



**ECONOMIC &
WORKFORCE
DEVELOPMENT**
through the
CALIFORNIA
COMMUNITY
COLLEGES

**BUSINESS AND WORKFORCE
PERFORMANCE IMPROVEMENT INITIATIVE**



**Environmental Scan Report
Riverside and San Bernardino Counties**

Railway Occupations



**Inland Empire Center of Excellence
San Bernardino Community College District**

January 2007



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Strategic Opportunities for Inland Empire Community Colleges

Railway Occupations

January 2007

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Rail transportation occupations are projected to gain 24.7% in San Bernardino and Riverside Counties by 2012. This will result with an increased 16,190 jobs

- Source: California State Employment Development Department

Executive Summary

Rail Transportation occupations comprise a segment of the Logistics and Distribution industry that offers workers with little or no postsecondary education the opportunity to start work at a living wage and move up a variety of skill ladders to earn much higher incomes. Railway occupations are growing within Southern California's Inland Empire at a faster rate than in the rest of the State, employing more than 50,000 workers in San Bernardino and Riverside Counties. While there is only a relatively small number of railway employers in the region, rail transportation is a base industry in Southern California helping to drive our economic growth.

Within the Logistics and Distribution industry, a strategic opportunity exists for the region's community colleges to help prepare workers for railway occupations within the Inland Empire. The average starting pay for workers with no training is \$13.32 per hour. Workers with short-term training and skills certifications (in trades such as electrician, welder, or diesel mechanic) can earn wages exceeding \$20 per hour. However, the region's widening skills gap has made it increasingly difficult for local employers to find qualified employees for mid-level and advanced-skilled occupations. Employers state that they are experiencing increasing difficulty finding qualified workers at all levels of the career ladder.

Job Seekers can feel confident that the need for railway workers will continue to offer employment opportunities for years to come due to the growth of international trade through the ports of Los Angeles and Long Beach. Moreover, with Southern California's population continuing to experience robust growth in the wholesale and retail sectors, railway occupations cannot easily leave Southern California since its location is strategic to transporting goods from the ports and to the region's many large and growing population centers.

While the populations of San Bernardino and Riverside Counties are growing at an astonishing rate, there are inherent challenges for community colleges in serving the region's employers. Foremost among these challenges are factors including the following:

- Over 50% of residents have no post-secondary education;
- The unemployment rate remains low;
- Many skilled workers are beginning to retire, and
- A wide range of available jobs require advanced vocational skills and on-going education.

Each of these factors may contribute to the growing pool of potential employees that could be trained for transportation jobs within the railway industry.

This report explains how railway occupations represent a strategic opportunity for Inland Empire community colleges to implement or expand trades-related programs (e.g. railway operations, welding, electrician), through traditional course delivery or distance learning modalities, in order to support rail-related occupations and increase employment opportunities for students.

Introduction/Scope of Report

Rail transportation occupations within San Bernardino and Riverside Counties (which, together, are commonly referred to as the Inland Empire) provide a strategic opportunity for community colleges within the region to implement or expand trade-related programs (e.g. railway operations, welding, electrician), through traditional course delivery or distance learning modalities, in order to promote rail-related occupations and increase employment opportunities for students. Training opportunities within this sector are relevant to community college offerings and fall well within the scope of their core competencies. Moreover, the sector's sheer size (which now employs more than 50,000 workers) is projected to grow within the region at a rate that far outpaces the rest of the state's growth due to inter-modal transportation increases and region-wide expansion of the logistics industry. The size and growth of Railway and transportation-related industries suggest that an investment by local Inland Empire community colleges in developing and offering industry-specific training is not only warranted, it is necessary. The relatively small number of area employers does not diminish the need for training, as these businesses employ a significant workforce that will continue to grow well into the foreseeable future.

Data compiled in this report was drawn from external sources, as noted. While no primary research was conducted, findings in this report were industry-validated through interviews with local employers. After reviewing available data, it is evident that this sector provides a strategic opportunity for the colleges to increase full-time equivalent students (FTES) and add value to rail-related employers by providing railway skills training and related certification and pre-employment/basic skills training for entry-level employees.

State of the Region

California's community colleges are one of the few available educational vehicles that can provide vocational training leading to upward income mobility for the local workforce; a large majority of which have not taken a single class beyond high school. In 2003, the American Community Survey found that 44.6% of the residents of Southern California had stopped their formal education at "high school or less." In the Inland Empire, this situation is of particular importance, as 50.3% of people 25 years and older, or 965,089 of the region's 1.9 million adults, fell into this "high school or less" category (see chart on next page).¹ Further exacerbating this problem, only 42% of current students from San Bernardino City Unified School District earned their high school diploma this past year.²

The entire Inland Empire will be impacted for years to come by the fact such a large percentage of its residents lack education beyond high school. A recent study by the U.S. Department of Labor concluded that 85% of future jobs in the United States will require advanced training, an associate's degree, or a four-year college degree.³ Thus, minimum-

¹ Logistics and Distribution: An Answer to Upward Social Mobility. A 2004 SCAG study by Dr. John Husing of Economics & Politics, Inc. Pie chart source: 2000 US Census.

² Untrained Work Force Impediment for SB (June 22, 2006) The Sun

³ As reported in The Looming Workforce Crisis (2005). National Association of Manufacturers

skilled occupations, requiring no postsecondary education or training, will only account for approximately 15% of all future jobs.

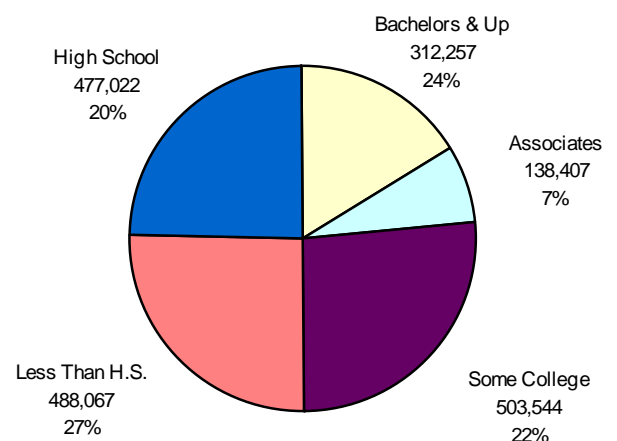
Moreover, the region's demographics are contributing to the widening skills shortage. "The oldest baby boomers were born in 1946," states John Husing, a regional economist. "They are 60 [years old] this year and starting to retire. We're going into a time when people are leaving the work force and we don't have the people to replace them. The youngest baby boomer is 42. So you have about 18 years with this problem."⁴ Railway industry representatives continue to validate Dr. Husing's assertions. Approximately 40% of Burlington Northern Santa Fe (BNSF) Railroad's workforce will be eligible to retire in the next 5 years (and 16% of these workers are employed in management positions). The company projects about 270 workers will be eligible for retirement each year for the next 5 years and its officials are concerned about creating a pipeline to replace their valuable workforce.

A variety of forces, in addition to education and demographics, have been at play impacting the widening skills gap the Inland Empire is now facing. Other factors include the 2001 recession, the tech sector boom and bust, and outsourcing to China, among others.⁵ However, the most significant contributing factor impacting the region's current skills shortage is the low unemployment rate. According to a Bureau of Labor Statistics, the U.S. unemployment rate edged down to 4.4% in October - the lowest rate since July 2001.⁶ For the Inland Empire, the September 2006 unemployment rate was only slightly higher at 4.7%.⁷ This low unemployment rate, along with strong economic conditions, contributes to the region's local skilled-labor shortage. Moreover, many of the individuals that comprise this 4.7% are simply not employable, as they are unable to pass employer drug tests, backgrounds checks or basic aptitude requirements.

In addition, Southern California is expected to grow from 19.5 million people in 2000 to 24.7 million people in 2020;⁸ a gain of 5.2 million people in this period. John Husing predicts that the Inland Empire will be California's fastest growing urban area in both absolute and percentage terms, reaching over 4 million by 2010.

So where do these factors leave the region? The population is growing at an astonishing rate, which likely portends an increased number of workers without many opportunities for a successful career. Population growth is compounded by unimpressive educational levels, low unemployment rates, and high projected retirement. Furthermore, the majority of jobs with any career potential jobs now require advanced vocational skills and post-secondary degrees. A solution to this widening skills gap

**Inland Empire Educational Achievement
(Population 1,919,297)**



⁴ John Husing as quoted in "Worker Shortage Stalls Growing Firms." The Business Press. June 5, 2006.

⁵ Manufacturing in Southern California, p.3

⁶ <http://www.bls.gov/news.release/empsit.nr0.htm>

⁷ EDD, Labor Market Information Division, Riverside-San Bernardino-Ontario MSA, October 2006

⁸ Southern California Association of Governments & San Diego Association of Governments

can, and will, only come from two courses of action. First, in an effort to remain competitive, local employers will need to upgrade the skills of their existing employees as a skilled labor pool among the general population no longer exists. And secondly, colleges need to produce additional entry-level workers and craftsman for local businesses, including those in the transportation and railway industries. Community colleges are now presented with more than simply a strategic opportunity. The colleges have an obligation to work with industry representatives and other local education and workforce stakeholders to address the gap between the skills needed by railway employers and those of the local workforce.

Industry Overview/Significance to the Region

Within the Inland Empire, logistics and distribution comprises a group of industry sectors that handle the transportation, storage, and processing of domestic and international goods as they move into and through Southern California.

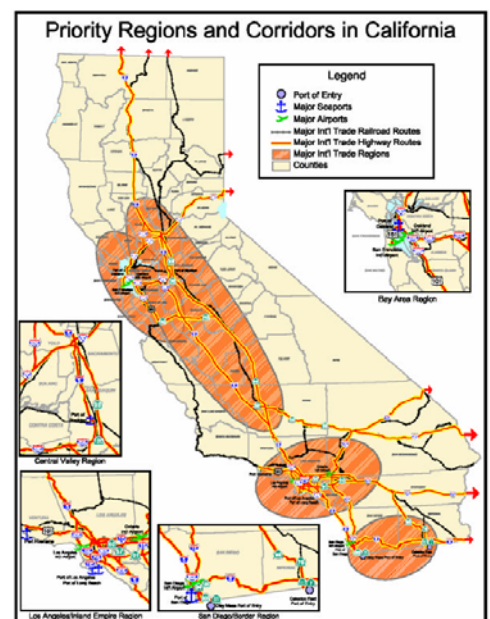
The significance of these industry sectors is highlighted by the fact that transportation is an industry targeted by the President's High Growth Job Training Initiative. It was also the focus of a September 2005 report from the State Business, Transportation and Housing Agency and California Environmental Protection Agency.

As indicated earlier, logistics and distribution (which incorporate railway occupations) are destined to continue growing rapidly, in part, because 42% of U.S. international trade now flows through the ports of Los Angeles and Long Beach. Also, growth within these sectors will be driven by the sheer size and expansion of Southern California's population, which is served by the local warehousing and retail sectors.

Understanding the Region's Goods Movement and Railway Infrastructure

A complex network of highways, rail lines, seaports, airports, and border crossings, which link the State's primary gateway regions to each other and to the rest of the nation, form California's goods movement system. The map of California (*right*) illustrates the four priority regions and corridors of this system: Los Angeles/Inland Empire, Bay Area, San Diego/Border, and the Central Valley.⁹

Among California's top priority global gateways are six ports (Los Angeles, Long Beach, Oakland, San Diego, Hueneme, and Stockton) and five international airports (Los Angeles, Oakland, San Francisco, Ontario, and San Diego). Key international trade corridors include twelve interstate highways and substantial portions of five other interstate highways, five U.S./State Routes, as well as the main rail corridors of the Burlington Northern Santa Fe and Union Pacific railroads. These transportation corridors support the key gateways in the origin and receipt of international and domestic trade. All major container ports



⁹ Map Source: California's Goods Movement Action Plan

are seeking to expand rail shipment. However, both Burlington Northern and Union Pacific face mainline and yard capacity constraints as they struggle to handle increases in freight and passenger train volumes.

The Los Angeles/Inland Empire Region (Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties) is the nation's largest international trade attractor and consumer, rivaled only by the New York City/tri-state area. In the area covered by the Southern California Association of Governments (SCAG), there are more than 17 million people with more than 6.9 million jobs, approximately 550,000 of which are directly related to handling goods through the region (including Imperial County). Thirty-seven percent of all U.S. containerized international trade moves through the region's seaports.

Southern California experiences the greatest impacts in the State of increased goods movement. According to SCAG's February 2005 report, *Southern California Regional Strategy for Goods Movement: A Plan for Action*, ensuring that goods movement activities continue to flourish will be a region-wide challenge. The report stated:

“. . . the Fall 2004 slowdown at San Pedro Bay ports (due to a labor shortage) slowed the offloading of goods arriving for the holiday shopping season. Inter-modal yards in Los Angeles and San Bernardino counties have nearly reached capacity to transfer containers from trucks to rail - and freight volumes are expected to at least double in the next two decades.”

The report observes that public and private stakeholders are doing everything they can to address these issues. Over the next six years, a total of \$2 billion in rail and highway improvements related to goods movement are funded in the 2004 Regional Transportation Improvement Programs.

The ports and the region are served by two Class I railroads; BNSF and Union Pacific. Both railroads are experiencing congestion along their systems, as Amtrak intercity passenger rail, Metrolink commuter passenger rail, and rail freight train volumes continue to climb. The Burlington Northern yards are particularly impacted, as both their main inter-modal yards in East Los Angeles and San Bernardino are currently operating at greater than original design capacity.

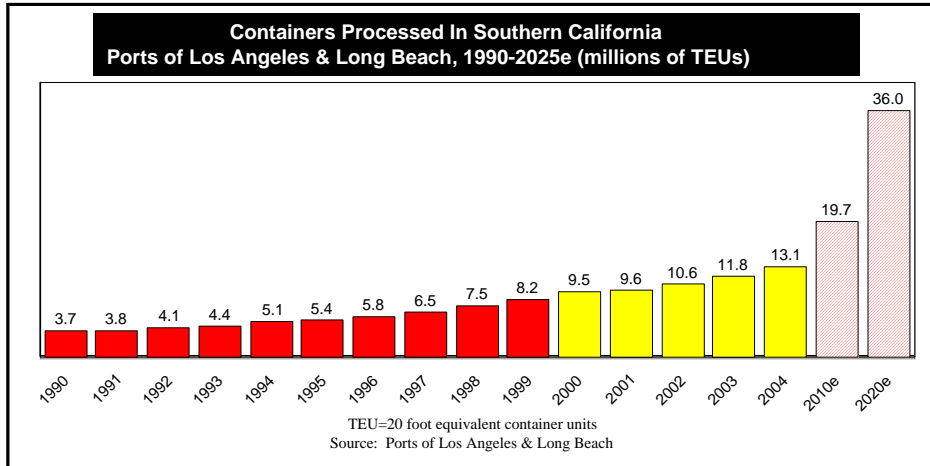
Basis for Railway Industry Demand

The U.S. Department of Transportation projects that freight movement in California and other western states will double between 2000 and 2020. In response, the Legislature has approved a statewide Strategic Growth Plan for transportation. The plan includes \$19.9 billion financed by general obligation bonds to expand trade corridors and regional priorities; \$4.5 billion of which will expand existing transit rail, commuter rail, and intercity passenger rail systems.¹⁰

The rising demand for transportation workers exists due, in part, to the fact that the number of containers moving through the ports of Los Angeles and Long Beach increased from 9.5 million twenty foot equivalent units (TEU's) in 2000 to 14.2 million in 2005. The ports predict these figures will reach 19.7 million in 2010 and 36 million in 2020. Southern California's

¹⁰ Governor's Strategic Growth Plan. Transportation Investments for Mobility: GoCalifornia.

Transportation Services industry must expand to process a significant share of these goods, as illustrated below.¹¹



Regional Employers

There are 125 employers for Railway occupations and support activity occupations in the Inland Empire (listed within NAICS 482 and 4882), which maintain operations at various facilities throughout the region. Burlington Northern Santa Fe (BNSF) is the largest employer in the Inland Empire region, having hired 1,900 employees in 2003 and 4,200 employees in 2005.¹² According to company’s Human Resources Department, BNSF cannot find enough qualified applicants to fill their vacancies. The company anticipates hiring 225 front-line Supervisors in 2006 (system-wide) and projects an additional 200 new supervisory hires in 2007. For Inland Empire community colleges, BNSF is clearly the strategic railway industry partner to consult and serve. In contrast, community colleges located in Los Angeles and Orange Counties should align their program offerings with the needs of Union Pacific Railroad, which is a more significant employer in the Greater Los Angeles coastal region (See Appendix E).

Occupational Outlook

Data at the national, state and local levels all seems to indicate that, despite projections for an overall nationwide decline in rail-related employment, the railway industry will continue to provide substantial opportunities for workers in many occupational categories.

National Outlook

Nationally, railway employment is expected to decline, despite expected increases in the amount of freight carried, due to productivity increases. Even though employment in most railroad transportation occupations is expected to decline through the year 2014, opportunities are expected to be good for qualified applicants, due mainly to the large number of railway industry workers who are expected to retire or leave these occupations in the next decade. Opportunities for long-distance train crews are expected to be better than those for yard jobs,

¹¹ Chart source: John Husing

¹² 2004 data not available

because yard occupations, generally, require little education beyond high school and do not require as much travel. Employment of subway and streetcar operators will grow about as fast as the average for all occupations, due to increased demand for light-rail transportation systems around the country.

Demand for railroad freight service will grow as the economy and the inter-modal transportation of goods expand. Inter-modal systems use trucks to move shippers' sealed trailers or containers to and from terminals and employ trains (which are more fuel-efficient than trucks) to transport them over the long distances between terminals. Railroads are improving delivery times and on-time service, while reducing shipping rates, in order to compete with other modes of transportation, such as trucks, ships, and aircraft.

Growth in the number of railroad transportation workers will be adversely affected by innovations such as larger, faster, more fuel-efficient trains and computerized classification yards, which make it possible to move freight more efficiently. Computers help to keep track of freight cars, match empty cars with the closest loads, and dispatch and control trains. Computer-assisted devices alert engineers to malfunctions, and work rules now allow trains to operate with two-person crews instead of the traditional three- to five-person crews.¹³

State and Local Outlook

The California Employment Development Department's Labor Market Information Division reports that between April 2005 and April 2006, California's total non-farm employment increased by 22,300, or 1.8 percent, to reach 1,242,000 jobs. From that, trade, transportation and utilities employment grew by 8,400 jobs – more than one third of the total employment growth. Wholesale and distribution (logistics) grew in California from 79,320 jobs in 2000 to 96,440 in 2005; a gain of 17,120. Driven by international trade and a growing consumer market, the sector will continue to expand. In fact, more than 300,000 new employment opportunities, including jobs created by separation (e.g. retirement or transfer to another occupational area), are projected in transportation and materials moving occupations through 2012 in California.¹⁴

Within the Inland Empire, rail and related occupations employed over 50,000 people in 2002. The occupations' largest share was found in Freight Laborers, Industrial Truck Operators, Mechanics, and Welders. Despite national trends, low-skilled yard jobs, as well as better paid/higher skills railway positions, are in significant demand within San Bernardino and Riverside counties. These jobs provide living wages at the entry-level, along with an excellent career ladder. Annual transportation salaries in the Inland Empire range from just over \$27,000 to approximately \$73,400.

BNSF alone projects that up to fifty percent (50%) of its workforce will be retiring within the next 5 to 10 years. Local railway businesses are now extremely focused on hiring, mentoring, and training younger employees to prepare for this inevitable labor-supply shortage.

¹³ U.S. Department of Labor – Bureau of Labor Statistics (BLS)

¹⁴ California Employment Development Department. [http://www.calmis.ca.gov/FILE/OCCPROJ/cal\\$OccProj.xls](http://www.calmis.ca.gov/FILE/OCCPROJ/cal$OccProj.xls)

Transportation and Material Moving occupations (SOC Code 53) are projected to grow from 96,340 jobs in 2002 to 131,490 jobs by 2012 within the Inland Empire. This represents a projected growth of 35,150 jobs; a 36.5% increase, with 5,632 job openings per year. Appendix D provides additional employment and wage data for railway and transport-related occupations within the Inland Empire.

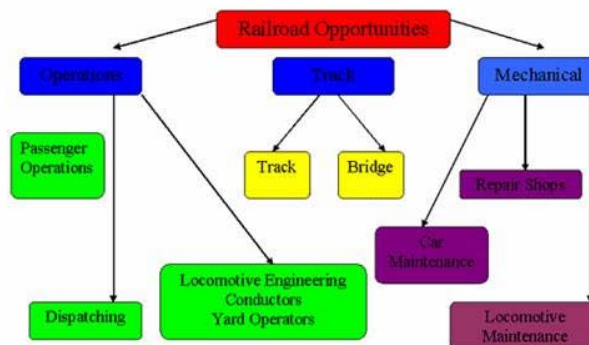
Occupational Skills and Training Requirements

For high-skilled rail occupations, employees need a comprehensive understanding of the General Code of Operating Rules, which govern the operation of the majority of the nation's railway companies. For example, to gain employment as a conductor at BNSF in San Bernardino, employees must complete their "ground school" training and pass a job-specific evaluation with 90% accuracy.

Many railroad transportation workers begin as yard laborers. Later, they may have the opportunity to train for positions such as engineer or conductor. Railroads require that applicants have a minimum of a high school diploma or its equivalent. Applicants must have good hearing, eyesight, and color vision, as well as good hand-eye coordination, manual dexterity, and mechanical aptitude. Physical stamina is required for most entry-level jobs. Employers require railroad transportation job applicants to pass a physical examination, drug and alcohol screening, and a criminal background check. Federal regulations require that the driving record of anybody applying for a job operating an engine be checked for evidence of drug or alcohol problems. Similarly, pursuant to Federal regulations, all persons licensed to operate engines are subject to random drug and alcohol testing while on duty.

Major Occupational Categories

Typically, employers categorize rail transportation occupations within the following four categories: mechanical, engineering, operations, and on-board services. In addition, businesses indicate that positions, hours, and pay scales are, typically, seniority-based.



Standard positions and, in some cases, career ladders within each occupational category are described below. The wages cited have been provided by BNSF (for mechanical, engineering, and operations occupations) and Amtrak (for on-board services occupations) and, while specific to these companies, they generally reflect overall industry wage rates.

Mechanical Occupations

Locomotive Laborer: This is an entry-level position, earning approximately \$15.00 per hour. Employees in this position operate various types of industrial maintenance equipment and typically work within the mechanical shop for one year before being eligible for promotion.

Diesel Mechanic/Machinist: Some experience is required with overhauling and auto maintenance to qualify for these positions, which pay from \$18 to \$21.43 per hour.

Electrician: Employment in this position requires a technical background (often including formal training and certification as an Electrician) and workers can earn from \$17.97 (at the Apprentice level) to \$21.41 per hour.

Rail Car Repair Person: This position requires some welding experience, but is mostly internally-trained. Workers inspect, build, and repair freight cars for compliance with federal and company standards. Employees can earn up to \$21.65, with entry wages starting at \$18.19 per hour.

Traveling Mechanic: These skilled workers repair small engines and troubleshoot a variety of other problems, from electrical systems to hydraulics. Typically, a minimum of two years of mechanical work experience is required. The average hourly rate for experienced workers is near \$27.

Engineering Occupations

Employees in these positions normally work outdoors and jobs are, generally, project-based. Work in railway engineering occupations requires extensive travel.

Track Laborers: This is an entry-level position earning about \$15.00 per hour. Workers repair and construct plates, spikes, rails; and clear debris using various power and other hand tools.

Welders (metal to metal): Workers perform tasks associated with welding, grinding, and cutting of rail. They earn \$17.00 to \$19.00 per hour working, typically, in two-person teams. The position requires experience in construction and welding, including FCAW and SMAW.¹⁵

Track Maintenance Truck Driver: This position is responsible for removing and replacing track components (e.g., ties, rails, bars). A Class A commercial driver's license with HAZMAT and air brake endorsements is required. The entry-level pay rate is \$18.16 per hour, with experienced workers earning up to \$19.05.

Assistant Signal Person: This position works outdoors, digs trenches, climbs and paints poles, and generally maintains signals. This physically demanding position pays an entry wage of \$18.84 per hour.

Electronic Technicians: These employees repair motherboards, soldering, electrical connections, and telecommunications equipment. Employees can earn more than \$28 per

¹⁵ FCAW (Flux Core Arc Welding). SMAW (shielded metal arc welding).

hour, and those with an FCC license qualify for additional proficiency pay.

Building & Bridges Helper/Driver: Workers repair wooden railroad bridges, trestles, and tunnel supports and repair/replace structural steel components of bridges. Prior carpentry, construction, and/or welding experience is highly desirable, as is trade-related training. The average entry pay rate is \$17.94 per hour.

Operational Occupations

Conductors: These employees are “on-call” and “on the road.” The job is physically demanding and workers are away from home for an average of 3 days at a time. They earn approximately \$67,000 annually. The position requires 1-year of outdoor/warehouse/mechanical experience. BNSF has experienced 99.9% retention of trainees that become full-time Conductors.

Train Dispatcher: These employees, who schedule the movements of trains, work 12 hour shifts (a weekly schedule is, generally, 3 days on/3 days off or 4 days on/4 day off). Requirements include computer literacy, ability to multi-task, along strong communication and inter-personal skills. Starting salary is \$65,000 to \$70,000.

First-Line Supervisors: These employees must often have a degree or many years of direct work experience. BNSF, for example, employs specialized mechanical, engineering, and transportation supervisors, all of who earn more than \$60,000 per year. These individuals function as members of a management team and are responsible for making assignments and coordinating work flow.

On-Board Service Occupations

Lead Service Attendants (LSAs): These workers create a welcoming atmosphere of hospitality for passengers. They coordinate work and supervise teams of food and wait staff. LSAs are also responsible for the security, sale, safe handling and accounting of food and beverage products, and they handle cash and credit transactions. With Amtrak, the starting wage is \$16.46.

Assistant Conductor: This position assists the Conductor in the safe movement of trains by adhering to applicable operating rules/practices; ensures all revenue documents; maintains safety rules, and operating/physical characteristics including air brake rules, electrical instructions, emergency procedures, etc. They also help with the loading and unloading of passengers. New Amtrak employees in this position must attend seven weeks of training at company’s facility in Delaware. The starting wage is \$15.44 per hour.

Concession Worker: These workers have responsibility for the sale, safe handling and accounting of food and beverage products. \$14.81 is the entry wage for this position.

Utility Worker (Service Attendant): This position provides food service to passengers; assists in checking, loading and stowing supplies; sets tables in a uniform manner; and cleans and sanitizes food service supplies and equipment. The starting wage: \$12.00 per hour.

Utility Worker (Train Attendant): Provides quality service to coach and sleeping cars passengers on long distance trains. Ensures cars and clean and fully stocked; assists passengers while boarding, en route, and when de-training. They also assist with luggage handling. The starting wage is \$12.00

Other on-board positions include:

- Chefs: Starting Wages: \$16 to \$20 per hour (based on experience)
- Food Specialists: Assist Chefs. Starting Wage: \$16.00
- Coach Cleaners: Entry-level janitorial positions. Starting wage is \$11.98

Transportation Worker Identification Credential

On May 11, 2006, the Distribution Management Association reported that a Transportation Worker Identification Credential (TWIC) has been approved by Transportation Security Administration (TSA) and the U.S. Coast Guard. Requirements related to this identification credential will be published in the Federal Register. All individuals with unescorted access to secure areas of port facilities and vessels regulated under the Maritime Transportation Security Act will be required to have a TWIC. Affected positions include, but are not limited to, longshoremen, port operator employees, truck drivers, and rail workers.

Barriers

Significant barriers contributing to the gap in meeting the railway industry's demand for workers in key occupational areas include scheduling, working conditions, and workforce familiarity, as described below.

Scheduling

Many rail transportation employees work nights, weekends, and holidays, because trains operate 24 hours a day, 7 days a week. Many work more than a 40-hour workweek. Seniority usually dictates who receives the more desirable shifts.

Many freight trains are dispatched according to the needs of customers. As a result, train crews often have irregular schedules. Many workers place their names on a list and wait for their turn to work. Frequently, jobs are assigned on short notice and at odd hours. Working weekends is common. Those who work on trains operating between points that are hundreds of miles apart may spend several consecutive nights away from home.

The irregularity of railway work schedules may also pose a challenge for community colleges in recruiting trainers and instructors. Because many railway jobs require out-of-the-area travel for days at a time, holding regular classes at a given location is a challenge. Retired railway employees may provide the best candidates for instructional positions.

Working Conditions

Rail yard workers spend most of their time outdoors and work regardless of weather conditions. The work of conductors and engineers on local runs, during which trains frequently

stop at stations to pick up and deliver cars, is physically demanding. Climbing up and down and getting off moving cars is strenuous and can be dangerous. Some individual who are qualified for railway work may be disinclined to pursue such employment due to the arduous physical demands of many positions.

Workforce Familiarity

Yet another significant barrier to the success of Southern California's transportation sector is the lack of awareness by the general labor force of the opportunities it offers. This will impact community colleges offering the programs outlined below to the extent that potential employees do not understand the career and income benefits of investing in training for the field. Interviews with coordinators and instructors in existing model programs have indicated that they have faced enrollment difficulties due to students' lack of familiarity with the industry.

Community colleges interested in offering railway and transportation programs/courses should work with high-schools and regional occupational programs to familiarize students with the industry and encourage their enrollment into transportation, logistics, or railway occupation programs. Such programs should be coordinated with employers to ensure internships and interviews are highly desirable by both students and employers.

Industry Validation

Data compiled in this report was drawn from external sources, as noted. While no primary research was conducted, findings in this report were industry-validated through interviews with local employers including representatives of the following companies:

- BNSF Railway Company
- Amtrak
- MetroLink

Each of these employers substantiated the fact that the railway industry is an important part of the development of the Inland Empire as a major transportation and logistics corridor. They also validated the need for assistance in recruiting new workers, as growth (to a lesser extent) and retirement (to a greater extent) are factors that will significantly affect the local workforce within the next five to ten years.

Both BNSF and Amtrak projected the retirement rate among their Southern California-based workforce to be as high fifty percent within this period. Information regarding specific occupational titles, duties, and wages was obtained directly from railway businesses. Furthermore, employers confirmed that training for new workers is highly desirable and that many workers need pre-employment and basic skills training (a combination of life skills and remedial math and English) in addition to occupational skills, such as training for welders, electricians, mechanics, and engineers.

In addition, multiple unsuccessful attempts were made to contact representatives from Union Pacific Railroad Company. Although not a key employer in the Inland Empire, Los Angeles

area community colleges should work with Union Pacific as they would be the strategic industry partner for more coastal counties.

Response of the Community Colleges and Other Workforce Development Programs to Industry Needs

Colleges based within San Bernardino and Riverside counties, along with several programs in other parts of the nation, already offer Railway-specific and transportation related training. These programs provide models for colleges interested in developing courses to address the training needs of railway and other transportation businesses.

Inland Empire-Based Programs, Courses and Initiatives

Some California Community Colleges, along with the college system's Economic and Workforce Development Program initiative centers and other workforce development agencies, have begun to address the training and hiring needs of the railway industry within the Inland Empire. These efforts include the following programs and initiatives

Railway Occupations Programs

San Bernardino Valley College (SBVC)¹⁶ hosts a regional Transportation Center that offers:

- A 30-unit Truck & Bus Technology Career Certificate (2 semesters);
- An 8-unit Truck Service Certificate (1 semester); and
- A 12 unit General Railway Operations Certificate (1 semester).

All of the above SBVC programs are pertinent to workforce preparation for rail transportation occupations. Students completing these programs have been hired in mechanical, operational and engineering positions by regional railway employers such as BNSF.

Almost every college in the Inland Empire has an Automotive Technology program (and many have additional transportation-related offerings and specialty courses) that provides an excellent foundation for mechanical railway occupations. Locally available programs that provide training related to the needs of transportation/railways occupations include:

- College of the Desert hosts the region's Advanced Transportation Technology Center, which offers several in-demand courses covering topics such as clean air technology, biodiesel, and electrical systems.
- Six community colleges in the Inland Empire offer Welding Technology certificates and/or Associate degrees.
- The Regional Environmental Health Safety & Homeland Security Initiative (REBRAC) that serves Southern California offers an 8 hour Department of Transportation course in trade and goods-movement documentation.¹⁷

¹⁶ <http://depts.valleycollege.edu/Transportation>

¹⁷ More information about the REBRAC can be found at www.ccewd.net

Inland Empire Regional Transportation Consortium

Based on the growth of the transportation industry within the region, the Inland Empire community colleges and the San Bernardino County WIB applied to the U.S. Department of Labor for a regional transportation grant to address rail, trucking, logistics and transportation management needs for the region. Riverside CCD was to lead project, which also included the San Bernardino, Victorville Valley, Desert, and Barstow community college districts. The total grant application was in excess of \$3 million for two years. While the grant was ultimately not funded, the willingness of local community colleges and workforce development agencies to work together to address the training and hiring needs of railway and other transportation employers illustrates that the industries are a major force, creating jobs and contributing to the overall economic growth within the region.

Other Program Models and Resources

In addition to locally operated programs, colleges interested in exploring the benefits of implementing training for Railway occupations or other transportation/goods movement-related fields may want to review existing program/course models such as those described below.

Railway-Specific Training Programs

In addition to SBVC's General Railway Operations Certificate Program, there are a small number of rail-related programs offered by community colleges in other regions. Model programs include the following

Sacramento City College (California) Associate of Science Degree in Railway Occupations: This 18-unit, six-course program is designed for students pursuing a career as a Railroad Conductor or Engineer and is approved by the National Academy of Railroad Sciences. It includes: History of Railroading; Railroad Technical Careers; Railroad Operations; Railroad Safety, Quality and Environment; and General Code of Operating Rules. Students combine Railroad courses with general education requirements (such as mathematics, physics, electronics, and computer science) to earn an Associate Degree.¹⁸

Tarrant County College Northwest Campus (Texas) Railroad Dispatcher Training Program: Train Dispatchers supervise the movement of trains and provide protection to employees occupying the track. They accomplish these objectives by utilizing various types of signaling equipment and radios to communicate with trains and employees maintaining the track. Tarrant County College's program is designed to train students in the rules, regulations and procedures for Railroad Dispatchers. The program includes the following six courses: Introduction to Railroad; Railroad Dispatcher Practicum; Rules Simulation, Traffic Control; Rules, Regulations, and Safety; and Internship, which includes six weeks of on-site field observation at various locations.¹⁹

Johnson County Community College (Kansas) Freight Car Training Program: The National Academy of Railroad Sciences (NARS) and the Center for Business and Technology (CBT)

¹⁸ <http://www.scc.losrios.edu/programs/railroad.html>

¹⁹ <http://www.tccd.edu/neutral/DivisionDepartmentPage.asp?menu=2&pagekey=162>

offer the six-course Freight Car Training Program to supply railroads with highly qualified and technically-trained Railroad Carman. Individuals who successfully complete the program receive a certificate of completion and are top candidates for employment opportunities in the railroad industry. Railroad Carman responsibilities and duties include: performing train air brake inspections and tests; inspecting freight cars for defects in accordance with federal regulations and AAR Rules; repairing defective freight car component parts; inspecting high/wide loads; troubleshooting freight car air brake systems; repairing air brake systems; and overhauling freight cars and component parts.²⁰

Other Transportation-Related Programs and Courses

A February 2006 VTEA report cited Community College TOPs Code programs and courses that prepare students for employment opportunities in transportation and materials moving occupations. These include:

0510 - Logistics & Materials Transportation
 0947 – Diesel Technology
 0948 – Automotive Technology
 0957 – Civic & Construction Management Technology
 2105.3 – Industrial & Transportation Security

Implications and Recommendations for Community Colleges

Clearly, given the availability of well-paid railway employment with companies located in Riverside and San Bernardino counties and the fact that neither a college degree nor extensive non-degree training is required for the majority of these jobs, a strategic opportunity exists for Inland Empire-based community colleges to prepare workers for employment in railway occupations. The following four recommendations outline strategies and possible courses of action with respect to a college's pursuing this opportunity.

1. Make Use of Distance Learning Technologies to Offer Railway Training at Multiple College Locations.

While colleges currently operating railway transportation programs report that training can be implemented without expensive equipment, starting such a program may still pose a number of other challenges for some colleges, such as finding qualified trainers, recruiting students, and higher than average attrition rates for new programs. Due to these potential obstacles and the fact that the Inland Empire's 11 community colleges are scattered across a very large geographic area, the use of distance learning technologies to broadcast classes from one college to many throughout the region would offer a sensible means of providing training. This approach would also allow colleges to share FTES, offer multiple training locations that are convenient to students, maximize a small number of available instructors, and produce more workers for regional rail employers. Any college interested in pursuing this option may want to begin by contacting SBVC to explore the possibility of establishing a distance learning connection with courses offered under the college's existing Railway Program. The sole "lab" portion of their program is a recommended tour of a railway yard. In addition, the only

²⁰ <http://www.jccc.net/home/depts/S00018>

specialized “railway equipment” that would be needed by colleges offering SBVC’s Railway Program through distance learning is an inexpensive software program – Microsoft Train Simulator. The San Bernardino Community College District has extensive experience in offer courses via distance learning technology and has recently added video streaming capabilities enabling the district’s colleges to provide video-on-demand-based training services to other colleges and businesses.

2. Increase Awareness of Railway Employment Opportunities among Job Seekers.

Any consideration of a college’s implementing railway training must be accompanied by a sustained effort to increase awareness among job seekers of the myriad employment opportunities associated with the rail industry. Colleges should identify methods for incorporating local railway employers into career fairs and other activities that promote students’ career awareness. Efforts to increase career awareness should not be limited to colleges, but, wherever possible, should be linked with workforce investment boards, one-stop career centers, and adult education agencies, along with job fairs hosted by chambers of commerce, industry associations, and community development organizations. A college’s ability to successfully communicate about job opportunities associated with railway occupations will require that career counselors understand these opportunities and that they establish relationships with local railway employers, who will be integral partners in delivering the message about available employment.

3. Create a Pipeline of Students from Secondary Schools to the Community Colleges.

As is the case with many college-based trades programs, class seats can go unfilled where new college students are unaware of career opportunities related to skills taught in these programs. It will be critical to the success of any new railway program that referrals are made from students’ institutions, including both traditional high schools and continuation campuses. In conjunction with the development of career awareness programs and activities, as described above, a college’s career counselors need to develop and maintain relationships with their counterparts at the secondary level to ensure that students become aware of railway employment opportunities and are referred to the college’s program. In addition, colleges may want to work with local Regional Occupational Programs/Tech Centers to help design transportation and railway related courses that could serve as “feeders” to the college’s program.

4. Implement a Basic Railway Skills “Boot Camp” Program for Entry-Level Job Seekers.

As indicated above, the majority of jobs available with railway employers do not require an A.S. or other college degree. In addition, while it is the case that completion of a certificate program may increase both entry and career advancement opportunities with rail employers for some positions, many workers enter the field with virtually no formal training whatsoever. This reality may provide a unique opportunity for some colleges to work with local railway employers to develop and implement a short-term “railway boot camp” program, which could be offered to businesses on a contract basis. Based on needs describe by employers such as BNSF, this type of program would provide basic/pre-employment skills training on general

“employability” issues (e.g. punctuality, working as part of a team, accepting supervision) and job-specific railway topics dealing with equipment, gear, tasks, safety, and related topics. It is anticipated that a railway “boot camp” program would last about two weeks.

As previously suggested, another option that colleges may want to consider is developing their own version of a Transportation/Railway Certificate Program that would be similar to the ones offered at San Bernardino Valley College and other community colleges, for which models were cited above. However, this is not recommended as an initial method of venturing into railway occupations training, since less expensive and less time-consuming alternatives (as embodied within the preceding recommendations) are available to test student interest and actual industry demand within the immediate labor market area surrounding a given college.

Conclusion

With fewer and fewer opportunities available in Southern California for workers having little formal education to enter well-paid careers with career advancement potential, the railway industry offers unique opportunities. Industry occupations pay a living wage at the entry level and workers can move up a variety of skills ladders to earn much higher incomes. In addition, both industry growth and employee retirement within San Bernardino and Riverside counties are fueling the need for additional workers. This growth is expected to continue well into the foreseeable future. Given the local needs of the industry and the career opportunities for workers, the Inland Empire’s community colleges should carefully examine how their existing offerings can be adapted or expanded in order to help prepare workers for careers in the railway industry.

APPENDIX A: How to Utilize this Scan

About Us - Description of BWPI

The Business and Workforce Performance Improvement (BWPI) initiative is focused on building the capacity of the colleges in the area of economic and workforce development to enhance their ability to deliver education and training services to businesses and workers in high growth industries, new technologies, and other clusters of opportunities.

The Centers of Excellence (COE) within BWPI provide information regarding workforce trends, increasing awareness and visibility about the colleges economic and workforce development programs and services, and building partnerships with business and industry.

The difference this will make to the colleges is that it will position them as THE workforce partners of choice to business and industry and ensure that college programs are current and responsive. This will contribute to the overall economic vitality of the communities in which they serve.

How to Use This Environmental Scan

The Centers of Excellence within the Business and Workforce Performance Improvement Initiative of the California Community College Economic and Workforce Development Network have undertaken Environmental Scanning to provide targeted and valuable information to community colleges on high growth industries and occupations.

This report is intended to assist the decision-making process of California Community College administrators and planners in addressing local and regional workforce needs and emerging job opportunities in the workplace as they relate to college programs. The information contained in this report can be used to guide program offerings, strengthen grant applications, and support other economic and workforce development efforts.

This report is designed to provide current industry data that will:

- Define potential strategic opportunities relative to an industry's emerging trends and workforce needs;
- Influence and inform local college program planning and resource development; and
- Promote a future-oriented and market responsive way of thinking among stakeholders.

This Environmental Scan included a review of the California Regional Economies Project reports, Employment Development Department (EDD) Labor Market Information (LMID) projections that cover the communities in this region, private database sources in partnership with Environmental Systems Research Institute Inc. (ESRI), as well as many other sources as listed.

Important Disclaimer:

All representations included in this Environmental Scan product/study have been produced from a secondary review of publicly and/or privately available data and/or research reports. Efforts have been made to qualify and validate the accuracy of the data and the reported findings. The purpose of the Environmental Scan is to assist the California Community Colleges to respond to emerging market needs for workforce performance improvement. However, neither the Business and Workforce Performance Improvement Centers of Excellence, COE host college/district nor the California Community Colleges Chancellor's Office are responsible for applications or decisions made by recipient community colleges or their representatives based upon this study including components or recommendations.

APPENDIX B: References

- California Regional Economies Project (2005) Logistics and Manufacturing Value Chains: Meeting the Workforce and Infrastructure Demands of a “Real Time” Economy.
- California Regional Economies Project: Southern California Economic Base Report
- California State EDD LMID (www.calmis.ca.gov)
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- Los Angeles Economic Development Corporation. www.laedc.org
- Roadmap to Industry Clusters (2004) Los Angeles County Economic Development Corporation
- San Bernardino County Comprehensive Economic Development Strategy (CEDS)
- Southern California Regional Strategy for Goods Movement: A Plan for Action, February 2005, Amended March 2005 Southern California Association of Governments.
- Transportation & Materials Moving Occupations (February 2006). VTEA Industrial and Technical Collaborative CCCCCO Grant #5
- USWorks, a division of ERISS, provided information on job descriptions, tasks, skills and education required. Website: www.usworks.com

APPENDIX C: Associations Serving the Industry

- American Association of Railroad Superintendents
- American Public Transportation Association
- American Society of Automotive Engineers
- Association of American Railroads
- Brotherhood of Locomotive Engineers and Trainmen
- California High-Speed Rail Authority (CHSRA)
- Inland Empire Transportation Club (IETC)
- Mechanical Association Railcar Technical Services
- National Academy of Railroad Sciences
- The American Railway Engineering and Maintenance-of-Way Association (AREMA)
- The National Railroad Construction and Maintenance Association, Inc. ("NRC")
- The Rail Passenger Association of California and Nevada (RailPAC)
- Train Riders' Association of California
- United Transportation Union

APPENDIX D: Employment and Wage Data

Rail Occupations & Related Occupational Outlook Riverside & San Bernardino Counties

(Sorted By: Employment Change)

Occupation	Hourly Wage * (Entry-level)	Hourly Wage * (Mean)	Hourly Wage * (High-level)	Employment 2002 **	Employment 2012	Employment Change	Percent Change
Laborers & Freight, Stock & Material Movers	\$7.82	\$10.77	\$12.25	21,090	27,530	6,440	30.5%
Industrial Truck, Forklift & Tractor Operators	\$10.03	\$13.77	\$15.64	8,170	11,550	3,380	41.4%
Bus & Truck Mechanics & Diesel Engine Specialists	\$14.03	\$19.09	\$21.62	3,150	4,250	1,100	34.9%
Welders, Cutters, Solderers, and Brazers	\$ 9.64	\$ 14.58	\$ 17.04	3,200	4,210	1,010	31.6%
Weighers, Measurers, Checkers, and Samplers	\$8.53	\$13.27	\$15.64	1,700	2,610	910	53.5%
First-Line Supervisors/Managers of Transportation	\$16.57	\$23.83	\$27.45	1,890	2,600	710	37.6%
Dispatchers (Except Police, Fire, and Ambulance)	\$9.95	\$16.36	\$19.56	1,850	2,540	690	37.3%
Machinists	\$ 10.10	\$ 15.43	\$ 18.09	2,820	3,340	520	18.4%
Mobile Heavy Equipment Mechanics, Except Engines	\$16.10	\$23.38	\$27.02	1,400	1,760	360	25.7%
Cargo & Freight Agents	\$11.82	\$18.82	\$22.30	580	880	300	51.7%
Transit and Railroad Police	\$17.33	\$25.06	\$28.93	1,100	1,400	300	27.3%
Transportation Workers, All Other	\$11.50	\$19.69	\$23.77	340	570	230	67.6%
Material Moving Workers, All Other	\$9.71	\$13.77	\$15.80	580	720	140	24.1%
Rail Transportation Workers, All Other	\$14.17	\$19.11	\$21.58	160	200	40	25%
Transportation Inspectors	\$19.32	\$33.61	\$40.75	190	230	40	21.1%
Railroad Conductors & Yardmasters	\$17.75	\$23.95	\$27.05	500	530	30	6%
Locomotive Engineers	\$18.68	\$26.09	\$29.81	430	440	10	2.3%
Locomotive Firers	\$14.18	\$17.56	\$19.25	-	-	-	-
Traffic Technicians	\$12.83	\$15.54	\$16.90	-	-	-	-
Rail Car Repairers	\$15.03	\$21.09	\$24.07	-	-	-	-
Rail Yard Engineers, Dinkey Operators, & Hostlers	\$12.20	\$16.16	\$18.14	-	-	-	-
Rail-Track Laying & Maint. Equipment Operators	\$13.68	\$19.33	\$22.15	-	-	-	-
Railroad Brake, Signal, and Track Switch Operators	\$15.30	\$21.57	\$24.71	170	150	-20	-11.8%
Averages / Totals	\$13.32	\$19.21	\$22.15	49,320	65,510	16,190	24.7 %

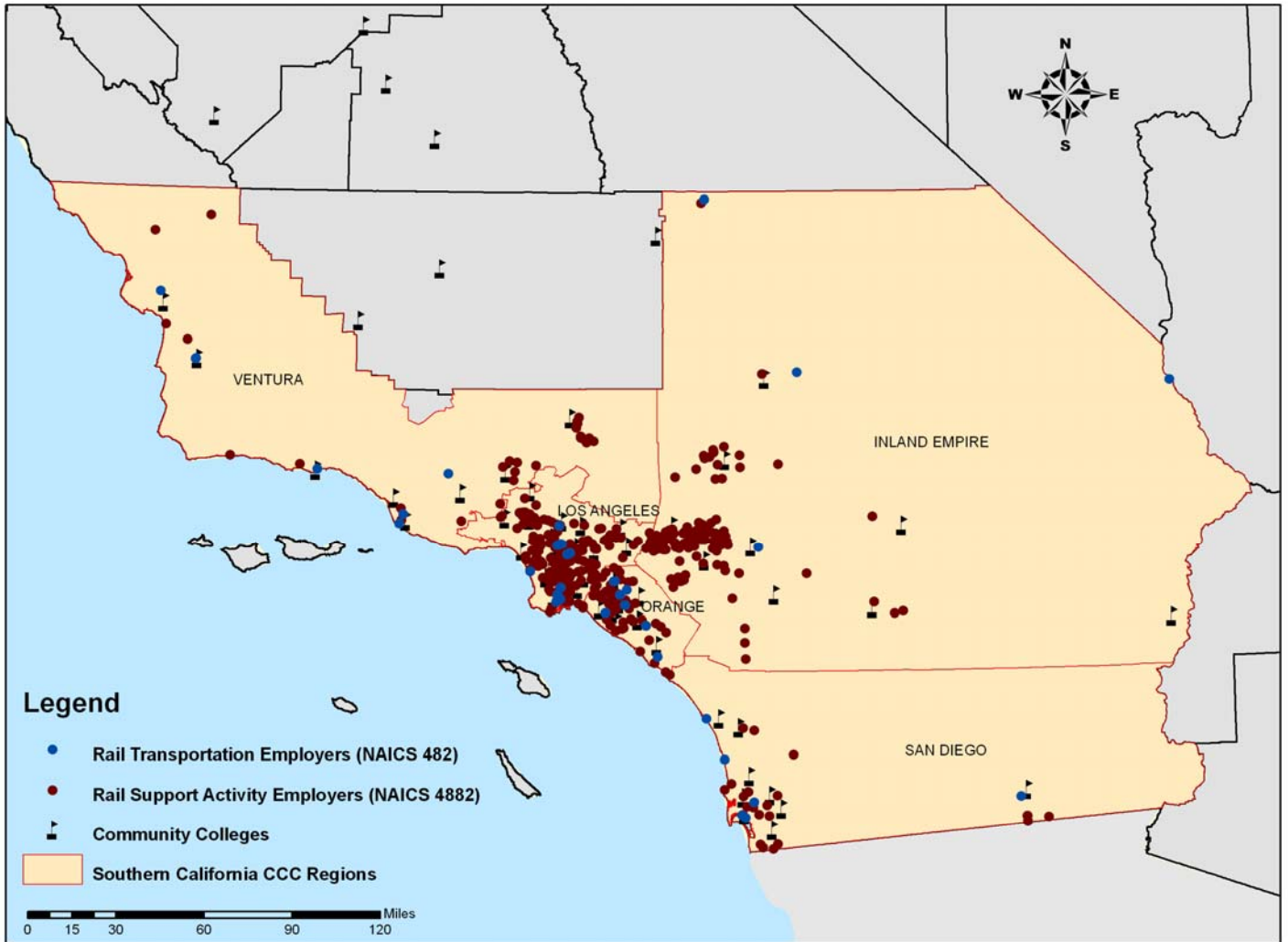
Source: State of California, Employment Development Department

- No value indicates a lack of LMI Data available

* 2004 Wage Data for the San Bernardino-Riverside PMSA

** Employment Projections for the San Bernardino-Riverside PMSA, 2002- 2012

APPENDIX E: Southern California Railway Employers



Number of Employers by NAICS and Geography:

	Rail Transportation Employers (NAICS 482)	Support Activity for Rail Transportation Employers (NAICS 4882)	Totals
Orange	8	54	62
Inland Empire	4	121	125
Los Angeles	13	179	192
San Diego	6	26	32
Ventura	7	26	33
Totals	38	406	444

Specific employer information is available by contacting your regional Center of Excellence.