projected to remain strong.⁴

Employment in water transportation occupations is projected to grow more slowly than other transportation sectors through the year 2014. Job growth will stem from increasing tourism and increases in shipping traffic due to rising imports that will provide greater employment in and around major port cities.⁵

Only in the railroad transportation sector is employment projected to decrease at the rate of 4 percent in the 2004-14 period, losing an additional 9,000 jobs after losing 30,000 in the previous decade. However, output is expected to increase by 39 percent, adding \$167 billion worth of output.⁶

⁴ BLS Occupational Outlook Handbook - <http://www.bls.gov/oco/cg/cgs016.htm>

⁵ BLS Occupational Outlook Handbook - <http://www.bls.gov/oco/ocos247.htm>

⁶ BLS Occupational Outlook Handbook - <http://www.bls.gov/oco/ocos244.htm>

**Table 1. Transportation Major Sectors – Employment and Output, 2004 and Projected 2014⁷
(Arranged in the Order of Highest Percentage Increase in Employment)**

Industry	Employment				Output			
	Thousands of Jobs		2004-2014 Change		Billions of Constant 2000 Dollars		2004-2014 Change	
	2004	2014	Number	Percent	2004	2014	Number	Percent
Transportation and Warehousing	4,250	4,756	506	11.91%	619	889	270	43.62%
Warehousing and Storage	556	694	138	24.82%	359	565	206	57.38%
Transit and Ground Passenger Transportation	385	476	91	23.64%	309	406	97	31.39%
Scenic and Sightseeing Transportation and Support	112	123	11	9.82%	107	152	45	42.06%
Trucking Transportation, Couriers, Messengers	135	148	13	9.63%	224	317	93	41.52%
Air Transportation	515	560	45	8.74%	130	213	83	63.85%
Water Transportation	57	58	1	1.75%	224	269	45	20.09%
Rail Transportation	224	215	-9	-4.02%	432	599	167	38.66%

Overview of Education and Skills in the Transportation Industry⁸

Many jobs in truck transportation and warehousing require a high school education, although an increasing number of workers have some college education. Whereas many states allow those who are 18 years old to drive trucks within state borders, the U.S. Department of Transportation establishes minimum qualifications for truck drivers engaged in interstate commerce. Federal Motor Carrier Safety Regulations require truck drivers to be at least 21 years old, have at least 20/40 vision and good hearing, and be able to read and speak English. They must also have good driving records. In addition, drivers must have a state commercial driver’s license (CDL), for which they must pass a written examination and a skills test operating the type of vehicle they will be driving. Individual companies often have additional requirements and many truck drivers enter the occupation by attending training schools for truck drivers.

The skills and experience needed by workers in air transportation differ by occupation. Some jobs may be entered directly from high school, while others require extensive specialized training. Most positions in the airline industry involve extensive customer service contact requiring strong interpersonal and communication skills. Mechanics and pilots require extensive specialized formal training and must be certified by the Federal Aviation Administration (FAA); skills for many other air transportation occupations can be learned on the job or through company-sponsored training.

Railroads require that applicants for many positions have a minimum of a high school diploma or its equivalent. Physical stamina is required for many entry-level jobs. Employers require

⁷ Source: “Industry Output and Employment Projections to 2014.” Jay M. Berman, Bureau of Labor Statistics. February 2006.

⁸ *BLS Occupational Outlook Handbook, Career Guide to Industries*

railroad transportation job applicants to pass a physical examination, drug and alcohol screening, and a criminal background check. Many rail transportation employees work nights, weekends, and holidays because trains operate 24 hours a day, 7 days a week. Rail yard workers spend most of their time outdoors in varying weather. Entry-level conductors must generally be at least 21 years of age and are either trained by their employers or required to complete a formal conductor training program. Applicants for locomotive engineer jobs must be at least 21 years old. Employers almost always fill engineer positions with workers who have experience in other railroad-operating occupations.

Key occupations in the transit and ground passenger transportation sector include transit and intercity bus drivers, bus and truck mechanics and diesel engine specialists, and first-line supervisors/managers. Bus drivers must be courteous and have strong customer service skills. In addition, federal regulations require drivers who operate commercial motor vehicles to hold a CDL from the state in which they live. Although many persons qualify for diesel service technician and mechanic jobs through years of on-the-job training, employers prefer to hire graduates of formal training programs. Many community colleges and trade and vocational schools offer programs in diesel repair. In addition to the hands-on aspects of the training, many institutions teach communication skills, customer service, basic understanding of physics, and logical thought. The most significant source of training for first-line supervisors/managers of transportation and material moving machine and vehicle operators is work experience in a related occupation.

Within the scenic and sightseeing transportation and support activities sector, aircraft mechanics and service technicians, and customer service representatives are two of the primary occupations. Most mechanics learn their job in one of about 200 trade schools certified by the FAA. About one-third of these schools award two- and four- year degrees in avionics, aviation technology, or aviation maintenance management. Aircraft mechanics must do careful and thorough work that requires a high degree of mechanical aptitude. Employers seek applicants who are self-motivated, hard-working, enthusiastic, and able to diagnose and solve complex mechanical problems. A high school diploma or the equivalent is the most common educational requirement for customer service representatives. Basic computer knowledge, problem-solving, and strong communication and interpersonal skills also are important qualities for people who wish to be successful in the field.

Entry, training, and educational requirements for most water transportation occupations are established and regulated by the U.S. Coast Guard. All officers and operators of commercial vessels must be licensed by the Coast Guard, which offers various kinds of licenses, depending on the position and type of vessel. Sailors and unlicensed engineers working on U.S. flagged deep-sea and Great Lakes vessels must hold a Coast Guard-issued document. A medical certificate of excellent health attesting to vision, color perception, and general physical condition is required for higher level deckhands and unlicensed engineers. No special training or experience is needed to become a seaman or deckhand on vessels operating in harbors or on rivers or other waterways.

Projected Occupational Employment⁹

Broad Industry Projections

- In the transit and ground passenger transportation sector, the three occupations with the highest total projected employment in 2014 are bus drivers; taxi drivers and chauffeurs; and dispatchers. The three occupations with the greatest total projected job gains through 2014 are bus drivers; taxi drivers and chauffeurs; and bus and truck mechanics and diesel engine specialists.
- In the warehousing and storage sector, the three occupations with the highest total projected employment in 2014 and the greatest total projected job gains through 2014 are hand laborers and material movers; industrial truck and tractor operators; and driver/sales workers and truck drivers.
- In the truck transportation sector, the three occupations with the highest total projected employment in 2014 are driver/sales workers and truck drivers; heavy and tractor-trailer truck drivers; and hand laborers and material movers. The three occupations with the greatest total projected job gains through 2014 are driver/sales workers and truck drivers; truck drivers, heavy and tractor-trailer; and truck drivers, light or delivery services.
- In the scenic and sightseeing transportation sector, the three occupations with the highest total projected employment in 2014 are transportation, tourism and lodging attendants; ship and boat captains and operators; and bus drivers. The three occupations with the greatest total projected job gains through 2014 are transportation, tourism and lodging attendants; ship and boat captains and operators; and food and beverage serving workers.
- In the support activities for transportation sector, the three occupations with the highest total projected employment in 2014 are hand laborers and material movers; driver/sales workers and truck drivers; and aircraft mechanics and service technicians. The three occupations with the greatest total projected job gains through 2014 are driver/sales workers and truck drivers; aircraft mechanics and service technicians; and hand laborers and material movers.
- In the air transportation sector, the three occupations with the highest total projected employment in 2014 are transportation, tourism, and lodging attendants; aircraft pilots and flight engineers; and reservation and transportation ticket agents and travel clerks. The three occupations with the greatest total projected job gains through 2014 are transportation, tourism, and lodging attendants; aircraft pilots and flight engineers; and all other transportation workers.
- In the pipeline transportation sector, the three occupations with the highest total projected employment in 2014 are plan and system operators; petroleum pump system operators, refinery operators, and gaugers; and industrial machinery installation, repair, and maintenance workers. The three occupations with the greatest total projected job gains through 2014 are miscellaneous plant and system operators; computer specialists; and engineers.
- In the water transportation sector, the three occupations with the highest total projected employment in 2014 are sailors and marine oilers; ship and boat captains and operators; and ship engineers. The three occupations with the greatest total projected job gains

⁹ Source: Bureau of Labor Statistics.

through 2014 are ship engineers; business operations specialists; and customer service representatives.

- In the rail transportation sector, the three occupations with the highest total projected employment in 2014 are railroad conductors and yardmasters; locomotive engineers and operators; and heavy vehicle and mobile equipment service technicians and mechanics. The three occupations with the greatest total projected job gains through 2014 are railroad conductors and yardmasters; business operations specialists; and computer specialists.

Section II: The High Growth Job Training Initiative

The High Growth Job Training Initiative seeks to provide national leadership to a demand-driven workforce system in order to ensure that no worker is left behind in the dynamic labor market of the 21st century. It is a strategic effort to prepare workers for new and increasing job opportunities in high-growth/high-demand and economically vital industries and sectors of the American economy. The initiative seeks to ensure that worker training and career development resources in the public workforce system are targeted to helping workers gain those skills and competencies required to obtain jobs and build successful careers in these industries.

High Growth Job Training Initiative for the Transportation Industry

The High Growth Job Training Initiative for the transportation industry has included three sometimes overlapping phases: 1) information gathering through industry forums on the state of the transportation industry, including identification of workforce challenges; 2) analysis of industry workforce challenges and working with industry stakeholders to identify proposed solutions; and 3) implementation of demonstration projects to highlight and test model solutions.

Industry Executive Forums

The first of two industry forums was held in Washington, D.C., on September 14, 2004, for representatives from employers involved in freight transportation, warehousing, and logistics. The 23 participants included chief executive officers and presidents; vice presidents of human resources, policy, and labor relations; and public affairs and marketing directors. They comprised a broad representation of industry executives. Highlights of this forum included:

- Gathering information directly from freight transportation, warehousing, and logistics executives about the critical industry workforce issues, needs, and challenges, along with their recommendations for how to address them
- Demonstrating to the transportation industry leaders the commitment from the Assistant Secretary for ETA and the overall workforce system to proactively and effectively serve business in the new economy
- Securing commitment to conduct future Solutions Forums and meetings with other transportation industry stakeholders

Assistant Secretary Emily Stover DeRocco provided an overview of the public workforce system and outlined the intent of the forum: to obtain feedback from employers on what their key workforce challenges and needs are and how the workforce system can better serve those needs, as well as securing a commitment for future participation in the High Growth Initiative and its next steps.

Workforce challenges identified by the executives include the following:

- The transportation industry has a fairly low public image.
- The industry is not well connected to One-Stops and the public workforce system.
- The industry faces an inadequate pipeline of young and/or new workers.
- The industry does not have particularly good access to non-traditional labor pools (e.g., individuals with disabilities, demobilizing military personnel, women).
- The industry faces high costs for training (new and incumbent worker training).

A second transportation industry forum was held in Washington, D.C., on September 30, 2004, for employers involved in transit and ground passenger transportation. Thirteen industry executives participated, representing the same mix of positions as the previous forum. Assistant Secretary DeRocco provided a presentation of DOL's workforce investment priorities. Highlights of the second forum were similar to the first.

The executives identified a number of workforce challenges facing employers involved in transit and ground passenger transportation. Those challenges include:

- Lack of basic "soft skills"
- Low employee retention in the industry
- Shortage of mechanics and maintenance technicians
- Need for management pipeline
- Up-skilling incumbent workers for new technology

The Transportation Industry Workforce Solutions Forum

A diverse stakeholder group from the transportation industry participated in a Workforce Solutions Forum on November 17-18, 2004, in Austin, Texas. ETA invited industry employers, education and training providers, representatives of the public workforce system, and other stakeholders to identify innovative solutions to address the industry's workforce challenges. Participants worked in groups to brainstorm and prioritize innovative workforce solutions, propose foundational models, and document the critical attributes, key stakeholders, resources, implementation barriers and other pertinent information in a "solutions matrix" to help inform ETA's investments in strategies for this high-growth industry.

The workforce issues that were identified as top priorities, along with the proposed solutions generated at the Workforce Solutions Forum are described in the next section of this report.

Section III: Workforce Challenges and Solutions in the Transportation Industry

The culmination of the High Growth Initiative process for the transportation industry took place during a Workforce Solutions Forum on November 16-17, 2004, in Austin, Texas. ETA invited industry employers, education and training providers, representatives of the public workforce system, and other stakeholders to identify innovative solutions to address the industry's workforce challenges.

The workforce challenges identified at the executive forums were analyzed and assembled into the following sets for consideration at the Workforce Solutions Forum:

Challenge #1: Image, Outreach, and Recruitment

- Demand for workers is increasing in select sectors including rail, transit, and trucking.
- Negative perceptions of wages and advancement opportunities lend a negative image of the industry.
- Educators and guidance counselors lack of awareness of career opportunities in the industry.
- Recruiting youth and from non-traditional labor pools is particularly challenging.

Challenge #2: Retention and Advancement

- Retention of entry-level workers is a challenge in several sectors.
- Entry-level employees often lack the skills needed to advance.
- It can be difficult to recruit talented managers.

Challenge #3: Training: Entry-Level Workers

- Some entry-level workers lack soft skills and/or other occupational skills (e.g., safety skills, using new technology).
- In some sectors, national certifications could be beneficial, as well as standard training models.
- Barriers to training include the cost (e.g., the cost of equipment) and location of training.

Challenge #4: Training: Incumbent Workers

- Some incumbent workers could benefit from training in technology, management, and other skills.
- A key barrier to training incumbent workers is time spent in training, away from the job.

Participants from all of the stakeholder groups were divided into groups where the discussions focused on one of the four significant workforce challenges. A trained facilitator led each discussion. The four groups clarified the workforce challenges they were addressing,

brainstormed innovative solutions, used a voting procedure to prioritize the top solutions, and divided into sub-groups that developed potential solutions to the workforce challenges. By the end of the forum, 146 solutions were identified¹⁰ and 48 solutions were documented in detail on solutions matrices.¹¹

In gathering proposed solutions during the Transportation Industry Solutions Forum, ETA established the following criteria or requirements for a suggestion to be considered a “model solution.” Model solutions must be:

- Actionable
- Unique
- Replicable
- Measurable
- Innovative
- Sustainable

Each challenge and solution presented below is designed to serve as a road map to fully develop a response to a workforce challenge in the transportation industry.

¹⁰ See Appendix C.

¹¹ See Appendix B.

Challenge 1: Image, Outreach, and Recruitment	Description: Image, Outreach, and Recruitment is comprised of strategies, tactics, models, initiatives, campaigns and efforts to build awareness and improve the industry image among key audiences (youth, teachers, community colleges and technical schools, universities, the military, public and private sector user organizations and groups, and incumbent, dislocated, and transitioning workers) regarding the transportation industry.
Issues and Observations	
<p>The transportation industry faces a range of challenges related to image, outreach, and recruitment. Key challenges include an increasing demand for workers in select sectors including rail, transit, and trucking; a need to improve the image of the industry (e.g. perceptions of wages and advancement opportunities); lack of awareness of career opportunities in the industry among educators and guidance counselors; and challenges recruiting youth and non-traditional labor pools.</p>	
Proposed Solutions: Image, Outreach, and Recruitment	Based on the challenges identified at the Executive Forums, stakeholders participating in the Image, Outreach, and Recruitment group identified numerous potential solutions and developed 9 solutions matrices to address three overarching components of this challenge: 1) image, 2) the pipeline of young workers, and 3) accessing untapped labor pools.
Sub-issue #1: Image	
A. Develop national outreach campaign.	This solution is do develop a National Advertising/Recruitment campaign strategy—incorporating radio, TV and print media, exploring sports or entertainment sponsorships that resonate with the targeted audience—whether parents, teachers, workers, etc. Focus on positive image-busting messages that emphasize earning potential, the value of the industry in our national security and sell the value of the industry to the US economy, and the importance of this services-based industry. Leverage free media outlets such as press releases and op-eds to get articles and worker testimonials in the paper.
B. Partner with community colleges.	This solution proposes developing the community college as a key partner in recruiting full, part-time, and seasonal help.
C. Utilize the Public Workforce System.	This solution proposes that businesses connect with the workforce investment boards to highlight/promote transportation occupations to job seekers served through the public workforce system. In addition, this solution would engage the LMI staffs of the public workforce system to create “hot jobs” brochures focusing on compensation available in the industry.

Sub-issue #2: Youth Pipeline	
A. Leverage funding for vocational and technical schools through other partners.	Explore opportunities for vocational and technical schools to leverage more funding through establishing partnerships with high schools, school boards, community colleges, and state workforce development agencies to provide funds, equipment, and instructors for programs such as Commercial Drivers Licenses, looking at scholarships/grants towards vocational training.
B. Promote apprenticeship programs.	Apprenticeship programs may focus on opportunities for those youth interested in driving occupations (three-year gap in age requirement) such as warehouse worker, forklift driver, shipping clerk, OTR driver. Re-establish TCA pilot program for younger drivers as well as mentorship programs.
C. Offer scholarships.	Scholarships and grants for students—targeting transportation industry. Offer scholarships for training and tuition reimbursement and lifelong learning.
Sub-issue #3: Untapped Labor Pools	
A. Provided ESL-format training materials.	Provide training materials in English as a Second Language (ESL) format and in conjunction with on-the-job training. Industry workers volunteer to teach through the local Adult Literacy agency— receiving scholarships for training ESL— and classes may include workplace literacy. Sponsor/provide scholarships to voc-tech community colleges for ESL training as part of a commercial driver’s license course for those who need that. Explore partnering with ESL schools to do “business English” targeted to an industry.
B. Outreach to exiting military through VETS transition program.	Tap into exiting military through various methods such as VETS transition program, website portal of information and recruiting and job matching information; Nationally-driven campaigns such as “hire a vet; develop career opportunities/pay/benefits/etc. packages led by associations and provide them to military transition offices; partner with VETS, older workers, and/or ESA programs in each demographic area to push awareness of the industry.
C. Develop “break the stereotypes” campaign to attract women.	Attract women through “break the stereotypes” campaign: “You Can Do Anything a Man Can Do (Maybe Better!!).” Make family friendly work environments available; promote successful women in the industry (e.g. drivers, fleet owners, technicians) via web, press releases, non-traditional careers.

Challenge 2 Retention and Advancement	Description: Related to Image and Recruitment is the challenge to retain employees in the various sectors of the industry. Identifying and promoting paths to advancement in the industry is a likely part of the solution.
Issues & Observations	
The transportation industry faces a number of challenges related to the retention and advancement of workers. For example, retention of entry-level workers is a challenge in several sectors, entry-level employees often lack the skills needed to advance, and it can be difficult to recruit talented managers.	
Proposed Solutions: Retention and Advancement	Based on the challenges identified at the Executive Forums, the retention and advancement participants suggested a variety of solutions and developed solution matrices for a number of these to address three overarching components of this challenge: 1) entry-level retention, 2) career ladders and lattices, and 3) incumbent worker retention.
Sub-issue #1: Entry-level retention	
A. Clear communication of job expectations and realities.	Clearly communicate job expectations and realities to new and entering employers by providing job shadowing opportunities, pre-employment and pre-training education, materials and resources about the job and its hours, customer relations, etc.
B. Develop screening and assessment tools.	Develop industry standard screening and assessment tools.
C. Improve compensation programs.	Improve compensation programs to provide more incentives for training and performance; tie career opportunities to performance and not seniority (<i>this solution was not developed into a matrix</i>).
D. Companies collaborate on career ladders and training.	Create partnerships with different companies in the industry to collaborate on career ladders and training.
Sub-issue #2: Career ladders and lattices	
A. Create a career ladder based on experience and training; progression in responsibility accompanying pay	Create a career ladder based on experience and training and with employee input so that there is a progression in responsibility and pay; integrate “step ladders.” Involve unions at a national level to negotiate career ladders tied to compensation and to gain cooperation on priority strategies. Attach career advancement to traditional educational achievement with flexible pay and hours; provide distance learning options at truck stops, tapes, etc. Identify career goals with employees and tailor

increases.	training and advancement opportunities to their goals; involve employees in the development of their own career ladder.
Sub-issue #3: Incumbent worker retention	
A. Health and Wellness Program	Develop a health and wellness program to improve employee well-being and reduce disabilities, possibly featured at truck stops and sponsored by health insurance and worker's compensation carriers.
B. Recognition Activities	Develop recognition programs and awards/rewards to recognize those with long tenure, health and safety achievements.
C. Data Mining	Provide companies and workforce investment boards with data on hiring trends, demographic shifts, turnover spikes, and other data and analysis on their potential impact.

Challenge 3 Training Entry-level Workers	Description Entry-level training challenges include the need for skill credentials in a number of sectors of the industry, ensuring that the youngest workers acquire the necessary basic occupational skills, and overcoming such barriers to training as cost and geography.
Issues & Observations	
Training entry-level workers is a key challenge for the transportation industry. For example, some entry-level workers lack soft skills and/or other occupational skills (e.g. safety skills, using new technology); in some sectors, national certifications could be beneficial, as well as standard training models; and barriers to training include the cost (e.g. the cost of equipment) and location of training.	
Solutions: Training Entry-level Workers	Based on the challenges identified at the Executive Forums, the entry-level training workgroup developed eleven solution matrices to address two overarching components of this challenge: developing training models and skill credentials, and overcoming barriers to training.
Sub-issue #1: Developing training models and skill credentials	
A. National skill standards for truck driving and other national certifications developed with education institutions.	Develop national certification training models with transportation industry and community colleges/prep schools and direct federal/state funding to those programs. Promote national skill standards for truck driving training similar to Professional Truck Driving Institute (PTDI) standards. Adapt training to other transportation modes and sectors.
B. Develop internships or OJT	Develop certified internship/on-the-job training programs at the high school level as part of a

programs at the high school level.	<p>career exploration curriculum requirement (paid vs. unpaid).</p> <p>Require career exploration course completion in the 6th, 7th, and 8th grades.</p> <p>Add to the AYES model for diesel technicians using agricultural programs and involving manufacturers support to drive and fund the program.</p> <p>Include a component for employability skills mentoring.</p> <p>Include an externship component whereby experienced drivers help teach students.</p>
C. Develop training models for maintenance technicians, beginning at the high school level.	<p>Develop training models for maintenance technicians in a high school career academy setting with curriculum developed by area business and local community colleges/technical schools with commitments from businesses to hire participants.</p> <p>Partner with college students interested in receiving college credits.</p> <p>Provide program consistency.</p> <p>Offer vocational/skilled training choices while still in high school (select a major, pursue a degree) and provide dual credits (high school and college, 2+2).</p>
D. Establish employability certification among graduation requirements.	<p>Establish employability certification as a requirement for graduation from middle school, high school, and college.</p> <p>Certification would include a basic work skills section students must pass and additional industry specific certification sections that would be optional.</p>
Sub-issue #2: Overcoming barriers to training	
A. ROTC-type program for transportation industry.	<p>Create ROTC type program for industry. Subsidize individuals training costs in exchange for multi-year commitment to the employer.</p> <p>Provide public/private partnership tuition scholarships that are tied to completion of courses and an agreement to stay at an employer for specific amount of time.</p>
B. Scholarship programs to assist employers or paid by employers in exchange for work commitment.	<p>Create a portable scholarship to pay tuition or subsidize an employer who provides training directly.</p> <p>Create a national scholarship fund for technical programs for students who cannot qualify for student loans or other financial aid.</p> <p>Employer sponsored scholarship programs in exchange for commitment to work.</p>
C.	<p>Create tax incentives for business and industry to provide costly equipment needed for training</p>

<p>Business and industry tax incentives for acquisition of training equipment.</p>	<p>programs. Schools would partner with business and industry for supplied equipment. Create barter arrangement whereby school receives equipment from industry in exchange for other services.</p>
<p>D. Public funding of some training programs.</p>	<p>Allocate federal and state funds that pay for approved certified training and include tuition money and stipend for expenses while in training with signed agreement to work in the field for a period of time. Require public education investment to fund training based on national skill standards.</p>
<p>E. Strategies involving public workforce system.</p>	<p>National certification for DOL financial aid programs: WIA, ITA, etc. Develop communication system within the public workforce system to promote opportunities in trucking (or other sectors of transportation).</p>
<p>F. Carriers provide equipment and training facilities where itinerant trainers can work onsite.</p>	<p>Carriers supply equipment and training facilities on their property that can be utilized by roving instructors who visit the companies. Create training programs that can be offered on employers premises during company downtime (right after a shift or before a shift, during lunch break, or days off).</p>
<p>G. Pool federal, state, and business funding to create online training at no cost to users.</p>	<p>Combine federal, state, and business funds to create online skill standards and training curricula which is available at no cost to any users. This overcomes accessibility issue.</p>

Challenge 4 Training Incumbent Workers	Description Incumbent worker training challenges include the need for skill credentials in a number of sectors of the industry, up-skilling older workers in new technologies that are being adopted throughout the industry, and preparing experienced workers to become managers and supervisors.
Issues & Observations	
In addition to training entry-level workers, the transportation industry is also coping with a broad array of challenges related to training incumbent workers. For example, some incumbent workers could benefit from training in technology, management, and other skills, while a key barrier to training incumbent workers is time spent in training, away from the job.	
Solutions: Training Incumbent Workers	Based on the challenges identified at the Executive Forums, the incumbent worker training workgroup developed six solution matrices to address two overarching components of this challenge: developing training models and skill credentials, and overcoming barriers to training.
Sub-issue #1: Developing training models and skill credentials	
A. Develop a mentoring system.	<ul style="list-style-type: none"> - Develop a mentoring system for immediate feedback. - Create/Set up mentor/coach program for pending retirees – to replenish the “training trust” of an organization. - Utilize older workers who do not want to retire (completely) to help train the new or incumbent workers who will replace them. The older workers may take less demanding or part time jobs that may have been vacated by the younger workers that are moving up. This method would employ both mentoring and cross-training. - Support stipends for in-house mentors (on-the-job) and define job responsibilities/expected outcomes. - To keep older workers on payroll, provide reduced hours with full medical benefits to encourage senior/junior mentoring. Employers could possibly get business tax credits for each older worker kept on payroll – not drawing social security benefits.
B. Develop Transportation Registered Apprenticeship Programs.	Transportation apprenticeship program (registered) <ul style="list-style-type: none"> - Courses include skills courses – Basic Writing/Technical (industry math, basic computer skills) - Testing to determine training level - Soft skills courses (communication, etc.) - Management/Beginning/ Intermediate/Advanced - Technical/Computer based training, simulation, etc.

	<ul style="list-style-type: none"> - Testing for competences in each category/module - Delivery methods include classroom, on-site, distance education. <p>Develop a module for incumbent Generation X and Y workers using:</p> <ul style="list-style-type: none"> - Simulations: complex and simple technology - Technology-based and job-based - Gaming interventions: Use research that shows Generation X and Y workers learn best while participating in gaming training solutions - On-the-job training: build a training model that teaches job specific skills using a graduated work model - Instructor led training - Computer Based Training: Engaging and interactive CBT that provides testing for knowledge retention - Role playing: Develop role-plays that stimulate conversation and interaction in a classroom setting. - Include an externship component whereby experienced drivers help teach students.
<p>C. Develop training modalities for skill sets and adapt from other industries.</p>	<ul style="list-style-type: none"> - Develop different training modalities for skill sets with the same assessment tool. - Adapt skill demo/training from other agencies, institutions, and employers into employer programs to make job markets and/or specific employer assets more attractive. - Military veterans often possess applicable skills and don't require full-fledged dose of individualized course load - Look at other industries' certifications modules (e.g. automotive, heavy truck), and adapt modules, approaches to transit hubs, ASE certification - Incumbent veteran employees can use VETS licensing and certification information and can identify "leveling" tests or training required by states (can be paid for by individual veterans' benefits, if eligible.) - Develop transition or "bridge" course to target military market and "fast-track" individuals into the industry (LEAP – Life Experience Assessment Portfolio) - Create internal modules of skill sets for sequential certificates.)
<p>Sub-issue #2: Overcoming barriers to training</p>	
<p>A. Share costs between DOL and employers.</p>	<p>DOL funds pay for tuition and equipment and Employers pay for training hours.</p> <ul style="list-style-type: none"> - Petition the DOL for funding to pay tuition for the incumbent worker. - Companies allow training during work hours with pay. - Use the private/public training provider as the fiscal agent to ensure competent programs are

	<p>delivered and funding used appropriately.</p> <ul style="list-style-type: none"> - Need DOL support to underwrite certain equipment/technology costs to achieve DOL training /employment goals.
<p>B. Develop multi-modal modules for training.</p>	<ul style="list-style-type: none"> - Develop multi-modal modules (e.g. CD, paper, web-based,) for individuals with different learning styles. - Bring training to the user – Online (24/7 – Internet access), CD based (own time), On-Site (during/ around shifts). - Develop new course, “becoming a student at a distance.” - Expand web-based knowledge/information instructional materials – for the industry – through industry associations, include simulations and “game” scenarios for Generation X, Generation Y.
<p>C. Provide training in different locations with different modalities.</p>	<ul style="list-style-type: none"> - Centralized training classes to reduce costs per trainee. - Partner with other industries to provide training in more places and more times. - Develop training that can be taken any time in any place using technology-based solutions. - Provide 24/7 access to on-line training module. Deliver training before and after “shifts.” - Implement module taking training to employee with distance learning, standards-controlled competencies, and/or send trainers to training. - Seafarers have to travel to one of two sites in the U.S. (Maryland or Hawaii). Move training to ports/employers’ facilities.

Section IV: Implementation of Solutions and Conclusion

ETA supports comprehensive business, education, and workforce development partnerships to develop innovative approaches and replicate models that effectively serve the workforce needs of business while helping workers find good jobs with good pay and promising careers. Grants awarded under the High Growth Job Training Initiative implement unique and innovative, industry-driven skills training, certification, and career ladder development programs that support identified transportation industry workforce and economic development needs.

Based on the challenges identified by the transportation industry and highlighted in this report, ETA has made a series of investments totaling more than \$4 million to partnerships among business, community colleges, the public workforce investment system and other partners to address the needs of the transportation industry. This set of workforce solutions is based on the transportation industry's priorities, and addresses issues such as:

- Helping high school, technical school, and community college graduates successfully enter the transportation industry
- Creating industry standards, and systems for apprenticeship, training, and skill certification in the transit sector
- Developing comprehensive, competency-based training programs for entry-level workers
- Creating models of safety simulation and gaming software that can be used to enhance the learning of younger workers
- Developing effective partnerships between Workforce Investment Boards and One-Stop Career Centers and industry

ETA has made the following investments to address these challenges. Additional information is available at: <http://www.doleta.gov/brg>.

Community Transportation Development Center (CTDC): CTDC received a \$2,000,000 grant to create standards, and systems for apprenticeship, training, and skill certification for five transit maintenance occupations: transit bus mechanics, rail mechanics, rail signal maintainers, elevator/escalator technicians, and equipment maintainers. (\$29,000,000 in leveraged funds)

United Parcel Service of America (UPS): UPS received a \$1,789,970 grant to conduct research on the most effective strategies for training younger members of the workforce, develop and implement a competency-based training program for Driver Service Providers, and collaborate with local Workforce Investment Boards in select local areas to help address its recruitment needs. (\$20,536,648 in leveraged funds)

The Paul Hall Institute of Human Development received a \$2,499,618 grant to implement a recruiting strategy for the maritime occupation to reach out to women, minorities, and veterans; develop a comprehensive, competency-based training program for entry-level mariners and guarantee employment for all individuals that complete training; and implement an array of leading edge technologies, including developing e-learning labs at 17 select ports or Seafarers International Union centers, utilizing new simulation technology, and installing distance learning facilities aboard ships. (\$4,503,813 in leveraged resources)

Arkansas Department of Workforce Services received a \$1,350,655 grant to provide disadvantaged job applicants with an opportunity to enter the transportation industry as a professional driver; articulate the commercial driver's license credential with a technical certificate in heavy-truck diesel maintenance; link with the career pathway in transportation and logistics which will be developed through a National Science Foundation project; support the development of a registered apprenticeship program for truck drivers; increase the capacity at Mid-South Community College; and directly support the vision and goals of the Arkansas Delta Workforce Innovation in Regional Economic Development (ADWIRED) initiative, which aims to improve the prosperity of the Arkansas Delta and make it a focal point of innovation and commerce to the rest of the country. (\$2,669,265 in leveraged resources)

Conclusion

The transportation industry is vital to the nation's economy. The industry employs millions of workers each year, and other industries depend on it to transport the materials and workers on which these industries depend. The transportation industry is projected to experience substantial growth in total employment, providing career opportunities in a range of occupations. However, the industry also faces a broad array of workforce challenges, from an industry image that could be enhanced, to difficulty recruiting non-traditional labor pools, to obstacles to training both new and incumbent workers. The continued health of the transportation industry, and the other sectors that depend on it, require the industry's stakeholders to work in partnership to implement effective workforce solutions that successfully address these myriad workforce challenges.

The High Growth Job Training Initiative has engaged a broad range of transportation industry stakeholders to better understand the workforce challenges of this important sector. ETA has made key investments in several innovative partnerships intended to address these challenges. These partnerships will demonstrate how the public workforce investment system, by attending carefully to the emergent and changing needs of business and industry, can aid workers in securing good jobs with good wages and promising career pathways.

These investments and partnerships are just the beginning of the implementation process. ETA will continue to work with the transportation industry to gather and disseminate best practices and lessons learned from its current investments and other ongoing education and training activities nationwide. ETA will also work with the grantees to ensure that the projects are sustainable and can be appropriately replicated in other areas of the country and within other high-growth/high-demand sectors of the American economy.