



**ECONOMIC &
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Environmental Scan Report Greater Silicon Valley Region

Accounting and Auditing Occupations



Center of Excellence

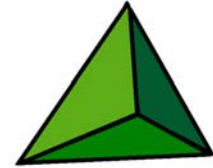
Hosted at West Valley College

September 2007



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Environmental Scan for Greater Silicon Valley Community Colleges

Accounting and Auditing Occupations

September 2007

Prepared By:

Center of Excellence, EWD Region 3
Greater Silicon Valley
Hosted at West Valley College
14000 Fruitvale Avenue, Saratoga, CA 95070
Phone: (408) 741-2653 Fax: (408) 741-4626
Jennifer_oliver@westvalley.edu
www.ccewd.net

In collaboration with:

BW Research Partnership
2541 State Street, Suite 108
Carlsbad, CA 92008
Phone: (760) 730-9325 Fax: (760) 730-9688
www.bwresearch.com

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OUR MISSION IS TO STRENGTHEN CALIFORNIA'S WORKFORCE AND ADVANCE ECONOMIC GROWTH THROUGH EDUCATION, TRAINING AND JOB DEVELOPMENT.

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ACCOUNTING EMPLOYERS IN THE GREATER SILICON VALLEY EXPECT TO INCREASE EMPLOYMENT BY NINE PERCENT FOR ACCOUNTING AND AUDITING OCCUPATIONS OVER THE NEXT 12 MONTHS, THROUGH MARCH 2008, RESULTING IN APPROXIMATELY 3,600 ADDITIONAL JOBS. THIS HIGH RATE OF GROWTH IS EXPECTED TO CONTINUE THROUGH 2014.

Source: BW Research, 2007

Executive Summary

A substantial staffing shortage and talent crunch for accounting occupations has been confirmed by employers in the Greater Silicon Valley. This shortage is created, in part, by a convergence of trends re-shaping the accounting industry, including the Sarbanes Oxley Act of 2002 (SOX). SOX requires more complex accounting systems and rigorous reporting, which increases the need for accounting staff. Other factors impacting the profession include the globalization of markets, rapid technological changes, and baby-boomer retirements.

To validate the demand for accounting occupations and workforce challenges of regional employers, 150 accounting firms were surveyed. Eight occupations were examined: accountants, bookkeepers, accounting clerks, auditors, internal auditors, tax preparers, budget analysts, and cost accountants. Employers identified a number of factors driving their difficulty in hiring and retaining accounting professionals:

- a shortage of qualified applicants
- insufficient new entrants to the profession
- requirements for high education achievement
- increased retirements

Job seekers can feel confident that the need for accounting occupations will continue to offer employment opportunities for years to come because these jobs are found throughout the economy and in almost every industry. And the new accounting environment is creating almost limitless job opportunities for workers to advance in their careers as they obtain additional work experience, two- and four-year degrees, and/or a Certified Public Accountant (CPA) license.

Accounting employers are concerned about the lack of a pipeline of entrants to the profession—from high schools, community colleges and universities— although they do not consider community colleges as a source of qualified applicants. This perception has been created, in part, by the industry's requirement for high education achievement— at least two-thirds of employers expect at least a certificate or associate degree for *entry-level* positions such as bookkeepers and accounting clerks, and well over half expect at least a bachelor's degree for all *non entry-level* positions.

Accounting employers put high demands on many of their applicants to possess a bachelor's degree, and once an employee, encourage them to pass the CPA exam. While over half of accounting employers provide tuition assistance for their employees, they are unaware that regional community colleges offer a program that prepares students to pass the CPA and Enrolled Agents (EA) exams.

Additionally, while almost 80 percent of employers provide paid outside training for their current employees, they are unaware that the colleges can provide customized employee training— especially for tax preparer courses and certificates.

Despite a lack of awareness by employers of the community colleges' ability and capacity for accounting education— from entry-level jobs to CPA exam preparation to customized training— over half of the firms surveyed expressed interest in working with colleges to help build a pipeline of skilled workers. Due to severe staffing and experience shortages, employers are also willing to be flexible in their hiring practices for applicants without a bachelor's degree in accounting or business, or those who have mid-level work experience in another field and desire a career change. And to retain current employees, who are subject to high turnover, employers want to partner with regional colleges to provide customized training for upgrading skills.

Because of the existing accounting program infrastructure, regional colleges are well-positioned to build a pipeline of skilled workers, create industry partnerships, and expand and adapt curricula and programs. Colleges have a head start in meeting the employers' needs based on their ability to:

- Offer courses, certificates and degree programs to prepare students for entry-level positions.
- Advise potential students to enter accounting as a career, and encourage existing students to advance within the profession.
- Reach the sizeable number of students in their accounting courses who already possess a bachelor's degree—from 15 to 30 percent of those enrolled in accounting or business department courses.
- Market to their students (up to 25 percent) who already have more than 10 years of mid-level work experience in a field other than accounting.
- Offer model programs in demand by employers; for example, certificate programs to prepare students to pass the CPA and EA exams, and tax preparer courses and certificates for incumbent worker skill upgrades.
- Work with contract education departments to market and deliver training to employers.

This report explains how accounting and auditing occupations represent a strategic opportunity for Greater Silicon Valley's Community Colleges to adapt or expand accounting programs and services to develop viable, long-term enrollment opportunities, supply qualified workers needed by employers, and increase employment for students.

Introduction/Scope of Report

A previous report prepared by the Greater Silicon Valley Center of Excellence in 2006, *The Strategic Possibility At-A-Glance Report for the Accounting Industry*, identified high growth projected in employment for accountants and auditors in the region through 2012 using only secondary data sources.

To advise regional colleges on how they can best respond to this growth in accounting employment, the report recommended that an Environmental Scan be conducted. The goal of this scan was to better understand accounting employers' workforce needs and challenges.

The research objectives for this scan were to:

- Quantify the current size and projected growth of jobs in the accounting industry.
- Understand the needs and challenges of employers in finding and retaining qualified workers.
- Identify the training needs of employers for existing employees.
- Identify occupational skills and training requirements for accounting occupations.
- Identify salary ranges for accounting occupations.
- Assess the current community college accounting programs and services.
- Estimate the capacity of the community colleges to develop, adapt or expand programs and services to meet needs identified in the survey.

Two phases of primary research were conducted: a quantitative telephone survey with 150 accounting employers, and a qualitative executive interview with ten experts within the field of accounting— from industry, education and human resources. Eight occupations were examined: accountants, bookkeepers, accounting clerks, auditors, internal auditors, tax preparers, budget analysts, and cost accountants. These occupations were selected with input from faculty at regional colleges.

This scan confirmed that regionally, short-term employment expectations (i.e., over the next 12 to 24 months) are quite strong— an increase by at least 10 percent across all of the eight occupations studied. Cost accountant positions, which currently have relatively low employment, are expected to increase by over 30 percent in the next year or two.

Further, the high level of difficulty recruiting both entry- and non entry-level employees indicates a gap between the demand for accounting and auditing occupations and the available supply of qualified candidates. The survey results showed:

- Over 50 percent of employers have difficulty (some or great) finding qualified applicants for all of the occupations examined, except bookkeepers and accounting clerks.
- Seventy percent of employers indicated at least some difficulty recruiting non entry-level employees.
- Almost 25% indicated great difficulty recruiting entry-level and non entry-level employees.

This provides a strategic opportunity for community colleges in the Greater Silicon Valley (which includes the counties of Santa Clara, San Mateo, Santa Cruz, and Monterey) to

adapt and expand their accounting programs and services in collaboration with local firms. This will result in increased employment for students and provide qualified workers to regional employers.

Industry Overview

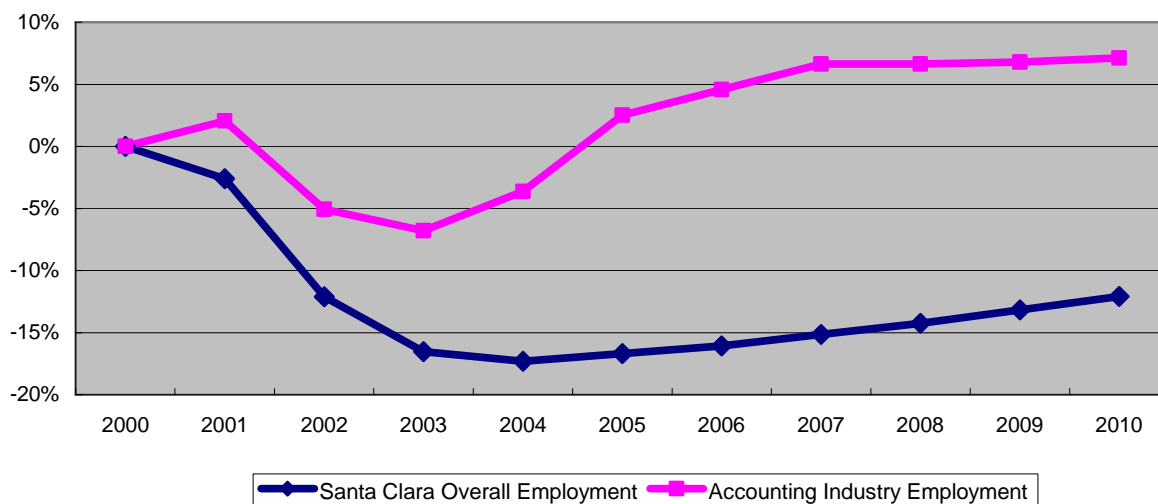
Accounting occupations are found throughout the economy and in almost every industry. Large numbers of accounting employees exist at large accounting firms such as PricewaterhouseCoopers and KPMG, as well as at larger employers in any industry, such as IBM or the City of San Jose.

The demand for accounting occupations in the region is sizeable, with over 15,000 accountants and auditors employed, and over 40,000 employed in other accounting positions. Accounting employers' strong growth expectations are consistent with regional forecasts that show employment increasing by more than twice the rate of overall employment growth.¹

The region has over 500 accounting firms and 700 businesses with at least 250 employees. Firms of this size usually have accounting departments; smaller companies often have bookkeepers, accounting clerks, and/or accountants on staff. The largest portion of accounting employment is in Santa Clara (58%) and San Mateo counties (26%); the rest are in Monterey (8%) and Santa Cruz (6%).

Figure 1 shows employment in Santa Clara County's accounting industry compared to overall employment. After the "dot-com bust", the county lost about 17 percent from its 2000 total employment base, and the accounting industry lost about seven percent. By 2005, the accounting industry recovered all of its employment loss and expects strong job growth through 2010.

Figure 1: Employment in Accounting Industry in Santa Clara Compared to Overall Employment



¹ Economy.com's Santa Clara County forecast shows employment growth in the accounting industry (NAICS 5412) growing by 14 percent from 2005 to 2010 compared to six percent growth over the same time period for the entire county.

The SOX legislation has dramatically altered the environment in which accounting professionals work and is a major driver of the need for more accountants and other entry-level accounting workers. The legislation requires companies to adhere to more detailed accounting procedures and controls, and conduct greater diligence in reporting and certification. While recent legislation² will lessen some of the challenges to implement the SOX requirements, the revisions to the law will not significantly reduce the need for accounting professionals to understand the regulatory environment.

For larger firms, growth in international trade and the development of the global marketplace have increased the demand for more rigorous accounting tools and reporting. These changes have also increased the complexity and rigor of current accounting structures. These trends have also been drivers of the increased need for accounting workers.

Occupational Outlook

The following eight occupations were examined for this scan: accountants, bookkeepers, accounting clerks, auditors, internal auditors, tax preparers, budget analysts, and cost accountants.

Nationally, statewide and within the region, the expected demand for accounting occupations is greater for positions that require a bachelor's degree than those that require less education and training. The number of persons employed as accountants and auditors, who typically require a bachelor's degree, is expected to increase substantially—over 20 percent by 2014. Occupations such as bookkeepers and accounting clerks, which typically require an associate degree or less, are expected to increase less than 10 percent by 2014.

The chart below is an analysis of the demand, expected growth, and earnings potential for each of the eight occupations studied. The data was compiled using several sources including O*Net, Employment Development Department, and the Accounting Employer Survey conducted by BW Research in 2007. A detailed narrative of this information is in Appendix E.

Table 1: Summary Analysis of the Employment Demand for the Eight Occupations Studied

Occupation	Overall Demand		Percent Job Growth in Region Over Next 12 Months	Employer-Reported Difficulty Finding Applicants	Entry-Level Salary Range *
	California	Region			
Accountants	Strong; 22-23% between 2004 - 2014	Strong; increase is faster than national averages	10%	66% have at least some difficulty	\$44,000 - \$51,000

² "Sarbanes-Oxley Changes Greeted By Some, But Not All Are Happy", Security and Exchange Commission and the Public Company Accounting Oversight Board issued May 23 and 24, 2007, San Jose/Silicon Valley Business Journal, June 1, 2007

Occupation	Overall Demand		Percent Job Growth in Region Over Next 12 Months	Employer-Reported Difficulty Finding Applicants	Entry-Level Salary Range *
	California	Region			
Bookkeepers	High, but growing slowly	High, and growing rapidly	20%	Least difficulty of the occupations studied	\$26,500 - \$31,000
Accounting Clerks	Strong, but growing slowly	Strong	10%	Less difficulty than those accounting occupations with higher education requirements	\$26,500 - \$31,000
Auditors	Increasing faster than national average; 22 – 23% between 2004 -14	Increasing faster than average	Almost 20%	72% have at least some difficulty	\$44,000 - \$51,000
Internal Auditors	Currently low, but projected strong growth thru 2014	Strong growth through 2014	20%	70% have at least some difficulty	\$44,000 - \$51,000
Tax Preparers	-----	Cyclical, but strong	20%	60% have at least some difficulty	Wages volatile in state - \$21,400; expected higher in region
Budget Analysts	Low, but increasing about average, 13-16% between 2004-14	Low, but increasing about average	Just over 10%	Just under 70% have some difficulty	\$53,000 - \$63,000
Cost Accountants	Currently low, but will increase substantially through 2014	Currently low, but will increase substantially through 2014	30%	87% have at least some difficulty;	\$44,000 - \$51,000

*Entry-level wages derived from the Employment Development Department's 25th Percentile Wage by closest SOC occupation for each county in the region. The lower salaries in the Entry-Level Salary Range represent Santa Cruz and Monterey Counties and the higher salaries in the range represent Santa Clara and San Mateo Counties.

Career Pathways

Because accounting jobs are found throughout the economy and in almost every industry, job seekers can feel confident that the need for accounting occupations will continue to offer employment opportunities for years to come. Accounting occupations have strong career pathways. And the new accounting environment is creating almost limitless job opportunities

for workers for promotion and career advancement based on their additional work experience, obtaining a two- or four-year degree, and/or a CPA license. Furthermore, the accounting industry tends to be more stable in terms of job loss when the overall employment declines, as it did during the dot.com bust starting in 2000.

The following chart shows the suggested career ladder from entry-level to mid-level to top-level advancement in the Accounting Profession, based on education and experience:

Table 2: Career Ladder for the Accounting and Auditing Industry

Entry – Level Positions	Mid – Level Advancement	Top – Level Advancement	Advancement Requirements
Bookkeepers or Accounting Clerks (certificate and associate degree)	Staff Accountant or Full Charge Bookkeeper, or Accounts Receivable Coordinator	Sr. Accountant or Accounting Manager	B.S. degree in Accounting or related field; experience in the industry.
Cost Accounting Clerk (certificate and associate degree)	Cost Accountant or Fiscal Analyst	Sr. Cost Accountant or Sr. Financial Analyst or Account Manager	B.S. degree in Accounting or Finance, plus several years experience. MA preferred for Sr. Analysts & Sr. Cost Accountants
Tax Preparer (certificate, associate and bachelor's degree)	Tax Accountant	Tax Manager or Director	B.S. degree in Accounting or Finance. CPA required for higher level positions. Certified Enrolled Agent can be required for advancement
Junior Auditor or Entry-Level Auditor (associate and bachelor's degree)	Auditor or Internal Auditor	Sr. Auditor or Internal Controller	B.S. degree in Accounting. Work experience with a CPA firm or with a "big 4" firm. CPA required for higher level positions and MA preferred.

In the region, accountants with a bachelor's degree in accounting, with little or no experience, can expect to get an entry-level accounting position with a starting salary of around \$50,000. With a few years experience, and passing the CPA exam, that individual can move up in salary closer to \$100,000, with very different responsibilities.

There are opportunities for accountants to move up to controllers and accounting managers, but a successful accountant will likely need to spend more than just a few years in the occupation moving up the different levels from entry-level to senior accountant. A similar career path is also found in auditing. As individuals become more senior in a given

occupation, they tend to move into different areas of specialty, such as compliance or management accounting. Budget analysts will often move into senior management positions as they play a more central role in developing budgets and allocating resources.

Workers with a four-year degree who want to move into the accounting profession can prepare for and sit for the CPA exam. CPA exam requirements can be found at www.cpa-exam.org.

Occupational Skills and Training Requirements

A brief assessment of the educational requirements and skills needed for each of the eight accounting occupations considered in this study are located in Appendix F. The following areas of skill deficiency and training needed were identified for both job applicants and incumbent workers.

Communication Skills

The major skill deficiency for applicants in all accounting occupations is communication skills, both spoken and written— but more often spoken. Communication skills are important for accounting workers as they must be capable of explaining financial results and concepts clearly and concisely to a diverse audience, including clients or management, who have limited or no financial knowledge.³

With employers' focus on workers obtaining certificates, associate and bachelor's degrees, applicants may meet all of the technical requirements, but lack the communication skills that are an essential part of moving up a career pathway.

Incumbent Worker Training

With high education achievement required by employers, continuing education and job training is valued for their current employees. While larger accounting firms generally do their own training on accounting-specific software and ethics, they indicate a need for a tax preparation program customized for their employees, or even a certificate program for their employees while they are working. Smaller employers are more interested in training to upgrade their employees' skills in QuickBooks or other software applications, or financial statement analysis.

Many accounting employers encourage their employees to pass the CPA exam. To support their employees with this education, over half of accounting employers provide tuition assistance.

Workforce Challenges and Opportunities

The following factors are driving employers' difficulty to hire and retain accounting professionals: a shortage of qualified applicants, insufficient new entrants to the profession, requirements for high education achievement, and increased retirements.

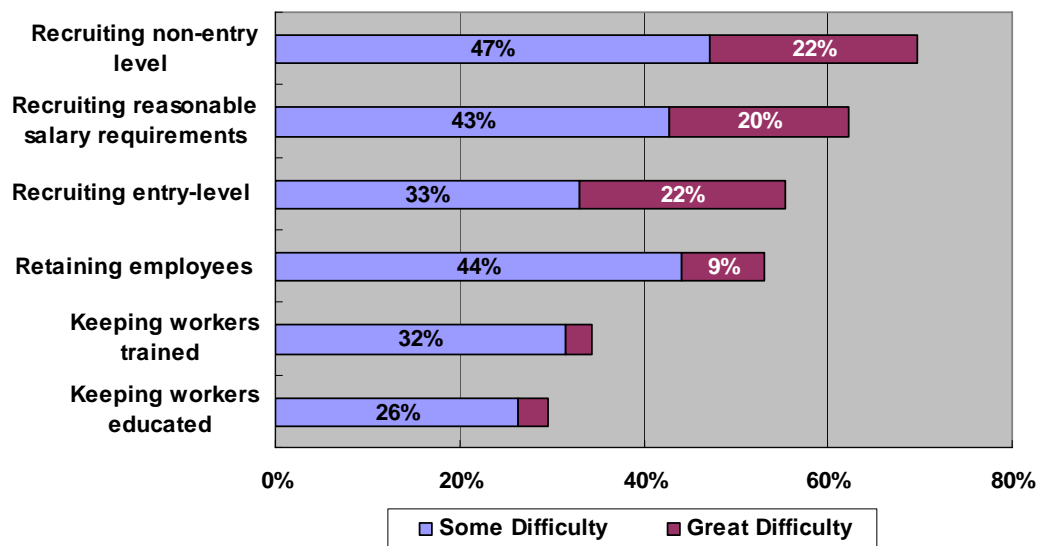
3 *Silicon Valley Roots: Foundational Occupations with Growth Potential*. NOVA. www.novaworks.org. March 7, 2006.

Difficulty Recruiting and Retaining Workers

Results of the survey show over half of employers have at least some difficulty, if not great difficulty, recruiting and retaining their workers. The high level of difficulty recruiting both entry- and non-entry-level employees is a strong indicator of a gap between the demand for accounting and auditing occupations and the available labor force to meet the demand.

The figure below reveals the difficulty regional accounting employers have recruiting and retaining their workers.

Figure 3: Workforce Challenges for Regional Employers of Accounting Career Ladder for the Accounting and Auditing Industry



Insufficient New Entrants to the Profession

Industry leaders and professionals are concerned with the lack of an established pipeline of entrants to the accounting field— from high schools, community colleges and universities— to supply the needed qualified workers.

High Educational Requirements

Accounting employers have relatively high educational requirements for their applicants— certificates, two- and four-year degrees, and advanced education. Over half of employers surveyed expect at least a bachelor's degree for applicants in all occupations examined except for bookkeepers and accounting clerks.

Four-year degrees are generally expected by employers for occupations such as accountants, auditors and budget analysts— the occupations where larger firms generally target their recruiting efforts. For some accounting occupations, including cost accountants and internal auditors, 85 to 90 percent of employers expect at least a bachelor's degree, and often require a master's degree and/or a CPA.

According to industry leaders⁴, the demand for educational attainment—certificates, degrees, and advanced education—will only increase in the field of accounting. This is a result of the complex, integrated accounting systems and rigorous reporting tools created to comply with the Sarbanes-Oxley Act of 2002 and the growth of the global marketplace, among other trends.

In the region, Santa Clara University and San Jose State University are the first place that established accounting employers look for entry-level candidates for most accounting occupations, including accountants, auditors, and sometimes even tax preparers. However, according to recruiters in the accounting industry, these schools are not producing enough students, so employers will often look to schools as far away as Cal Poly San Luis Obispo to find new candidates

Increasing Retirements

Like many other industries, accounting firms and large employers that hire a sizeable portion of accountants are concerned about the quality and quantity of their workforce that will be lost to retirements in the next three to five years. Due to the diversity of accounting employers, it is likely to impact certain sectors of accounting employers stronger than it will others, based on the demographics of their workforce. For example, accounting professionals in the public sector will likely be in great demand over the next three to five years, as many senior analysts and managers are expected to retire.

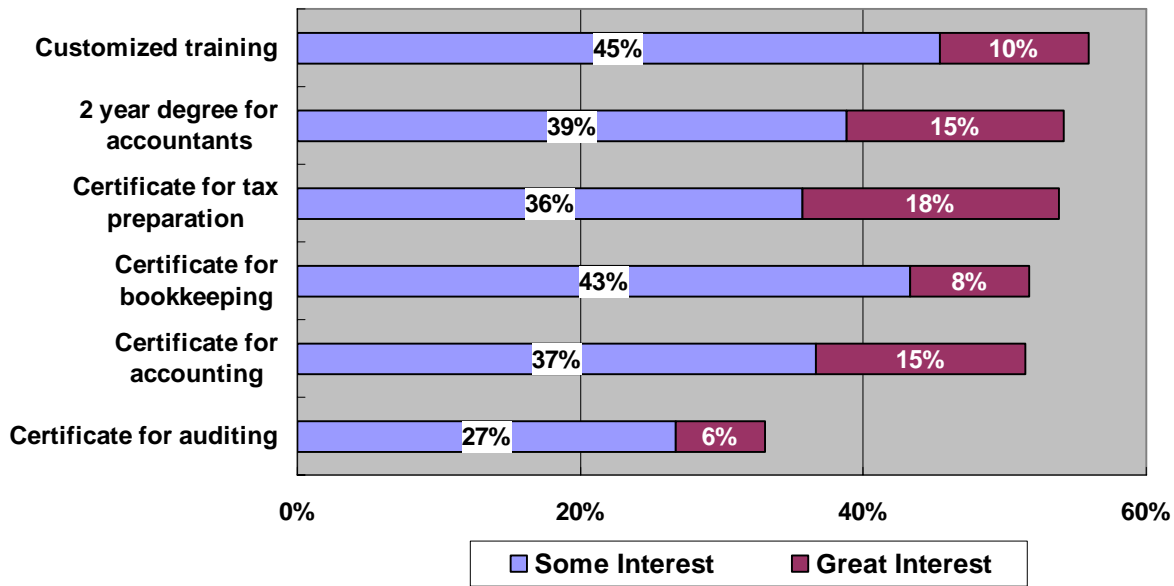
Employer – College Partnership to Build Pipeline of Workers

As employers are forced to look farther away from the region to recruit qualified applicants, they are willing to consider new opportunities to find qualified applicants within the region. This includes looking to community colleges to prepare and supply the needed pipeline of students. Despite the employers' lack of awareness of the community colleges' ability and capacity for accounting education— from entry-level jobs to CPA exam preparation to customized training— over half of the firms surveyed express an interest in working with colleges to help build a pipeline of skilled workers.

Figure 4 reveals employers' interest in community college programs— certificates, associate degree and customized training. Customized training for current accounting employees held the greatest interest for employers (either some interest or great interest). A certificate program for tax preparation received the highest percentage of respondents indicating they had a great interest in the program. Only a certificate program for auditing lacked potential for substantial interest from the accounting employers.

⁴ This information is taken from 10 executive interviews completed with leading accounting professionals in industry, education and human resources.

Figure 4: Employer Interest in Potential Community College Programs



Internships

College programs that incorporate internships and work experience into their design will provide graduates with easier access to employment and advancement potential. Results of the survey show that internships, unlike other internal training programs, are offered by less than half of accounting employers, and only 23 percent of accounting employers offer internships to students who are in the first two years of college or are working towards an associate degree.

While only one-third of accounting employers in the region have offered internships, 60 percent of these same employers believe that the internship experience in accounting is either very or somewhat important when considering entry-level or mid-level applicants.

Figure 5: Employers offering of Internships

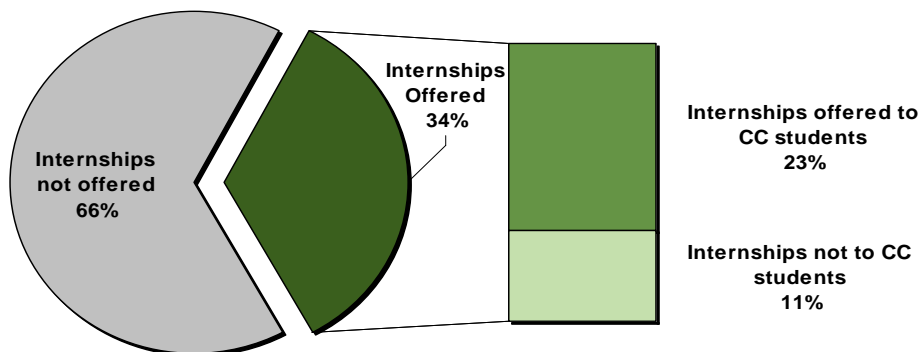
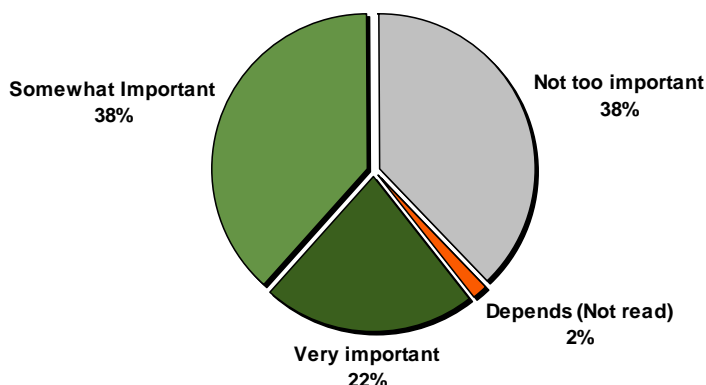


Figure 6: Employers perceived importance of Internships

Willingness to Hire Applicants Without Accounting Degrees

Survey respondents were asked to provide input on whether their hiring practices could support the education and development of accounting professionals as it related to students with non-accounting bachelor's degrees or mid-level work experience in another profession, but no degree.

This hiring issue is of concern to community college accounting departments since a sizeable number of their enrolled students already possess a bachelor's degree—from 15 to 30 percent. And up to 25 percent of students already have more than 10 years of mid-level work experience in a field other than accounting.

To address this issue, the scan assessed accounting employers' flexibility in their willingness to hire individuals for occupations that typically require a bachelor's degree in accounting or business. Approximately half of accounting employers indicated they would consider hiring an individual with such a four-year degree, but who had combined work experience and completed a rigorous certificate program in accounting. However, larger accounting firms are much less likely to hire someone who did not have a bachelor's degree in accounting or business for most of their accounting occupations.

On the other hand, survey results show that less than one-third of accounting employers would not consider applicants that combine some work experience with a rigorous accounting certificate program instead of a bachelor's degree in accounting. Similar results were revealed when employers were asked to consider applicants that have a bachelor's degree, but not in business or accounting, who had completed a rigorous accounting certificate program.

Despite the optimistic results, colleges should not expect that employers will no longer require a bachelor's degree. For larger employers and established accounting firms, a four-year degree will remain a requirement for most accounting occupations. However, due to severe staffing and experience shortages, employers are willing to be flexible in their hiring practices for applicants without a bachelor's degree or those who have mid-level work experience in another field who want a career change.

Industry Participants

The goal of this scan research was to better understand regional accounting employers' workforce needs and challenges. Findings and recommendations used in this report were validated by a three-phase process, which used both secondary and primary research techniques. The research methodology used is described in Appendix B.

Both the quantitative and qualitative interviews conducted with employers, and the interviews with faculty at five local colleges, addressed the research objectives outlined previously in this report.

The following is a list of the employers, associations and educators who participated in the qualitative, executive-level interviews:

- KPMG
- Pricewaterhouse Coopers
- Accountemps
- Sun Microsystems
- California Society of Certified Public Accountants (CalCPA) represented by Marc Parkinson, CPA, member of the Silicon Valley/San Jose Chapter
- Business Education Statewide Advisory Committee (BESEC) represented by Jon Mikkelson, accounting faculty at Monterey Peninsula College
- Bruce Maule, accounting faculty at College of San Mateo

Existing Curriculum and Industry Involvement

All 11 colleges within the Greater Silicon Valley offer accounting programs. The certificate and degree programs offered at each college are summarized in Appendix F. All colleges offer the basic accounting certificate, and all but one offer an associate degree in accounting. In addition, several colleges offer certificates in bookkeeping, tax preparation, and accounting taxation. Two colleges offer a certificate in enrolled agent (EA) exam preparation, and one college offers a certificate in CPA exam preparation.

To assess the current community college accounting programs and services within the region, accounting department faculty were interviewed by telephone at five colleges (Cabrillo, DeAnza, Evergreen Valley, Mission and San Mateo). Information was obtained about the how the colleges do the following:

- Understand the composition of students enrolled in accounting programs—entry-level, those with bachelors' degrees, those with mid-level work experience in another field.
- Develop or adapt courses, and integrate new accounting skills into the curriculum.
- Provide career ladder information to students currently enrolled in accounting courses.
- Identify students who may want to advance and promote within the accounting industry.
- Offer internships with local employers.
- Market courses and certificates to incumbent workers for career advancement.
- Market customized training to companies to upgrade their employees' skills.

- Conduct career exploration and outreach programs with high schools, middle schools, regional occupation programs (ROPs), and public workforce agencies.
- Develop and conduct an advisory committee.

Student Composition

Students taking accounting courses at the community colleges in the region include many individuals who already possess a bachelor's degree— from 15% to 30% of those enrolled. Additionally, approximately 25% of students already have more than 10 years of mid-level work experience in a field other than accounting. Also, foreign-born students enrolled in accounting courses comprise a large segment at several of the colleges. Some of these students possess a bachelor's degree equivalent from their home country, but adequate communication skills present a barrier to employment.

Updating Courses and Programs

Workforce information obtained from industry advisory committees and other local employers is used regularly by all colleges to update and/or expand curriculum and course offerings. To meet the information technology requirements, all colleges offer two or all of following accounting software applications: Excel, Peachtree, and Quickbooks.

Communications Skills Development

According to the faculty interviewed, communication skills development for students in all courses was considered weak. The most used instructional activity for skill development is requiring students to present homework assignments in class. Some of the colleges cited ESL challenges to developing communication skills for many of their foreign-born students. Other colleges said they attempt to remediate students' communication skills deficiencies by having them take English and speech communication courses.

Career Advisement

The colleges' efforts to identify students who may be interested in entering the accounting profession, or to advance within the industry, is generally limited to student self-reporting on admission applications, or through an academic advisor's session.

Some of the colleges have a published career ladder available to students to inform them of opportunities for jobs and how they can advance in the industry. Others indicated it was up to individual instructors to inform students about career opportunities. Several colleges felt that their academic counselors' knowledge of the most current advancement opportunities in the accounting industry was inadequate to inform students.

Internships

None of the colleges currently offer an internship program for accounting students, but all want to develop these opportunities with local employers. While faculty recognize that students can gain easier access to employment through internships, they don't have the time or resources to develop these opportunities with individual employers.

Career Outreach Development

While all colleges have "Career Day" events on campus to attract potential students, none currently offer career exploration activities and outreach programs at high schools, middle

schools, or Regional Occupational Programs (ROPs). None of the colleges conduct outreach to attract incumbent workers to enroll in courses or programs for career advancement.

Incumbent Worker Training Through Contract Education

Most accounting departments have not recently considered contract education delivery to train employees currently employed at accounting or tax preparation firms.

Advisory Committees

Most college accounting departments conduct an advisory committee, or some do this through their business divisions. Developing and maintaining a committee of local employers is considered time-consuming, but highly valuable. As a result, colleges have a great interest in creating a regional advisory committee of accounting employers that could provide input through a shared endeavor with faculty and staff at colleges within the Greater Silicon Valley.

Industry Involvement

All colleges have developed and maintained a relationship with the CalCPA organization and the Statewide Business Education Advisory Committee (BESEC).

Model Approaches and Programs

The College of San Mateo has created the Enrolled Agent (EA) Exam Certificate and the CPA Exam Certificate programs based upon input from a local Accountemps staffing firm and their college tax instructors (the college's CPA Exam Preparation Certificate information is located in Appendix H). Also, DeAnza College and the College of San Mateo offer Tax Preparer Certificates. All of these certificate programs are model approaches to supply qualified applicants to accounting and tax preparer firms, and could be expanded or replicated at other colleges within the region to meet the current and projected employment demand.

Implications and Recommendations for Community Colleges

Community Colleges have an opportunity to play a larger role in educating accounting professionals. As the potential shortage of accounting professionals becomes more pronounced, so does the need for increased participation by the regional colleges.

Challenges for Community Colleges

There are challenges for community colleges to address the needs of regional employers. Foremost among these challenges are the following:

- Many available accounting jobs require advanced education beyond entry-level preparation.
- Accounting departments lack the funding and/or resources to conduct outreach activities to potential students and marketing to employers.
- Accounting department faculty are already fully-extended and don't have time to implement new changes.
- Employers do not consider community colleges as a source of qualified applicants, and they lack awareness of the colleges' ability and capacity for accounting education.
- Advisory committees are time-consuming to convene and maintain.

Opportunities for Community Colleges

Mindful of the challenges identified, the following recommendations and their benefits are offered for colleges:

1. Support Development of a Pipeline of Skilled Workers

Recommended Action Items:

- Identify students who want to move into accounting occupations.
- Target students with bachelor's degrees or mid-level work experience, or those who aspire to obtain a four-year degree.
- Communicate with students and job seekers about the opportunities that exist in accounting occupations and the career ladder potential in the industry.
- Develop outreach programs with high schools, middle schools, regional occupational centers, and public workforce agencies to provide awareness of the high-growth, high-wage accounting occupations and the career ladder for advancement.
- Collaborate with regional universities to develop an expedited bachelor's degree in accounting to allow students to complete a large portion of their coursework at the community college. Innovative training modalities could increase the convenience and efficiency of the program.
- Establish regional colleges as a convenient and effective option to prepare incumbent workers to pass the CPA or EA exam.
- Offer an "Entry into Accounting" program for those individuals who have a bachelor's degree and are interested in moving into accounting occupations. This program could be developed in conjunction with CPA and EA exam preparation certificates, to prepare individuals for entry-level positions as accountants, auditors, cost accountants or internal auditors.
- Work with college staff in Work Experience and/or Job Placement units to develop internships and work experience to provide students with exposure to the occupation and easier access to employment.
- Provide college counselors with information on accounting and auditing occupation career ladders and opportunities within the profession.
- Apply for Career and Technical Education (CTE) grant funding available from the State Chancellor's Office for outreach to high schools, middle schools and ROPs.

2. Create Industry Partnerships

Recommended Action Items:

- Establish a regional advisory board consisting of employers and associations to assist all colleges in the Greater Silicon Valley to continuously identify the education and skills in demand.
- Develop a campaign to communicate and collaborate with established accounting employers. Work with firms and individuals who participated in the executive interviews that indicated they are willing to provide further advisement to colleges.

- Increase awareness of regional employers of the ability and capacity of the community colleges to build and educate a pipeline of skilled workers, including incumbent worker training.

3. Meet Employer Educational Needs

Recommended Action Items:

- Expand CPA, and possibly EA, exam preparation certificates at several regional colleges.
- Work with college contract education departments to market and develop customized training and/or certificate programs for accounting employers, such as tax preparation.
- Collaborate with college contract education departments to obtain grant funding (Responsive Training Fund for Incumbent Workers – RTF) through the State Chancellor’s Office to market and provide customized training for skills in demand by regional employers.
- Develop and adapt courses to expand student’s knowledge of management and business practices as they relate to the SOX requirements. Topics could include: internal auditing, forensic accounting, financial statement analysis, and ethics.
- Improve and adapt instructional strategies to better develop students’ communication skills, both verbal and written.
- Have regional colleges collaborate with each other on developing strategic plans for education for accounting occupations, and operating a regional advisory board of employers.

Conclusion

The strong employment growth predicted in the accounting industry for the region is a significant strategic opportunity for community colleges to allocate resources to expand and adapt accounting programs that would result in developing viable, long-term enrollment opportunities, supply qualified workers needed by employers, and increase employment for students

Because of the existing accounting program infrastructure, regional colleges are well-positioned to build a pipeline of skilled workers, create industry partnerships, and expand and adapt curricula and programs.

By collaborating and communicating with accounting employers, colleges can increase the awareness within the industry that they have the ability and capacity to build and educate the accounting workforce pipeline from entry-level employees to CPA preparation and incumbent workers. The creation of a regional advisory board and development of internships would enhance the partnership for mutual benefit.

References

BW Research Partnership, Accounting Industry Employer Survey, 2007.

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<http://www.bls.gov>

APPENDIX A: How to Utilize this Report

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 Report

The Centers of Excellence within the Business and Workforce Performance Improvement Initiative of the California Community College Economic and Workforce Development Program 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 and Employment Development Department (EDD) Labor Market Information (LMID) projections that cover the communities in this region, as well as many other sources as referenced.

Important Disclaimer:

All representations included in this report/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 BWPI 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: Research Methodology

Data for this scan report was gathered in three distinct phases that utilized secondary and primary research techniques described below. The purpose of this research was to better understand the workforce needs of regional accounting employers.

1) Labor Market and Occupational Assessment

Using secondary data sources, an industry assessment of regional accounting employers' occupational profiles was developed.

2) Quantitative Telephone Surveys

One hundred and fifty accounting employers in Santa Clara, San Mateo, Monterey and Santa Cruz Counties were interviewed. The following four types of employers were used to stratify the accounting employer sample:

1. Top 44 accounting and tax preparation firms
2. Employers specifically from the accounting industry with 5 or more employees
3. Large firms with at least 250 employees
4. Temporary staffing firms

Interviews were typically conducted with a human resources manager or director. For smaller accounting firms (less than 25 employees), the interview was with a manager or owner responsible for hiring. The purpose of the quantitative surveys was to gather reliable measures of overall workforce demand for the firm, as well as by the eight accounting occupations.

3) Qualitative Executive Interviews

Ten executive interviews were completed with accounting experts in industry, education and human resources. The interviews provided a better understanding of the skills and abilities for accounting professionals needed by employers

Survey Methodology

The table below outlines the methodology for this project. A total of 150 accounting firms, staffing firms, and large companies that employ accounting workers completed a telephone survey, representing a total universe of 1,277 companies within the Greater Silicon Valley.

Methodology

Technique	Telephone survey of accounting firms, staffing firms, and large firms that employ accounting professionals
Universe	49 Top 50 Accounting Firms 422 Accounting Firms (5+ employees) 735 Large Firms (250+ employees) 71 Temporary Staffing Firms
Number of Respondents	10 Top 50 Accounting Firms 70 Accounting Firms (5+ employees) 60 Large Firms (250+ employees) 10 Temporary Staffing Firms
Field Dates	January 11 to 23, 2007

Questionnaire Design

Through an iterative process, BW Research worked closely with the Greater Silicon Valley Center of Excellence to develop the questionnaire for the study located in Appendix C.

Randomization of Questions

To avoid the problem of systematic position bias— where the order in which a series of questions is asked systematically influences the answers to some of the questions— several of the questions in this survey were randomized such that respondents were not consistently asked the questions in the same order. The series of items relating to industry workforce issues, employee development practices, and interest in education and training programs were randomized to avoid the systematic position bias.

APPENDIX C: Employer Survey Questionnaire



.....
Introduction:

Hello, my name is _____. May I please speak to [name] or the person handling staffing at [company].

Hello, my name is _____ and I'm calling on behalf of the **California Community Colleges**, who would value your participation in a brief survey that will help address your future business needs for trained and educated employees with accounting skills and knowledge.

(If needed): The survey should take approximately fifteen minutes of your time. By answering this survey, you can help the California Community College system develop the appropriate type of training that will prepare the employees you will be looking for in the future.

(If needed): This survey has been commissioned by the California Community Colleges, which are committed to developing the regional workforce. The survey is being conducted by BW Research, an independent research firm.

(If needed): Your individual responses will **not** be published, only aggregate information will be used in the reporting of the survey results.

.....
Firm – Related Questions

I'd like to begin by asking you a few general questions about your business.

1. Including all full-time and part-time employees, how many **permanent** employees work at your business location?

Record # of employees _____

2. If you currently have [TAKE Q1 #] **permanent** employees at your business location, how many more or less permanent employees to you expect to have at your business location 12 months from now?

- 1 More [record # _____]
- 2 Less [record # _____]
- 3 (DO NOT READ) Same number of permanent employees

3. How many **temporary or seasonal** employees currently work at your business location?

Record # of employees _____

4. Over the next 12 months, how many **temporary or seasonal** employees do you expect to hire at your business location?

Record # of employees _____

5. Now, I'm going to read a list of issues facing the region's accounting workforce in the coming years. Please tell me how much difficulty your firm faces in addressing the workforce needs associated with accounting and accounting-related occupations.

Here's the (first/next) one _____ (READ ITEM): Please tell me whether your business has no difficulty, some difficulty, or great difficulty in dealing with this issue?

RANDOMIZE

	<u>No difficulty</u>	<u>Some difficulty</u>	<u>Great difficulty</u>	<u>(DON'T READ DK/NA</u>
A. Keeping current workers properly trained on new technologies and software applications	1	2	3	4
B. Keeping current workers properly educated and informed of industry practices and policy requirements.....	1	2	3	4
C. Recruiting entry-level employees with appropriate training and education	1	2	3	4
D. Recruiting non-entry level employees with adequate skills and work experience.....	1	2	3	4
E. Retaining valuable employees that could be hired by competitors.....	1	2	3	4
F. Recruiting employees with reasonable salary requirements	1	2	3	4

6. Next, I'd like to ask you about employee development practices at your business location. As I read each of the following employee development practices, please indicate whether your business uses each practice.

RANDOMIZE

	<u>Yes</u>	<u>No</u>	<u>(DON'T READ DK/NA</u>
A. Formal on-the-job training	1	2	3
B. In-house classroom training	1	2	3
C. Career advancement and promotion planning for current employees (a carrer ladder)	1	2	3
D. Employer paid outside training.....	1	2	3
E. Tuition assistance or reimbursement at a college or university	1	2	3

Now I have a few questions about internships.

7. Does your company offer, or has it offered, internships at your business location?

- 1 Yes [GO TO QUESTION 8]
- 2 No [SKIP TO QUESTION 9]
- 3 (Don't Read) DK/NA [SKIP TO QUESTION 9]

8. Have you ever offered internships to college students who are in the first two years of college or who are working towards an Associate Degree?

- 1 Yes
- 2 No
- 3 (Don't Read) DK/NA

9. Generally, how important is internship experience when considering applicants for entry-level and mid-level accounting related positions: very important, somewhat important, or not too important?

- 1 Very important
- 2 Somewhat important
- 3 Not too important
- 4 (Don't Read) Depends on the individual or the occupations
- 5 (Don't Read) DK/NA

Occupation - Related Questions

[NOTE PLEASE COMMUNICATE TO RESPONDENT THAT WE WILL BE USING GENERAL OCCUPATIONAL TITLES RATHER THAN SPECIFIC JOB TITLES THAT MAY BE USED WITHIN EACH COMPANY]

10. Now, I'm going to ask you about specific occupations within your business. The occupational titles we are using may differ from the specific position titles used in your company. For these questions, I would like you to try to equate your company's specific position titles with the more general ones we will use here. Please tell me if your company employs, at your location, individuals in positions matching the following general occupational titles:

Here's the (first/next) one: _____ (READ ITEM & BRIEF DEFINITION, THEN ASK): Do you have employees who fit this occupational description at your business location? (1 = Yes, 2 = No, 3 =DK/NA)

Occupational List

- A (Occupation 1 – brief definition) Accountants
- B (Occupation 2 – brief definition) Bookkeepers
- C (Occupation 3 – brief definition) Accounting clerks (includes accounts Payable/Receivable & payroll)
- D (Occupation 4 – brief definition) Auditors
- E (Occupation 5 – brief definition) Internal auditors
- F (Occupation 6 – brief definition) Tax preparers
- G (Occupation 7 – brief definition) Budget analysts
- H (Occupation 8 – brief definition) Cost accountants

Next I'm going to ask you a few questions about some of the occupations you mentioned, including _____ (READ LIST OF OCCUPATIONS TO BE USED)

11. As I read each of the following occupations, please tell me how many individuals you have at your business location that are currently employed in this occupation (IF NEEDED: ALL INDIVIDUALS REGARDLESS IF THEY ARE FULL-TIME, PART-TIME OR TEMPORARY).

- A Occupation 1 ### (3 digit number)
- B Occupation 2 ### (3 digit number)
- C Occupation 3 ### (3 digit number)
- D Occupation 4 ### (3 digit number)

12. As I read each of the occupations again, please tell me how many more or less employees you estimate will be employed in each of the occupations 12 months from now?

- A Occupation 1
 - 1 More [record # _____]
 - 2 Less [record # _____]
 - 3 (DO NOT READ) Same number of permanent employees

- B Occupation 2
 - 1 More [record # _____]
 - 2 Less [record # _____]
 - 3 (DO NOT READ) Same number of permanent employees

- C Occupation 3
 - 1 More [record # _____]
 - 2 Less [record # _____]
 - 3 (DO NOT READ) Same number of permanent employees

- D Occupation 4
 1 More [record # _____]
 2 Less [record # _____]
 3 (DO NOT READ) Same number of permanent employees

13. For the same list of occupations, I'm interested in the level of difficulty your business has in finding applicants who meet the company's hiring standards. As I read each occupation, please tell me whether your business has no difficulty, some difficulty or great difficulty finding applicants. (PRESENT IN ORDER THEY WERE PREVIOUSLY PRESENTED)

	No difficulty	Some difficulty	Great difficulty	(DON'T READ) DK/NA
A. Occupation 1	1	2	3	4
B. Occupation 2	1	2	3	4
C. Occupation 3	1	2	3	4
D. Occupation 4	1	2	3	4

14. Now, for the same list of occupations, I'd like to know the **typical** education requirements for successful applicants within each occupation? The categories are (READ OPTIONS). As I read each occupation, please indicate the typical education requirement for that occupation.

- 1 Completion of high school or equivalent
- 2 Certificate or Associate Degree from a Community College
- 3 Bachelor's Degree (B.A., B.S.)
- 4 Bachelor's Degree and a Certified Public Accountant
- 5 Master's or other Graduate Degree (M.A., MBA, M.S., Ph.D., J.D.)
- 6 Master's or other Graduate Degree and a Certified Public Accountant
- 7 (DON'T READ) DK/NA

	1	2	3	4	5	6	DK/NA
A. Occupation 1	1	2	3	4	5	6	7
B. Occupation 2	1	2	3	4	5	6	7
C. Occupation 3	1	2	3	4	5	6	7
D. Occupation 4	1	2	3	4	5	6	7

[QUESTIONS 15 - 16 ARE A LOOP TO BE REPEATED FOR EACH OF THE OCCUPATION SELECTED FOR QUESTION SET Q11 – 14]

Ok, for the next few questions, please answer for the: _____ (INSERT OCCUPATION) occupation.

15. I'm going to read a list of general skills. Please tell me which one of these is most important when considering applicants for _____ (INSERT OCCUPATION). (READ OPTIONS)

- 1 Ability to use software applications
- 2 Knowledge of accounting practices and requirements
- 3 Ability to work with different groups or departments
- 4 Interpersonal communication skills
- 5 Technical writing skills
- 6 Creative problem-solving skills
- 7 (DON'T READ) DK/NA

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
A. Occupation 1	1	2	3	4	5	6	7
B. Occupation 2	1	2	3	4	5	6	7
C. Occupation 3	1	2	3	4	5	6	7
D. Occupation 4	1	2	3	4	5	6	7

16. I'm going to read the same list of general skills once more. Please tell me which of these skills your _____ (READ OCCUPATION) are currently **most deficient** in.

- 1 Ability to use software applications
- 2 Knowledge of accounting practices and requirements
- 3 Ability to work with different groups or departments
- 4 Interpersonal communication skills
- 5 Technical writing skills
- 6 Creative problem-solving skills
- 7 (DON'T READ) Other (Please Specify_____)

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
A. Occupation 1	1	2	3	4	5	6	7
B. Occupation 2	1	2	3	4	5	6	7
C. Occupation 3	1	2	3	4	5	6	7
D. Occupation 4	1	2	3	4	5	6	7

[RESPONDENTS ARE ONLY ASKED QUESTION 17 OR 18 PLEASE SPLIT THE SAMPLE SO AN EQUAL PROPORTION OF RESPONDENTS ANSWERS EACH QUESTION]

17. For my next question, I would like you to think about those occupations that typically require a bachelor's degree or higher.

Consider the following scenario for someone who has a bachelor's degree, but not in business or accounting. This individual decides to make a career change and completes a rigorous certificate program in accounting at a community college. Would you consider hiring this person for a job that normally requires a bachelor's degree in accounting?

- 1 Yes
- 2 (Don't Read) Possibly
- 3 No
- 4 (Don't Read) DK/NA

18. For my next question, I would like you to think about those occupations that typically require a bachelor's degree or higher.

Consider the following scenario for a person who has not received a bachelor's degree, but does have multiple years of work experience, decides to make a career change and completes a rigorous certificate program in accounting at a community college. Would you consider hiring this person for a job that normally requires a bachelor's degree in accounting?

- 1 Yes
- 2 (Don't Read) Possibly
- 3 No
- 4 (Don't Read) DK/NA

19. Lastly, are there any occupations that are emerging within the field of accounting that you expect to hire for that we did not talk about today? (If yes:) Could you briefly describe the occupation and its qualifications?

20. What is your firm’s level of interest in the following training and education programs that could be developed at the Greater Silicon Valley community colleges for the accounting workforce?

As I read each possible program, please tell me whether your business would have no interest, some interest, or great interest in the following workforce development programs?

RANDOMIZE

	<u>No Interest</u>	<u>Some Interest</u>	<u>Great Interest</u>	<u>(DON'T READ) DK/NA</u>
A A two-year associate degree program to train entry-level accountants	1	2	3	4
B Customized training for your current accounting employees.....	1	2	3	4
C A certificate program for tax preparation	1	2	3	4
D A certificate program for auditing	1	2	3	4
E. A certificate program for bookkeeping	1	2	3	4
F. A certificate program for accounting	1	2	3	4

APPENDIX D: Associations Serving the Industry

- American Institute of Certified Public Accountants
<http://www.aicpa.org>
- American Accounting Association
<http://www.aaahq.org>
- American institute of Professional Bookkeepers
<http://www.aipb.com>
- California Business Educators Association
<http://cbeaonline.org>
- California Community Colleges Business Education and Computer Information Science Statewide Advisory Committee (BESEC)
<http://www.calbusinessed.org>
- California Society of Certified Public Accountants (CalCPA)
<http://www.calCPA.org>
- Financial Accounting Standards Board
<http://www.fasb.org>
- Institute of Management Accountants
<http://www.ima.org>
- Teachers of Accounting at Two Year Colleges
<http://www.tactyc.org>

APPENDIX E: Demand for the Eight Occupations Studied

Demand for Accountants is strong and increasing faster than the averages nationally, within California and within the region. Nationally, and in California, the number of accountants is expected to increase between 22 and 23 percent between 2004 and 2014 according to O*NET. Regionally, two out of every three employers indicated at least some difficulty finding qualified applicants and total employment is expected to increase by over 10 percent in the next 12 months. In Santa Clara and San Mateo, the entry-level wage⁵ for accountants is approximately \$51,000 and approximately \$44,000 in Santa Cruz and Monterey counties.

Demand for Bookkeepers is high, but growing relatively slowly nationally and within California. However, within the region, employers expect to increase employment by over 20 percent in the next 12 months. The long-term decline in demand for bookkeepers is generally tied to the increased automation for a number of functions traditionally tied to bookkeepers and accounting clerks. Employers indicated the least difficulty finding qualified applicants for bookkeepers of the eight accounting occupations examined in this study. The entry-level wage for bookkeepers is \$31,000 in Santa Clara and San Mateo, and approximately \$26,500 in Santa Cruz and Monterey.

Demand for Accounting Clerks is strong, but growing relatively slowly nationally and within California. However, within the region, employers expect to increase employment by over 10 percent in the next 12 months. The long-term decline in demand for accounting clerks is generally tied to the increased automation for a number of functions traditionally tied to bookkeepers and accounting clerks. Employers indicated less difficulty finding qualified applicants for accounting clerks, in comparison to the accounting occupations with higher educational requirements. The entry-level wage for accounting clerks is \$31,000 in Santa Clara and San Mateo and approximately \$26,500 in Santa Cruz and Monterey.

Demand for Auditors is increasing faster than average, nationally, within California and within the region. Nationally and in California the number of auditors is expected to increase between 22 and 23 percent between 2004 and 2014 according to O*NET. Regionally, almost three out of every four employers (72%) indicated at least some difficulty finding qualified applicants, and total employment is expected to increase by almost 20 percent in the next 12 months. In Santa Clara and San Mateo, the entry-level wage for auditors is approximately \$51,000 and approximately \$44,000 in Santa Cruz and Monterey counties.

Demand for Internal Auditors is currently relatively low, but national, state and regional data indicates strong growth for this accounting occupation through 2014. Regionally, 70 percent of employers indicated at least some difficulty finding qualified applicants and total employment is expected to increase by about 20 percent in the next 12 months. In Santa Clara and San Mateo, the entry-level wage for internal auditors is approximately \$51,000 and approximately \$44,000 in Santa Cruz and Monterey counties.

Demand for Tax Preparers is somewhat cyclical due to tax season, but is quite strong in the region and is expected to increase by almost 20 percent in the next 12 months. Over 60

⁵ Entry-level wages derived from the Employment Development Department's 25th Percentile Wage by closest SOC occupation for each county in the region.

percent of employers indicated at least some difficulty finding qualified applicants. Wages for tax preparers appear to be somewhat volatile, but for California, the entry-level annual wage is approximately \$21,400, and expected to be higher in the region.

Demand for Budget Analyst is currently relatively low and is increasing about average, nationally, within California and within the region. Nationally and in California the number of budget analysts is expected to increase between 13 and 16 percent between 2004 to 2014 according to O*NET. Regionally, just under 70 percent of employers indicated at least some difficulty finding qualified applicants and total employment is expected to increase by just over 10 percent in the next 12 months. In Santa Clara and San Mateo, the entry-level wage for budget analysts is approximately \$63,000, and approximately \$53,000 in Santa Cruz and Monterey counties

Demand for Cost Accountants is currently relatively low, but according to national, state and regional data is expected to increase substantially through 2014. Regionally, 87 percent of employers indicated at least some difficulty finding qualified applicants, and over one-third indicated great difficulty finding qualified applicants--- the greatest difficulty of the accounting occupations examined. Total employment is expected to increase by over 30 percent in the next 12 months within the region. In Santa Clara and San Mateo, the entry-level wage for cost accountants is approximately \$51,000, and approximately \$44,000 in Santa Cruz and Monterey counties.

APPENDIX F: Occupational Skills and Training Requirements

Accountants: This is an entry to mid-level position that typically requires at least a bachelor's degree (82 percent of employers). The work is focused on analyzing and preparing financial records, tax records, and developing and maintaining other financial reporting tools. More senior accountants will also be responsible for managing, supervising and training others. Promotion as an accountant is often tied to passing the CPA exam, which is a pre-requisite for continued employment in larger accounting firms.

Bookkeepers: This is an entry-level position that typically requires at least a certificate or an associate degree from a community college (73 percent of employers). The work is focused on recording and documenting financial activities and transactions, and preparing summary reports for supervisors and managers. The critical general skills for this occupation include understanding accounting practices and the ability to use software applications.

Accounting Clerks: This is an entry-level position that typically requires at least a certificate or an associate degree from a community college (62 percent of employers). The work tends to be similar to bookkeepers, but in larger organizations they have more specialized tasks, such as accounts receivable or accounts payable. More senior accounting clerks will also monitor that data is complete and accurate, ensure that billing statements are properly handled and recorded, document financial activities and transactions, and prepare summary reports for supervisors and managers. The critical general skills for this occupation include understanding accounting practices, the ability to work with different groups or departments, and the ability to use specific software applications.

Auditors: This is an entry to mid-level position that typically requires at least a bachelor's degree (73 percent of employers). The work is focused on analyzing information and data processes to ensure adequacy, efficiency and compliance. More senior auditors will also be responsible for managing, supervising and training other auditors. Understanding of accounting practices and compliance requirements are the critical skill-sets for auditors.

Internal Auditors: This is an entry to mid-level position that typically requires at least a bachelor's degree (87 percent of employers). The work is focused on verifying an organization's internal records and checking for mismanagement, waste or fraud. Internal auditors may also develop controls for their organization's computer system to ensure the reliability of the system and the integrity of the data. Similar to auditors, internal auditors should have a strong understanding of accounting practices and compliance requirement, but also understand an organization's reporting tools and structures.

Tax Preparers: This is an entry-level position which nationally does not usually require a four-year degree, but over half of regional employers expect a bachelor's degree as a typical education requirement. The work is focused on determining whether taxes are owed or overpaid for individuals and small businesses. The critical skills for this position include understanding accounting principles particularly as they relate to taxes, being able to communicate with different groups of people, and the ability to use specific software applications.

Budget Analysts: This is an entry to mid-level position that typically requires at least a bachelor's degree (90 percent of employers). Further, a third of employers expected master's degree or a bachelor's degree with a CPA for an applicant to be qualified. The work is focused on developing, analyzing and ensuring budgets are executed appropriately. Budget analysts show how resources are being allocated within an organization and can utilize cost benefit analyses to see how things might change under different scenarios. Budget analysts can be hired by for-profit businesses, non-profit agencies and the public sector. Budget analysts can often move into more senior management positions because of their close understanding of an agency's budget. In terms of general skills, budget analysts must be able to use multiple sophisticated software applications, understand accounting practices and be able to use these tools to solve complex problems.

Cost Accountants: This is an entry to mid-level position that typically requires at least a bachelor's degree (82 percent of employers). The work is focused on analyzing and preparing financial records, tax records and developing and maintaining other financial reporting tools. More senior accountants will also be responsible for managing, supervising and training others. Promotion as an accountant is often tied to passing the CPA exam and is a prerequisite for continued employment in larger accounting firms. Understanding of accounting practices and requirements is the critical skill for cost accountants.

APPENDIX G: Accounting Certificate & Degree Programs at Regional Colleges

College	Bookkeeping Certificate	Accounting Computer Specialist Certificate	Accounting Certificate	Tax Preparer Certificate	Accounting Taxation Emphasis Certificate	Accounting Practice Emphasis Certificate	CPA Exam Preparation Certificate	Enrolled Agent Exam Preparation Certificate	A.S. Degree
Cabrillo	13-16 u.		24-27 u.						60 u.
Canada	10 – 12 u.		25.5 – 29.5						25.5 – 29.5 + GE
De Anza	C & A		A	P	P	P			Taxation 45 u. + GE Practice 45 u. + GE
Evergreen Valley			25.5 - 28 u.						59.5 – 62 u.
Foothill	I & II		22 u.		I & II			14 u.	45 u. + GE
Mission			24 u.						31-32 u. + GE
Monterey Peninsula			20.5 – 21.5 u.						32.5 – 33.5 + GE
San Jose			24 u.						60 u.
San Mateo			I & II	I & II			a & b	14.5 – 15.5 u.	22 u. + GE
Skyline		10 – 10.5 u.	22 – 22.5 u.						22 – 22.5 u. + GE
West Valley			16 u.						

u. = Units
GE = General Education Units

De Anza Certificates:	C = Completion Certificate (11 u.) A = Achievement Certificate (Bookkeeping 25.5 u., Accounting 26 u.) P = Proficiency Certificate (45 u.)
Foothill Certificates	I = Certified Bookkeeper Preparation Program (9 u.) II = Bookkeeping Specialist Career Certificate (11 u.) <hr/> I = Tax Specialist Career Certificate (11 u.) II = Tax Accounting Career Certificate (23 u.)
San Mateo Certificates:	I = Accounting Assistant Certificate (8.5 u.) II = Accounting Certificate (22 u.) <hr/> I = Tax Preparer I Certificate (8.5 u.) II = Tax Preparer II Certificate (15.5-16.5 u.) <hr/> a = CPA Exam Preparation Certificate – Financial Accounting & Auditing (14 u.) b = CPA Exam Preparation Certificate – Business Environment & Regulation (13.5 u.)

APPENDIX H: CPA Exam Preparation Certificate at the College of San Mateo

CPA Exam Preparation Certificates

At the College of San Mateo we offer many of the classes you need to prepare for the CPA exam. These classes are part of our CPA Exam Preparation certificates.

After completing classes at CSM you might consider taking additional courses at a university, through a university extension program such as UC Berkeley Extension or UC Santa Cruz Extension, or through a CPA review program.

The following courses will help your prepare for each section of the CPA exam.

Business Environment and Concepts

- Managerial Accounting (ACTG 131)
- Macroeconomics (ECON 100)
- Microeconomics (ECON 102)
- Accounting Information Systems (not offered at CSM)
- Cost Accounting (ACTG 165)
- Finance (not offered at CSM)

Regulation

- Individual Income Taxes (ACTG 171)
- Business Income Taxes (ACTG 172)
- Trust, Estate and Gift Taxes (ACTG 173)
- Business Law (BUS. 201)

Financial Accounting and Reporting

- Financial Accounting (ACTG 121)
- Intermediate I (ACTG 161)
- Intermediate II (ACTG 162)
- Government and Not-for-Profit Accounting (ACTG 164)
- Financial Reporting (not offered at CSM)
- Advanced Financial Accounting (not offered at CSM)

Auditing and Attestation

- Auditing (ACTG 163)

IMPORTANT

While all Accounting classes at CSM will count toward the 24 semester unit education requirement, not all classes will help you prepare for the CPA exam. For example, while QuickBooks will count toward the education

requirement, QuickBooks will not be on the CPA exam. The exam tests specific subjects, and you must know those subjects to pass. The classes in the CPA Exam Preparation certificates are the best classes to take.

Traditionally Upper Division Accounting Courses

At the College of San Mateo we teach several accounting courses that are traditionally taught as upper division courses at a four-year college or university. These courses are:

- ACTG 161 Intermediate Accounting I
- ACTG 162 Intermediate Accounting II
- ACTG 163 Auditing
- ACTG 164 Governmental and Nonprofit
- ACTG 165 Cost Accounting

Who should take traditionally upper division classes at CSM

These courses are appropriate for students who already have a bachelor's degree or students who do not plan to pursue a bachelor's degree. These courses will help prepare you for the CPA exam and help you develop higher level job skills.

Who should NOT take traditionally upper division classes at CSM

These courses are not appropriate for students planning to transfer and earn a bachelor's degree. They will not transfer to a four-year school and would need to be retaken after you transfer. Please see your academic advisor to plan your schedule.