



CALIFORNIA
COMMUNITY
COLLEGES
**ECONOMIC &
WORKFORCE
DEVELOPMENT
PROGRAM**

BUSINESS AND WORKFORCE PERFORMANCE IMPROVEMENT INITIATIVE

Industry Scan Report Construction Industry

**“Image Makeover and Training Basics Expand
the Pipeline to Dynamic Construction Careers”**



Prepared By:

Center of Excellence, Northern California Region

Hosted at Los Rios Community College District

August 2005



**BUSINESS AND WORKFORCE
PERFORMANCE IMPROVEMENT INITIATIVE***

**Strategic Opportunities for Community
Colleges
in the
Construction Industry:
Image Makeover and Training Basics
Expand the Pipeline to Dynamic
Construction Careers**

June 30, 2005

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Construction Industry: Image Makeover and Training Basics Strategic Partners

Industry

Building Industry Association (BIA)
Sacramento-Sierra Building & Construction Trades Council
Professional Association of Specialty Contractors
Reynen and Bardis Communities
Association of General Contractors
Sacramento Builders' Exchange, Inc.

Education and Government

North/Far North Regional Consortium of Community Colleges
State of California Employment Development Dept.
Business and Economic Development Center, Los Rios Community College District
Center of Excellence
Workplace Learning Resource Center-Los Rios CCD
Sacramento Employment and Training Agency (WIB)

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THE CONSTRUCTION INDUSTRY IN THE GREATER SACRAMENTO REGION WILL GROW 7.6% BY 2008, ADDING 8,000 ENTRY LEVEL JOBS TO THE WORKFORCE.

Executive Summary

The Business and Workforce Performance Improvement Initiative (BWPI) of the California Community College Economic and Workforce Development (CCCEWD) Program, has undertaken Environmental Scanning to provide targeted and valuable information to community colleges on high growth industries and occupations. This Environmental Scan is intended to provide colleges with information on which to base their response to the industry’s workforce needs.

The Northern California Community Colleges Center of Excellence (COE) serves the 14 Community Colleges in California’s Northernmost Counties.

Table 1 Northern California Community Colleges Center of Excellence Client Colleges	
<ul style="list-style-type: none"> American River College Butte College Consumnes River College College of the Redwoods College of the Siskiyou Feather River College Lassen College Sierra College Folsom Lake College Yuba College Mendocino College Shasta College Lake Tahoe Community College Sacramento City College 	

The Environmental Scan included a review of the California Regional Economies Project reports (*Northern California Economic Base Report, the Northern Sacramento Valley Economic Base Report and the Greater Sacramento Economic Base Report*) and Employment Development Department (EDD) Labor Market Information (LMID) projections that cover the communities of these colleges. The Scan also included a review of the US DOL *President’s High Growth Job Training Initiative* findings

There is potential for all colleges in the Center of Excellence region to address this Strategic Opportunity. As John Orr (Building Industry Association of Superior California) states:

The building industry in the greater Sacramento area continues to experience challenges in meeting its workforce needs. One valuable solution to the challenge has been for the industry to draw upon construction-related companies located in the counties north of the Sacramento area, who are able to augment the skilled trades workers that are based in Sacramento. The effort to complete almost 20,000 housing units in the capitol region has been aided in no small measure by this approach of casting a wider net in the search for quality construction personnel.

According to the Bureau of Labor Statistics, the education requirement for the Construction Industry Occupations is primarily On-The-Job Training. These occupations provide workers with even limited education (a High School Diploma or less) the opportunity to start at relatively good pay (between \$8/hr. and \$11/hr) and move to a wage level with full benefits (\$44,500/yr) within 18 months that is above Estimated Median Earnings (\$30,204; Sacramento-Yolo Metropolitan Statistical Area: 2002; US Census).

The Construction Industry is, however, often overlooked as a preferred career option. In a recent survey conducted by Sacramento-Sierra Building and Construction Trades Council only 10% of the parents surveyed affirmed that they would encourage their children to pursue a career in Construction. And, more importantly, the Construction Industry reported at a focus group held for the Industry by the Center of Excellence for the Northern California Community Colleges at Los Rios Community College District, that the **current available workforce does not meet their labor needs** (see References Cited: *Convergence IV Building the Future: Educating the Construction Workforce in Northern California Meeting Notes*).

The Construction Industry representatives who participated in the focus group report that **1) they do not have an adequate supply of applicants and 2) the majority of those that do apply do not have the basic “workability” skills** (an industry-defined and industry-recognized set of basic skills, “soft” skills and basic technical skills required for entry-level success in the construction industry) **to be hired and retained in construction businesses.**

This validates a February 2004 Sacramento Employment and Training Agency (SETA) report *Analysis of Workforce Skills Sets* where 54% of the respondents identified a high demand for “soft skills” (interpersonal skills, work ethics, and responsibility) in their low-skilled occupations.

This report was based on a comprehensive analysis of the 15 top industries that demonstrated the greatest potential for economic development in the region. Of these 15 industries, three represented the following areas of the construction industry: Construction of Buildings, Heavy and Civil Engineering Construction and Specialty Trade Contractors.

Table 2
Workforce Training Needs
Industries with the Greatest Economic Development Potential
Transferable Across a Range of Occupations and Industries
Sacramento Region
2004

Mathematics	Reading Comprehension	Active Listening
Speaking	Writing	Critical Thinking
Problem Solving	Decision Making	Attitude
Time Management	Work Ethics	Interpersonal Skills
English Language		

35 Skill categories were identified and rated by the 15 top industries which include the 3 construction industry sectors. The above list shows just the “soft-skills” from the list.

Source: *Analysis of Workforce Skills Sets Report*

The opportunities for employment in the Construction Industry are expanding significantly.

- Nationally, the Construction Industry grew by 2,356,000 jobs (51%) to 6,964,000 between 1992 and 2004 and is expected to grow another 781,000 (11%) by 2012.
- In California, it grew by 388,000 to 856,000 jobs (82%) during the same period and is expected to grow another 147,000 (17%) by 2012.
- In the Greater Sacramento region, it grew by 42,200 to 70,400 (150%) between 1992 and 2004 and, continuing at this rate, the Construction Industry would add an additional 12,953 jobs between 2004 and 2008. It is, in fact, expected to surpass the 2001-2008 EDD projections reaching 73,100 this year (2005).

The top 13 “high-growth” Construction Occupations (in the Greater Sacramento Region) are expected to experience a total annual demand of 2,025 workers including new job growth and separations (individuals leaving the industry). This annual demand will generate over 8,000 new entry level job openings by 2008.

Table 3
13 High-growth Occupations
Greater Sacramento Region
2001-2008

Occupation Title	Projected Employment Level	Projected Annual Demand
Carpenters	11,810	575
Carpenter Helpers	1,375	106
Cement Masons and Concrete Finishers	1,775	50
Construction Laborers	7,780	300
Electricians	5,475	270
Glaziers	395	20
Heating, Air Conditioning and Refrigeration Mechanics and Installers	1,135	50
Operating Engineers	2,080	85
Painters	2,665	115
Plumbers	4,075	195
Roofers	1,290	70
Sheet Metal Workers	1,365	85
Welders	1,580	105

“The Projected Employment Level and the Projected Annual Demand (growth and separations) are statistical estimates calculated by using the Projections of Employment (industry forecast data) for the Sacramento region (Sacramento, Yolo, El Dorado, Placer, Nevada, Alpine, and Sierra counties) published by the Employment Development Department’s Labor Market Information Division. The projected employment level and projected annual demand are the 2005 annual averages based on the 2001-2008 projection period.” (SETA Construction Occupations Report, Dec. 2005)

While the industry states that it can provide the technical skills for individuals to perform well on the job, it is not able to provide the fundamental “workability” skills. **This is a tremendous Strategic Opportunity for the community colleges to assist** in providing the industry with a pipeline of candidates with basic training and skills who will then have the opportunity to advance quickly to well-paid positions.

Overview of the Strategic Opportunity

The Construction Industry in the Greater Sacramento Region desperately needs workers with basic “workability” skills. There is a Strategic Opportunity for the Community Colleges to respond to this need that will benefit the colleges, the Construction Industry businesses, and the workers in the industry. This opportunity is articulated below and is substantiated by key data sources that are found in the Bibliography section of this report.

Description:

The Construction Industry is growing rapidly and is experiencing a shortage of employees at many levels. A fundamental shortage of workers with basic “workability” skills exists and the industry is not recognized by parents, counselors, and students as a preferred career option. This makes it difficult for the industry to bring in workers who can move up quickly through the wage and career ladders.

Demand:

The top 13 Construction Industry occupations in terms of expected growth in the area are expected to need a total of 2,025 new workers per year in the Greater Sacramento Area to keep up with industry growth and anticipated separations (individuals leaving the industry). The industry needs additional workers that have the following “workability” skills:

- basic life skills (attitude, time management, hygiene, maintaining good health, etc),
- a fundamental understanding of work opportunities in the industry,
- basic construction skills (basic math, ability to use tools, read tape measures, read plans, etc),
- language skills (Vocational English as Second Language - ESL),
- soft skills (communication, teamwork, problem solving, customer service, safety etc).

Value to Colleges:

There could be excellent returns to the Community Colleges in meeting the Construction Industry workforce needs: delivering adequate numbers of employees ready to go to work with the skills to remain successfully on the job.

1. Addressing the issues would greatly assist an important industry in the local economy.
2. In this effort the Colleges could be the catalyst to prepare and lift up a segment of youth from middle and lower income families.
3. Students would be gaining successful employment in an industry whose wages are above the region's average for entry-level (providing an opportunity to work for good wages provides the ability to have the financial resources to attend additional college if they so choose).
4. There is excellent enrollment potential for Community Colleges.
5. Additional revenues can possibly be generated through contract education opportunities with larger Construction Industry employers or groups of employers
6. There is excellent grant funding potential to partner with Workforce Investment board and industry for developing training for the Construction Industry

Labor Market Projections:

According to the Federal Bureau of Labor Statistics "Construction is the only goods-producing sector of the U.S. economy in which employment is projected to grow." Nationally the Construction Industry grew by 2,356,000 jobs (51%) to 6,964,000 between 1992 and 2004 and is expected to grow another 781,000 (11%) by 2012. In California the Construction industry is among the fastest growing of all sectors. It grew by 388,000 to 856,000 jobs (82%) and is expected to grow by 147,000 (17%) by 2012. In the Greater Sacramento region it grew by 42,200 to 70,400 (150%) and is expected to grow by 75,800 (7.6%) by 2008 (the latest year available at the regional level).

Industry Validation:

A Construction Industry Convergence Focus Group of 30 industry representatives from a broad spectrum of the industry's sectors was conducted on April 29, 2005. Data on industry growth, labor supply, demand and quality, and industry skill requirements was collected from industry presentations and responses to a series of fact finding questions. This qualified, substantiated, and validated current data found in reports and information reviewed in the Environmental Scanning process (See Bibliography section below) on projected industry workforce needs and issues. Electronic meeting equipment and processes were used to simultaneously collect information from the participants representing the construction industry.

The focus group was conducted in partnership with and sponsored by the Building Industry Association of Superior California, Sacramento-Sierra Building & Construction Trades Council, Professional Association of Specialty Contractors, Association of General Contractors, Reynen and Bardis Communities and the Sacramento Builders' Exchange.

The April 29 focus group data presentations included:

- *Sacramento Region Construction Industry Trends* from David Lyons, Greater Sacramento Labor Market Consultant, Labor Market Information Division, California Employment Development Department.
- Perspectives of the Construction Industry workforce and labor market issues by industry sectors were presented by: John Orr, President/CEO, Building Industry Association of Superior California
- Construction Industry Workforce Needs from Mike Winn, Vice President, Land Planning for Reynen and Bardis Communities
- Brad Diede, Executive Vice President, Professional Association of Specialty Contractors with added comments from Brian Peters, Human Resources Manager for Bianchi Plumbing Company and Mark Cooper, President of H and D Electric, Inc
- Matt Kelly, Executive Secretary, Sacramento-Sierra Building and Construction Trades Council

The results of this focus group (*Convergence IV Building the Future: Educating the construction Workforce in Northern California Meeting Notes*) can be found in the References Cited.

Source Data:

The following are the major data sources which led to the identification of industry workforce needs:

- California Regional Economies Project, Greater Sacramento Region, Northern Sacramento Valley, and Northern California reports, 2004
- Construction Industry Convergence IV Focus Group, April 29, 2005
- Employment Development Department(EDD) Labor Market Information Division (LMID), David Lyons, Sacramento Region Labor Market Consultant
- EDD LMID Employment by Industry Tables
<http://www.calmis.ca.gov/htmlfile/subject/indtable.htm>
- EDD LMID Projections of Employment by Occupations
<http://www.calmis.ca.gov/htmlfile/subject/occproj>
- County Business Patterns
<http://www.census.gov/>
- Construction Careers Occupational Outlook December 2004, Sacramento Employment and Training Agency (SETA), John Harden Project Manager
- Analysis of Workforce Skills Sets February 2004 prepared for SETA by the Sacramento Regional Research Institute (SRRRI)
- SRRRI Occupation and Education Study prepared for Los Rios CCD, May 2004
- *The Report of Findings for the President's High Growth Job Training Initiative in the Construction Industry*

Industry Overview

According to the Sacramento-Sierra Building & Construction Trades Council, Construction is the 6th largest Industry in California, produces 15% of the State gross product, employs 12% of the labor pool, and supports every industry in the State.

State of the Industry:

The Report of Findings for the President's High Growth Job Training Initiative in the Construction Industry states that the construction industry was selected for the President's Initiative in large part because total employment in construction is projected to increase by over one million new jobs between 2002 and 2012. In addition, other industries and sectors depend on construction to build and maintain the facilities and infrastructure that are vital to their daily operations.

Additionally, many occupations in construction (e.g. carpenters, electricians) are also integral to other industries, so workforce solutions that target these occupations may benefit other industries as well. The construction industry provides job seekers with extensive career opportunities.

Growth is projected for occupations throughout the industry, from laborers to construction managers. These positions offer good wages starting at between \$8/hr. and \$11/hr with the potential to move to a wage level with full benefits of \$44,500/yr within 18 months and have varying education and training requirements, from short term on-the-job training to post-secondary education such as a Bachelor's degree (see Appendix: *Occupation Projections, Separations, and Education Requirements 2001-2008*).

In California the construction industry grew by 388,000 to 856,000 jobs (82%) between 1992 and 2004 and is expected to grow by 147,000 (17%) by 2012. In the Greater Sacramento region it grew by 42,200 to 70,400 (150%) between 1992 and 2004 (Charts 1 and 2) and is expected to grow to 75,800 (7.6%) by 2008 (EDD *Employment by Industry Tables* <http://www.calmis.ca.gov/htmlfile/subject/indtable.htm>, and *Projections of Employment by Industry*. <http://www.calmis.ca.gov/htmlfile/subject/indproj.htm>)

Chart 1



Source: Greater Sacramento Economic Base Report

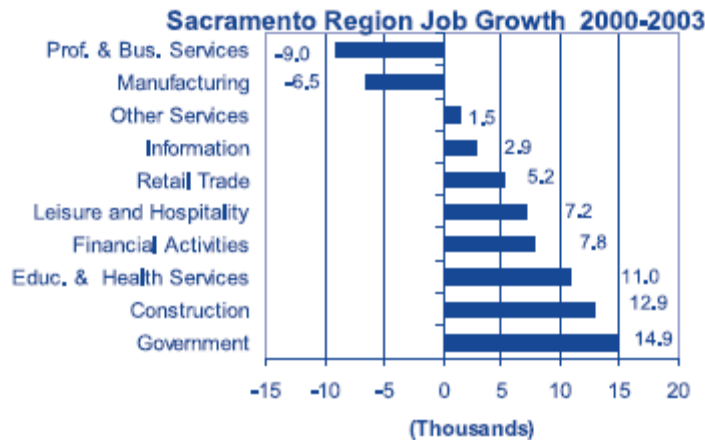
Chart 2



Source: Greater Sacramento Economic Base Report

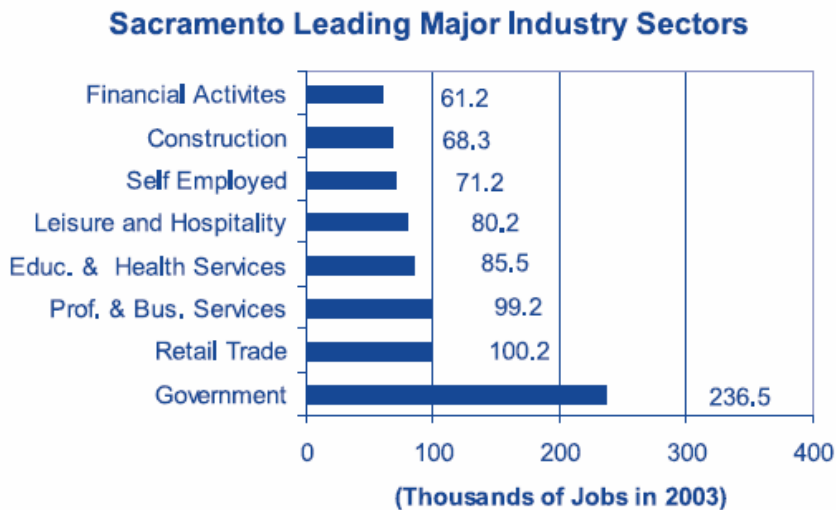
The California Regional Economies Project Greater Sacramento Region Report indicates that the Construction Industry posted among the largest gains of any industry in the Greater Sacramento Region between 2000 and 2003 by adding an additional 12,900 jobs (Chart 3). The Greater Sacramento Region also has an above average share in Construction (Chart 5).

Chart 3



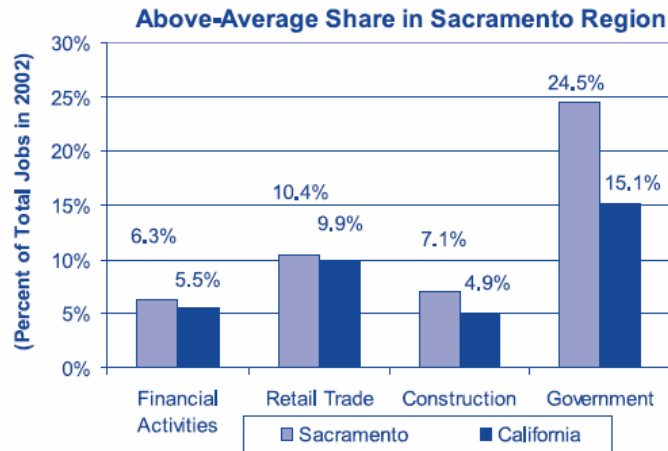
Source: Greater Sacramento Economic Base Report

Chart 4



Source: Greater Sacramento Economic Base Report

Chart 5



Source: Greater Sacramento Economic Base Report

State of the Region:

The Greater Sacramento Region includes six counties - El Dorado, Placer, Sacramento, Sutter, Yolo and Yuba. The Greater Sacramento region includes the counties that are members of the Sacramento Area Council of Governments (SACOG). Additional information about the Greater Sacramento region economy and long-term planning issues is available at www.sacog.org.

The California Regional Economies report that the Greater Sacramento Region accounts for approximately 6% of California's jobs and population. The region accounts for just over 3% of farm and manufacturing jobs. The Greater Sacramento Region has wage and per capita income levels that are approximately 7.5% below the State average.

The Greater Sacramento Region added a total of nearly 37,000 non-farm jobs between February 2001 and February 2004 for a gain of 4.4%, outpacing the state and nation, both of which lost jobs during this period.

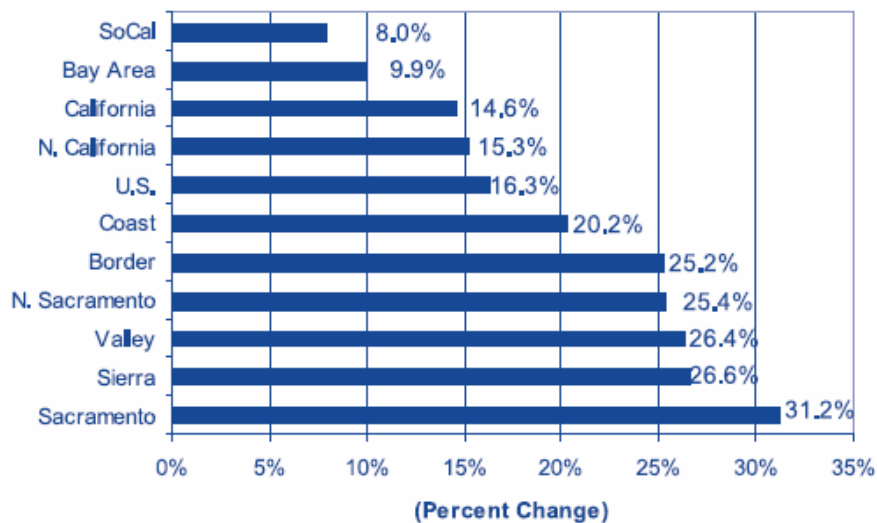
Unemployment rates in the Greater Sacramento Region increased during the three years leading up to 2004, but by less than in the State as a whole or in the nation. The region's unemployment rate increased by 1.3%, from 4.6% in 2000 to 5.9% in 2003 but was below the state average of 6.7%.

The Greater Sacramento Region has the second lowest regional unemployment rate in California, behind the Southern Border Region.

The Greater Sacramento Region had the highest total job growth rate since 1990 among the state's nine regions. Jobs in the Greater Sacramento Region increased by 31.2% compared to the nation's 16.3% gain and the state's 14.6% increase (see Chart 6 and 7).

Chart 6

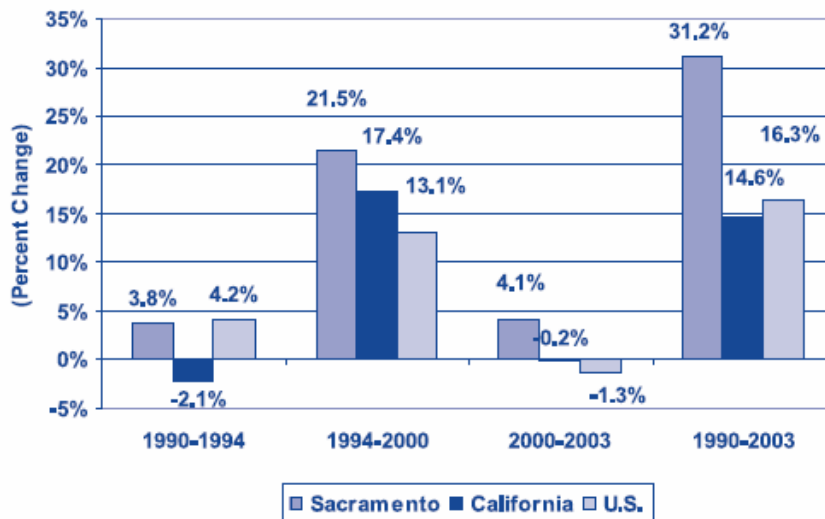
Growth in Total Jobs 1990-2003



Source: Greater Sacramento Economic Base Report

Chart 7

Growth in Total Jobs



Source: Greater Sacramento Economic Base Report

The Greater Sacramento Region ranks in the middle in terms of per capita income among California regions. Per capita income of \$30,091 in 2001 places the Greater Sacramento Region 1.1% below the national average. The Bay Area has the highest wage level and per capita income of any region in the nation.

Chart 8



Source: Greater Sacramento Economic Base Report

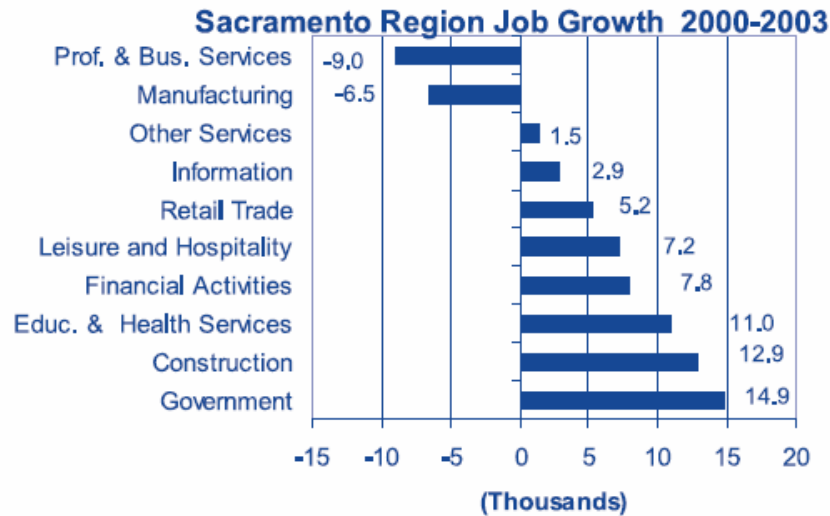
The Greater Sacramento Region had 965,600 total jobs in 2003. Government was the largest major industry sector with 236,500 jobs. Retail Trade was the second largest sector with 100,200 jobs followed by Professional and Business Services with 99,200 jobs and Educational and Health services with 85,500 jobs in 2003. Leisure and Hospitality, Self Employed, Construction and Financial Activities were the next largest sectors.

The distribution of jobs by major industry group in the Greater Sacramento Region is similar to the statewide pattern, except for the region's very high share of jobs in the Government sector. The Greater Sacramento Region also has an above average share in Retail Trade, Construction and Financial Activities.

Between 2000 and 2003, the Greater Sacramento Region added jobs in most sectors. The largest gains were in Government (+14,900), Construction (+12,900) and Educational and Health Services (+11,000) (Chart 9). Professional and Business Services were the only sectors that lost jobs in these three years as a result of the nation's high tech slowdown.

Four large major industries have shown some cyclical pattern in job levels since 1990. One sector - Manufacturing - recorded strong job growth between 1994 and 2000 and job losses during the two recession periods. Construction and Retail Trade slowed in the early 90s recession but showed job gains during the recent statewide recession. Professional and Business Services did not lose jobs in the early 90s recession but has lost jobs since 2000 in the region.

Chart 9



Source: Greater Sacramento Economic Base Report

Key Associations:

Although there are many associations serving various components of the Construction Industry, the key associations for this strategic opportunity in the Greater Sacramento Region are:

- California Coalition for Construction in the Classroom- Adrienne Monroe, Exec. V.P. CCCC represents the entire construction industry, including specialty contractors, general contractors, architects, engineers and inspectors. They represent approximately 80 of the largest Construction and Building Trades Associations, representing roughly 15,000 businesses throughout California. www.constructcareers.org
- Building Industry Association of Superior California-John Orr, President/CEO - BIA is an association of 865 builders, developers, subcontractors, and suppliers. BIA serves the following 20 county area: Alpine, Amador, Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Yolo and Yuba.
- California Professional Association of Specialty Contractors is an association of independent specialty residential trade contractor, suppliers and related businesses. Brade Diede is the Executive Vice President.
- Sacramento-Sierra Building and Construction Trades Council, Matt Kelly, Executive Secretary.

Industry Workforce Challenges:

The Construction Industry is facing many of the same workforce challenges that other industries are facing. They are exacerbated, however, by the impacts of a poor image of the industry as a suitable career option that is held by the parents, teachers, and counselors (see Appendix: *Convergence IV Building the Future: Educating the construction Workforce in Northern California Meeting Notes*).

At the national level, the workforce is retiring faster than it can be replaced. The industry needs 250,000 new skilled workers annually to keep pace. A shortage could grow to more than 2.3 million unfilled jobs by 2010. Nationally, the average age is 47; 225,000 are leaving the industry annually; 110,000 entering. (*U.S. Dept. of Commerce Bureau of Economic Analysis*).

The need to recruit is even more pressing in a high-growth state like California. The lack of available workforce in the trades and in entry-level positions (carpentry and construction laborers) affects builders' abilities to build as quickly as they would like to meet the demand. (*Convergence IV Building the Future: Educating the construction Workforce in Northern California Meeting Notes*).

The largest issue of concern and importance to the industry is the lack of an available skilled and qualified workforce (pipeline). 73.3% of the Convergence IV focus group reported their concern over recruiting qualified workers as being *extremely concerned-critical* (*Convergence IV Building the Future: Educating the construction Workforce in Northern California Meeting Notes*).

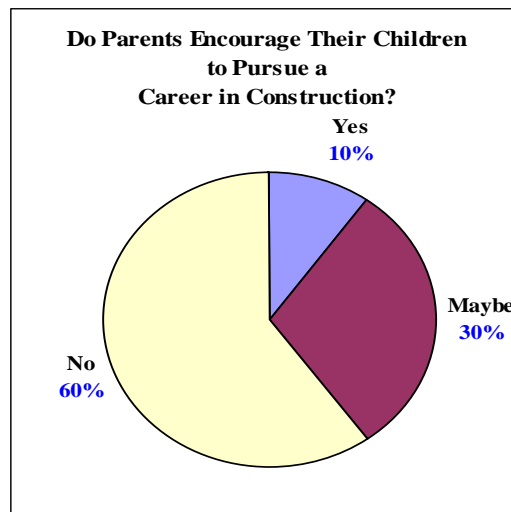
This critical workforce shortage may be attributed to placing a higher emphasis on 4-year degrees and by the systematic dismantling of vocational and career technical education (the Construction Industry workforce pipeline) over the past 20 years (Sacramento-Sierra Building and Construction Trades Council). High School vocational programs continue to be eliminated at an alarming rate.

Courses required by the No Child Left Behind Act for high school graduation are eliminating student access to elective shop trades classes if students do not pass the required courses. Furthermore, high schools are eliminating career technical trades academies because they do not add to the

state mandated equation (California Coalition for Construction in the Classroom-Adrienne Monroe, Exec. VP). This threat places career tech programs at risk of elimination. This will further reduce the pipeline of high school students to Community College career technical education programs serving the Construction Industry.

Attracting new workers to the industry is also hampered by parents and counselors who are directing high school students to college and not to the trades. Schools, parents, teachers, and counselors are unaware of the career and wage earning opportunities in the construction industry. A recent survey asked parents whether they encourage their children to pursue a career in Construction. Results to this question are provided in the following Chart (Chart 10) by the Sacramento-Sierra Building and Construction Trades Council.

Chart 10



Source: Sacramento-Sierra Building and Construction Trades Council.

Candidates for employment in the Construction Industry typically lack the employability and soft skills necessary to succeed on the job. According to a recent Sacramento Employment Training Agency (SETA) survey of 145 Sacramento-area companies, “soft skills” topped the list of what area employers desired in an employee. This need was validated by data collected at the April 2005 Convergence focus group held by the Center of Excellence for Northern California Community Colleges at Los Rios Community College District.

Language barriers and cultural understanding have become critical issues in the Greater Sacramento Region Construction Industry. From the home builder’s perspective (heard at the Convergence Construction Industry Focus Group) “trade side/subcontractors supply of workers is critically short especially in the above entry-level positions. We see non-American-born filling this gap. The disconnect is that their advancement is slower because of language/cultural bias, but they will be the next managers.”

Language and cultural barriers exist in the heavy construction side of the industry as well, especially with native Russian and Ukrainian speakers. Those businesses representing the specialty home contractors and specialty trade contractors also cited language as a barrier. Similarly, the Building Industry Association of Superior California cited language issues among

the Ukrainian, Hmong, and Hispanic populations as a concern and barrier.

The language limitations of non-native English speakers result in inefficiency of work, and the translation process (if available) takes time, thus slowing job progress. Many have memorized manuals and when there is a change, non-native speakers are unable to read and identify those changes.

Any non-native English speaker entering the construction industry will have language and cultural adjustments to make.

Industry Workforce Needs:

At the Construction Industry Convergence Focus Group, 30 industry representatives from a broad spectrum of the industry's sectors identified the key elements the construction professionals look for when hiring entry level workers:

Table 4 Key Elements Construction Professionals Look For When Hiring Entry-level Workers:		
Attitude (12)	Motivated/Enthusiasm (7)	Reliability/Dependability(6)
Drug Free (6)	Drivers License/ Transportation (6)	Ability to Communicate (4)
Appropriate Dress (4)	Teamwork (3)	Basic Construction Math (2)
Honesty (1)	Work Ethic (1)	Some Knowledge of Construction (1)

Source: *Convergence IV Building the Future: Educating the Construction Workforce in Northern California Meeting Notes*

Table 5 Most Common Reasons for Letting an Employee Go		
Absenteeism (5)	Poor Attitude (4)	Drugs (4)
Lack of Motivation (3)	Dishonesty (1)	Interpersonal Relations (1)
Lack of Responsibility (1)	Doesn't Follow Instructions (1)	Unable to take directions, Criticism & perform job (2)
Unprofessional conduct (1)		

Source: *Convergence IV Building the Future: Educating the Construction Workforce in Northern California Meeting Notes*

They also identified the most critical training needs of the workers currently on job site:

- Drivers.
- Safety.
- Quality installation.
- Understanding the goal of worker's component of the job.
- Homebuilding knowledge.
- Production speed.
- People relations - team work/general people skills---both internal and external.
- Ability to follow directions.
- SWEPP (storm water waste protection program).
- ESL – English as a Second Language.
- Listening Leadership and communication training.
- Teamwork.
- Interpersonal relationships.
- Global Positioning Systems.
- Technical skills - continually updating.
- Keeping up with the technology--transitioning from manual to computer-based operation.
- Specific skill training - e.g., plumbers need training in plumbing;
- electricians need electrical training.
- Loyalty, ownership, integrity.
- Soft skills (i.e., strong work ethic, honesty).
- Building codes, electrical codes.
- Learning new skills.
- Finding locations, map reading.
- Quality of work performed.
- Our leadership and management skills are most important right now.

Industry Validation:

A Construction Industry Convergence Focus Group of 30 industry representatives from a broad spectrum of the industry's sectors was conducted on April 29, 2005. Data collected from industry presentations and responses to a series of fact finding questions qualified, substantiated, and validated current reports and information reviewed in the Environmental Scan (see Bibliography section below) data on projected industry workforce needs and issues. Electronic meeting equipment and processes were used to simultaneously collect information from the participants representing the construction industry. The focus group was conducted in partnership with and sponsored by the Building Industry Association of Superior California, Sacramento-Sierra Building & Construction Trades Council, Professional Association of Specialty Contractors, Association of General Contractors, Reynen and Bardis Communities and the Sacramento Builders' Exchange (*Convergence IV Building the Future: Educating the Construction Workforce in Northern California Meeting Notes*).

Occupational Outlook

Job Growth and Demand

The following occupational growth information is presented based on its relevancy to the strategic opportunity. David Lyons with EDD in conjunction with SETA estimated the projected annual demand for the 13 Occupations in the construction Industry that were expected to have the highest growth rate. They estimated that these 13 occupations would need 2,025 new workers per year to fill open positions (see Table 3).

The Employment Development Department has developed a data profile that indicates that after three years of on-the-job experience, construction workers can be earning \$20/hr or higher than the median income for the Region.

Table 6

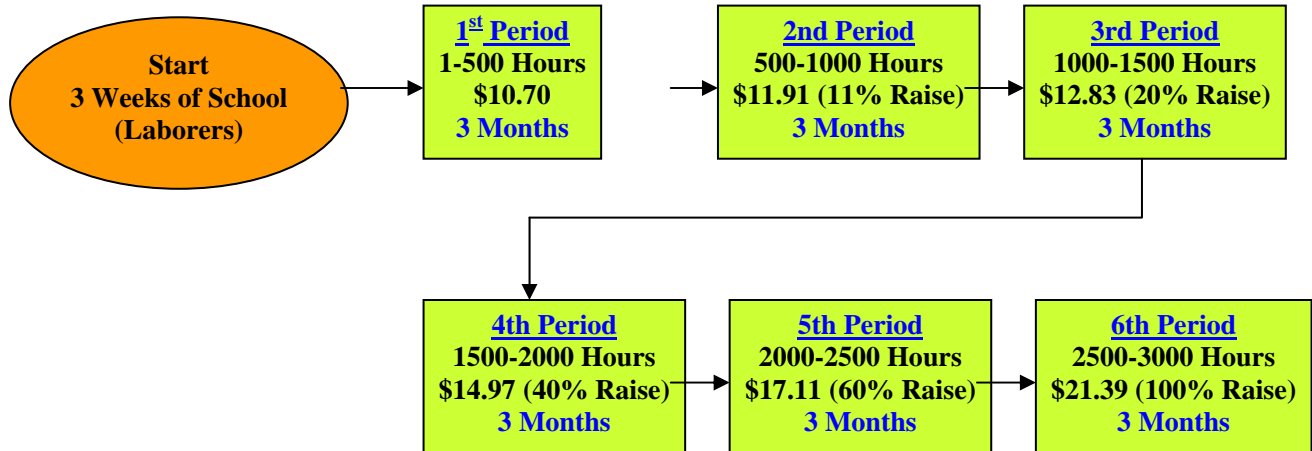
Occupation	O*NET/ SOC Code	New Hires/ No Experience	New Hires/ With Experience	Exp. New Hires/ After 3 yrs. On-The- Job	Union - Apprentice Wage (1st level)	Union - Journey Wage
Carpenters	47-2031.00	\$12	\$18	\$20	\$14.41	\$24.02
Carpenters Helpers	47-3012.00	\$10	\$11.50	\$15	\$10.70	\$21.39
Cement Masons and Concrete Finishers	47-2051.00	N/A	\$17	\$20	\$15.52	\$23.88
Construction Laborers	47-2061.00	\$11	\$15	\$18	\$10.70	\$21.39
Electricians	47-2111.00	\$10.25	\$13	\$18	\$13.08	\$29.44
Glaziers	47-2121.00	\$10	\$12	\$16	\$9.93	\$26.08
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	49-9021.00	\$9	\$13	\$19	\$12.80	\$28.42
Operating Engineers	47-2073.00	\$13.50	\$18.50	\$22.50	\$16.56	\$25.59
Painters	47-2141.00	\$8	\$10.25	\$15.50	\$11.31	\$21.25
Plumbers	47-2152.00	\$10	\$15	\$20	\$11.16	\$27
Roofers	47-2181.00	\$10	\$18	\$22	\$10.04	\$18.81
Sheet Metal Workers	47-2211.00	\$8.50	\$12	\$15	\$12.80	\$28.42
Welders	51-4121.00	\$9	\$12	\$15	N/A	N/A

Source: EDD O*Net

The Sacramento-Sierra Building and Construction Trades Council reports, however, that this wage progression (doubling of pay –with full benefits- \$44,500/ year) can occur in 18 months.

Career Growth

Chart 11

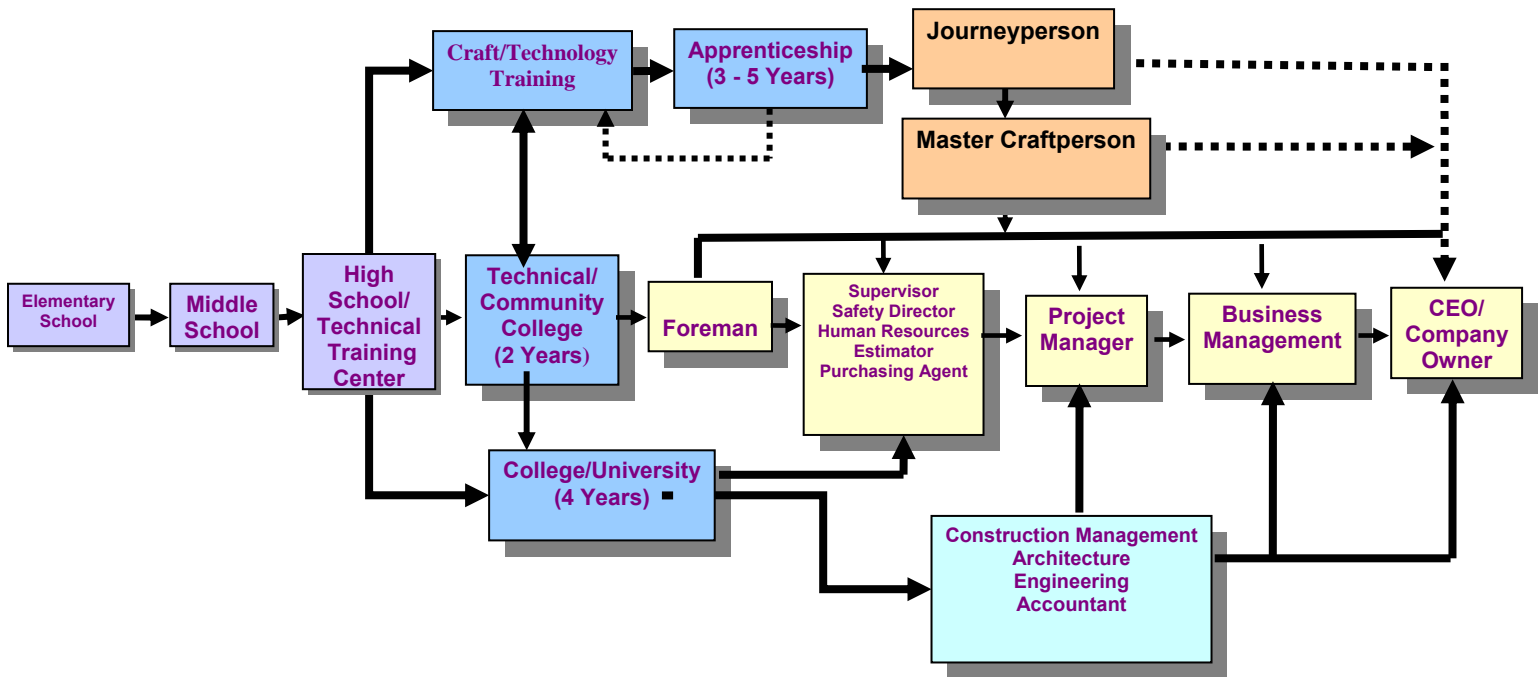


Sample Career Track and Wage (Apprenticeship)

Source: Sacramento-Sierra Building and Construction Trades Council

Chart 12

Construction Workforce Career Path



Source: Matt Kelly, Executive Secretary
Sacramento-Sierra Building and Construction Trades Council

Industry Training Needs

Skills:

“As in many industries, good math and communication skills are important. Problem solving ability and a good work ethic will also contribute to success in construction,” said Adrienne Moore, Executive Vice President, California Coalition for Construction in the Classroom.

As a result of a Construction Industry Convergence Focus Group on April 29, 2005, a strong need was identified and verified for “Workability” skills training (see Tables 7 and 8).

When the Construction Industry Focus Group Participants were asked to share their biggest frustrations, concerns and issues with the workforce in the sectors of the construction industry they represented, 10 of the 13 sectors stated **Workability skills** were needed and were lacking in applicants.

Table 7 Number of Times Workability Skills Were Mentioned		
Specialty Home Contractor (7)	Building Suppliers (5)	Home Builder (3)
Commercial & Industrial Builders (2)	Specialty Trade Contractor (2)	Heavy Construction (2)
Manufacturing (1)	Building Association (1)	Trade Association (1)
Land Developer (1)	Architecture (0)	Calif. Coalition for Construction in the Classroom (0)
Sac. Builder's Exchange (0)		

Source: *Convergence IV Building the Future: Educating the Construction Workforce in Northern California Meeting Notes*

Table 8
Construction Industry Workability Skills Needs

How to Fill Out a Job Application	How to Interview for a Job	Appropriate Dress for Interview & the Job
Reliability/ Dependability	Basic Math	Attitude
Work Ethics	Responsibility	Communications
Teamwork	Collaboration	Listening
Customer Service	Time Management	Problem Solving
Basic Hygiene	Interpersonal Skills	Conflict Resolution
Speaking	Reading Comprehension	Decision Making
Writing	Critical Thinking	Motivation
Respecting Authority	Honesty	Ability to Multitask
Flexibility to Meet Employer Needs, Schedule & Organizational Changes	Basic Financial Overview- Understand Impact of One's Work to Bottom Line	Integrity & Pride in One's Work
Logical Thinking & Analytical skills	Read & Follow Simple Instructions	Follow Directions & Rules
Basic Safety	Use of basic construction tools (hand, power & tape measure) & plan reading	Basic Legal Regulations- Sexual Harassment, Discrimination
Attention to Detail	How to Relate to Supervision	How to Deal with a Positive Boss & a Negative Boss
English Language	Understand & Respect Cultural Diversity	Be Prepared to do the Job- Have the Right Tools & Equipment
Some General Knowledge of Construction Industry	How to Make a Complaint	Physical Fitness

Source: *Convergence IV Building the Future: Educating the Construction Workforce in Northern California Meeting Notes*

Education:

Education requirements for entry-level work in the construction industry is mostly on-the-job training plus basic math and communications skills. For management-level positions, 2-year and 4-year degrees are required (see Appendix *Occupation Projections, separations and Education Requirements 2001-2008*)

Training Needs:

The industry sees an urgent need for the Community Colleges to partner with high schools to make their career tech/shop programs meet requirements for Community College credit, thus ensuring their retention (*Convergence IV Building the Future: Educating the Construction Workforce in Northern California Meeting Notes*) Retaining these programs is essential to filling the job needs (pipeline) of the industry. In the Governor's 2005-06 May revised state budget, he has allocated \$37 million for improved career/technical articulation between K-12 and Community Colleges.

K-12 articulation through a partnership between Community Colleges and high schools along with outreach to parents, counselors and students to help them learn about the careers and career lattices potential for college training in the Construction Industry will result in growing capacity of Community Colleges' construction-related course offerings and the possible creation of additional industry training.

According to the Convergence focus group, applicants for industry employment coming from high school and college are not prepared with the necessary basic workability skills to be reliable, successful employees. Most are not getting the basics that once were learned at home.

According to state-wide Construction Industry associations (represented at the Convergence IV Focus Group) there is a need, both statewide and industry-wide, to develop an industry-recognized Workability "Construction College" certificate for high school graduates seeking employment or a career in the construction industry, for those wanting to enter apprenticeship trades programs, and for those taking Community College construction-related coursework or programs.

Construction Industry representatives at the April 29th focus group provided input on ways business, labor, government and education can better respond to the industry's workforce challenges and needs and where community colleges can focus in the future to meet the industry needs. They identified pipeline, image and Workability skills as the top issues needing to be addressed (see Table 9)

Table 9
Focus Group Comments Addressing the
3 Major Industry Needs Identified

	Image	Pipeline	Workability Skills
➤ Show students what is involved within the industry.	■	■	
➤ Industry and parent forum to change the image of the industry.	■		
➤ Make them aware of the career opportunities within the field of construction and building suppliers.	■	■	
➤ Have guidance counselors involved in events like industry career days and equipment rodeos.	■		
➤ Offer an overview of the industry from entry-level to management.	■		■
➤ Promote local/regional wage salary benefit information about specific construction occupations.	■		
➤ Identify all courses relevant to construction and building trades, and categorize them as “construction college” which would go a long way towards changing the attitudes of the legislature, parents, students and peers about the trades.	■	■	
➤ Collaborate with high schools to get students into vocational education-community colleges would provide the vocational classes either on high school campuses or community college campus-could even be the basic wood working class to learn the basic skills about the industry.		■	

➤ Develop a program where students from high school would attend community college vocational programs and earn high school credit and college credit at the same time.	■	■	
➤ Interact with construction trades to develop grants for implementation of projects such as those mentioned above		■	
➤ Increase the articulation with high school programs. Alignment in curriculum.		■	
➤ Community Colleges need to actively market construction with the industry and unions— have a concerted effort around construction as a career. Market workforce development on an equal basis with transfer education.	■	■	
➤ Work with the Governor’s office to pursue his interest in vocational education and to identify ways to provide more vocational education in the state		■	
➤ Get out to younger people in junior high or high school to do employability skills and let them know what’s available in the field.	■	■	■
➤ Add employability skills to all technical courses			■
➤ On campus advertising/recruiting for apprentices in construction industry.		■	
➤ Introduce the college population to the construction industry		■	
➤ Find a way to entice K-12 administrators by giving community college credit for CTE courses taken in high school, giving value that will help prevent further extinction of the construction workforce training programs at the high school level.		■	
➤ Promote and recruit women into construction and building trades.		■	
➤ Have the employability skills boot camp concept be a part of the trade skill training.			■

Training Preferences:

The industry indicated at the Convergence focus group that “workability” training targeted to 18-20 year olds and that it include college credit to increase the perceived value by parents and students. They also indicated the value of including basic skills in all existing college courses or additional mandatory courses.

Industry representatives have emphasized the importance of making this training “job-like” in that the students would be expected to perform at standard levels and in ways necessary to succeed on the job site.

Training Competitors:

Some Union apprenticeship programs for the trades include some degree of basic skills training. Basic “Workability” skills are also covered in various places in the community college system.

Sacramento County Office of Education Regional Occupational Program offers some basic skills training in their construction training programs but do not cover the full range of issues expressed by the Construction industry at the focus group.

Barriers and Other Factors to Consider in Developing Training:

While union apprenticeship programs have elements of basic skills required, offering an industry-approved Workability certificate with a focus on construction is seen by Union representatives as a benefit from which to draw/recruit certificate holders into the apprenticeship programs.

While ROP construction programs contain some basic skills training components, neither ROP nor the apprenticeship programs offer training that fully addresses all the issues and concerns outlined by the industry focus group.

Small Construction Industry firms (with few employees who would benefit from college training in entry-level production or manufacturing) lack resources to invest in training. These firms

are often difficult to reach and are not suited for Contract training.

Summary

The external Industry Scan conducted by the Center of Excellence for Northern California Community Colleges at Los Rios Community College District clearly demonstrates a critical and large need for training to support the growing Construction industry.

There could be excellent returns to the Community Colleges in meeting the Construction Industry workforce needs: delivering adequate numbers of employees ready to go to work with the skills to remain successfully on the job.

1. Addressing the issues would greatly assist an important industry in the local economy.
2. In this effort the Colleges could be the catalyst to prepare and lift up a segment of youth from middle and lower income families.
3. Students would be gaining successful employment in an industry whose wages are above the region's average for entry-level (providing an opportunity to work for good wages provides the ability to have the financial resources to attend additional college if they so choose).
4. There is excellent enrollment potential for Community Colleges.
5. Additional revenues can be generated through contract education opportunities with larger Construction Industry employers or groups of employers.
6. There is excellent grant funding potential to partner with Workforce Investment board and industry for developing training for the Construction Industry.

In a Phase 2 Internal Scan, the Center of Excellence proposes to identify, clarify and recommend methods of response that will enable one or more community colleges to meet this Strategic Opportunity.

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Presentations (by date)

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(EDD). Available by contacting the Northern California Community Colleges Center of Excellence or David Lyons at (916) 227-2015.

- *Building the Future: Educating the Construction Workforce in Northern California presentation*, April 29, 2005, prepared by Matt Kelly, Executive Secretary, Sacramento-Sierra Building and Construction Trades Council, with data from the U.S. Dept. of Commerce Bureau of Economic Analysis and the U.S. Dept. of Education. Available by contacting the Northern California Community Colleges Center of Excellence
- *“Building a Strategy Based on Realism”* March 25, 2005 presented by Joel Kotkin, Irvine Senior Fellow, New America Foundation at the Regional Economic Forum, Sacramento. Available by contacting the Northern California Community Colleges Center of Excellence

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- *California Employment Development Labor Market Information Division*, www.calmis.ca.gov
- *California Professional Association of Specialty Contractors of Northern California*, Brad Diede, Executive Vice President, www.calpasc.org

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THE BUSINESS AND WORKFORCE PERFORMANCE IMPROVEMENT INITIATIVE IS A GRANT-FUNDED PROJECT THROUGH THE ECONOMIC & WORKFORCE DEVELOPMENT PROGRAM OF THE CALIFORNIA COMMUNITY COLLEGES. OUR MISSION IS TO STRENGTHEN CALIFORNIA'S WORKFORCE AND ADVANCE ECONOMIC GROWTH THROUGH EDUCATION, TRAINING AND JOB DEVELOPMENT. GRANT NUMBER 05-103-305. TOTAL GRANT AMOUNT EQUALS \$178,875. TOTAL GRANT AMOUNT REPRESENTS COMPENSATION FOR MULTIPLE PROJECTS AND WRITTEN DOCUMENTS/REPORTS.

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 Industry Scan:

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

This scan 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 Industry Scan included a review of the California Regional Economies Project reports and Employment Development Department (EDD) Labor Market Information (LMID) projections that cover the communities in this region, 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 or 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

Occupation Projections, Separations and Education Requirements 2001-2008

Source: EDD

SOC	Occupation Description	2001	2008	Change	Separations	Education
47-1011	First-Line Sups/Mgrs of Construction Trades	3180	3930	750	560	Work Exper (8)
47-2021	Brickmasons & Blockmasons	210	260	50	30	12 mos OJT (9)
47-2031	Carpenters	10290	12950	2660	1370	12 mos OJT (9)
47-2041	Carpet Installers	760	900	140	100	1-12 mos OJT (10)
47-2044	Tile & Marble Setters	490	610	120	60	12 mos OJT (9)
47-2051	Cement Masons & Concrete Finishers	1640	1880	240	110	12 mos OJT (9)
47-2053	Terrazzo Workers & Finishers	270	340	70	20	12 mos OJT (9)
47-2061	Construction Laborers	6860	8470	1610	480	1-12 mos OJT (10)
47-2071	Paving, Surfacing, & Tamping Equipment Operators	300	360	60	40	1-12 mos OJT (10)
47-2073	Operating Engineers & Oth Const Equipment Ops	1930	2190	260	320	1-12 mos OJT (10)
47-2081	Drywall & Ceiling Tile Installers	2780	3360	580	210	1-12 mos OJT (10)
47-2082	Tapers	920	1090	170	60	1-12 mos OJT (10)
47-2111	Electricians	4800	5980	1180	700	12 mos OJT (9)
47-2121	Glaziers	350	430	80	60	12 mos OJT (9)
47-2141	Painters, Construction & Maintenance	2390	2870	480	310	1-12 mos OJT (10)
47-2151	Pipelayers	100	110	10	20	1-12 mos OJT (10)
47-2152	Plumbers, Pipefitters, & Steamfitters	3580	4450	870	460	12 mos OJT (9)
47-2161	Plasterers & Stucco Masons	1750	2110	360	260	12 mos OJT (9)
47-2171	Reinforcing Iron & Rebar Workers	490	600	110	40	12 mos OJT (9)
47-2181	Roofers	1130	1410	280	200	1-12 mos OJT (10)
47-2211	Sheet Metal Workers	1130	1540	410	190	1-12 mos OJT (10)
47-2221	Structural Iron & Steel Workers	350	430	80	30	12 mos OJT (9)
47-3011	Helpers--Brick, Block, Stonemasons, & Tile & Marble	620	750	130	230	30-days OJT (11)
47-3012	Helpers--Carpenters	1220	1490	270	470	30-days OJT (11)
47-3013	Helpers--Electricians	990	1170	180	370	30-days OJT (11)
47-3014	Helpers--Paint, Paperhanger, Plaster, & Stucco	370	440	70	140	30-days OJT (11)
47-3015	Helpers--Pipelayer, Plumber, Pipefitter, & Steamfitters	650	790	140	250	30-days OJT (11)
47-3016	Helpers--Roofers	160	190	30	60	30-days OJT (11)
47-3019	Helpers, Construction Trades, All Other	450	610	160	190	30-days OJT (11)
47-4011	Construction & Building Inspectors	380	420	40	70	Work Exper (8)
47-4031	Fence Erectors	430	480	50	50	1-12 mos OJT (10)
47-4041	Hazardous Materials Removal Workers	240	310	70	60	1-12 mos OJT (10)
47-4051	Highway Maintenance Workers	400	420	20	50	1-12 mos OJT (10)
47-4099	Construction & Related Workers, All Other	980	1220	240	220	1-12 mos OJT (10)
47-5099	Extraction Workers, All Other	70	100	30	10	1-12 mos OJT (10)
47-0000	Construction & Extraction Occupations	34910	42000	7090	5150	
47-1011	First-Line Sups/Mgrs of Construction Trades	3180	3930	750	560	Work Exper (8)
47-2021	Brickmasons & Blockmasons	210	260	50	30	12 mos OJT (9)
47-2031	Carpenters	10290	12950	2660	1370	12 mos OJT (9)
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47-2141	Painters, Construction & Maintenance	2390	2870	480	310	1-12 mos OJT (10)
47-2152	Plumbers, Pipefitters, & Steamfitters	3580	4450	870	460	12 mos OJT (9)
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47-3011	Helpers--Brick, Block, Stonemasons, & Tile & Marble	620	750	130	230	30-days OJT (11)
47-3012	Helpers--Carpenters	1220	1490	270	470	30-days OJT (11)
47-3013	Helpers--Electricians	990	1170	180	370	30-days OJT (11)
47-3014	Helpers--Paint, Paperhanger, Plaster, & Stucco	370	440	70	140	30-days OJT (11)
47-3015	Helpers--Pipelayer, Plumber, Pipefitter, & Steamfitters	650	790	140	250	30-days OJT (11)
47-3016	Helpers--Roofers	160	190	30	60	30-days OJT (11)
47-3019	Helpers, Construction Trades, All Other	450	610	160	190	30-days OJT (11)
47-4011	Construction & Building Inspectors	380	420	40	70	Work Exper (8)
47-4031	Fence Erectors	430	480	50	50	1-12 mos OJT (10)
47-4041	Hazardous Materials Removal Workers	240	310	70	60	1-12 mos OJT (10)
47-4051	Highway Maintenance Workers	400	420	20	50	1-12 mos OJT (10)
47-4099	Construction & Related Workers, All Other	980	1220	240	220	1-12 mos OJT (10)
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47-2082	Tapers	920	1090	170	60	1-12 mos OJT (10)
47-2111	Electricians	4800	5980	1180	700	12 mos OJT (9)
47-2121	Glaziers	350	430	80	60	12 mos OJT (9)
47-2130	Insulation Workers	100	110	10		
47-2141	Painters, Construction & Maintenance	2390	2870	480	310	1-12 mos OJT (10)
47-2151	Pipelayers	100	110	10	20	1-12 mos OJT (10)
47-2152	Plumbers, Pipefitters, & Steamfitters	3580	4450	870	460	12 mos OJT (9)
47-2161	Plasterers & Stucco Masons	1750	2110	360	260	12 mos OJT (9)
47-2211	Sheet Metal Workers	1130	1540	410	190	1-12 mos OJT (10)
47-3011	Helpers--Brick, Block, Stonemasons, & Tile & Marble	620	750	130	230	30-days OJT (11)
47-3013	Helpers--Electricians	990	1170	180	370	30-days OJT (11)
47-3014	Helpers--Paint, Paperhanger, Plaster, & Stucco	370	440	70	140	30-days OJT (11)

Industry Scan: Construction Industry Image Makeover and Training Basics

47-3019	Helpers, Construction Trades, All Other	450	610	160	190	30-days OJT (11)
47-4011	Construction & Building Inspectors	380	420	40	70	Work Exper (8)
47-4051	Highway Maintenance Workers	400	420	20	50	1-12 mos OJT (10)
47-4099	Construction & Related Workers, All Other	980	1220	240	220	1-12 mos OJT (10)
47-5012	Rotary Drill Operators, Oil & Gas	100	90	-10	20	1-12 mos OJT (10)
47-5021	Earth Drillers, Except Oil & Gas	50	60	10	10	1-12 mos OJT (10)
47-5081	Helpers--Extraction Workers	40	40	0	10	30-days OJT (11)