Railroad Industry Modal Profile

An Outline of the Railroad Industry Workforce Trends, Challenges, and Opportunities

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PREFACE

The Department of Transportation (DOT) has initiated a National Workforce Development Strategy team, with representatives from each mode to establish a single DOT-wide profile of the Transportation Industry workforce. The profile will highlight the needs across the Department and the industry each mode represents. The Federal Railroad Administration (FRA) has identified a team to represent FRA on the DOT team and to develop a rail industry-wide workforce strategy.

To provide an overview of the railroad industry and workforce, as well as specific workforce issues, extensive research and topical interviews were conducted with representatives of the railroad industry including Class I railroads, labor unions, short line railroads, major associations, academia, and specialty experts. The railroad industry, as defined in this document, consists of Class I freight and passenger rail, short line railroads, labor unions, major associations, and academia.

This document serves as a central living repository for descriptive data pertinent to the broad railroad industry workforce. This document must be revisited periodically to ensure accuracy due to the dynamic nature of the railroad industry and its sensitivity to numerous market factors. As information changes, this document will be updated and republished. It is anticipated that a formal document update will be published at least once annually.

The Federal Railroad Administration Workforce Development Team (FRA–WDT) led by Ms. Monique Stewart (Office of Research Policy and Development) would like to express thanks to a number of individuals who assisted in the development of this document. First, we would like to thank the following individuals who devoted their time to review the document and provide their expertise to ensure the document accurately represented the railroad industry.

Federal Railroad Administration

Mr. Joseph Szabo	Federal Railroad Administration, Administrator
Ms. Karen Rae	Federal Railroad Administration, Deputy Administrator

Federal Railroad Administration Office of Civil Rights
Mr. Calvin Gibson

Federal Railroad Administration Office of Human Resources
Mr. Bill Tito
Ms. Nancy Coyle

Federal Railroad Administration Office of Public Affairs
Mr. Scott Greene
Mr. Joel Palley

Federal Railroad Administration Office of Public Engagement
Mr. Mark Patterson
Mr. Timothy Barkley

Federal Railroad Administration Office of Research and Development

Mr. Mark Yachmetz
Dr. John Tunna
Mr. Kevin Kesler
Dr. Thomas Raslear

Federal Railroad Administration Office of Safety

Mr. Robert Lauby
Mr. Ron Ries
Ms. Lydia Leeds
Mr. Theodore Bundy

Federal Transit Administration Office of Research, Demonstration and Innovation

Mr. Jarrett Stoltzfus

Department of Transportation Workforce Development Team

Mr. Curtis Tompkins	Research and Innovative Technology Administration (RITA)
Ms. Lydia Mercado	Research and Innovative Technology Administration (RITA)
Ms. Sharon Chan Edmiston	VOLPE
Ms. Mary Beth Hines	VOLPE
Mr. David Damm-Luhr	VOLPE
Mr. Carl Allen	VOLPE
Ms. Suzanne Sloan	VOLPE
Ms. Rachel Winkeller	VOLPE
Mr. Michael Clark	VOLPE

Federal Railroad Administration Workforce Development Team

Mr. Kevin Kesler
Ms. Monique Stewart
Ms. Debra Chappell
Mr. Lloyd Parker
Ms. Nikea Myers

Second, we would like to thank the following representatives from the Class I railroad companies, major associations, labor unions, academia, and specialty experts who devoted their time to participate in the topical interviews conducted and provided their expertise to ensure a holistic and objective perspective of the railroad industry was accurately represented.

Class I Railroad Companies

Ms. Linda Longo-Kazanova, VP of Human Resources	BNSF Railway Co.
Ms. Margaret Downey, Human Resources	CSX Transportation
Mr. Tom Winter, Human Resources	Norfolk Southern
Mr. Roy Schroer, Human Resources	Union Pacific Railroad Co.

Major Associations

Mr. Steve Sullivan	American Short Line and Regional Railroad Association (ASLRRA)
Mr. Bob VanderClute	Association of American Railroads (AAR)
Mr. Dallas Richards	American Railway Engineering and Maintenance-of-Way (AREMA)

Unions

Mr. Rick Inclima	Brotherhood of Maintenance of Way Employees (BMWE)
Mr. James Stem	United Transportation Union (UTU)

Academia

Dr. Chris Barkan	University of Illinois
Dr. Pasi Lautala	Michigan Technological University

Specialty Experts

Dr. Bernice Anderson	National Science Foundation (NSF)
Ms. Wende Corcoran	Operation Life-Saver (OLI)

EXECUTIVE SUMMARY

The Department of Transportation (DOT) commissioned a Workforce Development Strategy Initiative, with representation from all DOT Operating Administrations (OA), to document and address a broad scope of transportation workforce issues, such as the aging workforce, workforce attrition, retention, and diversity.

This team has been operating for over a year and is expected to publish an integrated transportation industry overview document comprising the inputs received from each OA. The FRA Workforce Development Team (FRA–WDT) has served as the FRA delegation to the DOT team and gone a step further in creating a railroad-specific action plan to begin focusing collaborative rail industry efforts toward identifying solutions for the identified rail workforce issues.

The increasing age of baby boomers in the active labor force continues to be a major concern nationally. This issue confronts every public sector agency as well as most large private corporations. Although the issue has been discussed for nearly a decade, the bathtub effect that would result from large-scale retirements and massive intellectual capacity exiting the labor-force at the same time has not occurred. Fortunately, people do not all retire at a magical age largely because retirement is a highly personal decision. Despite the current workforce environment, the aging of the workforce continues to be an item worthy of discussion, monitoring and mitigation planning.

Thus, the existence of a large retirement-eligible population alone may not be a reason to sound the alarm. However, when combined with other workforce dynamics (e.g., infusion of significant technological advances, increased industry demand, limited job market appeal and long periods of low volume hiring) the impact of a slight elevation in the rate of retirements quickly becomes a more significant risk, which unfortunately describes the current state of America's railroad industry.

Because of previous recruiting and hiring practices, the pipeline of new entrants to the industry was impaired; few collegiate railroad programs exist, and there are few precollege outreach programs promoting rail careers to deciding youth. Luckily, retirements have not occurred as expected, some believe because of the state of the U.S. economy. Most agree that retirements are likely to increase over the next 5–10 years as the economy improves. As job market competition begins to rise, it will become challenging to find the needed quantities of properly trained personnel to fill the jobs vacated by the surge in retirements.

For rail, the focus on workforce development is more than simply an effort to counter the impact of large numbers of retirements, or even the resulting challenge of recruiting lost talent. It is part of a larger, necessary strategy to redefine the railroad industry for the next 100 years—as an American hallmark, an industry of innovation and an outstanding career choice for future generations. The railroad industry requires an image overhaul to recast it as a vibrant, highly innovative, diverse, and viable industry within which to invest one's career and financial future.

Workforce research is not new for FRA. In 2007, FRA funded an industry-wide recruiting and retention study (Appendix 7.5) to identify factors that are either contributing to or detracting from the ability to sustain top talent. The study was lead by Dr. Tom Raslear of the FRA Human Factors group, an arm of the FRA research and development organization. That study involved an industry-wide assessment that considered the perspective of all industry stakeholders; Class I railroads, labor unions as well as major associations. FRA–WDT has resumed the work started by FRA in 2007 by leveraging that study's findings and developing a plan to engage the entire rail community.

Following a similar methodology to the one used in the 2007 study, FRA–WDT conducted interviews with various rail industry stakeholders, including:

- Class I Railroads
- Regional and Short Line Railroads
- Labor Unions
- Major Associations
- Academia

Each representative was asked a uniform set of questions, which were then aggregated to convey the perspective of their respective industry segment. The results identified six primary railroad workforce concerns, several of which are consistent with the findings from the 2007 study. Each of the concerns is listed in Table 1 below.

Table 1. Top Six Rail Workforce Concerns

#	Workforce Issue	FRA Workforce Development Program Element
1	Aging Workforce - Knowledge Transfer	Pipeline Programs: Pre K-12; Collegiate; Trades & Crafts
2	Workforce Diversity (Women, Minorities, Other)	Pipeline Programs: Pre K-12; Collegiate; Trades & Crafts
3	Overall Image of the Industry	Pipeline Programs: Pre K-12; Collegiate; Trades & Crafts
4	National Training Standards for Freight Rail Craft and Trade Positions	Qualitative Enhancements: Current Workforce Development
5	Work-Life Balance (Attrition in the 0-5 Year Population of Rail Workers)	Pipeline Programs: Pre K-12; Collegiate; Trades & Crafts
6	Quality of Data and Metrics Available to Monitor Rail Industry Workforce Trends	Qualitative Enhancements: Data & Metrics

The 2007 study also identified workforce diversity—specifically among women in rail—as an issue, as well as the volume of attrition among the 0–5 year employee population. Although the research revealed that there is an extensive amount of effort currently being expended across the rail industry by segment stakeholders, there is little cross-industry collaboration. Where collaboration did exist, it was often fragmented and informal. Also, there were clear variances in program maturity and areas of focus.

In addition, overlap exists among freight, passenger, and transit rail and some of the same skill sets exist in each area. Through the linkage of FRA–WDT with the DOT national team, the issues above and recommendations will be shared with other DOT modes. In addition, FRA–WDT will leverage ideas from across DOT to further refine the set of solutions proposed for implementation across the railroad industry. Thus, opportunities for collaboration as well as areas of overlap will be identified and discussed to maximize economies of scale and to approach the workforce challenges as One DOT.

FRA–WDT has developed a detailed program plan that, with the collaboration of each segment of the railroad industry, improves upon each of the issue areas identified in Table 1. Figure 1 provides an overview of FRA–WDT's program objectives and approaches.

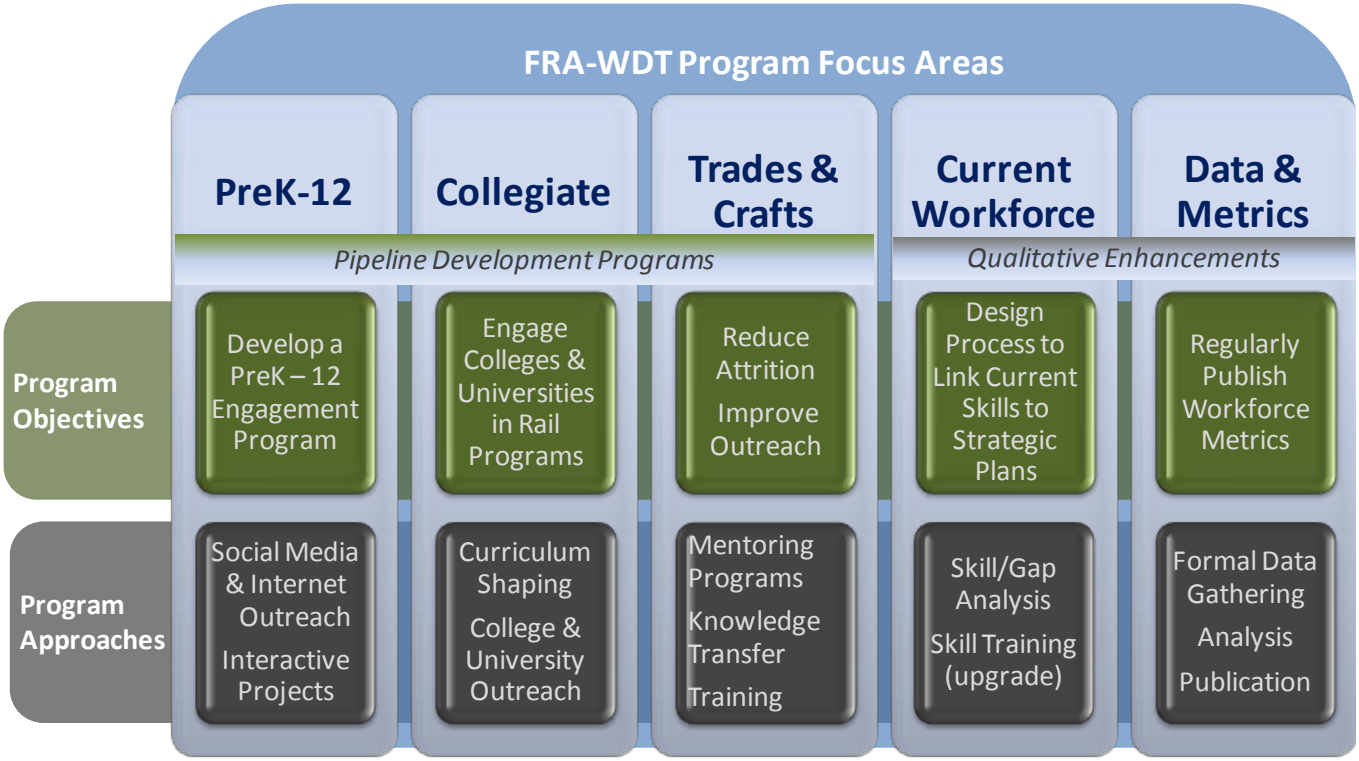


Figure 1. Proposed FRA–WDT Workforce Programs

Figure 1 illustrates a broad workforce development program resulting from consultation with a number of field experts and industry stakeholders. The FRA–WDT program focus areas map to the issues identified in Table 1 as well as the findings identified in the FRA recruiting and retention study published in 2007. Two primary program elements are identified:

1) ***Pipeline Development Programs***—programs geared toward reshaping the public image of the rail industry and emphasizing the multitude of railroad career options available. Programming will begin early as students' career decisions are being formed and refined through the post-high school years or into college.
2) ***Qualitative Enhancements***—programs to help improve either the current workforce or the manner in which we gauge and track the status of the current workforce. These programs help ensure that the newly hired employee from the pipeline enters a workforce that will ensure continuous development as their careers progress.

Thus, Figure 1 becomes the action framework to which all of the workforce development effort of the industry can be aligned. As a conceptual action framework, elements can be added or removed as the nature of the rail industry continues to evolve.

FRA–WDT is not attempting to instantly solve the rail workforce challenges, but rather to facilitate industry-wide collaboration to 1) address workforce concerns and 2) bring cohesion to the collective effort being expended on workforce-related issues. It will be through the collective effort of the industry that we will realize true workforce improvement and sustained economic viability of the U.S. rail industry.

1. OVERVIEW OF THE RAILROAD INDUSTRY

Since its inception in the 1830s, the United States[i] railroad industry has been a major catalyst for the national economy during some of our Nation's defining moments. From spurring 19th century frontier expansion to driving today's energy-efficient, heavy-hauling freight transport industry; railroads have consistently represented a major component of our national economy, moving people, goods, and services and creating jobs nationwide.

The railroad industry has also proven its resiliency, even after suffering all-time low in the 1980s in both total jobs and total miles traveled. This sluggish period spanned more than a decade and was marked by a great number of mergers and acquisitions across the industry, as well as several rounds of layoffs and little to no new hiring.

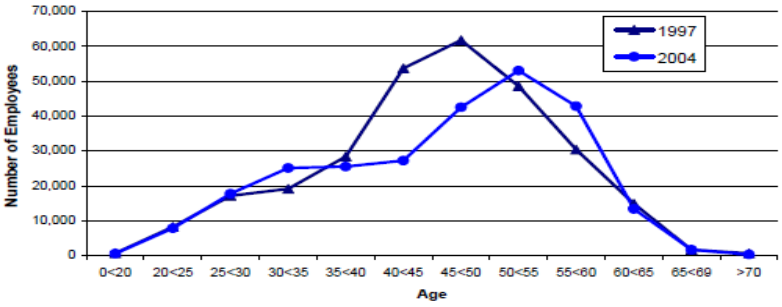


Figure 3. Railroad Employee Age Distribution Shift, 1997-2004
(SOURCE: RRB Annual Railroad Retirement Act and Railroad Unemployment Insurance Act data, statistical tables, section D: employment and compensation statistics, Table D-11, n.d.).

Figure 2. Class-I Railroad Age Distribution Shift (Freight)

A combination of railroad company consolidations and a redefinition of the revenue threshold took the number of major rail companies from 40 down to 7,[ii] now known as the Class I railroads or. Luckily, the remaining workforce was loyal and continued to work even as they reached retirement age. As Figure 2[iii] illustrates, in a span of just 7 years, the average employee age across the Class I railroads increased by nearly 10 years while the overall employee population decreased by almost 10,000.

Despite the railroad industry's rich history of service to our country, it has also been among the most highly regulated industries in the Nation. As a result of railroad market manipulation which was deemed to be detrimental to the consumer public, Congress passed a law in 1887, establishing the Interstate Commerce Commission (ICC), which was responsible for regulating the fees, rates, and tariffs train companies could charge for their services. Unfortunately, the rigidity with which the ICC controlled the railroads greatly diminished their market appeal, thus causing them to lose significant transportation market share.[iv]

Even under heavy regulation, the industry experienced stability and growth during the World War I and World War II eras. During that time, nearly 1,500 railroad companies operated along 254,000 miles of track and employed 1.8 million people (leading all U.S. industries).[v] After World War II, railroad traffic declined nearly 28 percent from 1944 levels. Passenger ridership also dropped drastically during this time. To make matters worse for rail, new competition was heating up in the trucking and barge industries, which had Federal funding for construction of new interstate and inland waterways. Finally, in the late 1970s, the government decided to begin relaxing price regulations on the railroads starting with the Railroad Revitalization & Regulatory Reform (4R) Act of 1976. The 4R Act was followed four years later with the Staggers Rail Act of 1980.[vi] The major regulatory changes of the Staggers Act were as follows[vii]:

- A rail carrier could establish any rate for a rail service unless the Commission determined that there was no effective competition for rail services.
- Rail shippers and rail carriers would be allowed to establish contracts subject to no effective Commission review, unless the Commission were to determine that the contract service would interfere with the rail carrier's ability to provide common carrier service (a finding rarely if ever made and not apparent in the history of the rail industry thereafter).

- The scope of authority to control rates to prevent discrimination among shippers was substantially curtailed.
- Across-the-board, industry-wide rate increases were phased out.
- Removal of railroads' ability to collectively set rates or participate in rate setting discussions.

Figure 3 illustrates the impact of the Staggers Rail Act of 1980 on the railroad industry. As the figure shows, industry productivity increased dramatically, as did volume, and most surprisingly, rates decreased as well.[viii]

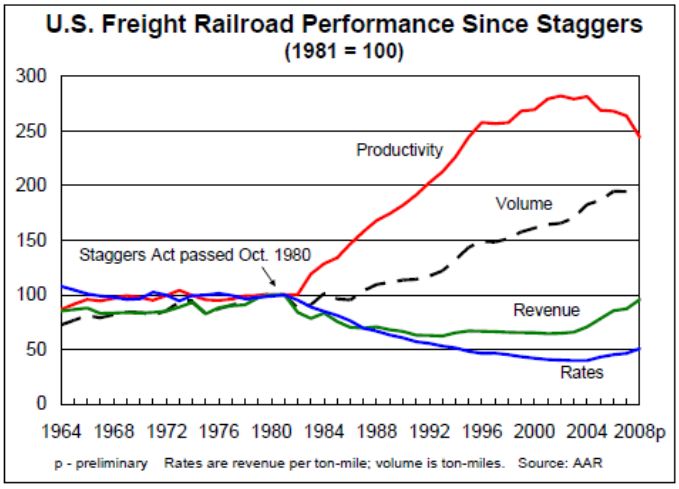


Figure 3. A Short History of U.S. Freight Railroads

The workforce followed the path of the industry prior to the Staggers Act. Thus, a reduction in railroad traffic resulted in a number of mergers and acquisitions as well as industry layoffs. Because of the emphasis on merging and streamlining, very little focus was placed on new hiring, and thus, the workforce atrophied. The workforce that remained at the end of this period is largely the same workforce operating the railways today. Thus, the current rail industry has continued to age and projections show that trend continuing (see Table 2[ix] for the projected increase in the railroad workforce retirement eligible population).

Fortunately, post-Staggers, railroads began recovering, and industry growth and profitability were once again increasing. The new industry growth also brought with it a new risk; that there would be more work than available skilled workers given the lack of human capital investment over the last several decades. In addition, the generation of children that grew up in the 1980s has never known a robust rail industry and now views railroads as declining and decaying, thus an undesirable career choice. This, unfortunately, is the population from which the rail industry must now draw the next generation of employees.

Table 2. Projected Retirement Eligible Population

Year	Percent of all U.S. railroad employees eligible to retire based on 60/30
2009	17.4
2014	35.1
2019	48.4

SOURCE: RRB Annual Railroad Retirement Act and Railroad Unemployment Insurance Act data, statistical tables, section D: employment and compensation statistics, Table D-11, n.d., http://www.rrb.gov/act/pdf/ST05partd.pdf

Several of the Class Is indicated that in the past 8 years, their recruiting investment and activity has dramatically increased, and there are now many high-end programs in place to attract and retain needed talent.[x] Many of these programs are homegrown best practices that focus on multiple workforce trends and dynamics and also incorporate customized employee training.

In 2010, the railroad industry is anticipating a pending growth spurt fueled by a new national interest in green initiatives, monetary infusion through the American Recovery and Reinvestment Act of 2009, establishment of a high-speed rail system in the United States, and a host of other high-tech projects that stand to boost both safety and reliability across the railroad network. This increase in demand coupled with the probability of large numbers of retirees leaving the industry and an immature pipeline of talent flowing in to assume those vacated positions requires swift planning and collaboration on workforce issues for rail.

Individual railroad efforts are leading the way toward a recovery in the railroad workforce. There are many players involved, including 1) short line railroads, 2) manufacturers and suppliers, 3) academia, 4) trade associations, and 5) labor unions. Each of these entities is also making efforts to confront railroad workforce challenges; collecting data, analyzing trends and developing solutions and programs. These individual (often redundant) efforts are striving to answer the same questions. However, it is difficult to obtain comprehensive statistical data on the

industry or the collective benefits of the various efforts. In addition, there is little collaboration across industry segments and in some cases within a segment to address workforce issues.

2. CURRENT RAILROAD WORKFORCE

The railroad workforce comprises professional personnel and tradesmen/craftsmen, with the latter composing the roughly 85 percent of the workforce (based on Surface Transportation Board (STB) reports from 1999 to 2009).[xi] All of the Class I railroads submit rate, ridership, and personnel information to the STB on a quarterly basis and much of the employment data in this report originated from their aggregated industry reports. The Class I railroads constitute more than 80 percent of the total railroad industry workforce, therefore much of the descriptive data available for the industry focuses on just those railroads. Several of the Class II's are fairly large companies as well and mimic the actions of the Class Is. Thus, Class Is' performance, activity, and programs are a significant indication of the total state of the railroad industry workforce.

According to the STB, the major labor categories that constitute the railroad workforce include:

- Executives, Officials, and Staff Assistants
- Professionals and Administrative
- Maintenance-of-Way and Structures
- Maintenance of Equipment and Stores
- Transportation (Other than Train and Engine)
- Transportation (Train and Engine).

However, within each of these occupational groups are a number of labor subcategories. The last four categories are principally made up of unionized positions. Table 3 below shows some of the Class I labor categories that constitute each occupational grouping along with a definition of each grouping.

Table 3. Labor Category Mapping to Occupational Grouping[xii]

STB Occupational Groupings	Short Definition	Labor Category Mapping
Executives, Officials, & Staff Assistants	These are the positions for the executive and senior management of the firm. Corporate Officers, and other appointed or elected corporate officials.	Chief Executive Officer Chief Operations Officer Chief Financial Officer Chief Information Officer Human Resources Executive President General Manager Division Head
Professionals & Administrative	Positions ranging anywhere from an internal auditor, attorney or secretary, to information technology specialist.	Auditor Accountant Engineer (Various) Facilities General Clerk General Supervisor Human Resources
Maintenance of Way & Structures	Provide quality maintenance to the track, train control (signals and communication) systems, bridges and buildings in a safe, cost-effective manner. Additional training is provided and the majority of these positions are represented by a labor union.	Bridge Mechanic Bridge Tender Communications Maintainer Electronic Signal Specialist Machine Operator Signal Maintainer Track Maintainer
Maintenance of Equipment	Provide a number of support jobs throughout the railroad with different titles, working in different departments. May work in the yard office, towers, mechanical shops, and other various office locations. Good interpersonal and problem solving skills are important and the majority of these positions are represented by a labor union.	Blacksmith Boilermaker Carman Electrician Equipment Inspector Mechanist Sheet Metal Worker
Transportation (Other than Train & Engine)	Responsible for the safe and efficient operation of trains and the movement of customer freight from one destination to another. Generally, these jobs typically leverage skills universal to the transportation industry; training often provided by the railroad and the majority of these positions are represented by a labor union.	Longshoreman Train Dispatcher Yardmaster
Transportation (Train & Engine).	Inspects, repairs, and maintains freight cars and locomotives. This function is also responsible for clearing derailments involving railroad equipment. Mechanical experience, additional training is often required on-the-job. The majority of these positions are represented by a labor union.	Freight Car Repairer Freight Conductor Locomotive Engineer Passenger Baggagement Passenger Conductor Switchtender

2.1 Total Estimated Railroad Workforce

The total railroad workforce number is difficult to derive. Given that the degree of oversight varies greatly between the Class I and non-Class I data requirements, availability of workforce related data varies in terms of accessibility along the same continuum. Thus, the best method for obtaining an accurate picture of the total workforce size is to start with the Class Is and to incrementally add additional data elements or estimates.

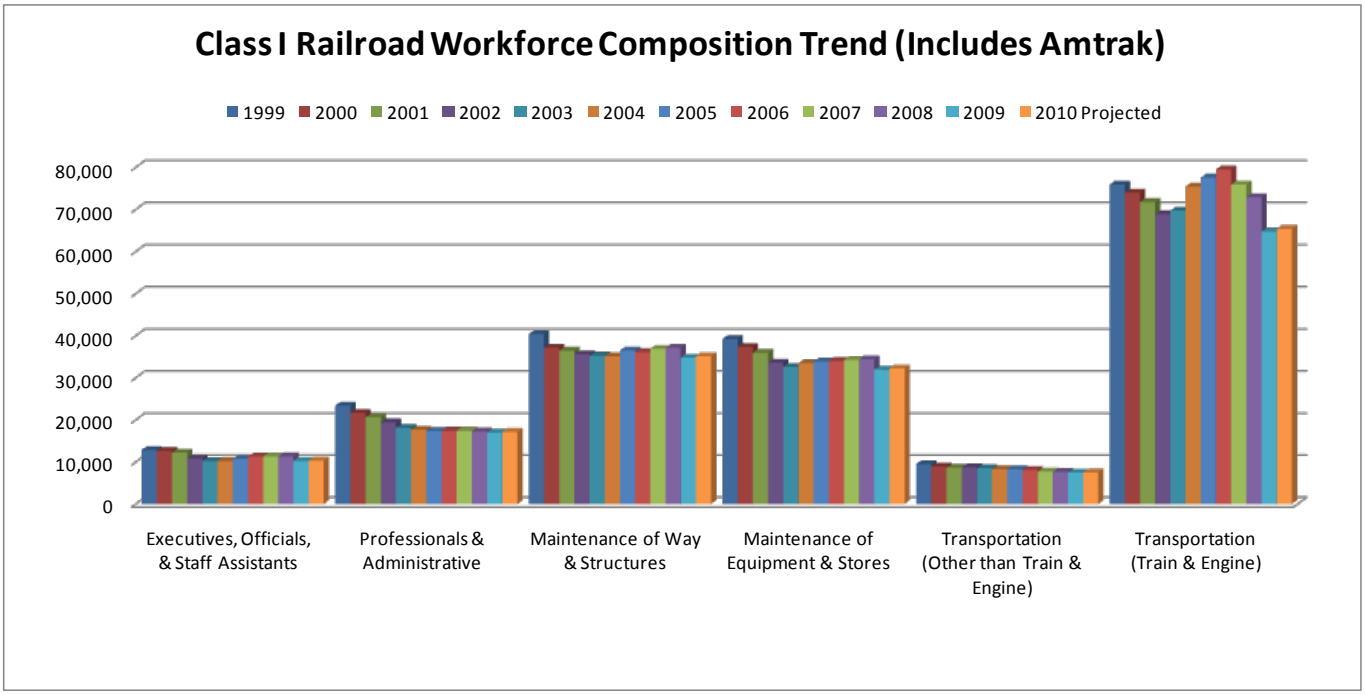


Figure 4. Class I Railroad Workforce Composition Trend (Includes Amtrak)

The approximate total Class I railroad employee population today is 183,642,[xiii] which includes the Amtrak workforce of 19,203[xiv]employees. This does not include the 19,304[xv]short line employees, estimated 25,000[xvi] employees of rolling stock manufacturers and suppliers, and 824 Federal Railroad Administration (FRA) employees. Therefore, the estimated total railroad workforce is 228,770 employees. The private sector accounts for 99.6 percent of the railroad employee population and the public sector accounts for 0.4 percent.

Since freight and passenger rail share similar occupational disciplines, the Amtrak workforce was distributed among the occupational groupings defined by the Surface Transportation Board (STB) (shown in Figure 4) to holistically depict the Class I railroad workforce. Specifically, the percentage of the Amtrak employee population in the Professional & Administrative category was increased by 9 percent to account for customer service staff that Class I railroads typically do not employ. The percentage of the Amtrak employee population in the Maintenance-of-Way & Structures labor category was reduced by 9 percent because 71 percent of the miles traveled by Amtrak trains are on tracks owned by other railroads.[xvii] According to the Bureau of Labor and Statistics (BLS), the railroad industry workforce is projected to grow by roughly 1 percent each year through 2018.[xviii] This is believed to be a conservative projection because the BLS data omits consideration for high-speed rail, which is expected to create significant numbers of new jobs. Therefore, the projected growth rate for the rail industry could be far greater than 1 percent. However, for the purposes of this report, we will base projections on the documented conservative view as presented by the BLS data. Thus, the 2010 projection, in Figure 4, is based on adding 1 percent to the 2009 population total. It is also noteworthy to recognize that the total population size in 2009 was around the lowest since 2003 when the mergers and acquisitions were occurring across the industry.

2.1.1 Class I Freight Railroad Companies

Although the total railroad workforce number is somewhat elusive, data on the Class I railroads is typically used to gauge the status of the industry. The Class Is are defined, per the Association of American Railroads (AAR), as any freight railroad company with operating revenues of $401.4 million or more.[xix] There are seven railroad companies that meet this threshold and, thus, constitute the Class I railroads.[xx] This definition is recognized across most of North America (to include Canada and Mexico). The current Class Is in the United States include the following freight rail companies:

- BNSF Railway Co.
- CSX Transportation
- Grand Trunk Corporation (U.S.) portion of Canadian National Railway (CN)
- Kansas City Southern Railway Co.
- Norfolk Southern
- Soo Line Railroad Co. (U.S. portion of Canadian Pacific)
- Union Pacific Railroad Co.

The other two Class Is are non-U.S. companies (but portions of the railroad operate in the United States):

- Canadian National Railway (CN)
- Canadian Pacific

The Class Is also contain the largest number of employees, as would be expected given their total revenue generation. Of the estimated 228,770 employees that make up the railroad industry, roughly 183,642 are employed by Class I railroads.[xxi] Class I trend data (per Figure 4 on the previous page) suggests that the numbers of employees in the 2002–2003 timeframe is a good approximation of the 2010 volume.

From a consumer perspective, freight rail moves most of the products or raw materials used in nearly every facet of everyday life. Table 4 indicates the volume of freight moved in terms of total revenue received. Thus, the principal customers of freight railroad services are not end-use consumers but rather companies producing or utilizing raw materials to provide a consumer product. The intermodal category may include cargo items that are initially shipped via water, air or road; however, at least a portion of their route would also include freight rail. In this case, the customer would be the primary shipping entity and the goods shipped could overlap the other material categories shown.

Table 4. Tons Originated and Revenue by Commodity (2008)[xxii]

Tons Originated and Revenue by Commodity (2008)

Commodity Group	Tons Originated (000)	% of Total	Revenue (millions)	% of Total
Coal	878,569	45.4%	$ 14,200	23.5%
Chemicals & allied prod.	176,108	9.1	7,717	12.8
Farm products	155,950	8.1	5,403	8.9
Nonmetallic minerals	132,352	6.8	1,749	2.9
Misc. mixed shipments*	120,278	6.2	8,184	13.5
Food & kindred products	105,071	5.4	4,610	7.6
Metallic ores	59,986	3.1	637	1.1
Metals & products	54,420	2.8	2,664	4.4
Waste & scrap materials	48,848	2.5	1,415	2.3
Stone, clay & glass prod.	45,275	2.3	1,636	2.7
Petroleum & coke	44,690	2.3	1,867	3.1
Pulp, paper & allied prod.	34,130	1.8	2,228	3.7
Lumber & wood products	30,856	1.6	1,684	2.8
Motor vehicles & equip.	24,791	1.3	3,623	6.0
All other commodities	22,442	1.2	2,895	4.8
Total	**1,933,766**	**100.0%**	**$ 60,513**	**100.0%**

* Miscellaneous mixed shipments (STCC 46) is almost all intermodal traffic, and accounts for about two-thirds of intermodal tonnage. Some intermodal traffic is also included in commodity-specific categories.

2.1.2 Class I Passenger Railroad: Amtrak[xxiii]

The name Amtrak is the blending of the words "America" and "track." It is properly used in documents with only the first letter capitalized. The railroad is also known as the National Railroad Passenger Corporation. Amtrak was created by Congress in 1970 to take over the passenger rail services previously required to be operated by private freight railroad companies in the United States. Those companies reported they had operated the services without profit for a decade or more. More than half of the rail passenger routes operated by the freight railroad companies were eliminated when Amtrak began service on May 1, 1971.

On average, more than 74,000 passengers ride more than 300 Amtrak trains per day. Amtrak operates a nationwide rail network, serving over 500 destinations in 46 states and three Canadian provinces on over 21,000 miles of routes, with 19,203[xxiv] employees. It is the Nation's only high-speed intercity passenger rail provider, operating nearly 60 percent of its trains at speeds in excess of 90 mph.

In addition, Amtrak also operates a significant amount of the Nation's commuter rail service. Amtrak is currently providing commuter service for the following State and regional authorities:

- Caltrain (California)
- MARC (Maryland Regional Commuter)
- Shore Line East (Connecticut)

2.1.3 Regional and Short Line Railroad Companies

There are over 500[xxv] railroad companies that do not meet the revenue threshold of being classified as a Class I. According to the AAR Railroad Facts 2009 edition, the total number of employees in the short line freight rail population is 19,304.[xxvi]

Short line railroads are broken into two categories, Class II and Class III, based on revenue thresholds. Class IIs are also referred to as Regionals and must have operating revenues between $32.1 million and $401.4 million.[xxvii] The thresholds are revisited periodically to account for inflation, etc. Class IIIs, also referred to as Short Lines, must have operating revenues less than $32.1 million.[xxviii] This category includes the majority of the Class II–Class III railroads (see Appendix 7.3 for a complete listing of the regional and short line railroads).

2.1.4 Manufacturers and Suppliers

The total number of manufacturers and suppliers is difficult to ascertain; however, according to BLS, there are roughly 20,000[xxix] employees in rolling stock manufacturing jobs[xxx]. This number likely does not include all employees, for example those working for contractors such as Lockheed Martin, General Electric, or Siemens. Thus, we will conservatively consider the suppliers to constitute 20,000 industry workers.

The manufacturers and suppliers supporting the rail industry support both the trains and the track. On the train side manufacturers create individual train cars, locomotives, and all of the mechanical components and devices that enable them (i.e., brakes, couplers, carriages, wheels, bearings, etc.). In the track category, items such as rails, ties, and ballast are included, as well as wayside components such as signals, switches, and wayside sensors.

As more technology is infused into the railroad industry, the need for increased integration of components and technologies also increases. This is fueling an increase in nontraditional skill sets such as electrical engineering, Radio Frequency (RF) engineers and computer science disciplines. Given the global reliance on rail technology, there are also a large number of international manufacturers that make components utilized in the U.S. rail industry.

2.1.5 Union Representation

Of the 85 percent of the workers performing trades and craftsmen jobs, nearly all of them are represented by a labor union. The largest of the unions representing the rail workforce include:

- Brotherhood of Locomotive Engineers and Trainmen (BLE–T)
- Brotherhood of Maintenance of Way Employees Division (BMWED)
- Brotherhood of Railway Signalmen (BRS)
- Transportation Communications International Union (TCI)
- Transportation Trades Department, AFL–CIO (TTD)
- Transportation Workers Union of America (TWU)
- United Transportation Union (UTU)

Several of the larger unions no longer exist as stand-alone entities; many have united with larger international unions. For example, BLE–T and BMWED are part of the International Brotherhood of Teamsters.

2.1.6 Major Associations

There are numerous associations that represent the collective interests of various segments of the railroad industry. These entities interact homogeneously with the industry segments they represent and have significant policy and directional influence. The primary associations are described below:

Association of American Railroads (AAR)

An important part of AAR's mission is to work with elected officials and leaders in Washington, D.C., on critical rail transportation issues to ensure that the railroads meet America's transportation needs today and in the future. The AAR not only represents the rail industry on Capitol Hill, but also facilitates the operations, safety, security, and research standards for the rail industry. AAR members include the major freight railroads in the United States, Canada, and Mexico, as well as Amtrak. The AAR organization oversees a 140,000-mile rail network and sets new standards for innovation, safety, and technology.[xxxi] AAR also established Affiliated Laboratory Programs at Texas

A&M University, University of Illinois at Urbana–Champaign and Virginia Tech to conduct basic research to develop technologies to improve the safety, reliability, and economics of rail transportation.

In January 1998, AAR formed the Transportation Technology Center, Inc. (TTCI), a wholly owned subsidiary headquartered at the FRA Transportation Technology Center (TTC) near Pueblo, CO. Its mission is to "accelerate the use of clean, safe, and efficient technologies by railways worldwide." TTCI conducts a number of research and development projects annually testing potential safety equipment and components to help foster a safer transportation system. Some TTCI projects are funded by FRA.

American Short Line and Regional Railroad Association (ASLRRA)

The American Short Line and Regional Railroad Association (ASLRRA) is a nonprofit trade association that represents the interests of its more than 475 short line and regional railroad members in legislative and regulatory matters. Short line and regional railroads are an important and growing component of the railroad industry. Today, they operate and maintain 30 percent of the American railroad industry's route mileage, and account for 9 percent of the rail industry's freight revenue and 12 percent of railroad employment.[xxxii]

American Railway Engineering and Maintenance-of-Way Association (AREMA)

The American Railway Engineering and Maintenance-of-Way Association (AREMA) was formed on October 1, 1997 as a result of a merger of three engineering support associations namely, the American Railway Bridge and Building Association, the American Railway Engineering Association and the Roadmaster's and Maintenance of Way Association, along with functions of the Communications and Signals Division of the Association of American Railroads.

The rich history of the predecessor organizations, each having over 100 years of service to the rail industry, is the legacy of AREMA. Each of the four groups that came together to form AREMA have, in their own way, built an excellent foundation upon, which to base the new Association, whose mission is the development and advancement of both technical and practical knowledge and recommended practices pertaining to the design, construction and maintenance of railway infrastructure.[xxxiii]

American Association of Railroad Superintendents (AARS)

The American Association of Railroad Superintendents was founded in 1881 and serves the networking, education, and development needs of railroad operations leadership and management of Class Is, regionals and short lines, and passenger railroads as well as representatives of government and regulatory agencies.[xxxiv]

American Public Transportation Association (APTA)

APTA members are public organizations that are engaged in the areas of bus, paratransit, light rail, commuter rail, subways, waterborne passenger services, and high-speed rail. Members also include large and small companies who plan, design, construct, finance, supply, and operate bus and rail services worldwide. Government agencies, metropolitan planning organizations, state departments of transportation, academic institutions, and trade publications also represent APTA's membership. APTA serves and leads its diverse membership through advocacy, innovation, and information sharing to strengthen and improve public transportation. APTA works to ensure that public transportation is available and accessible for all Americans in communities across the country.[xxxv]

American Association of State Highway and Transportation Officials (AASHTO)

The American Association of State Highway and Transportation Officials is a nonprofit, nonpartisan association representing highway and transportation departments in the 50 states, the District of Columbia, and Puerto Rico. It represents all five transportation modes: air, highways, public transportation, rail, and water. Its primary goal is to foster the development, operation, and maintenance of an integrated national transportation system. It also advocates transportation-related policies and provides technical services to support states in their efforts to efficiently and safely move people and goods.[xxxvi]

2.1.7 Academia

In 2010, there were two official railway transportation and engineering university programs in the United States, with a third program projected to begin accepting incoming students in 2013. Both railroad programs are engaged in teaching and research in the field of railway transportation and engineering. U.S. institutions with railway education programs, research programs, and course offerings include[xxxvii]:

- Michigan Technological University
- North Dakota State University
- University of Illinois at Chicago
- University of Illinois at Urbana–Champaign
- University of Kansas
- University of Kentucky
- University of Maryland (College Park)
- University of Memphis
- University of North Florida
- South Dakota State University
- Vanderbilt University
- Virginia Tech (Railway Research Programs and Course Offerings Only)

2.1.8 Railroad Cross-Disciplinary Fields

As with all private sector companies, railroads utilize typical business skills as well as operational skill sets to maintain railroad operations. Additionally, several transportation specific skill sets used across the rail industry can also be found in other transportation industries (i.e., trucking, airlines, maritime etc.).

2.1.8.1 Universal Disciplines

The generally leveraged universal disciplines within the railroad industry include the following:

- Business Management
- Project Management
- Finance/Accounting
- Strategic Planning and Analysis
- Human Resources
- Information Technology Systems Support
- Infrastructure and Facilities
- Electricians
- Plumbers
- Metal Fabrication
- Engineering (Civil, Mechanical, Electrical)

2.1.8.2 Transportation Specific Disciplines

A number of disciplines are unique to transportation industries (not just rail). These skill sets, while largely unionized, are essential to railroad operations but have some potential overlap with other transportation industries, especially other rail fields. The transportation specific disciplines include:

- Engine Mechanics
- Maintenance-of-Way Specialists
- Motive Power and Control Specialists
- Safety Inspectors
- Signals and Communication
- Specialty Clerical (Equipment Maintenance and Tracking)
- Railroad Engineering

3. CURRENT INDUSTRY WORKFORCE PROGRAMS

From the information gathered through interviews with human resources representatives from both FRA as well as the Class I railroads, associations, labor union representatives, and academia; it was determined that workforce development programs exist, but vary widely. Some programs are more mature than others, and each has slightly different areas of focus and degrees of innovation. There is no function or body that establishes a common vision or mission for workforce related programs. Most are the natural result of meeting hiring demands and keeping pace with current human resources program norms.

3.1 Attracting

"Your grandfather's railroad" is a phrase used by several entities we interviewed to describe how rail is viewed in the labor market and primarily among the younger labor force. From a recruiting perspective, attracting is essentially the marketing element that gets candidates interested in considering a company and their open positions. Many interviewed (including all the Class Is) felt that the industry image and appeal of rail needed to be improved. Hiring volumes across the country have been low because of the economic slowdown, which has resulted in attrition. Thus, there has not been a major need to innovate in the area of attracting candidates. Many railroads stated that they were not having significant difficulty attracting needed employees either in the professional or skilled laborer positions. However, that trend is not expected to continue as the labor market continues to correct itself. Traditionally, railroad industry salaries have outpaced those in other skilled labor industries; however, according to the Class I railroads, the gap is narrowing. Therefore, the field of competition is expected to increase as the U.S. economy continues to improve.

3.2 Recruiting

Each of the railroads indicated that they have active recruiting and hiring organizations. For rail, the majority of the hires come from employee referrals and the military. These two feeder pools are the primary sources for the nonengineer populations. The rigor and discipline necessary to work in the rail yards is difficult to grasp without some prior expectation-setting. Historical railroad families, who grew up understanding the nature of the work and the military, who are highly disciplined, make the best hires and tend not to quit prematurely. Many of the Class I railroads advertise in military publications and have robust employee referral programs that reward employees for recommending a person that receives an offer and starts work. Several Class I railroads have been recognized in recent years by leading military magazines for their proactive work with transitioning service men and women and their outreach to help them prepare for civilian jobs.

In addition to military hiring, many rail companies also have vibrant college recruiting programs for professional and engineering positions. Most utilize similar hiring approaches, local advertising, and Web site posting, as well as job fairs. However, the field varies widely in the level of program innovation and areas of focus. Some companies are actively using the Internet and social media as an integral part of their recruiting programs while others are just starting to explore these avenues for reaching talent.

While the top tier regional railroads tend to mimic the practices of the Class Is, they also receive a steady inflow of hires from Class I retirees who understand rail and want to continue working. This has mutual benefit to the employee and the railroad since safety behaviors are already ingrained in a seasoned worker who already knows proper procedures and requires less training (which saves the railroad time and money).

3.3 Retaining and Retraining

Employee training and professional development programs are common among the Class I railroads. Many have robust managerial training programs focused on acquainting potential leaders with all elements of the company

through rotational assignments. In fact, even in periods with lower sales volume, railroad companies wisely continued to invest in their management development programs. For the trades and craftsmen positions, training focuses mainly on required certifications and compliance oriented training. Since most of these positions are unionized, there is some union sponsored training for those interested in pursuing new positions as well.

3.4 Workforce Forecasting and Planning

Several of the Class I railroads shared that they regularly use forecasting models to project retirements. Despite very large retirement-eligible populations, there has not been a significant increase in retirements over the past several years. Although there is still considerable concern due to the sheer size of the retirement-eligible population, apprehension regarding a mass exodus is relatively low. According to the interview data collected, average attrition is around eight percent with roughly half (4 percent) attributable to retirements. As market conditions improve, it is expected that there will be more competition for the railroads, and thus, overall attrition will likely increase. The rate of retirements is also likely to increase as the market improves. Some companies mentioned having mentor programs in place to assist with knowledge transfer; however, few had any formal knowledge management programs in place.

3.5 Diversity and Inclusion

According to the Society of Human Resource Management (SHRM), diversity is defined as "the collective mixture of differences and similarities that includes for example, individual and organizational characteristics, values, beliefs, experiences, backgrounds, preferences, and behaviors." SHRM defines inclusion as "the achievement of a work environment in which all individuals are treated fairly and respectfully, have equal access to opportunities and resources, and can contribute fully to the organization's success." Neither diversity nor inclusion is legally mandated; however, many organizations have implemented this comprehensive organizational and managerial effort to foster a working environment that leverages employee differences as well maximizes employees' full potential within the organization.

Although diversity and inclusion is a concern in the industry, very few companies mentioned having a focused program around diversity; however, those that do have adopted many industry best-practices. One railroad mentioned that they have an emphasis on diversity in their hiring and employee relations programs. An example of one of their program elements is affinity groups, in which informal groupings of special interest employee groups form and receive company support for social gathering, community of interest recruiting and new employee assimilation. Special interests can include cultural, ethnic or other interests.

One of the largest sources of hires for the rail industry historically is nepotism (hiring of relatives or family of an existing employee). Although this practice may ensure lower attrition because family members are well aware of the rigors of the job, it also works counter to efforts to further diversify the workforce. Nepotism perpetuates the workforce distribution currently in place rather than that of the local labor market (which is typically the objective of a diversity program). A balanced approach is needed to ensure the heritage of high-quality hires continues while also ensuring enough diversity is being infused into the workforce.

4. RAIL WORKFORCE ANALYSIS

To obtain broad and objective information from which to conduct our analysis of the railroad industry workforce, topical interviews were conducted. A formal set of questions was developed to ensure similar questions were asked of each person and information was collected via conversations with representatives from each industry segment entity. Our target entities included:

- **Class I Railroads***
- Regional and Short Line Railroads

- **Labor Unions***
- Major Associations
- **Academia***

For each entity at least two interviews were attempted. A bolded segment name with an asterisk denotes an entity for which data was successfully obtained from multiple entity representatives. Once the data was collected, it was consolidated to develop an aggregate response for each entity. There were three categories of questions asked of each entity. The categories included: 1) Workforce overview (general questions), 2) Attracting employees or industry outreach/marketing efforts, and 3) Current workforce development. Given that not all of the entities are alike, section two was adapted to either focus on attracting employees or marketing the industry – two similar areas, but the shift allowed a better accommodation for the focus areas of each entity. A quick summary of the workforce analysis conducted is shown in Table 5. Appendix 7.1 provides the complete industry-wide matrix.

Table 5. Consolidated Rail Industry Interview Matrix

	Workforce Program Questions	Interview Responses (Entities)				
#	Workforce Overview	Class I Railroads	Short Line Railroads	Labor Unions	Associations	Academia
001	Do you believe you have the workforce you need to meet the demand for your services, products?	For the most part. The economic slow-down has slowed the anticipated retirement volume. Also, good quality candidates for the positions we have are for the most part available, with a few exceptions.	For the most part - Short Lines have a number of hires that come from the Class I's. [Not able to speak specifically on any railroad's issues or operations]	Yes - due to the hiring slow down in 2009 and the current state of the economy. In 2009 thousands of workers were furloughed. Several called back the first of the year but had been out of work since December of 2009. Hiring is picking up a bit as well.		
002	What are your biggest concerns regarding your current workforce?	Ever looming retirement exodus - retirement eligible population is still quite high and the attrition rate may be higher than average over the next 5 - 10 years. There are some niche trades and crafts skills that are increasingly hard to find. The industry image needs to be upgraded.	Given the wide range of railroad sizes, we have a diverse set of concerns. Class II's are close to the Class I's in size and operation and thus have some of the same concerns that the Class I's do. Others operate like small businesses and have typical small business issues.	Retirement eligible population and New Hire attrition (before reaching the 5 year mark)	Large retirement eligible population. Lack of railroad engineering curriculum's at the collegiate level.	Large retirement eligible population, ill prepared to handle a mass exodus. State of railroad specific engineering programs and difficulty obtaining data regarding the industry workforce. Additionally, there hasn't been much action toward improving the industry despite discussing these issues for some time.
003	What future indicators are you preparing for with regard to the rail industry and the skills you believe you will need tomorrow?	Unfunded mandates: PTC High-Speed Rail			High-Speed Rail, PTC	High-Speed Rail, PTC other new technologies. Also, there is more integration occurring as each segment of rail begins to grow freight, passenger, high-speed and transit. A more integrated approach is needed to ensure a well-rounded perspective of the industry as a whole.
005	What have you experienced with regard to the supply and demand of the skills you need today and into the future?	Expected attrition rates lower than predicted and expected to be lower in 2010 as well. Competition for talent is low right now and thus the supply is fairly strong.	We leverage two outside firms for our workforce planning and management: Technomedia Michael Cournoyer Vice President 312-466-7657 Michael.cournoyer@technomedia.com/ NARS John Irons Director of Training Center at Johnson Community College, Overland, KS 913-319-3966 john.irons@bnsf.com			There is growing student interest but there is a deficit with respect to international collaboration. Other countries are further along in rail development and educating than the U.S. and there should be more collaboration in those areas, primarily with respect to High-Speed rail. Additionally, a national strategy for rail is needed in the U.S. to focus the collaboration that is already occurring.
009	Do you have a breakdown of your workforce by job category? (Labor/trade, professional/technical)	80 - 90% trades/crafts (unionized) Remainder split between management, administrative and professional (which includes engineers)				Data is collected manually, through a lot of surveys and interviews. The last big data gathering exercise was several years ago. There is interest in doing another survey in conjunction with FRA if possible.
010	What is your current attrition rate/what portion of that is attributable to retirements?	6 - 8% annualized. About half of that is attributable to retirements		Not much, some through the Transportation Learning Center initiative to establish National training standards for freight rail.	The data for the industry is a bit elusive. There's no central keeper of data, each time you report out requires a fresh data pull from multiple sources. BLS data is somewhat helpful.	
012	Are there any consortiums among your peer entities that deal with workforce issues? What collaboration exists among your peer organizations?	Yes, the Class I's get together informally on multiple levels. On the HR side, once every 1-2 years, where best practices are shared.			Associations are made up of many folks across the industry. Major railroads as well as manufacturers and others are active members.	Several that meet annually to focus on advanced engineering topics, workforce issues, educational developments etc. but all informally.

5. WORKFORCE CHALLENGES FOR RAIL

FRA–WDT's focus is not to completely fix the workforce challenges that exist across the railroad industry. It would be impossible to do so. No one entity can fix what has been an evolving circumstance affected by decades of changes throughout our Nation's history. It is, however, evident that cross-industry communication and collaboration could be improved at all levels. Pockets of industry collaboration do exist; however, it is fragmented and inconsistent (see Appendix 7.1). FRA–WDT hopes to increase awareness, to maintain focus on workforce-related issues, and to facilitate a far more inclusive standard for cross-industry collaboration on workforce development, strategic planning, and research and development. Through these efforts, we hope to minimize the impact of each of the identified challenges and to bring full industry support to solve these workforce issues. The latter will result in the most comprehensive and sustainable set of solutions.

From our interviews, six key areas emerged as workforce concerns for the railroad industry. Table 6 lists the six challenges and the segment of the industry that shared the concern. Additionally, it lists FRA–WDT's recommended programs to help improve each issue. A detailed program plan (see Appendix 7.4) has been developed for each improvement recommendation that details the steps and resources required to develop and implement each recommended program.

Many we interviewed suggested that more effort and leadership was needed to consolidate the efforts that have been occurring sporadically over the years. These entities were asked if they would support an industry-wide railroad summit of some sort. All responded positively. Therefore, a railroad workforce summit is also included in the detailed program plan as a way of fostering industry-wide collaboration and focusing on the improvement areas identified herein.

Table 6. Top Six Rail Workforce Concerns per Industry Segment

#	Workforce Issue	FRA Workforce Development Program Element	Class I's	Short Lines	Unions	FRA	Associations	Academia
1	Aging Workforce - Knowledge Transfer	Pipeline Programs: Pre K-12; Collegiate; Trades & Crafts	X	X	X	X	X	X
2	Workforce Diversity (Women, Minorities, Other)	Pipeline Programs: Pre K-12; Collegiate; Trades & Crafts	X			X		
3	Overall Image of the Industry	Pipeline Programs: Pre K-12; Collegiate; Trades & Crafts	X		X	X	X	X
4	National Training Standards for Freight Rail Craft and Trade Positions	Qualitative Enhancements: Current Workforce Development			X			
5	Work-Life Balance (Attrition in the 0-5 Year Population of Rail Workers)	Pipeline Programs: Pre K-12; Collegiate; Trades & Crafts	X		X			
6	Quality of Data and Metrics Available to Monitor Rail Industry Workforce Trends	Qualitative Enhancements: Data & Metrics				X	X	X

The sections below present a brief summary of each of the six concerns, along with the FRA–WDT's program recommendations that correlate to each one.

5.1 Aging Workforce—Knowledge Transfer

Our interviews yielded no formal knowledge management programs among the operating railroad entities, as well as slightly varying views on the anticipated severity of the retirement problem. However, given the level of concern, we can affirmatively state that this is the largest workforce concern across the rail industry. This issue is twofold:

1) Capturing and transferring knowledge.
2) Attracting talent successfully over time.

Current railroad efforts to market the industry differently, such as the “Freight Rail Works” campaign by AAR, which is using various media tools to provide information about the efficiency and criticality of the rail industry, will help with attracting people to the industry but more is needed to ensure the pipeline of interest in the United States is healthy.

FRA–WDT Program Response: Pipeline Development

The best way to address the concerns with the aging workforce is to ensure that there is a healthy pipeline of qualified talent ready to come in and to assume those roles once the retirements are realized. Thus, FRA–WDT is recommending three projects to help address this issue, two of which are pipeline focused, and the third, which focuses on employee assimilation:

1. PreK–12 development programs
2. Collegiate curriculum development
3. Formalized mentoring programs

PreK–12 Development Programs

In discussions with childhood education experts, there are several points along the educational path that are good opportunities to both introduce children to rail as well as involve them in emerging technologies. In addition, it was suggested that the program start at PreK instead of kindergarten because children start exploring and shaping interests as soon as formal schooling begins. Through creative use of the Internet and other innovative technologies, this project will seek to provide both teachers and students with program options and tools to expose them to the railroad industry, thus, developing a viable workforce pool from which to draw well into the future.

Because not all children will elect to attend college, and the railroad industry also has a large need for skilled laborers, this project will also consider partnerships with unions and vocational institutions to ensure relevant railroad skills are taught and that job placement support is available.

Experts from the National Science Foundation suggested that a good place to invest in PreK–12 programs is in universities with infrastructures and vibrant programs already in place. Additional benefits to university programs are embedded programmatic controls that exist in the university setting for managing grants and other funds and ensuring the monies reach the desired programs of interest.

Collegiate Curriculum Development Programs

Development of robust academic railroad research and educational programs will provide solutions for a range of planning, engineering, management, and operational needs and educate future rail and transit professionals in the key principles of the rail industry. The U.S. DOT, State DOTs, railroads, rail operating companies, and rail engineering and supply industries will work with the academic community to develop a sustained, stable system of support to ensure that academic programs develop and function effectively to meet the Nation's need for a new generation of rail transportation and engineering professionals.

Work in this area will ensure that adequate collegiate programs are created and that there is increasing partnership across the various stakeholders to modulate the curricula for maximum effectiveness for the industry workforce. Data obtained from the Class I railroads suggest that many railroads have internal training programs designed to fill the gap created by the lack of focused collegiate programs. Through the partnership with academia, it is envisioned that railroads would reap long-term economic benefits if they are able to select more richly trained candidates to fill entry-level professional jobs.

Formalized Mentoring Programs

Undergirding all pipeline development programs is a strong mentoring program. Mentoring is included as a pipeline program because some workers may enter the workforce immediately after completing high school or less than 4 years at a university. Mentoring allows new workers to have a go-to seasoned employee that can answer questions and fit in more easily. Union representatives who were interviewed were interested in participating in such programs to help curb premature attrition.

Several of the Class Is mentioned that they had mentoring programs in place, but it seems that with such a large represented population that a cross-segment approach to mentoring might help connect employees with their new companies and careers.

5.2 Workforce Diversity

Through our interview process, many mentioned the longstanding success of employee referrals to the workforce. From a historical perspective, it was a deliberate employment strategy in that the most reliable workers were those who grew up with railroad employees in their family or community. However, an unintended consequence of this approach has been a historical lack of workforce diversity, and now, decades of embracing referrals as a leading source of hires has perpetuated that lack of diversity.

Several railroad companies now allow outreach programs and even affinity groups to exist, which contribute to diverse recruiting, college outreach, and new hire assimilation; however, many suggest that the industry is still not as diverse as it should be.

FRA–WDT Program Response: PreK–12 Implementation Diversity

The primary solution being proposed to assist with this issue is to implement a vibrant PreK–12 program. Diversity will be introduced in the locations in which the program is targeted. The concept of the program will leverage social media, the Internet, and other innovative mechanisms to get children introduced early to the railroad industry. Through discussions with collegiate professors, senior educational specialists, and precollege curriculum experts, the foundations for a PreK-12 outreach program are forming.

Across the railroad industry, very little focus on PreK–12 outreach occurs. However, outreach is a practical way of getting the next generation workforce to consider professional or vocational (trade path) options in rail careers. Given the range of jobs required across the rail industry, the PreK–12 program will have a college curriculum development path as well as a vocational, tradesmen paths. This project area will be leveraged to help improve the industry focus on women in rail and to establish the mechanisms to reach girls and share the benefits of rail careers with them as well.

5.3 Industry Perception

Several of our interviewees suggested that they were aware of the traditional image that has plagued the railroad industry; that it's old and decaying. Add to that the lack of hiring over the past few decades and the limited direct marketing to the public and what results is a very tainted perspective of the health and vibrancy of the railroad industry. In addition, it was unanimously accepted that assistance with recasting the brand of the industry and getting a more balanced message out about the industry was a critical area of support that was needed.

FRA–WDT Program Response: Shape Future Interest through Early Outreach

As stated in the workforce diversity section above, the PreK–12 program is a primary tool that can be leveraged to help change perceptions and to give a more balanced view of the railroad industry. Given that railroads have not traditionally marketed directly to the consumer public, a mechanism is needed that will enable a more positive

message about the industry and its high-tech research and development projects (e.g., Positive Train Control (PTC), High-Speed Rail (HSR), etc.).

The program will also include hands-on projects that will enable children to conduct small scale simulations while enhancing their science and math competencies and integrate the use of the latest Internet-based technologies (i.e., social media, etc.).

5.4 National Training Standards for Freight Rail Craft and Trade Positions

Given that over 85 percent of the railroad workforce is performing skilled labor jobs, it is essential that programs that focus on this population be developed as well. Although increasing safety in railroad operations jobs is always a top priority, there are gaps in terms of new-hire preparedness for the physicality and psychological pressures that accompany railroad occupations.

On the transit side, there are national training standards that have been developed by the Transportation Learning Center (TLC) that are focused on safer railroad operations among the vocational workforce. Data from the TLC on the impact of the program suggest significant improvement in safety behaviors resulted. There are no such standards for rail. In a recent memorandum of understanding, signed by all of the large labor unions, the development of a set of national training standards for rail is requested. In fact, during the development of this document, work was beginning on the development process.

FRA–WDT Program Response: PreK–12 Program Vocational Programs

To address this concern area, in addition to the development of the national standards, FRA–WDT is also proposing a vocational development component to the PreK–12 program. At the time of this publication, there were no formal relationships with vocational schools in place; however, some railroads, through their internal training programs, focus on the required skills. In a few instances, railroad companies have community college partnerships to help develop and train skilled laborers and supervisors for the rigors of the railroad industry. Through highlighting this area as a key focus, FRA–WDT hopes to keep the vocational development component in the forefront.

5.5 Work–Life Balance (Attrition in the 0–5 Year Railroad Worker Population)

Many railroads mentioned the excessively high attrition among the new hires on the skilled labor side. Some input suggested that as many as half of an incoming class make it through the prework training, which requires physical strength, situational awareness and stamina. Additionally, for those that do make it through the rigorous prework training many leave before they hit the 5-year mark because of the demands for travel and rotating shifts. This issue is a challenge because often time crews are understaffed, which presents a potential safety risk. Economically, the lost potential for return on the trained employee is also an issue for the railroad companies.

FRA–WDT Program Response: PreK–12 Program Vocational & Mentoring Programs

Work in this area will be through the PreK–12 program where the vocational development program will be considered. Through increased awareness, training, and exposure to the rigors of the environment, it is hoped that the typical attrits will be weeded out sooner, and those who stay enter their new careers better informed.

Another component of this program is the institution of a mentor program, in which new hires are paired with someone more seasoned who can show them the ropes and help them assimilate to the group. These and other hiring best practices will be designed in the detailed program plan.

5.6 Quality Data and Metrics

Currently, data on the railroad workforce end-to-end are extremely difficult to obtain. Most publicly available data are several years old. Contacting the major freight rail industry companies is the only true way to get accurate

information but that takes time to obtain as well. As the workforce development effort begins investing in programs to improve the state of the rail workforce and driving new interest in the industry, the ability to collect, analyze, and report on key metrics will become increasingly important. This is the only way to accurately gauge progress and to calibrate ongoing improvement efforts.

FRA–WDT Program Response: Annual Railroad Industry Metrics Publication

FRA–WDT wants to publish meaningful rail industry workforce metrics to be used by the wider industry annually, improving both transparency and program accountability. This is a known issue that has persisted but needs to be addressed. To address this area, FRA–WDT has partnered with a number of professors from industry, many from schools where there are existing railroad collegiate programs. FRA–WDT is seeking to establish a baseline of metrics that will consolidate key workforce statistics from all railroad companies and entities. Additionally, this project will publish an integrated railroad industry metrics report to show how the data have fared given all the improvement projects undertaken. Where additional measures are needed, new ideas will be solicited and targeted to address those areas.

5.7 Other Key Trends

For the railroad industry, several key projects and new programs of national interest will impact usage demand as well as the railroad workforce, either driving the need for increased human capacity or ushering in the need for new skills and training. Several of these initiatives are also driven by recent legislation that attaches a timeframe for implementation. Some of these projects include:

- ***High-Speed Rail***— which will require current track upgrades as well as new track installations in the corridors approved for high-speed rail. Given that the United States has only had limited high-speed rail and other countries have extensive systems, new avenues of training and partnership will be required to get U.S. engineers prepared to support this new initiative. Additionally, new safety standards and requirements will be required to ensure maximum safety, as well as a number of newly trained operators and support personnel.
  estimate: could represent an additional 1 percent increase in total industry jobs above BLS projections

- ***PTC***—this technology will involve advanced communication systems as well as locomotive integration to automatically slow down or stop a train to avoid potential hazards. (There is a Federal mandate that stipulates that PTC must be implemented by 2015 per H.R. 2095.) The demand for this technology has arisen out of concern over operator alertness and need for better alerts of down-track impediments.
  estimate: could represent an additional 0.25 percent increase in total industry jobs above BLS projections

- ***Green Rail Initiatives***—this research area is aggressively pursuing alternate methods of fueling trains while maintaining the necessary power as well as increasing distance traveled using lower amounts of fuel. FRA among other railroad stakeholders are investigating this and other "green rail" initiatives through research and development (R&D) efforts and joint projects with universities and colleges.
  estimate: could represent an additional 0.10 percent increase in total industry jobs above BLS projections

5.7.1 H.R. 2095, The Rail Safety Improvement Act of 2008[xxxviii]

The Rail Safety Improvement Act of 2008 mandates that PTC be implemented by all Class I and intercity passenger railroads by December 31, 2015. PTC systems are integrated command, control, communications, and information systems for controlling train movements with safety, security, precision, and efficiency. PTC systems will improve railroad safety by significantly reducing the probability of collisions between trains, casualties to roadway workers, damage to equipment, and overspeed accidents. PTC systems are composed of digital data link communications networks, continuous and accurate positioning systems such as the Nationwide Differential Global Positioning System, onboard computers with digitized maps on locomotives and maintenance-of-way equipment,

in-cab displays, throttle-brake interfaces on locomotives, wayside interface units at switches and wayside detectors, and control center computers and displays.

In addition, there are several other provisions that will affect the railroad workforce, which include:

- Hours of Service Reform – for signal and train crews to get additional rest
- Training – establishing minimum standards for railroad workers, certifications for conductors, etc.
- Maintenance of Way Improvements – updates to track and other inspection procedures
- Increases in Inspector Staffing Levels
- Railroad Radio Monitoring
- Provides Funding for High-Speed Rail Corridors

Aside from the implications of introducing these new technologies to the industry, many of the other provisions above drive resource levels as well as skill requirements across the industry.

5.8 Potential Skill Gaps

The new technologies create many opportunities for job growth as well as areas of skill gaps that require correction within the existing workforce. To increase workers' alertness, yard crew rest times have been increased at locations with 24/7 operations resulting in the need for additional drivers and crewmembers. Given the current recruiting challenges inherent in hiring yard operations workers, this will put increased pressure on recruiting functions to help ensure higher start rates and less new-hire attrition.

Additionally, as more technology makes its way into railroad operations, more cross-disciplinary workers will be needed to handle advanced machinery and equipment as well as safely operate the rail yard in addition to the consist itself.

As stated earlier, a current gap among the professional and engineering railroad community is the lack of knowledge in high-speed rail. The majority of the intellectual knowledge for how to implement these complex transportation systems lies overseas; thus, cross-training is required in the Unites States to begin producing the needed skill sets.

Also, train engineers will have to be trained on the usage of new PTC technologies as they operate their trains, and mechanics will have to be adept at maintaining such systems. The future rail yard worker may very well need to have enhanced computer oriented skills as well as knowledge of other advanced technologies coupled with knowledge in their domain area to be successful.

6. LOOKING FORWARD TO A NATIONAL STRATEGY

Workforce issues are not isolated to the railroad industry or any one DOT mode. Although there are definite modal-specific areas of concern, there are several areas in which the concerns are the same across DOT. These areas of overlap present opportunities to develop national approaches leveraging the focus of the entire department. However, with all of DOT working together, the transportation workforce requires engagement from all levels, DOT, private industry, associations, labor unions, academia, and related manufacturers.

In the like manner, FRA cannot address the issues of the railroad workforce in isolation. An industry-wide coalition of ideas, engagement and commitment is required if any significant progress is to be made. However, FRA has already begun to move forward in the area of workforce development and has had industry-wide support historically. Thus, the challenge will be moving beyond the identification of the issues and into an era of transformation and improvement.

6.1 FRA Recruiting and Retention Study Lessons Learned

FRA took on the workforce challenge through an R&D effort back in the 2006–2007 timeframe. That study looked at the underlying issues affecting recruiting and retention across the rail industry (see Appendix 7.5). FRA–WDT has taken the findings from that study into account in developing the resulting FRA Workforce Development Plan. A summary of the FRA–WDT response to each element is listing below:

General Findings

- *Employee demographics will continue to match the areas or regions across the country in which employees are hired and work.*
  FRA–WDT Program: Workforce Diversity

- *The railroad industry will need to accommodate the various and sometimes disparate needs of multiple generations of employees.*
  FRA–WDT Program: Workforce Diversity

Recruitment Challenges

- *Adjusting work schedules to achieve an attractive work–life balance*
  FRA–WDT Program: Workforce Diversity

- *Overcoming an incremental pay scale for some crafts*
  FRA–WDT Program: N/A

- *Finding individuals with the right skill sets for the job*.
  FRA–WDT Program: Quality Data & Metrics

- *Attracting women to the industry*.
  FRA–WDT Program: Workforce Diversity

Retention Challenges

- *Hiring individuals locally rather than forcing employees to relocate to undesirable locations*
  FRA–WDT Program: N/A

- *Reducing or eliminating furloughs*
  FRA–WDT Program: N/A

- *Providing realistic job previews*
  FRA–WDT Program: Overall image of the Industry

- *Improving work schedules*.
  FRA–WDT Program: N/A

- *Generally, if an employee leaves the railroad industry, he/she does so within the first 5 years or so of employment*.
  FRA–WDT Program: Attrition in 0–5 year population focus

Unfortunately, several of the issues identified in 2007 are still issues for the railroad workforce in 2010. Although a lot of individual effort has been expended by the railroads and other stakeholders, there has been no industry-wide focus to the efforts and little quantitatively available to demonstrate the progress that has been made. Thus, FRA–WDT is continuing where the 2007 study ended and is defining a set of program actions that will include a wide range of stakeholders from across the industry to come together to implement corrective actions. The collective group will be assembled at a central workforce development summit at sometime in the future to discuss these and other railroad workforce issues.

6.2 Future State of the Railroad Workforce

The ideal future state for the railroad industry would be multifaceted and include the following:

- A robust employee pipeline of talent with a high degree of interest in railroad careers.
- A diverse employee base (both demographically as well as technically) who are acutely aware of railroad safety concerns as well as how to operate highly specialized technical systems.
- A mature cross-industry strategic workforce development framework that continuously monitors industry strategic developments and simultaneously evaluates the current workforce against those strategic factors identifying gaps.
- An environment of openness and transparency in the industry such that workforce data are willingly shared and used to gauge industry change (good and bad) resulting from workforce development program initiatives.

These goals cannot be achieved by FRA alone and will not be completed overnight. Ultimately, enhanced workforce development requires investment, collaboration, and time.

6.3 National Strategy Implications

As the national strategy takes form, FRA will begin to regularly revisit its workforce program against the priorities as set forth by DOT, FRA, and other external functions and use those three inputs to gauge whether current thinking and planning remains accurate or needs adjusting.

It is hoped that the national strategy will limit overlaps and duplication among the modes and that the power of the department as a whole is leveraged when engaging external entities such as associations, unions, and academia.

7. APPENDIX SECTION

7.1 Industry Interview Results Matrix

	Workforce Program Questions	Interview Responses (Entities)				
#	Attracting Employees/ Industry Outreach	Class I Railroads	Short Line Railroads	Labor Unions	Associations	Academia
014	How hard has it been to find the skills you need?	Not very in the current market	Because we hire a number of retirees from the Class I's our employees come in with a lot of experience and highly skilled. That also helps with safety concerns and it is more economical for companies.	Railroads are responsible for the hire and the employee through the trial period of (60 days). They become covered by the union as of day 61.		
015	What sort of recruiting strategies are you using?	All use traditional print advertising, resume receipt and review, interview and hire. All experimenting with more internet based technology and social media sites such as FaceBook and Twitter. Some railroads much				Would like to see more transition support for graduates.
016	Do you have any programs focused on increasing diversity through your recruiting efforts?	All have some degree of diversity focus but the field varies greatly. Some support job fairs and diversity focused marketing, and others do the same as well as having defined affinity groups				Through K-12 activities and college recruiting activities, students from all over are marketed to with regard to the school and its programs (to include rail).
017	What sorts of advertising or other marketing do you do to attract employees? Magazines, TV, News other.	Unanimous feedback suggested that this was an area of significant deficit across the board and on all levels. The image of rail is still that it is an old declining industry with little innovation.			Through training courses and other initiatives, we are trying to raise awareness about the industry and share both the rich heritage and cutting-edge technology that all contribute to the railroad industry today.	Quite a bit is done to bring visibility to the various rail engineering programs as a course of study. However, more is needed in this area. Looking to expand marketing outside university context.
019	What pools/approaches have been most, least successful?	Nearly 50% of annual hires come from referrals of family and friends. The rest are largely from transitioning military hires.				
020	Do you have any university partnerships?	Most have some university relationships for interns and college hiring.				There are some formal partnerships with the Class I railroads but mainly to guide financial support. Looking to expand them into collaborative R&D pursuits in the future.
022	Do you have an intern/coop program?	All have some sort of intern program				Would like to see more support for internships and coops among the railroad engineering programs. Number of internships has been somewhat fluid year-to-year. More consistency needed.
023	Do you have a K-12 program?	None have any formal K-12 programs. Most do some community outreach to the K-12 level but it's a philanthropic pursuit vs. a strategic initiative.				Quite a bit is done in the area of K-12 and working with educators on multiple levels. There would be significant interest in supporting any K-12 initiatives as the infrastructure and relationships already exist at the college and university level. Investment needed to focus efforts.

	Workforce Program Questions	Interview Responses (Entities)				
#	Workforce Overview	Class I Railroads	Short Line Railroads	Labor Unions	Associations	Academia
001	Do you believe you have the workforce you need to meet the demand for your services, products?	For the most part. The economic slow-down has slowed the anticipated retirement volume. Also, good quality candidates for the positions we have are for the most part available, with a few exceptions.	For the most part - Short Lines have a number of hires that come from the Class I's. [Not able to speak specifically on any railroad's issues or operations]	Yes - due to the hiring slow down in 2009 and the current state of the economy. In 2009 thousands of workers were furloughed. Several called back the first of the year but had been out of work since December of 2009. Hiring is picking up a bit as well.		
002	What are your biggest concerns regarding your current workforce?	Ever looming retirement exodus - retirement eligible population is still quite high and the attrition rate may be higher than average over the next 5 - 10 years. There are some niche trades and crafts skills that are increasingly hard to find. The industry image needs to be upgraded.	Given the wide range of railroad sizes, we have a diverse set of concerns. Class II's are close to the Class I's in size and operation and thus have some of the same concerns that the Class I's do. Others operate like small businesses and have typical small business issues.	Retirement eligible population and New Hire attrition (before reaching the 5 year mark)	Large retirement eligible population. Lack of railroad engineering curriculum's at the collegiate level.	Large retirement eligible population, ill prepared to handle a mass exodus. State of railroad specific engineering programs and difficulty obtaining data regarding the industry workforce. Additionally, there hasn't been much action toward improving the industry despite discussing these issues for some time.
003	What future indicators are you preparing for with regard to the rail industry and the skills you believe you will need tomorrow?	Unfunded mandates: PTC High-Speed Rail			High-Speed Rail, PTC	High-Speed Rail, PTC other new technologies. Also, there is more integration occurring as each segment of rail begins to grow freight, passenger, high-speed and transit. A more integrated approach is needed to ensure a well-rounded perspective of the industry as a whole.
005	What have you experienced with regard to the supply and demand of the skills you need today and into the future?	Expected attrition rates lower than predicted and expected to be lower in 2010 as well. Competition for talent is low right now and thus the supply is fairly strong.	We leverage two outside firms for our workforce planning and management: Technomedia Michael Cournoyer Vice President 312-466-7657 Michael.cournoyer@technomedia.com/ NARS John Irons Director of Training Center at Johnson Community College, Overland, KS 913-319-3966 john.irons@bnsf.com			There is growing student interest but there is a deficit with respect to international collaboration. Other countries are further along in rail development and educating than the U.S. and there should be more collaboration in those areas, primarily with respect to High-Speed rail. Additionally, a national strategy for rail is needed in the U.S. to focus the collaboration that is already occurring.
009	Do you have a breakdown of your workforce by job category? (Labor/trade, professional/technical)	80 - 90% trades/crafts (unionized) Remainder split between management, administrative and professional (which includes engineers)				Data is collected manually, through a lot of surveys and interviews. The last big data gathering exercise was several years ago. There is interest in doing another survey in conjunction with FRA if possible.
010	What is your current attrition rate/what portion of that is attributable to retirements?	6 - 8% annualized. About half of that is attributable to retirements		Not much, some through the Transportation Learning Center initiative to establish National training standards for freight rail.	The data for the industry is a bit elusive. There's no central keeper of data, each time you report out requires a fresh data pull from multiple sources. BLS data is somewhat helpful.	
012	Are there any consortiums among your peer entities that deal with workforce issues? What collaboration exists among your peer organizations?	Yes, the Class I's get together informally on multiple levels. On the HR side, once every 1-2 years, where best practices are shared.			Associations are made up of many folks across the industry. Major railroads as well as manufacturers and others are active members.	Several that meet annually to focus on advanced engineering topics, workforce issues, educational developments etc. but all informally.

	Workforce Program Questions	Interview Responses (Entities)				
#	Current Workforce Development	Class I Railroads	Short Line Railroads	Labor Unions	Associations	Academia
029	What programs do you offer to your current workforce? Training development etc.	All conduct some level of training for their workforces across a broad set of categories (management, professional and trades). Approaches vary widely.		There is some training - safety oriented but it could be improved. The work with TLC was initiated for that reason - to improve safety overall. Additionally, if a member wants to prepare for another position or the next level up, they can request training and On-the-Job or other training will be facilitated to support them.		There is a difference between training and educating. At the university and college level, the focus is on educating (civil engineers, mechanical engineers, electrical engineers etc.) There are training opportunities as well but more so at the community college level. Could consider an extension of continuing education in the future.
032	Do you have a succession program in place? If so, how far down your level/grade structure does it go?	All perform some degree of succession planning				
035	Do you have any formal knowledge management programs in place?	None have formal knowledge management programs in place. Some do have mentoring programs.		Nothing formal, but would like to partner with railroads to be more in the area of mentoring for new hires to help them assimilate a bit better (lower attrition)	There has been significant effort to capture the many trades and crafts skills in a text book form, published by AREMA. Additionally, training classes are offered over a wide range of rail specific subjects to anyone interested.	

7.2 List of Contacts and References

7.2.1 Class I Railroads

Ms. Linda Longo-Kazanova, VP of Human Resources	BNSF Railway Co.
Ms. Margaret Downey, Human Resources	CSX Transportation
Mr. Tom Winter, Human Resources	Norfolk Southern
Mr. Roy Schroer, Human Resources	Union Pacific Railroad Co.

7.2.2 Major Associations

Mr. Steve Sullivan	American Short Line and Regional Railroad Association (ASLRRA)
Mr. Bob VanderClute	Association of American Railroads (AAR)
Mr. Dallas Richards	American Railway Engineering and Maintenance-of-Way (AREMA)

7.2.3 Unions

Mr. Rick Inclima	Brotherhood of Maintenance of Way Employees (BMWE)
Mr. James Stem	United Transportation Union (UTU)

7.2.4 Academia

Dr. Chris Barkan	University of Illinois
Dr. Pasi Lautaula	Michigan Technological University

7.2.5 Specialty Experts

Dr. Bernice Anderson	National Science Foundation (NSF)
Ms. Wende Corcoran	Operation Life-Saver (OLI)

7.3 Detailed Regional and Short Line Railroad Listing[xxxix]

- Acadiana Railway Company AKDN #590
- Alamo Gulf Coast Railroad Company AGCR #31
- Albany & Eastern Railroad AERC #34
- Angelina & Neches River Railroad Company ANR #35
- Arizona Eastern Railway Company AZER #91
- Arkansas Louisiana & Mississippi Railroad Company ALM #16
- Arkansas Midland Railway Company, Inc. AKMD #77
- Arkansas & Missouri Railroad Company AM #906
- Arkansas & Oklahoma Railroad AOK #29
- AT&L Railroad Company, Inc. ATLT #514
- Austin Western Railroad AWRR #71
- Bauxite & Northern Railway Company BXN #84
- Belt Railway Company of Chicago BRC #83
- BHP Arizona Railroad Company MAA #453
- Bi-State Development Agency Railroad Company BSDA #55
- The Blacklands Railroad BLR #051
- Blackwell Northern Gateway Railroad Company BNGR #041
- Blue Mountain Railroad, Inc. BLMR #110
- Boise Valley Railroad BVRR #21
- Boone Scenic Valley Railroad BSVY #48
- Border Pacific Railroad Company BOP #225

- Brandon Corporation BRAN #81
- Brownsville & Rio Grande International Railroad BRG #170
- Butte, Anaconda & Pacific Railway Company BAP #518
- Caddo Valley Railroad CVYR #580
- California Northern Railroad Company CFNR #346
- Carrizo Gorge Railway, Inc. CZRY #132
- Cedar Rapids & Iowa City Railway Company CIC #111
- Central California Traction Company CCT #112
- Central Midland Railway CMR #386
- Central Oregon & Pacific Railroad, Inc. CORP #157
- Chicago, Ft Wayne & Eastern Railroad CFE #612
- Chicago Rail Link CRL #420
- Chicago Southshore & South Bend Railroad CSS #168
- City of Prineville Railway COP #166
- City of Rochelle Railroad Company CIR #138
- Colorado & Wyoming Railway Company CW #158
- Columbia & Cowlitz Railway Company CLC #163
- Copper Basin Railway, Inc. CBRY #909
- Crab Orchard & Egyptian Railroad COER #89

- Dakota, Minnesota & Eastern Railroad DME #912
- Dallas, Garland & Northeastern Railroad DGNO #284
- Dardanelle & Russellville Railroad Company DR #191
- Delta Southern Railroad Company DSRR #184
- Denver Rock Island Railroad DRIR #207
- De Queen & Eastern Railroad Company DQE #200
- East Camden & Highland Railroad Company EACH #242
- Eastern Idaho Railroad Inc. EIRR #387
- El Dorado & Wesson Railway EDW #247
- Elgin, Joliet & Eastern Railway Company EJE #238
- Farmrail Corporation FMRC #280
- Fordyce & Princeton Railroad Company F&P #265
- Fort Smith Railroad Company FSR #297
- Fort Worth & Western Railroad FWWR #277
- Galveston Railroad, LP GVSR #567
- Georgetown Railroad Company GRR #302
- Grainbelt Corporation GNBC #443
- Great Northwest Railroad Company GRNW #339
- Great Western Railway Company GWR #311
- Grenada Railway – GRYR #877

- Hampton Railway, Inc. HLSC #354
- Hollis & Eastern Railroad Company HE #328
- Hutchinson & Northern Railway HN #332
- Idaho Northern & Pacific Railroad INPR #331
- Illinois & Midland Railway Company IMRR #361
- Indiana Harbor Belt Railroad IHB #357
- Iowa, Chicago & Eastern Railroad Corporation IC&E #342
- Iowa Interstate Railroad, Ltd. IAIS #316
- Iowa Northern Railway IANR #341
- Iowa River Railroad IARR #979
- Iowa Traction Railroad Company IATR #994
- Kankakee, Beaverville & Southern KBSR #399
- Kansas & Oklahoma Railroad K&O #380
- Keokuk Junction Railway Company KJRY #365
- Kiamichi Railroad Company KRR #424
- Klamath Northern Railway Company KNOR #415
- Kyle Railroad KYLE #377

- Lake County Railroad LCR #474
- Little Rock & Western Railway, LP LRWN #485
- Little Rock Port Railroad LRPA #435
- Los Angeles Junction Railway Company LAJ #428
- Louisiana & Delta Railroad Company LDRR #972
- Louisiana & North West Railroad LNW #442
- Manufacturers' Junction Railway Company MJ #459
- Manufacturers Railway Company MRS #460
- McCloud Railway Company MCR #466
- Minnesota Commercial Railway MNNR #973
- Minnesota Prairie Line Inc. MPL #984
- Minnesota Southern Railway MSWY #537

- Missouri & Northern Arkansas Railroad MNA #508
- Modesto and Empire Traction Company M&ET #524
- Montana Rail Link MRL #871
- Moscow, Camden & San Augustine Railroad MCSA #548
- Mount Hood Railroad MH #516
- Napa Valley Railroad Company NVRR #402
- Nebraska Central Railroad Company NCRC #565
- New Orleans & Gulf Coast Railway Company NOGC #487
- New Orleans Public Belt Railroad NOPB #536

- Oakland Terminal Railway OTR #586
- Omaha, Lincoln & Beatrice Railway Company OLB #598
- Orange Port Terminal Railway OPT #317
- Oregon Pacific Railroad OPR #604
- Ouachita Railroad Company OUCH #594
- Pacific Harbor Line PHL #600
- Palouse River and Coulee City Railroad PCC #623
- Pecos Valley Southern Railway Company PVS #644
- Peninsula Terminal Company PT #643
- Point Comfort & Northern Railway Company PCN #651
- Port of Tillamook Bay Railroad POTB #637
- Port Terminal Railroad Association PTRA #960
- Portland & Western Railroad, Inc. PNWR #626
- Portland Terminal Railroad Company PTRC #649
- Prescott & Northwestern Railroad PNW #634
- Progressive Rail Inc. PGR #668
- Puget Sound & Pacific Railroad PSAP #640

- Quincy Railroad Company QRR #656
- Richmond Pacific Railroad Corporation RPRC #449
- Rock & Rail LLC RRRR #661
- Rio Valley Switching Company RVSC #713
- Rockdale, Sandow & Southern Railroad RSS #675
- Sabine River & Northern Railroad Company SRN #678
- St. Maries River Railroad Company STMA #698
- Salt Lake City Southern SL #809
- Salt Lake Garfield & Western Railway Company SLGW #690
- Sand Springs Railway Company SS #707
- San Diego and Imperial Valley Railroad Company SDIY #315
- San Joaquin Valley Railroad Company SJVR #738
- San Luis Central Railroad Company SLC #696
- San Luis & Rio Grande Railroad Company SLRG #416

- San Manuel Arizona Railroad Company SMA #794
- San Pedro & Southwestern Railroad SPSR #513
- Santa Cruz, Big Trees & Pacific Railway SCBG #914
- Santa Maria Valley Railroad Company SMV #741
- SEMO Port Railroad, Inc. SE #788
- Sidney & Lowe Railroad, Inc. SLGG #731
- Sierra Northern Railway SERA #716

- South Chicago & Indiana Harbor Railway Company SCIH #557
- South Kansas & Oklahoma Railroad SKOL #701
- Southern Switching Company SSC #814
- Stillwater Central Railroad SLWC #797
- Stockton Terminal & Eastern Railroad STE #739

- Tacoma Municipal Belt Railway TMBL #759
- Tacoma Rail TRMW #816
- Tazewell & Peoria Railroad Inc. T&P #753
- Terminal Railroad Association of St. Louis TRRA #757
- Texas Central Business Lines Corporation TCB #800
- Texas City Terminal Railway Company TCT #761
- Texas, Gonzales and Northern Railway Company TXGN #829
- Texas New Mexico Railroad TNMR #815
- Texas Northeastern Railroad TNER #790
- Texas, Oklahoma & Eastern Railroad TOE #764
- Texas Pacifico Transportation, LTD TXPF #57
- Texas South–Eastern Railroad Company TSE #765
- Toledo, Peoria & Western Railway TPW #769
- Tri-City & Olympia Railroad Company TCRY #980
- Trona Railway Company TRC #779
- Tulsa–Sapulpa Union Railway Company TSU #709

- Twin Cities & Western Railroad Company TC&W #768
- Utah Central Railway UCRY #963
- Utah Railway Company UTAH #811
- Ventura County Railroad Company VCRR #821
- Warren & Saline River Railroad Company WSR #832
- WCTU Railway Company WCTR #844
- West Texas & Lubbock Railway WTLC #205
- Western Rail Road Company WRRC #838
- Wichita, Tillman & Jackson Railway Company, Inc. WTJR #899
- Willamette Valley Railway WVR #940
- Wisconsin & Southern Railroad Company WSOR #879
- Wyoming Colorado Railroad Company, Inc. WYCO #865
- Yreka Western Railroad Company YW #873

7.4 FRA–Workforce Development Team – Preliminary Program Plan
(Summary View)

ID	Task Name	Duration
1	**FRA Workforce Development Strategy Initiative (WDSI)**	**1257 days**
2	Support FRA WDSI Stakeholder Mtgs	187 days
3	**FRA WDSI PMO**	**1257 days**
4	Support DOT National WDSI Team Mtgs	187 days
5	Define FRA WDSI Scope	75 days
6	Define FRA WDSI Funding Strategy	31 days
7	Develop Initiative #1 Working Draft Paper (Collegiate Curriculum Dev)	1 day
8	Develop Initiative #2 Working Draft Strategy (K-12 Dev)	51 days
9	Produce JRC chart package	10 days
10	Develop Initiative #3 Working Draft Strategy (Vocational/Trades Dev)	10 days
11	Conduct pooled study of workforce impacts from PTC/HSR (FRA, FTA, RR's etc.)	60 days
12	REES Conference - Overland, Kansas (Johnson Community College)	3 days
13	AREMA Confernece - Orlando, Florida	5 days
14	**Publish WDSI Program Plan**	**64 days**
22	**Publish FRA WDSI Modal Plan**	**61 days**
33	**Establish Baseline Workforce Metrics**	**105 days**
42	**Collegiate Curriculum Development (Initiative #1)**	**1135 days**
43	Identify collegiate program development team	40 days
44	Formulate 1st draft curriculum outline	200 days
45	Develop/Mature railroad engineering scholarship program	120 days
46	**Formulate 2nd draft curriculum outline**	**150 days**
52	**Develop new curriculum**	**220 days**
56	Curriculum validation and accredidation	180 days
57	**College Curriculum Refresh & Update (Continuous Maintenance)**	**345 days**
62	**PreK-12 & Vocational/Trade Skills Development (Initiative #2, #3)**	**1140 days**
63	Initial discussion with Operation Lifesaver (consulting)	1 day
64	Establish working group for K-12 initiative	20 days
65	Establish working group for Vocational/Trade Skills initiative	20 days
66	**Develop Web/Internet Presence**	**367 days**
72	**PreK-8 Program Development (Lead to formalize plans/dates)**	**873 days**
73	**Develop introduction to railroad program (i.e. officer friendly)**	**873 days**
85	**9-12 Program Development (Lead to formalize plans/dates)**	**1088 days**
86	**College prep program development**	**720 days**
98	**Vocational/Trade prep program development**	**301 days**

7.5 FRA 2007 Recruiting and Retention Report Excerpt

Findings Summary, *"An Examination of Employee Recruitment and Retention in the U.S. Railroad Industry"*

General Findings

- *Employee demographics will continue to match the areas or regions across the country in which employees are hired and work.* The result is likely to be greater ethnic and racial diversity within the railroad industry over time, matching trends across the country as a whole.

- *The railroad industry will need to accommodate the various and sometimes disparate needs of multiple generations of employees.* As identified by participating HR representatives in the structured interview, the newest generation of railroad employees appears to have different priorities than those of previous generations. Railroads, as large employers of multiple generations of workers, will need to adjust to, and be able to accommodate, the needs of its complex workforce.

Recruitment Successes

- *The Internet has become a critical recruitment tool in the U.S. freight rail industry.* Most, if not all, Class I railroads require those interested in a job to apply online. Prospective employees are referred to a railroad's Web site. Furthermore, the Internet is becoming a major marketing and advertising tool. Railroads are placing more and more information about available jobs on their own Web sites and are advertising jobs on other Web sites, including job placement and railroad-related sites.

- *Employee referrals, i.e., word of mouth, are still a major source of new hires.* Many focus group participants indicated that they would recommend a railroad job to friends and/or family, and in fact, some already have. This recommendation; however, may depend on the person and/or their specific situation.

- *The U.S. Class I railroad industry has found recent success partnering with or hiring from the U.S. Military and the National Academy of Railroad Sciences (NARS).* Among the likely reasons that the railroad industry has been successful recruiting employees from the military is that the railroad industry and military share similar job attributes, such as 24/7 operations, operation of heavy equipment, and outdoor work. NARS provides technical training and education to individuals preparing for a career in the railroad industry.

- *According to focus group participants, railroad benefits, especially health insurance, retirement, and salary, are major attractions to working for the industry.*

Recruitment Challenges

- *Adjusting work schedules to achieve an attractive work–life balance*

- *Overcoming an incremental pay scale for some crafts*

- *Finding individuals with the right skill sets for the job*. For example, railroads prefer to hire carmen with welding experience and signalmen with technical (electronics) backgrounds. Further complicating this problem are certain rural areas where a railroad operates and where the working-age population is relatively small.

- *Attracting women to the industry*. Railroads reported that many of the jobs women filled in the past have been eliminated (e.g., clerical positions); furthermore, railroads felt that many of the blue collar jobs that the railroad industry does have to offer may be less appealing to women.

Retention Successes

- *Common features that many focus group participants liked about their job included the job variety, their coworkers, the pay and benefits, the lack of direct supervision, and a feeling of job security.*

- *Most focus group respondents intend to make a career out of working for the railroad industry and were generally satisfied with their jobs*. Factors that were identified that will affect their decision to stay or leave include changes to benefits (e.g., if employees have to pay more for their benefits), pay (e.g., a lack of pay raises), and work schedules, including furloughs.

Retention Challenges

- *Hiring individuals locally rather than forcing employees to relocate to undesirable locations*

- *Reducing or eliminating furloughs*

- *Providing realistic job previews*

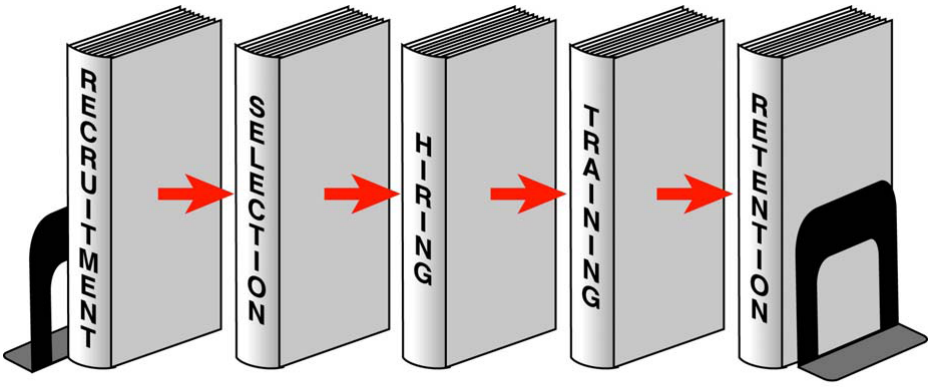
- *Improving work schedules*. Suggestions included greater predictability and less time away from home. Further, according to focus group participants, working for the railroad industry creates a strain on family relationships and has caused some focus group participants to lose friends because of their work schedules and unavailability. The upshot is that many focus group participants noted developing strong friendships with those with whom they work.

- *Common features that many focus group participants disliked about their job included work schedules, labor–management animosity, and issues related to pay.*

- *Generally, if an employee leaves the railroad industry, he/she does so within the first 5 years or so of employment*. Representatives from the Class I railroads gave the following reasons for the drop off in withdrawals: railroad employees become fully vested in their retirement benefits after 5 years, employees receiving incremental pay receive 100 percent of their salary after 5 years, employees have become familiar with the railroad lifestyle and have accepted this lifestyle after 5 years, and employees have had positive exposure to older employees who have made a career out of working for the industry. U.S. Railroad Retirement Board (RRB) data support this observation.

- These key findings provide a snapshot of many of the recruitment and retention issues currently facing the U.S. freight railroad industry. Given the qualitative nature of the research; however, no one key finding should be viewed more or less important than any other key finding.

7.6 FRA 2007 Recruiting and Retention Study: Staffing Continuum



7.7 Railroad Revenues and Expenditures by Level of Government

Revenue			Expenditures		
Total	Federal	State and Local	Total	Federal	State and Local
54,599[xl]	0[xli]	0[xlii]	42,747[xliii]	1,528[xliv]	0[xlv]

7.8 Other Sources and References

1. Transportation Learning Center (TLC)
Transportation Industry Environmental Scan—December 2008

2. American Short Line and Regional Railroad Association (ASLRRA)
Workforce Development: Public Transportation's "Blueprint" for the 21st Century—2001

3. Bureau of Labor and Statistics (BLS)
Bureau of Labor Statistics—2010

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[i] Association of American Railroads, *"A Short History of U.S. Freight Railroads"* (May 2010), http://www.aar.org/InCongress/~/media/AAR/BackgroundPapers/pdfpapers/AShortHistoryOfUSFreightRailroads-09-2009.ashx

[ii] Association of American Railroads, *"Mergers Have Led to More Efficient, Lower Cost, U.S. Freight Railroads"* (May 2010), http://www.aar.org/InCongress/~/media/AAR/BackgroundPapers/pdfpapers/MergersHaveLedToMoreEfficientLowerCostUSFreightRailroads-05-2009.ashx

[iii] DOT/FRA/RRP-07/01 *"An Examination of Employee Recruitment and Retention in the U.S. Railroad Industry"* (2007)

[iv] Association of American Railroads, *"A Short History of U.S. Freight Railroads"* (May 2010), http://www.aar.org/InCongress/~/media/AAR/BackgroundPapers/pdfpapers/AShortHistoryOfUSFreightRailroads-09-2009.ashx

[v] Association of American Railroads, *"A Short History of U.S. Freight Railroads"* (May 2010), http://www.aar.org/InCongress/~/media/AAR/BackgroundPapers/pdfpapers/AShortHistoryOfUSFreightRailroads-09-2009.ashx

[vi] Association of American Railroads, *"A Short History of U.S. Freight Railroads"* (May 2010), http://www.aar.org/InCongress/~/media/AAR/BackgroundPapers/pdfpapers/AShortHistoryOfUSFreightRailroads-09-2009.ashx

[vii] Wikipedia, "Staggers Rail Act", http://en.wikipedia.org/wiki/Staggers_Rail_Act

[viii] Association of American Railroads, *"A Short History of U.S. Freight Railroads"* (May 2010), http://www.aar.org/InCongress/~/media/AAR/BackgroundPapers/pdfpapers/AShortHistoryOfUSFreightRailroads-09-2009.ashx

[ix] RRB Annual Railroad Retirement Act and Railroad Unemployment Insurance Act data, statistical tables, section D: employment and compensation statistics, Table D-11, n.d., http://www.rrb.gov/act/pdf/ST05partd.pdf

[x] Appendix 7.1 – Interview Results (From discussion with Class 1 railroads)

[xi] Surface Transportation Board, 2010 Class 1 Employment Data by Six Labor Categories, http://www.stb.dot.gov/econdata.nsf/322683bcf67f4143852566210062ac90?OpenView

[xii] Descriptions, job titles derived from Class 1 career websites (CSX, UP, NS, BNSF)

[xiii] Association of American Railroads," Railroad Facts" 2009 Edition, Page 3, 77.

[xiv] Association of American Railroads, "Railroad Facts" 2009 Edition, Page 77.

[xv] Association of American Railroads, "Railroad Facts" 2009 Edition, Page 3.

[xvi] May 2009 National Industry-Specific Occupational Employment and Wage Estimates NAICS 336500—Railroad Rolling Stock Manufacturing, http://www.bls.gov/oes/current/naics4_336500.htm

[xvii] Amtrak National Facts, http://www.amtrak.com/servlet/ContentServer?c=AM_Content_C&pagename=am%2FLayout&cid=1241267290796

[xviii] Bureau of Labor and Statistics, Occupational Outlook 2010 – 11, Railroad Transportation Occupations, http://www.bls.gov/oco/ocos244.htm#outlook

[xix] Association of American Railroads, "Railroad Facts" 2009 Edition, Page 3.

[xx] Association of American Railroads, "Railroad Facts" 2009 Edition, Page 4.

[xxi] Association of American Railroads, "Railroad Facts" 2009 Edition, Page 3.

[xxii] Association of American Railroads, "Railroad Facts" 2009 Edition, Page 29.

[xxiii] Amtrak National Facts, http://www.amtrak.com/servlet/ContentServer?c=Page&pagename=am%2FLayout&cid=1246041980246

[xxiv] Association of American Railroads, "Railroad Facts" 2009 Edition, Page 77.

[xxv] American Short Line and Regional Railroad Association, http://www.aslrra.org/about_aslrra/Connecting_America_s_Communities/

[xxvi] Association of American Railroads, “Railroad Facts” 2009 Edition, Page 3.

[xxvii] Association of American Railroads, “Railroad Facts” 2009 Edition, Page 3.

[xxviii] Association of American Railroads, “Railroad Facts” 2009 Edition, Page 3.

[xxix] Bureau of Labor and Statistics, “Employment and output by industry, 1998, 2008 and projected 2018”

[xxx] Bureau of Labor and Statistics, “Employment and output by industry, 1998, 2008 and projected 2018”

[xxxi] Association of American Railroads, About Page, http://www.aar.org/AboutAAR/AboutUs.aspx

[xxxii] American Short Line and Regional Railroad Association, About Page, http://www.aslrra.org/about_aslrra/index.cfm

[xxxiii] American Railway and Maintenance-of-Way Association, About Page, http://www.arema.org/overview.aspx

[xxxiv] American Association of Railroad Superintendents (AARS), About Page, http://www.railroadsuperintendents.org/?page=About

[xxxv] American Public Transportation Association (APTA), General Information, http://www.apta.com/ABOUT/GENERALINFO/Pages/default.aspx

[xxxvi] American Association of State Highway and Transportation Officials, AASHTO Overview, http://www.transportation.org/?siteid=37&pageid=310

[xxxvii] Michigan Technological University Working Academic Case Study

[xxxviii] H.R. 2095, The Rail Safety Improvement Act of 2008

[xxxix] Union Pacific Online Short Line Railroad Listing, http://www.uprr.com/customers/shortline/lines/index.shtml

[xl] Association of American Railroads, “Railroad Facts” 2009 Edition, Page 12.

[xli] U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Government Transportation Financial Statistics 2009.

[xlii] U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Government Transportation Financial Statistics 2009.

[xliii] Association of American Railroads, “Railroad Facts” 2009 Edition, Page 14.

[xliv] U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Government Transportation Financial Statistics 2009.

[xlv] U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Government Transportation Financial Statistics 2009.