State Center Community College District
Career Technical Education Charrette / January 28, 2016
Environmental Scan and Planning Report

Introduction

Strategic planning has been a major component of the State Center Community College District (SCCCD) for 35 years. As a result of this comprehensive process, SCCCD has continued to grow and improve the programs and services offered to 50,000 students throughout the Central San Joaquin Valley. Strategic planning efforts have been instrumental in the establishment of the Madera and Oakhurst Centers, along with the recent accreditation of Clovis Community College. As described in the 2012-2016 Strategic Plan, new and expanded academic and career technical education (CTE) facilities, programs and services at Fresno City College and Reedley College have also been developed as part of the strategic planning process.

The district is now in the process of reviewing the existing Strategic Plan mission, vision, values, and goals and objectives as the first step in developing a new 2017-2020 Strategic Plan. Once the district plan is complete, the colleges will develop individual strategic plans directly aligned with the SCCCD Strategic Plan.

In addition to reviewing the existing Strategic Plan, the SCCCD is conducting a parallel review of four Career Technical Education Career Pathways along with emerging trends, including Dual Enrollment. The purpose of this report is to provide the reader with data and findings relative to the four Career Technical Education areas and Dual Enrollment trends in order to identify strategies for future development. The organization and structure upon which recommendations for future planning are developed involves a process called a "charrette" which brings together internal and external experts via a community summit so that a great deal of valuable information can be captured and shared in a brief amount of time.

This document is being provided to all participants of the Career Technical Education Charrette Summit; the Career Technical Education Pathway Report is also available at http://www.scccd.edu/flyers/Charrette_CTE_Prog.pdf. Thank you for your interest in this important activity. We look forward to your involvement in the Charrette Planning Summit event.

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Interim Chancellor
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State Center Community College District

Career Technical Education Charrette / January 28, 2016

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I. A Brief Strategic Planning Overview

The State Center Community College District (SCCCD) has for many years followed a process that results in the development of a Strategic Plan, which includes mission and vision statements, values, goals and objectives. Once the Strategic Plan is completed, implementation begins, including monitoring the progress made on the goals and objectives through evaluative reports and planning sessions. Based on the evaluation, the objectives may be modified in order to reach specific goals over a four- to five-year period. SCCCD's present Strategic Plan covers 2012 to 2016. Steps are being taken this spring to begin developing the 2017-2020 Strategic Plan; the January 28, 2016 Career Technical Education Charrette is crucial to this process.

Strategic planning can be defined as an organization's process to address the following questions:

- Where are we now? *(Current Status)*
- What are our resources? *(Current Status)*
- Where do we want to be? *(Emerging Trends)*
- What are the gaps between Current and Future Status? *(Gap Analysis)*
- How do we get there? *(Strategies)*
- What specific actions are needed? *(Goals and Objectives)*

Mission, Vision and Values Statements

Another important step in SCCCD's Strategic Planning process is to review the core beliefs of the organization including the existing mission, vision and values statements with the goal of validation and providing suggestions for improvement. The core beliefs of the State Center Community College District were last established in its 2012-2016 Strategic Plan; the current mission, vision and values statements are included as Appendix A.

- The mission statement grounds the vision in practical and easy-to-understand terms. It describes *what* the SCCCD is going to do and *why* it is going to do it during the length of the plan.
- The vision statement relates to the question of "Where do we want to be?" and describes *what* SCCCD would look like under ideal conditions for the community.
- The values statements are the *core priorities* of the organization's culture and drive the intent and direction of the Strategic Plan's goals and objectives.

Environmental Scan

The process of gathering external and internal information on the status of the district, along with emerging trends, is referred to as an *Environmental Scan*. For this project, the scanning process is concentrated on the Career Technical Education (CTE) pathways of Advanced Manufacturing, Agriculture, Business, and Health Sciences. Dual Enrollment—community

college classes taught to high school students at their high school and the community colleges —is also being analyzed as an emerging trend as it has the potential to have a major impact on many CTE programs within the SCCCD.

As a result of the Environmental Scan, the status of the four CTE sector programs, services, facilities, strengths, weaknesses and opportunities for improvement have been identified, along with general information that is applicable to all CTE areas. The internal scan data is specific to the State Center Community College District (covered in Chapter II of this report), while the external scan includes national, state, and regional data (Chapter III).

The second part of the Environmental Scan answers the question "Where do we want to be?" with regard to *emerging trends* that will have a major impact on the current programs, services and facilities of CTE in general and the specific four CTE industry sectors. Based on these trends, a *gap analysis* is performed to identify current gaps in servicing emerging trends. Finally, recommendations and strategies are identified, which "fill the gaps" and result in realistic goals and objectives that will be initiated, monitored and modified based on ongoing review and evaluation (see Chapter IV).

Career Technical Education Charrette Planning Process

Important community input is gathered from a charrette, which can be defined as a "collaborative planning process that harnesses the talents and energies of all interested parties to create and support a feasible plan that represents transformative community change."[1]

Charrettes take place in large group sessions where subgroups discuss the issues at hand and then report out to the entire group. The findings are recorded and used as the foundation for future dialogue and action. As a result, recommendations and strategies are identified quickly while integrating the expertise and interests of a diverse group of people.

Preparing for the Career Technical Education Charrette Summit

As an expert in your respective industry or business, you will be providing input and suggestions for improvement regarding the following planning components:

- Review of SCCCD Strategic Plan's Mission, Vision and Values Statements
- Review of current status of the Career Technical Education programs
- Where do you see your industry moving in the next 5 to 10 years? How can those changes be addressed by the SCCCD Career Technical Education Programs?
- What strategies need to be implemented to fill the gap between existing programs, services and facilities, and the future needs of industry and business?

[1] National Charrette Institute, Portland, Oregon

II. Career Technical Education

Career Pathways

Four major Career Technical Education Pathways were selected as the basis for this planning summit:

- Advanced Manufacturing
- Agriculture
- Business
- Health Sciences

The Fresno Business Council Executive Board identified these industries as part of a strategic planning process begun in 2014. The industries were chosen based on their economic impact on Fresno and Madera counties, as well as the numbers of students taking courses in these career sectors in local high schools and at SCCCD colleges and centers. The Fresno Business Council Task Force recently completed a draft Strategic Plan; the final plan will be completed in spring 2016. The task force was comprised of representatives from K-12 districts, SCCCD community colleges, higher education and local business experts from Fresno and Madera counties. Information from the draft plan regarding CTE programs in general and specific findings for each industry sector are included in this report for consideration in developing recommendations and strategies for SCCCD Career Technical Education programs.

► ADVANCED MANUFACTURING

Advanced manufacturing is a family of activities that (a) depends on the use and coordination of information, automation, computation, software, sensing and networking; and/or (b) makes use of cutting-edge materials and emerging capabilities enabled by the physical and biological sciences, for example nanotechnology, chemistry and biology. This involves new ways of manufacturing existing products, especially the manufacture of new products emerging from new advanced technologies.[2] Advanced manufacturing is a viable sector for CTE as it involves skilled, well-paid labor that does not necessarily require a four-year college degree.

Advanced manufacturing entails more than making high-tech products. It also includes using new, often leading-edge machinery and processes to make products that are unique, better, or even cheaper than existing products. Advanced manufacturing also facilitates rapid integration of process improvements, readily permits changes in design, such as new part features or substitute materials, and accommodates customization and cost-effective, low-volume production.

Product innovation and process innovation are two different but related facets of advanced manufacturing. Scientific discoveries, new ideas and novel engineering approaches can be

[2] President's Council of Advisors on Science and Technology (PCAST), Report to the President on Ensuring American Leadership in Advanced Manufacturing, June 2011

converted quickly into the seeds of new products and processes. Technology-intensive and dynamic, advanced manufacturing enterprises require high-skilled workers to perform at high levels and compete globally.[3] Over half of the Fresno County manufacturing industry jobs in 2012 were dedicated to food manufacturing—an industry tied directly to the agricultural industry, another sector of interest for CTE development.

▶ AGRICULTURE

Fresno County is one the most productive agricultural counties in the nation. Though viewed primarily as farming and ranching, the agriculture industry also includes the support, processing and distribution of goods. An "Agriculture Value Chain" includes nearly 200 unique industries, defined as four major areas: [4]

1. *Agriculture Support and Environmental Services* includes activities contributing to the production, processing and distribution of agricultural products and services including veterinary services, forest and conservation regulatory agencies, and pest control.
2. *Agriculture Production* involves activities that make raw products including crops, vegetables, animal farming, poultry and egg production, and aquaculture.
3. *Agriculture Manufacturing* encompasses activities of food processing and safety activities, changing raw products into processed goods.
4. *Agriculture Distribution and Retail* includes activities related to the sale, administration, operation and management of agricultural goods and products.

▶ BUSINESS

As the state and region continue to recover from the Great Recession, a cautiously optimistic outlook for the Valley was expressed by a 2012 study released by California State University, Fresno's Craig School of Business. While the study's authors expect the economy to expand slowly, they concluded that firms with close ties to agriculture as well as businesses selling internationally will continue to lead the regional economy.[5]

More recent statewide data indicates that business also continues to grow. Total jobs created in the twelve-month period ending January 31, 2015 show California leading other states in job creation. In that time period, California gained 498,000 new jobs, almost 30% more than Texas and ahead of Florida and New York as well. Though solid expansion continued in the tech-heavy San Francisco Bay Area, the latest figures reflected an unforeseen jump in Southern California employment as well in the areas of tourism, international trade, development of a regional tech sector, and construction.[6]

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[3] President's Council of Advisors on Science and Technology (PCAST), Report to the President on Ensuring American Leadership in Advanced Manufacturing, June 2011

[4] California Community Colleges Centers of Excellence, Economic and Workforce Development Program, Agriculture Value Chain: Workforce Overview, California, 2014

[5] *Doing What Matters for Jobs and the Economy*, Economic Workforce Development through the California Community Colleges, Regional Labor Market Profile, Central Valley Counties, 2012

[6] California tops other states in job growth, Marc Lifsher, Los Angeles Times, March 22, 2015

With a healthy job creation environment, positions requiring community college training and education will also continue to grow. These will include the fields of Business Administration and Management, Entrepreneurship, Accounting, Computer Technology, Wholesale and Retail Trade and more.

- **HEALTH SCIENCES**

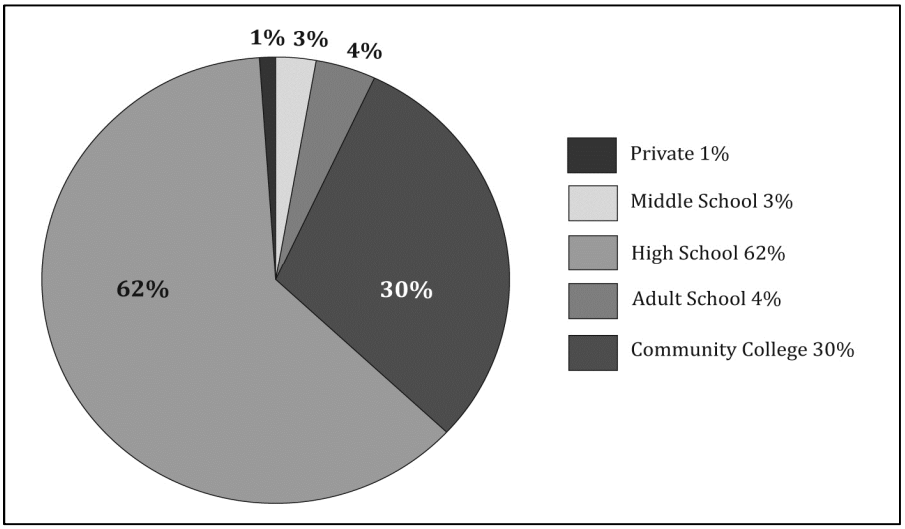
According to the U.S. Bureau of Labor Statistics, the healthcare sector is comprised of three subsectors: Ambulatory Health Care Services, Nursing and Residential Care Facilities, and Hospitals. Across California, community colleges offer training for a wide variety of healthcare programs. Regional community colleges provide education and training for most of these occupations within Health Sciences: Certified Nursing Assistant, Registered Nurse, Licensed Vocational Nurse, Medical Assistant, and Medical Coding.

However, an article published by the Josiah Macy Jr. Foundation pointed out that the practice of health care is moving in a different direction from traditional care in hospital settings as health care is delivered in community clinics, neighborhood health centers as well as home health care. The field of health sciences is preparing workers for the team-based, patient-centered, community-oriented future of health care.[7]

SCCCD Career Technical Education Courses

The chart below represents all Career Technical Education courses offered within the State Center Community College District footprint during the 2014-2015 academic year.

CTE Courses Taught Within SCCCD (Percentage)



[7] Developing New Models for Clinical Education, Macy Brief, Josiah Macy Jr. Foundation, September 10, 2013

Each college in the State Center Community College District offers courses within the following programs:

CLOVIS COMMUNITY COLLEGE

- Business
- Child Development
- Entrepreneurial
- Information Systems
- Information Technology
- Office Technology
- Wastewater Treatment

FRESNO CITY COLLEGE

- Business and Finance
- Education
- Food Service
- Health Care
- Horticulture
- Human Services

(Fresno City College, cont.)

- Information Technology and Graphic Communication
- Manufacturing
- Public Safety, Corrections and Security
- Science and Technology
- Transportation

REEDLEY COLLEGE

- Agriculture
- Aviation Maintenance
- Business Forestry
- Health Care Interpreter
- Information Systems
- Manufacturing
- Maintenance Mechanic
- Mechanized Agriculture

Appendix D contains a listing of all Career Technical Education courses offered by State Center Community College District. Please see http://www.scccd.edu/flyers/Moving_Forward_2016.pdf for course details of CTE programs for the four industry sectors reviewed in this report.

Certificates for CTE courses were offered by adult schools, private schools and community colleges; certificates of achievement and certificates of completion are offered through community colleges only. Criteria are as follows:

Associate Degrees

General Education for the AA/AS Degree General Education course work is intended to complement a concentrated study in a single discipline or "major." It should provide a broad base of educational experience about aspects of the world which a major area of study may not include. The student who completes the general education requirements will have made noteworthy progress towards becoming truly educated and prepared for a lifetime of learning. The major areas of General Education are: Natural Sciences, Social and Behavioral Sciences, Humanities, and Language and Rationality.

California Community Colleges now offer associate degrees for transfer to the CSU. These may include Associate in Arts (AA-T) or Associate in Science (AS-T) degrees, designed to provide a clear pathway to a CSU major and baccalaureate degree. California Community College students who are awarded an AA-T or AS-T degree are guaranteed admission with junior

standing somewhere in the CSU system and given priority admission consideration to their local CSU campus or to a program that is deemed similar to their community college major.

Certificates

Certification for a course or a series of courses may be offered by disciplines, departments and/or divisions. A certificate may be awarded with a minimum of a "C" average for finishing a course or courses leading to specific competencies. These certificates will not appear on a student's transcript.

- **CERTIFICATE OF ACHIEVEMENT**

A certificate of achievement is awarded to students who successfully complete a specified curriculum (minimum of 12 units) with a minimum "C" grade in each required course. Specific courses required for certificates of achievement are identified in each occupational degree program where such certificates are awarded.

- **CERTIFICATE OF COMPLETION**

A certificate of completion may be awarded after meeting the designated competencies in non-credit courses. SCCCD offers a wide spectrum of career technical education programs (listed below by college.

Dual Enrollment

Dual Enrollment is a significant emerging trend that could have a major impact on numbers of high school students with early access to Career Technical Education community college classes. AB 288 was recently signed by Governor Brown to expand opportunities for high school students to be concurrently enrolled at community colleges pursuant to an agreement by the respective local governing boards. Dual Enrollment provides high school students the chance to enroll in courses that meet college standards, earning college and high school credit. Students may take high school courses only in designated college or career access pathways with the goal of developing a seamless transition from high school to community college. These courses must be taught by instructors who meet the minimum requirements to teach community college classes in the same discipline for which credit is offered. Dual Enrollment courses can be offered on both high school and college campuses.

A report entitled "Integrating Earning College Credit in High School into Accountability Systems" studied three primary models for earning college credit in high school: Advanced Placement (AP), International Baccalaureate (IB), and Dual Enrollment. Report findings indicated:

> *Earning college credit in high school matters to students and parents. Students who earn college credits by taking a college-level course while in high school are more likely to enter college and succeed. Through these experiences, students become familiar with college expectations, academic behaviors and habits of mind; get a head start on postsecondary education and gain academic momentum toward a degree or credential; and begin to develop a college identity.*

The Dual Enrollment model results in positive effects on educational attainment for college credit while in high school:

- Improved college readiness and enrollment rates: Dual enrollees and early college students are more likely to graduate from high school and attend college.
- Improved performance as college students: College students who complete college courses as dual enrollees have higher grade point averages and more credit than peers who did not participate in dual enrollment.
- Increased rates of postsecondary persistence, retention and graduation: Students who have completed college courses as dual enrollees have higher college persistence rates and are more likely to complete an associate degree or higher within six years than non-dual enrollees and gain momentum that helps them complete bachelor's and advanced degrees.[8]

Colleges within the State Center Community College District have begun to offer Dual Enrollment courses with local high schools. Courses offered during the 2014-2015 academic year follow:

CLOVIS COMMUNITY DUAL ENROLLMENT COURSES

SPRING AND FALL 2015

Clovis North, Clovis West, Clovis High, Clovis East, Buchanan:
Clovis Community College Advancement Program (CCCAP)

- Psychology 2: Introduction to Psychology
- Sociology 1A: Introduction to Sociology
- ART 2: Art Appreciation
- History 1: Western Civilization to 1648
- History 2: Western Civilization from 1648

Clovis West: *English Project*

- ENGL 1A: Reading and Comprehension
- ENGL 3: Critical Reading and Writing

Clovis East: *English Project*

- ENGL 1A: Reading and Comprehension

Buchanan High School: *Computer Science Pathway*

- CSCI 40: Programming Concepts and Methodology I
- CSCI 41: Programming Concepts and Methodology II

[8] Integrating Earning College Credit in High School into Accountability Systems, Achieve/Jobs for the Future, August, 2015

Clovis Unified School District (All High Schools)

- Child Development Pathway (Spring 2016)
  - CHDEV 1: Principles and Practices of Teaching Young Children

FRESNO CITY COLLEGE DUAL ENROLLMENT COURSES

SPRING 2015

Cambridge High School

- Computer Information Technology 12: Computer Literacy

DeWolf High School

- Construction 50B: Basic Residential Construction

Dinuba High School

- Graphics Communication 27: Digital Video Production

Duncan Polytechnical High School

- Health Information Technology 10: Medical Terminology
- Automotive 9: Automotive Essentials
- Construction 50B: Basic Residential Construction

Hoover High School

- Construction 50B: Basic Residential Construction

Kingsburg High School

- Construction 50B: Basic Residential Construction
- Photography 12: Photoshop 1: Photoshop for Photographers

McLane High School

- Health Information Technology 10: Medical Terminology

Orange Cove High School

- Graphics Communication 27: Digital Video Production
- Graphics Communication 24: Flash Animation

Parlier High School

- Graphics Communication 27: Digital Video Production

Reedley High School

- Construction 50B: Basic Residential Construction
- Architecture 12: Architectural Practice 1

Roosevelt High School

- Medical Assistant 2: Pharmacology
- Health Information Technology 10: Medical Terminology

Sanger High School

- Computer Aided Drafting & Design 14: 2D CAD 1
- Graphics Communication 27: Digital Video Production
- Graphics Communication 15: Web Page Construction 1
- Graphics Communication 25: Specialized Web Techniques
- Photography 12: Photoshop 1: Photoshop for Photographers

FRESNO CITY COLLEGE DUAL ENROLLMENT COURSES

FALL 2015

Cambridge High School

- Computer Information Technology 12: Computer Literacy

DeWolf High School

- Construction 50B: Basic Residential Construction

Dinuba High School

- Graphics Communication 27: Digital Video Production

Duncan Polytechnical High School

- Health Information Technology 10: Medical Terminology
- Automotive 9: Automotive Essentials
- Construction 50B: Basic Residential Construction

Hoover High School

- Construction 50B: Basic Residential Construction

Kingsburg High School

- Construction 50B: Basic Residential Construction
- Photography 12: Photoshop for Photographers

McLane High School

- Health Information Technology 10: Medical Terminology

Orange Cove High School

- Graphics Communication 27: Digital Video Production
- Graphics Communication 24: Flash Animation

Parlier High School

- Graphics Communication 27: Digital Video Production

Reedley High School

- Construction 50B: Basic Residential Construction
- Architecture 12: Architectural Practice I

Roosevelt High School

- Medical Assistant 2: Pharmacology
- Health Information Technology 10: Medical Terminology

Sanger High School

- Computer Aided Drafting & Design 14: 2d CAD I
- Graphics Communication 27: Digital Video Production
- Graphics Communication 15: Web Page Construction I
- Graphics Communication 25: Specialized Web Techniques
- Photography 12: Photoshop for Photographers

REEDLEY COLLEGE DUAL ENROLLMENT COURSES

SPRING 2015

Dinuba High School

- HLTH-1: Contemporary Health Issues

Fowler High School

- HLTH-1: Contemporary Health Issues

Kingsburg High School

- Valley Regional Occupation Program
  - CRIM-1: Introduction to Criminology
  - CRIM-8: Criminal Investigations
  - NAT-101: Nursing Assistant Training

Madera High School

- CRIM-1: Introduction to Criminology

Madera South High School

- OT-10: Medical Terminology

Orange Cove High School

- Valley Regional Occupation Program
  - CRIM-1: Introduction to Criminology
  - CRIM-8: Criminal Investigations

Parlier High School

- Valley Regional Occupation Program
  - EH-37: Beginning Floral Design

Reedley High School

- Valley Regional Occupation Program
  - AUTOT-9: Automotive Essentials
  - BA-26: Virtual Enterprise
  - EH-37: Beginning Floral Design
  - PE-20: Athletic Training
  - NAT-101: Nursing Assistant Training

Sanger High School

- Valley Regional Occupation Program
  - EH-37: Beginning Floral Design

Selma High School

- Valley Regional Occupation Program
  - EH-37: Beginning Floral Design

Valley Regional Occupation Program at Reedley College

- NR-110: Forest Field Studies II

Yosemite High School

- MFGT-60: Introduction to Welding

REEDLEY COLLEGE DUAL ENROLLMENT COURSES

FALL 2015

Fowler High School

- ECON-1A: Macroeconomics
- HLTH-1: Contemporary Health Issues

Parlier High School

- PSY-2: General Psychology

Sanger High School

- Wonderful Ag Pathway
  - EH-43: Plant Propagation
  - MAG-40: Introduction to Agriculture Mechanics
  - SPAN-1: Beginning Spanish
- Education Pathway
  - HLTH-1: Contemporary Health Issues
- CCPT Education Pathway
  - IS-15: Computer Concepts
- Valley Regional Occupation Program
  - NAT-101: Nurse Assistant Training

Reedley Middle College High School

- BA-10: Introduction to Business
- HLTH-1: Contemporary Health Issues
- MUS-12: Music Appreciation
- SPAN-1: Beginning Spanish

Valley Regional Occupation Program at Reedley College

- NR-5: Wildland Fire Technology
- NR-8: Natural Resources Career Preparation

Washington Union High School

- Wonderful Pathway
  - SPAN-1: Beginning Spanish

Yosemite High School

- IT-205: Foundation Skills in Industrial Technology

III. Industry Outlooks and Emerging Trends

National Economic Outlook

Investment bank Goldman Sachs and Forbes Magazine point to a slow but steadily growing U.S. economy for 2016. Goldman Sachs' forecast for 2016 U.S. economic growth is predicted to be 2.4%, down from a previous estimate of 2.8%.[9] Similarly, in a recent Forbes magazine article, Kelly Bogdanov, portfolio analyst with RBC Wealth Management said, "Currently, the U.S. indicators are fairly sturdy. We're not seeing any significant recession risks cropping up now. Employment is solid, the service sector continues to be quite strong, personal income is growing and consumer spending looks good."[10]

State Economic Outlook

If California were a country, it would have the seventh-largest economy in the world, behind Great Britain but ahead of Brazil. California's gross state product, which is comparable to the GDP, was $2.3 trillion, according to a June 2015 report released by the U.S. Bureau of Economic Analysis. California's economic growth will continue to outpace the rest of the nation over the next five years, according to a new forecast, though the expansion is expected to slow after next year. A report released in September 2015 by the UCLA Anderson Forecast pegged job growth in California at 2.2% for 2016 and 1.4% in 2017.[11] However, much of California's economic growth and opportunities depend upon the specific industry and its location within the state.

California's economy is a tale of two recoveries, with large urban centers along the coast adding jobs at a much faster pace than inland areas. The east-west divide is apparent in the Bay Area and throughout California, a 2013 report from the UCLA Anderson Forecast shows. Santa Clara County and the San Francisco-San Mateo-Marin region are gaining jobs at a much faster pace than the East Bay, the Central Valley and other interior regions.

Coastal regions are being bolstered by several advantages that have kept them in the forefront of the recovery. "Tech centers, tourist centers, biotech clusters, are all on the coast," said Stephen Levy, director of the Palo Alto-based Center for Continuing Study of the California Economy. "But it's also about where the industries that pay high wages, such as tech, internet services and social networks are located. And it's also about where the people who are employed in those industries want to live."[12]

[9] *Goldman Sachs: 2016 looks like a dud for the economy*, Alain Sherter, CBS News, September 29, 2015
[10] *Economic Forecast 2016-2017 and Business To-Do Lists for the New Year*, Bill Conerly, Forbes, Nov. 20, 2015
[11] *California economy is projected to grow faster than U.S. through 2020,* Chris Kirkham, Los Angeles Times, September 30, 2015
[12] *California's economic recovery uneven, with coastal areas leading rebound*, George Avalos, Oakland Tribune, December 5, 2013

Agriculture, technology and manufacturing are key California industries and in each, California leads all U.S. states' revenue growth. California-based technology companies brought in $692 billion in revenue in the past 12 months, about half the industry's sales across the U.S. The value of manufacturing in California climbed eight percent to $239 billion in 2013 and California's agriculture sector produced $21 billion in revenue in 2013.[13]

The number of companies in California that rank in the top 500 in the world in terms of market capitalization rose almost 48% since 2009, while high-technology jobs continue to expand.[14] An overview of the four focus areas—advanced manufacturing, agriculture, business, and health care—and how they are faring in the state follows.

▶ ADVANCED MANUFACTURING: STATE

California is the nation's leader in advanced manufacturing in terms of total firms, jobs and output. California has twice the number of manufacturing companies as the next closest state in this category.[15]

Total Firms	38,000
Total Jobs	1.25 million
Total Output	$239 billion
Percent of Workforce	8.02%

Advanced manufacturing largely involves the use of technology to produce goods in highly-automated operations. Factories rely on more machines and the resultant fewer workers must be skilled and master the use of sophisticated machines. Many of the new occupations in advanced manufacturing require at least a two-year technical degree to complement artisan skills such as welding and milling. Higher education institutions must prepare workers with the knowledge and skills necessary to enter or remain in advanced manufacturing.

In April 2013, the California Community Colleges' Centers of Excellence conducted an Advanced Manufacturing Employer Survey. Interviews were conducted with California industry and education representatives to gain perspective about the impact of advanced manufacturing in Los Angeles County, Orange County and the Central Valley. According to respondents, automotive, aerospace, defense, medical devices and green technology are the primary industries within the advanced manufacturing sector of California. Employers indicated the top three trends in advanced manufacturing are: (1) the move towards "lights out production" (fully automated facilities with non-manned machines and few personnel in the buildings); (2) the adoption of "additive manufacturing" (3-D printing to provide same-day conceptualization to development); and (3) use of "higher speed machining" (faster-paced, cost-effective, precision machinery).

[13] *California Competes,* Juli Anne Patty, Trade and Industry Development, May 11, 2015
[14] Ibid.
[15] *Why California Leads the Nation in Private Sector Job Growth*, Juli Anne Patty, Kern Economic Development Corporation, May 18, 2015

Employers also indicated the most critical component of education for community colleges to address is the use of machinery that is consistent with current technology in the workforce. This includes the use of multi-axis machinery, simulators and 3-D printing machines.

Employers also identified a "crisis" related to the shortage of skilled advanced manufacturing workers. As of April 2013, California's advanced manufacturing firms did not have enough skilled workers to fill open positions. California's high unemployment rate and the anticipated retirement rate of Baby Boomers may create a significant skill gap without community colleges offering education in advanced manufacturing. According to interviewees, even though advanced manufacturing's reliance on automation requires less workers, within five years there will still be a skilled employee gap because the volume of skilled workers is not currently available and the need will continue to grow. Employers also identified that advanced manufacturing employees must be highly logical, as well as able to take a big-picture view of systems with which they work.[16]

- **AGRICULTURE: STATE**

California is one of only five agricultural regions in the world that has a "Mediterranean" growing climate. In 2014, the most recent year for which a full crop-year report is available, California's 76,400 farms and ranches received approximately $54 billion for their output.[17]

California's agricultural abundance includes more than 400 commodities. The state produces nearly half of U.S.-grown fruits, nuts and vegetables. Across the nation, consumers regularly purchase several crops produced solely in California. In terms of value, California's top three agricultural exports are almonds, dairy and dairy products, and wine. In 2013, California's agricultural exports amounted to $21.24 billion in value, representing a 15 percent increase over the previous year. California's share of total U.S. agricultural exports for 2013 was 14.7 percent or slightly more than the 13.1 percent share reported the previous year.[18]

California agriculture employed an estimated 335,600 people in January 2014.[19] Agriculture employment and wages can be broken down by industry sector. In 2014, crop production was the largest sector with 169,900 jobs. Agriculture support was the next largest sector with 164,600 jobs; this sector includes activities related to agriculture including farming, veterinary services, implement manufacturing, irrigation and technical consulting. Animal production was the last sector with 142,100 jobs. The San Joaquin Valley supports more agricultural jobs than any other geographic area in California, providing 178,800 jobs in January 2014.[20]

[16] Employer Survey Results, Advanced Manufacturing, Los Angeles County, Orange County, Central Valley, December 2013, Calif. Community Colleges Centers of Excellence, Economic and Workforce Development Program
[17] Calif. Department of Food and Agriculture, CA Agricultural Production Statistics, USDA/NASS Crop Year Report
[18] Ibid.
[19] California Agricultural Bulletin, 1st quarter, 2014, Employment Development Department, State of California
[20] Ibid.

- **BUSINESS: STATE**

The Great Recession sent California's unemployment rate higher than in all but two states, Michigan and Nevada. But its recovery was swift. Economists' recent projections call for job and GDP growth that will consistently outpace the U.S. through at least 2017, bringing California's unemployment rate well below its long-run average.[21]

A recent economic forecast from UCLA projects that California's unemployment rate will fall to 4.8% by 2017, down from a high of more than 12% in 2010.[22] While some smaller-margin businesses may find California unattractive, the state's sheer size remains attractive for retailers and other businesses looking to gain a foothold in the most populous state in the nation.[23]

- **HEALTH SCIENCES: STATE**

California's health care industry employed more than 1.6 million people in 2012. Among these workers, slightly more than 50% were employed in ambulatory settings, about 30% in hospitals and 20% in nursing or residential care facilities.[24]

The healthcare sector in California is continually changing due to several factors. First, the national Patient Protection and Affordable Care Act has created more demand for health care services and service delivery, which has increased the demand for primary care workers including nurses and medical assistants; community colleges are vital to preparing the workforce for many of these jobs.

Second, technological advances such as health information and wireless technology are also affecting health care delivery and the subsequent skills required for allied health occupations. Finally, a growing and aging population is creating a demand for expanded health services not only in the patient population but also in the workforce population. One-third of California's nursing workforce is older than 50 and over half are expected to retire in the next decade.[25]

Regional Economic Outlook

For the purpose of the regional economic outlook, this report will use information gathered for the three Economic Overview and Program Gap Analysis reports prepared by Economic Modeling Specialists International (EMSI) for the State Center Community College District with regard to the specific economic region served by the three community colleges and their centers. The four-county economic region consists of Fresno, Kings, Madera and Tulare counties, all in the heart of the San Joaquin Valley and will be referred to as the community college region (CCR).

[21] California County-Level Economic Forecast, 2013-2040, Department of Transportation
[22] *A Sunny Outlook for Jobs in the Golden State*, Chris Kirkham, Los Angeles Times, October 3, 2015
[23] California County-Level Economic Forecast, 2013-2040, Department of Transportation
[24] *Doing What Matters for Jobs and the Economy*, Healthcare Sector Profile, June 2012
[25] Ibid.

The economy of the CCR is primarily driven by the industries of Government, Agriculture, Forestry, Fishing and Hunting, and Health Care and Social Assistance industries. Agriculture, Forestry, Fishing and Hunting, and Health Care and Social Assistance sectors added new jobs between 2009 and 2014, but only the Health Care and Social Assistance and Government sectors are projected to grow through 2024. Management of Companies and Enterprises, and Agriculture, Forestry, Fishing and Hunting are projected to lose jobs over the next decade. Overall the regional job growth is expected to be 13% over the next decade.

Other findings from the Economic Overview and Program Gap Analysis:

- Some high-skill occupational categories are projected to see high job growth over the next ten years, including Healthcare Practitioners and Technical Occupations (21% job growth), Computer and Mathematical Occupations (20% job growth), and Architecture and Engineering Occupations (12% job growth).
- Between 2014 and 2024, the highest number of average annual job openings for workers with postsecondary certificates and above are projected to occur within Office and Administrative Support Occupations; Sales and Related Occupations; and Education, Training and Library Occupations.
- Around 21% of residents in the area commute outside the CCR for work and roughly 18% of the workers reside outside the area, indicating that there are economic links between the CCR and the surrounding communities for both out-commuters and in-commuters.

Federal agencies use the Standard Occupational Classification (SOC) system to classify workers into occupational categories based on work performed. The 2010 SOC system contains more than 800 detailed occupations organized according to a five-digit hierarchical coding structure. Detailed occupations with similar job duties are further combined to form 23 major groups. The table below shows the breakdown of employment in the CCR by the four sectors of interest to this report—Advanced Manufacturing, Agriculture, Business and Healthcare Services—with information on current and projected jobs, job change, average annual openings, and wage rates.

Office and Administrative Support occupations comprise the largest occupation group in the CCR at 89,685 jobs, followed by Farming, Fishing and Forestry occupations at 84,209 jobs. Neither of these occupation groups ranks among the highest paid, however. Healthcare Practitioners and Technical Occupations have median earnings of $39.22 an hour, the highest on the regional pay scale. Legal Occupations – while the smallest occupation group – have median earnings of $37.16 an hour, ranking second highest on the regional pay scale. Several of the higher-paying occupation groups are also projected to experience job growth over the next ten years, such as Healthcare Practitioners and Technical Services Occupations (21%) and Computer and Mathematical Occupations (20%).[26]

[26] Economic Overview and Program Gap Analysis, EMSI, October 2015

Current and Projected Jobs, Job Change, and Median Hourly Earnings by Major Occupation Group in California Community Colleges Economic Region, 2014 to 2024

SOC CODE	DESCRIPTION	2014 JOBS	2024 JOBS	CHANGE	% CHANGE	MEDIAN HOURLY EARNINGS	AVERAGE ANNUAL OPENINGS
MANUFACTURING							
51-0000	Production	32,364	36,691	4,338	13%	$14.17	410
53-0000	Transportation and Material Moving	50,817	59,168	8,347	16%	$13.51	693
AGRICULTURE							
45-0000	Farming, Fishing and Forestry	84,209	85,088	881	1%	$9.32	491
BUSINESS							
11-0000	Management	34,033	35,509	1,479	4%	$33.44	805
13-0000	Business and Financial Operations	21,122	23,536	2,412	11%	$27.50	657
15-0000	Computer and Mathematical	5,405	6,506	1,102	20%	$31.17	196
41-0000	Sales and Related	60,828	70,148	9,319	15%	$13.88	1,841
43-0000	Office and Administrative Support	89,685	100,229	10,552	12%	$15.53	2,037
HEALTHCARE							
29-0000	Healthcare Practitioners and Technical	31,824	38,547	6,723	21%	$39.22	1,280
31-0000	Healthcare Support	16,010	20,037	4,032	25%	$12.99	446

▶ ADVANCED MANUFACTURING: REGION

The manufacturing landscape of this region is diverse and predominantly consists of food processing or value-added agriculture products manufacturing. Manufacturing sector employers continue to struggle to find qualified workers, especially Maintenance Mechanics, Electronics/Instrumentation Technicians, Systems/Project Engineers and others.[27]

The Central Valley ranks in the top third for six of the nine subsectors of the Food Manufacturing Industry. The region also ranks in the top third for Beverage Manufacturing. Food and beverage manufacturing industries are heavily concentrated in the Central Valley where there are a total of 1,659 food and beverage manufacturing establishments. Most establishments are clustered along State Route 99, which serves as the region's primary trade corridor. Concentration also exists along Interstates 5 and 80. The Port of Oakland serves as the principle export point for the region's food and beverage manufacturing industries.[28]

▶ AGRICULTURE: REGION

In 2015, the majority of agriculture jobs in the Central Valley were farm labor jobs, followed by crop production. Leading agricultural commodities include almonds, milk, grapes and livestock.

[27] *Doing What Matters for Jobs and the Economy*, Advanced Manufacturing Sector Profile, 2012
[28] Central Valley AgPlus Food and Beverage Manufacturing Consortium, April 1, 2015

Overall, this sector is projected to grow by 2% over the next five years from a total of 174,401 jobs to 178,646 jobs.[29]

The Agriculture, Food and Beverage Processing industry cluster includes establishments primarily engaged in growing crops, raising animals and manufacturing food and beverages, as well as support activities for crop and animal production. This cluster employed nearly 269,000 people during 2013-2014, almost 21.7% of the economic market's workforce. Top industries in this cluster include: Support Activities for Crop Production; Fruit and Tree Nut Farming; Cattle Ranching and Farming; Other Food Manufacturing; and Beverage Manufacturing.[30]

Of particular note is the current emphasis on food safety due to recent outbreaks of food contamination throughout the state and nation. Training programs that lead to licensed food safety and crop safety employees (both internal within the industry and at the community college level) are needed.[31]

With regard to employing qualified maintenance mechanics in the food processing industry, a 2013 report involving industry and education experts from the Central Valley entitled *Skills Standards for Food Manufacturing Maintenance Mechanics* includes a comprehensive list of "soft" and specific skills needed for the position of Maintenance Mechanic for the Food Processing industry, reflecting the need for highly skilled employees who possess basic skills, thinking skills and worksite competencies.

- **BUSINESS: REGION**

Businesses and consumers in the Central Valley South Sub-Region (Madera, Fresno, Tulare, Inyo, Kings, Kern and Mariposa counties) benefited from the relatively low prices of imported goods because of the dollar's appreciation against other currencies. However, the financial activities employment sector worsened and wholesale employment fell to the fifth fastest growing category while retail employment continued to post stronger performance than wholesale employment, especially in Kern and Fresno counties. In fact, retail trade employment was a category that, to some degree, mitigated the negative impact of the drought on farm-related categories.[32]

- **HEALTH SCIENCES: REGION**

The Health Care Services cluster in the San Joaquin Valley is comprised of 14 industries that include hospitals and doctors' offices, diagnostic laboratories, continuing care retirement communities, home health care services and other activities related to health care. Workers employed within this cluster span all skill levels and share skills and work activities within the

[29] Labor Market Overview: Central Valley South Sub-Region, Center of Excellence, Central/Mother Lode Region, May 2015
[30] Regional Economic Analysis Profile, San Joaquin Valley Economic Market, April 2015, Employment Development Department, State of California
[31] Agriculture Task Force Report, Fresno Business Council, 2015
[32] San Joaquin Valley Business Forecast Report, Midyear Update, 2015, California State University Stanislaus

cluster and in many other industry clusters, suggesting the potential for skills transference and upward mobility with additional training. In 2013, 9.1% to 11.0% of people employed in Fresno, Kings and Tulare counties and 11.1% to 13.0% in Madera County were employed in the health care services cluster.[33]

Top industries within this cluster include: General Medical and Surgical Hospitals; Offices of Physicians; Nursing Care Facilities (Skilled Nursing Facilities); Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly; and Outpatient Care Centers.[34] In 2015, the majority of healthcare and social assistance jobs were in services for the elderly and persons with disabilities, followed by hospitals and physicians' offices. This sector is predicted to add 14,400 new positions (13%) between 2015 and 2020 with major growth seen in services for the elderly and Health Maintenance Organizations (HMOs).[35]

In 2014-2015, 123 courses/programs were offered at the secondary, adult school and post-secondary levels under the community college-defined program areas of Contemporary Health, Dental Hygiene, Health Information Technology, Medical Assistant, Radiologic Technology, Registered Nursing and Respiratory Care. Often there is a crossover of required health care related skills and knowledge such as CPR, Medical Terminology, Anatomy and Physiology, Health Informatics, and general knowledge for health and wellbeing found in a variety of other industry sectors or careers. Workers employed within this cluster span all skill levels and share skills and work activities within the cluster and in many other industry clusters, suggesting the potential for skills transference and upward mobility with additional training.[36]

[33] Regional Economic Analysis Profile, San Joaquin Valley Economic Market, Employment Development Department, State of California, April 2015
[34] Regional Economic Analysis Profile, San Joaquin Valley Economic Market, Employment Development Department, State of California, April 2015
[35] Labor Market Overview: Central Valley South Sub-Region, Center of Excellence, Central/Mother Lode Region, May 2015
[36] Occupational Analysis: Health Care Services Cluster, San Joaquin Valley Economic Market, Employment Development Department, State of California, April 2015

IV. Key Findings, Gap Analysis and Recommendations

This chapter discusses gaps from the environmental scan research completed on the four career pathways and dual enrollment, including those listed in the Fresno Business Council Career Technical Education Draft Strategic Plan that addresses State Center Community College District CTE programs. Key findings, gap analysis and recommendations are divided into six sections:

1. General Career Technical Education (included in all Career Pathways)
2. Advanced Manufacturing
3. Agriculture
4. Business
5. Health Sciences
6. Dual Enrollment

The tables on pages following represent a compilation and analysis of key resource documents and information from business, industry and education stakeholders. This information is offered in preparation for the January 28, 2016 Career Technical Education Charrette Summit.

The work of the Career Technical Education Charrette participants will be threefold:

1. Validate the key findings in the tables and recommend additional findings that address the current status of the programs and services.

2. Validate existing gaps and identify additional gaps for CTE in general and specific to the Career Industry Sectors and dual enrollment.

3. Validate and recommend additional strategies that need to be implemented to fill the gaps both in general and those specific to the career areas and dual enrollment.

Based on input from Charrette participants, a final report will be written that reflects existing findings, gaps and recommendations. As a result, the SCCCD will have a specific plan for the Career Technical Education and Dual Enrollment areas, along with a foundation upon which to move forward with the 2017-2020 Strategic Plan.

STATE CENTER COMMUNITY COLLEGE DISTRICT

Career Technical Education Charrette

Summary of Key Findings, Gaps and Recommendations

1. CAREER PATHWAYS: GENERAL

Key Findings	Gap Analysis	Recommendations
A. Employees lack "soft skills" including collaboration, work ethic, working in teams, effective communications, critical thinking and problem solving, and attitude towards work.	Lack of soft skills continues to be a high priority with employers throughout business and industry.	• Include more soft skills training within the CTE curriculum and evaluate students on soft skills.
B. Technology continues to impact businesses and industry in a large way.	Colleges must avoid a "technology gap" between industry standards and what is being taught in the programs.	• Facilities must be able to support technology platforms that are constantly changing. • Curriculum needs to reflect the most state-of-the-art skills and knowledge of computer literacy through input from local advisory committees.
C. Facilities must be flexible so that industry/business partners can co-exist with college programs.	New facilities need to be designed to include industry presence in conjunction with CTE programs.	• Consult with local industries and businesses when designing new facilities.
D. Employers continue to cite the lack of "basic skills" – reading, writing and mathematics – with many employees not academically prepared to enter the workforce.	CTE students need a broader range of support services than most traditional, four-year post-secondary students.	• A focus on support services for CTE students is needed. Students need to declare a program of study through a formal and well-defined process. CTE programs need to be accessible to students and responsive to regional industry needs. • Associate Degrees for students who are not intending to transfer need to be examined.
E. An increasing number of students (and their parents) are not aware of career choices within the CTE pathways.	Many middle schools and high schools have reduced career awareness services that expose students to careers at an early age.	• Work closely with the K-12 districts to support increased activities that will give students and parents a better understanding of CTE careers (i.e., career expos, manufacturing cluster activities, college night, guest speakers, site tours, Career Skills Challenge events, etc.).

Key Findings	Gap Analysis	Recommendations
F. Few student teachers are being recruited and prepared to teach CTE at the high school and community college levels.	There is high need to increase the number of credentialed teachers (traditional and non-traditional) for CTE programs.	• Increase marketing and promotion of teaching as a viable career for CTE students attending community colleges. Continue to connect with Fresno State Teacher Credential Program. • Recruit currently-employed industry representatives who would be interested in teaching CTE courses.
G. Collaboration between high school and community college faculty and leadership will result in better alignment of programs and services.	There is high need to increase emphasis placed on ongoing collaboration with CTE programs at the high school and community college levels.	• CTE faculty and administrative leaders meet a minimum of twice a year to align high school and community college curriculum and programs at all sites. • Joint high school and community college advisory committees should meet at least twice a year to review current and future industry needs. • Joint funding opportunities should be a high priority to maintain state-of-the-art facilities and equipment and share facilities and equipment where appropriate. • Instructor staff development and training is necessary to reflect the most current skills and knowledge of the industry/business. • California Common Core Standards need to be aligned with community college CTE program curriculum.
H. Collaboration between business/industry and instructors and counselors can provide increased opportunities to keep current with trends and career opportunities.	Instructors find it difficult to keep current with constantly changing industry and business applications involving technology and operations.	• Emphasize job internship opportunities for instructors through sabbatical leaves, industry-supported internships and grants. • Provide job shadowing opportunities and training on career pathway products for counselors who provide career awareness services to students.

Key Findings	Gap Analysis	Recommendations
I. Colleges need metrics and outcome data to continuously improve pathways and align with local and regional labor market needs.	It is difficult to obtain workforce metrics due to students leaving CTE programs early and not maintaining contact with the colleges after obtaining certificate and/or degree.	• Work with the Chancellor's Office of California Community Colleges to establish a student identifier for high school students and community college students involved in training programs to track workforce progress and outcomes.

2. CAREER PATHWAY: ADVANCED MANUFACTURING

Key Findings	Gap Analysis	Recommendations
A. The high rate of retiring baby boomers has created a need to train individuals to replace the highly skilled and experienced supervisors as they retire in the next few years.	There is need for the community colleges to work with industries in developing programs that will fill the gap for highly skilled supervisors.	• Apprenticeship programs can address gaps and need to be replicated (e.g., JBT Food Tech-Madera Community College Center Program). • Continue to work closely with union-supported apprenticeship programs. • Increase work-based training programs for students to be taught by industry supervisors at the work site.
B. Industries use highly sophisticated equipment requiring employees who possess highly logical "systems-based" knowledge and skills.	Colleges cannot always afford to purchase new equipment specific to an industry need in a timely manner.	• Industry brings equipment to the college for training, or college students go to the manufacturing location to learn unique or sophisticated machinery.
C. EMSI Gap Analysis Report for all colleges indicates the largest gaps in the programmatic areas of opportunity were for blue collar occupations, including heavy and tractor trailer truck drivers, general maintenance and repair workers, and industrial machinery mechanics.	Additional training in these occupations is needed.	• Increase marketing and training opportunities at colleges. • Build state-of-the-art facilities and purchase equipment that will result in highly skilled training.

Key Findings	Gap Analysis	Recommendations
D. EMSI Gap Analysis Report for the colleges found skilled trades among the top areas of opportunity including electricians, pipe fitters and steamfitters, and carpenters.	There may be a need to expand skilled trades training programs and courses.	• Work with local apprenticeship agencies to determine the need for additional training.
E. Agricultural mechanics and advanced manufacturing mechanics career areas need to be coordinated in terms of career pathway awareness. (Included in Agriculture Findings)	There is a lack of awareness as to how the two areas are similar with career opportunities overlapping between both agriculture and advanced manufacturing (i.e., welding, maintenance mechanic).	• Develop career awareness materials that highlight overlapping careers in both sectors.
F. The recently formed Advanced Manufacturing Cluster now includes over 100 local industry partners, along with high school and college partners including SCCCD.	Increase awareness and participation in Manufacturing Cluster planning and activities.	• Continue to involve administrators and instructors in Manufacturing Cluster development and research opportunities for funding to support future plans. • Consider using the Reedley College Advanced Manufacturing model involving pre- and post-assessments of students, counseling, linked project-based learning, internships, and job placement in other CTE program areas.

3. CAREER PATHWAY: AGRICULTURE

Key Findings	Gap Analysis	Recommendations
A. The ongoing drought in California has changed agricultural practices for the long term.	New crops, more efficient watering practices, new harvesting methods are needed to address the changes occurring in the San Joaquin Valley.	• Agriculture programs continue to work closely with advisory committees, CSUF Irrigation and Center for Water Technology, Farm Bureau, and industry-based associations to develop curriculum that reflects the changes in cultural practices. • Facilities include state-of-the-art labs and equipment needed to train workers for current and future agriculture careers.
B. Food contamination issues have resulted in an increased need for highly trained and licensed individuals to work in the food processing and agriculture sanitation areas.	Community college programs need to be established to address needs immediately and in the future. Need exists at both the growing location and processing facilities.	• Continue to work closely with industry to develop current course curriculum, facilities and opportunities for training in the farms and food processing plants.
C. More work needs to be done in marketing agriculture as a desired career pathway.	Old stereotypes of agriculture careers being only in production need to be changed to reflect highly technological and modern practices now being implemented.	• Colleges need to work with industry and local school districts offering agriculture programs to promote agriculture as a highly skilled, high-wage career pathway for educated individuals.
D. Madera Unified School District offers a comprehensive agricultural program with little opportunity for students to attend a community college agriculture program.	Reedley College is too far away for most Madera Unified School District students to attend after graduation.	• Develop an agriculture program (facilities and curriculum) at the Reedley College, Madera Community College Center that provides a community college experience linked to the Madera Unified School District, as well as nearby Kerman, Chawanakee, and Yosemite Unified School Districts.
E. Agricultural mechanics and advanced manufacturing mechanics career areas need to be coordinated in terms of career pathway awareness. (Advanced Manufacturing Task Force Report)	There is a lack of awareness of how the two areas are similar with overlapping career opportunities between both agriculture and advanced manufacturing (i.e., welding, maintenance mechanic).	• Develop career awareness materials that highlight overlapping careers in both sectors.

4. CAREER PATHWAY: BUSINESS

Key Findings	Gap Analysis	Recommendations
A. Business programs and departments at high schools have been reduced due to the high cost of maintaining equipment and software.	High school students need to be allowed to take business courses at the community college.	• Develop "linked" courses with high school business programs to allow students to take advanced classes at the college with state-of-the-art laboratories.
B. High school business courses previously receiving college articulation credit are no longer viable.	Opportunities to fill gaps so that high school students can receive college credit need to be considered.	• Establish additional Dual Enrollment business classes at the high schools.
C. Reedley College EMSI Gap Analysis reveals a workforce business gap for certificates in the fields of General Office Occupations and Clerical Services, and Accounting. Clovis Community College includes these occupations and business administration. FCC has the largest certificate gap in Sales & Salesmanship.	Consider additional training for certificate-level programs to fill the workforce gap at the community college level. Wages in some areas may be relatively low so additional research is needed. Projected jobs from 2014-2024 include Management (4% growth) and Business & Financial Operations (11% growth) with median hourly earnings between $27.50-$33.44.	• Increase opportunities for students to receive certificates and Associate of Science degrees in these programs through additional training opportunities and facilities.
D. Fresno City College EMSI Gap Analysis Report for associate's level business gaps includes Marketing and Distribution, Human Services, and Real Estate.	There may be a need to expand business programs to address gaps.	• Add additional courses if substantiated by research.
E. Reedley College EMSI Gap Analysis Report lists the largest Associate Degree business gap as General Office Occupations and Clerical Services.	Consider additional courses in these areas.	• Add additional courses if substantiated by research.
F. Clovis Community College EMSI Gap Analysis Report lists Accounting as the business program with the largest need.	Consider additional courses in these areas.	• Add additional courses if substantiated by research.

5. CAREER PATHWAY: HEALTH SCIENCES

Key Findings	Gap Analysis	Recommendations
A. Almost all current training at the high school and community college levels focuses on traditional Patient Care or Therapeutic Services.	A need for more non-traditional occupations training is required to address new employment needs.	• Consider training for Clinical Laboratory Scientists, Medical Coders, Occupational Therapy Assistants, and Community Health Workers.
B. Emerging health care professions demand highly qualified and competent professionals.	There is a need to increase the number of highly qualified candidates for degree programs.	• Discussion regarding the need to create a more aligned degree articulation system needs to occur among high schools, community colleges and four-year colleges/universities (public and private).
C. Industry expectations are constantly changing in response to changes in health care services (e.g., Affordable Care Act, uninsured residents, aging population).	There is a need to better define what expectations will be required of community college graduates by the health care industry.	• Common metrics for high school and community college programs need to be established which reflect industry expectations for program completers. • Data sharing agreements need to be established between SCCCD and local high school districts to track student persistence, course taking patterns, and completion rates.
D. EMSI Gap Analysis for all colleges reported areas of opportunity at the associate level to include Medical and Clinical Laboratory Technicians, Diagnostic Medical Sonographers, and Medical Equipment Repairers.	Possible need for additional training for these occupations as the current and projected jobs for the region include Healthcare Practitioners and Technical as growing 21% in the next ten years with median hourly earnings of $39.22.	• Add additional facilities and courses to address gaps in these health care professional occupations.
E. EMSI Gap Analysis for the colleges includes certificate and associate degree surplus in the following areas: Licensed Vocational Nursing, Nursing, Dental Assistant, Health Information Coding, Emergency Medical Services and Medical Assisting.	Consider surplus numbers when planning for future programs.	• May need to consider reduction in program offerings if surpluses continue to grow.

6. DUAL ENROLLMENT

Key Findings	Gap Analysis	Recommendations
A. "Jobs for the Future College Credit Report" findings indicate dual enrollment to be an advantage for high school students receiving college credit and a head start on their college degree.	Dual Enrollment has potential to provide college course credit for CTE students and increase their connections to community colleges.	• Continue to work on establishing Dual Enrollment for California Community Colleges. • Assess current Dual Enrollment courses relative to student success, student and instructor feedback, and students' continuation to community colleges and centers.
B. Dual Enrollment can replace previous 2+2 articulation agreements thus allowing students the opportunity to earn college credit at the high school or community college.	It will be a challenge to find properly credentialed teachers who possess the minimum qualifications to teach community college classes at high schools (e.g., Master's Degree). Presently credentialed community college instructors can help fill the gap.	• Fresno Business Council Task Force Reports recommended Dual Enrollment as a major component of establishing sequenced and aligned programs among high schools and Community Colleges.

Note: Appendix B of this report will be used during the Career Technical Education Charrette. This Appendix lists the above information with a column provided for Charrette Feedback as well as rows for additional key findings, gaps and recommendations from Charrette participants.

APPENDIX A

STATE CENTER COMMUNITY COLLEGE DISTRICT

2012-2016 Strategic Plan

Core Beliefs

MISSION

State Center Community College District is committed to student learning and success, while providing accessible, high quality, innovative educational programs and student support services to our diverse community by offering associate degrees, university transfer courses and career technical programs that meet the academic and workforce needs of the San Joaquin Valley and cultivate an educationally prepared citizenry.

VISION

State Center Community College District will demonstrate exemplary educational leadership to foster and cultivate a skilled workforce and an educated citizenry who are well prepared professionally and personally to contribute to our community.

VALUES

- ***Excellence*****:** So that every student will have the opportunity to benefit from an educational experience of the highest quality, we are committed to excellent teaching, learning, quality instruction, support services, and co-curricular activities.
- ***Diversity*****:** We are committed to cultivating a welcoming environment for all and we will promote and celebrate diversity in our student body, faculty, staff and administration.
- ***Integrity*****:** We will be accountable, honest, transparent and adhere to the highest professional standards to ensure that every student has the opportunity to receive an excellent education. We are committed to removing barriers to student success.
- ***Continual Improvement*****:** We will continually evaluate our policies and practices to sustain and improve the quality of our programs and services. We will utilize effective planning procedures and commit to making decisions based upon the systematic use of relevant data.
- ***Stewardship*****:** We are committed to the enhancement, preservation, conservation, and effective utilization of our resources.
- ***Community*****:** We value the community we serve and strive to work as a good neighbor, and partner with the people, businesses and organizations of the San Joaquin Valley.
- ***Communication*****:** We are committed to open communication among all members of the District, and with the external community of which we are an integral part. We will ensure freedom of speech, collaboration and mutual respect.

APPENDIX B

STATE CENTER COMMUNITY COLLEGE DISTRICT
Career Technical Education Charrette Worksheet
Summary of Key Findings, Gaps and Recommendations

1. CAREER PATHWAYS: GENERAL

Key Findings	Gap Analysis	Recommendations	Charrette Feedback
A. Employees lack "soft skills" including collaboration, work ethic, working in teams, effective communications, critical thinking and problem solving, and attitude towards work.	Lack of soft skills continues to be a high priority with employers throughout business and industry.	• Include more soft skills training within the CTE curriculum and evaluate students on soft skills.	
B. Technology continues to impact businesses and industry in a large way.	Colleges must avoid a "technology gap" between industry standards and what is being taught in the programs.	• Facilities must be able to support technology platforms that are constantly changing. • Curriculum needs to reflect the most state-of-the-art skills and knowledge of computer literacy through input from local advisory committees.	
C. Facilities must be flexible so that industry/business partners can co-exist with college programs.	New facilities need to be designed to include industry presence in conjunction with CTE programs.	• Consult with local industries and businesses when designing new facilities.	
D. Employers continue to cite the lack of "basic skills" – reading, writing and mathematics – with many employees not academically prepared to enter the workforce.	CTE students need a broader range of support services than most traditional, four-year post-secondary students.	• A focus on support services for CTE students is needed. Students need to declare a program of study through a formal and well-defined process. CTE programs need to be accessible to students and responsive to regional industry needs.	

Key Findings	Gap Analysis	Recommendations	Charrette Feedback
		• Associate Degrees for students who are not intending to transfer need to be examined.	
E. An increasing number of students (and their parents) are not aware of career choices within the CTE pathways.	Many middle schools and high schools have reduced career awareness services that expose students to careers at an early age.	• Work closely with the K-12 districts to support increased activities that will give students and parents a better understanding of CTE careers (i.e., career expos, manufacturing cluster activities, college night, guest speakers, site tours, Career Skills Challenge events, etc.).	
F. Few student teachers are being recruited and prepared to teach CTE at the high school and community college levels.	There is high need to increase the number of credentialed teachers (traditional and non-traditional) for CTE programs.	• Increase marketing and promotion of teaching as a viable career for CTE students attending community colleges. Continue to connect with Fresno State Teacher Credential Program. • Recruit currently-employed industry representatives who would be interested in teaching CTE courses.	
G. Collaboration between high school and community college faculty and leadership will result in better alignment of programs and services.	There is high need to increase emphasis placed on ongoing collaboration with CTE programs at the high school and community college levels.	• CTE faculty and administrative leaders meet a minimum of twice a year to align high school and community college curriculum and programs at all sites. • Joint high school and community college advisory committees should meet at least twice a year to review current and future industry needs. • Joint funding opportunities should be a high priority to maintain	

Key Findings	Gap Analysis	Recommendations	Charrette Feedback
		state-of-the-art facilities and equipment and share facilities and equipment where appropriate. • Instructor staff development and training is necessary to reflect the most current skills and knowledge of the industry/business. • California Common Core Standards need to be aligned with community college CTE program curriculum.	
H. Collaboration between business/industry and instructors and counselors can provide increased opportunities to keep current with trends and career opportunities.	Instructors find it difficult to keep current with constantly changing industry and business applications involving technology and operations.	• Emphasize job internship opportunities for instructors through sabbatical leaves, industry-supported internships and grants. • Provide job shadowing opportunities and training on career pathway products for counselors who provide career awareness services to students.	
I. Colleges need metrics and outcome data to continuously improve pathways and align with local and regional labor market needs.	It is difficult to obtain workforce metrics due to students leaving CTE programs early and not maintaining contact with the colleges after obtaining certificate and/or degree.	• Work with the Chancellor's Office of California Community Colleges to establish a student identifier for high school students and community college students involved in training programs to track workforce progress and outcomes.	

CAREER PATHWAYS: GENERAL – Additional Key Findings, Gaps and Recommendations			
Key Findings	**Gap Analysis**	**Recommendations**	**Charrette Feedback**
J.			
K.			
L.			
M.			
N.			

2. CAREER PATHWAY: ADVANCED MANUFACTURING

Key Findings	Gap Analysis	Recommendations	Charrette Feedback
A. The high rate of retiring baby boomers has created a need to train individuals to replace the highly skilled and experienced supervisors as they retire in the next few years.	There is need for the community colleges to work with industries in developing programs that will fill the gap for highly skilled supervisors.	• Apprenticeship programs can address gaps and need to be replicated (e.g., JBT Food Tech-Madera Center Program). • Continue to work closely with union-supported apprenticeship programs. • Increase work-based training programs for students to be taught by industry supervisors at the work site.	
B. Industries use highly sophisticated equipment requiring employees who possess highly logical "systems-based" knowledge and skills.	Colleges cannot always afford to purchase new equipment specific to an industry need in a timely manner.	• Industry brings equipment to the college for training, or college students go to the manufacturing location to learn unique or sophisticated machinery.	
C. EMSI Gap Analysis Report for all colleges indicates the largest gaps in the programmatic areas of opportunity were for blue collar occupations, including heavy and tractor trailer truck drivers, general maintenance and repair workers, and industrial machinery mechanics.	Additional training in these occupations is needed.	• Increase marketing and training opportunities at colleges. • Build state-of-the-art facilities and purchase equipment that will result in highly skilled training.	
D. EMSI Gap Analysis Report for the colleges found skilled trades among the top areas of opportunity including electricians, pipe fitters and steamfitters, and carpenters.	There may be a need to expand skilled trades training programs and courses.	• Work with local apprenticeship agencies to determine the need for additional training.	

Key Findings	Gap Analysis	Recommendations	Charrette Feedback
E. Agricultural mechanics and advanced manufacturing mechanics career areas need to be coordinated in terms of career pathway awareness. (Included in Agriculture Findings)	There is a lack of awareness as to how the two areas are similar with career opportunities overlapping between both agriculture and advanced manufacturing (i.e., welding, maintenance mechanic).	• Develop career awareness materials that highlight overlapping careers in both sectors.	
F. The recently formed Advanced Manufacturing Cluster now includes over 100 local industry partners, along with high school and college partners including SCCCD.	Increase awareness and participation in Manufacturing Cluster planning and activities.	• Continue to involve administrators and instructors in Manufacturing Cluster development and research opportunities for funding to support future plans. • Consider using the Reedley College Advanced Manufacturing model involving pre- and post- assessments of students, counseling, linked project-based learning, internships, and job placement in other CTE program areas.	

CAREER PATHWAY: ADVANCED MANUFACTURING – Additional Key Findings, Gaps and Recommendations			
Key Findings	**Gap Analysis**	**Recommendations**	**Charrette Feedback**
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3. CAREER PATHWAY: AGRICULTURE

Key Findings	Gap Analysis	Recommendations	Charrette Feedback
A. The ongoing drought in California has changed agricultural practices for the long term.	New crops, more efficient watering practices, new harvesting methods are needed to address the changes occurring in the San Joaquin Valley.	• Agriculture programs continue to work closely with advisory committees, CSUF Irrigation and Center for Water Technology, Farm Bureau, and industry-based associations to develop curriculum that reflects the changes in cultural practices. • Facilities include state-of-the-art labs and equipment needed to train workers for current and future agriculture careers.	
B. Food contamination issues have resulted in an increased need for highly trained and licensed individuals to work in the food processing and agriculture sanitation areas.	Community college programs need to be established to address needs immediately and in the future. Need exists at both the growing location and processing facilities.	• Continue to work closely with industry to develop current course curriculum, facilities and opportunities for sanitation training in the farms and food processing plants.	
C. More work needs to be done in marketing agriculture as a desired career pathway.	Old stereotypes of agriculture careers being only in production need to be changed to reflect highly technological and modern practices now being implemented.	• Colleges need to work with industry and local school districts offering agriculture programs to promote agriculture as a highly skilled, high-wage career pathway for educated individuals.	
D. Madera Unified School District offers a comprehensive agricultural program with little opportunity for students to attend a community college agriculture program.	Reedley College is too far away for most Madera Unified School District students to attend after graduation.	• Develop an agriculture program (facilities and curriculum) at the Reedley College, Madera Community College Center that provides a community college experience linked to the Madera Unified School District, as well as	

Key Findings	Gap Analysis	Recommendations	Charrette Feedback
		nearby Kerman, Chawanakee, and Yosemite Unified School Districts.	
E. Agricultural mechanics and advanced manufacturing mechanics career areas need to be coordinated in terms of career pathway awareness. (Advanced Manufacturing Task Force Report Finding)	There is a lack of awareness of how the two areas are similar with overlapping career opportunities between both agriculture and advanced manufacturing (i.e., welding, maintenance mechanic).	• Develop career awareness materials that highlight overlapping careers in both sectors.	

CAREER PATHWAY: AGRICULTURE – Additional Key Findings, Gaps and Recommendations			
Key Findings	**Gap Analysis**	**Recommendations**	**Charrette Feedback**
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4. CAREER PATHWAY: BUSINESS

Key Findings	Gap Analysis	Recommendations	Charrette Feedback
A. Business programs and departments at high schools have been reduced due to the high cost of maintaining equipment and software.	High school students need to be allowed to take business courses at the community college.	• Develop "linked" courses with high school business programs to allow students to take advanced classes at the college with state-of-the-art laboratories.	
B. High school business courses previously receiving college articulation credit are no longer viable.	Opportunities to fill gaps so that high school students can receive college credit need to be considered.	• Establish Dual Enrollment business classes at the high schools.	
C. Reedley College EMSI Gap Analysis reveals a workforce business gap for certificates in the fields of General Office Occupations and Clerical Services, and Accounting. Clovis Community College includes these occupations and business administration. FCC has the largest certificate gap in Sales and Salesmanship.	Consider additional training for certificate-level programs to fill the workforce gap at the community college level. Wages in some areas may be relatively low so additional research is needed. Projected jobs from 2014-2024 include Management (4% growth) and Business and Financial Operations (11% growth) with median hourly earnings between $27.50-$33.44.	• Increase opportunities for students to receive certificates and Associate of Science degrees in these programs through additional training opportunities and facilities.	
D. Fresno City College EMSI Gap Analysis Report for associate's level business gaps includes Marketing and Distribution, Human Services, and Real Estate.	There may be a need to expand business programs to address gaps.	• Add additional courses if substantiated by research.	

Key Findings	Gap Analysis	Recommendations	Charrette Feedback
E. Reedley College EMSI Gap Analysis Report lists the largest Associate Degree business gap as General Office Occupations and Clerical Services.	Consider additional courses in these areas.	• Add additional courses if substantiated by research.	
F. Clovis Community College EMSI Gap Analysis Report lists Accounting as the business program with the largest need.	Consider additional courses in these areas.	• Add additional courses if substantiated by research.	

CAREER PATHWAY: BUSINESS – Additional Key Findings, Gaps and Recommendations			
Key Findings	**Gap Analysis**	**Recommendations**	**Charrette Feedback**
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5. CAREER PATHWAY: HEALTH SCIENCES

Key Findings	Gap Analysis	Recommendations	Charrette Feedback
A. Almost all current training at the high school and community college levels focuses on traditional Patient Care or Therapeutic Services.	A need for more non-traditional occupations training is required to address new employment needs.	• Consider training for Clinical Laboratory Scientists, Medical Coders, Occupational Therapy Assistants, and Community Health Workers.	
B. Emerging health care professions demand highly qualified and competent professionals.	There is a need to increase the number of highly qualified candidates for degree programs.	• Discussion regarding the need to create a more aligned degree articulation system needs to occur among high schools, community colleges and four-year colleges/universities (public and private).	
C. Industry expectations are constantly changing in response to changes in health care services (e.g., Affordable Care Act, uninsured residents, aging population).	There is a need to better define what expectations will be required of community college graduates by the health care industry.	• Common metrics for high school and community college programs need to be established which reflect industry expectations for program completers. • Data sharing agreements need to be established between SCCCD and local high school districts to track student persistence, course taking patterns, and completion rates.	
D. EMSI Gap Analysis for all colleges reported areas of opportunity at the associate level to include Medical and Clinical Laboratory Technicians, Diagnostic Medical Sonographers, and Medical Equipment Repairers.	There may be a need for additional training for these occupations as the current and projected jobs for the region include Healthcare Practitioners and Technical as growing 21% in the next ten years with median hourly earnings	• Add additional facilities and courses to address gaps in these health care professional occupations.	

Key Findings	Gap Analysis	Recommendations	Charrette Feedback
	of $39.22.		
E. EMSI Gap Analysis for the colleges includes certificate and associate degree surplus in the following areas: Licensed Vocational Nursing, Nursing, Dental Assistant, Health Information Coding, Emergency Medical Services and Medical Assisting.	Consider surplus numbers when planning for future programs.	• May need to consider reduction in program offerings if surpluses continue to grow.	

CAREER PATHWAY: HEALTH SCIENCES – Additional Key Findings, Gaps and Recommendations			
Key Findings	**Gap Analysis**	**Recommendations**	**Charrette Feedback**
F.			
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6. DUAL ENROLLMENT

Key Findings	Gap Analysis	Recommendations	Charrette Feedback
A. "Jobs for the Future College Credit Report" findings indicate dual enrollment to be an advantage for high school students receiving college credit and a head start on their college degree.	Dual Enrollment has potential to provide college course credit for CTE students and increase their connections to community colleges.	• Continue to work on establishing Dual Enrollment for California Community Colleges. • Assess current Dual Enrollment courses relative to student success, student and instructor feedback, and students' continuation to community colleges and centers.	
B. Dual Enrollment can replace previous 2+2 articulation agreements thus allowing students the opportunity to earn college credit at the high school or community college.	It will be a challenge to find properly credentialed teachers who possess the minimum qualifications to teach community college classes at high schools (e.g., Master's Degree). Presently credentialed community college instructors can help fill the gap.	• Fresno Business Council Task Force Reports recommended Dual Enrollment as a major component of establishing sequenced and aligned programs among high schools and Community Colleges.	

DUAL ENROLLMENT – Additional Key Findings, Gaps and Recommendations:			
Key Findings	**Gap Analysis**	**Recommendations**	**Charrette Feedback**
C.			
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APPENDIX C

BOARD OF GOVERNORS – CALIFORNIA COMMUNITY COLLEGES
Task Force on Workforce, Job Creation, and a Strong Economy – 2015

REPORT AND RECOMMENDATIONS

Excerpted from Executive Summary; suggestions for execution in full report.

STUDENT SUCCESS

Community college students need a broader range of support services than traditional, four-year, post-secondary students. Both populations are challenged by the need to identify a viable career path, but a greater percentage of community college students are first-generation and are prone to experience major impediments to completing their education. The Strong Workforce Task Force recommends a series of actions to raise awareness of and support for career exploration and planning starting in high school, to collaborate with education and workforce partners to enhance support services, and to increase financial support for community college CTE students.

1. Broaden and enhance career exploration and planning, work-based learning opportunities, and other supports for students. (K-12, Industry)
2. Improve CTE student progress and outcomes. (K-12, Industry, Parents, Community)

CAREER PATHWAYS

Career pathways provide a seamless sequence of academic and CTE coursework across K-12 and postsecondary education. The Strong Workforce Task Force recommends creating pathways and curricula driven by industry and labor market needs, contextualizing basic skills and workplace readiness skills into pathway curricula, developing model CTE curricula and ensuring that career pathways meet the needs of non-traditional students.

3. Develop and broadly publicize industry-informed career pathways that prepare students for jobs needed within the regional labor market. (K-12, Industry, Media)

WORKFORCE DATA AND OUTCOMES

Colleges need robust metrics and outcome data in order to continuously improve pathways within career technical education, identify which programs employers' value, and align their program and course offerings to local and regional labor market needs. The Strong Workforce Task Force recommends building on current community college initiatives measuring student progress to align common metrics among all workforce programs; to increase the ability of governmental entities to share employment, licensing, certification, and wage outcome information; and to improve the quality and accessibility of student outcome and labor market data.

4. Create common workforce metrics for all state-funded CTE programs and expand the definition of student success to better reflect the wide array of CTE outcomes of community college students. (State, Community Colleges, Industry)
5. Establish a student identifier for high school students and those enrolled in postsecondary education and training programs to enable California to track workforce progress and outcomes for students across institutions and programs. (State, Education)
6. Improve the quality, accessibility and utility of student outcome and labor market data to support students, educators, colleges, regions, employers, local workforce investment boards, and the state in CTE program development and improvement efforts.

CURRICULUM

A rapidly changing labor market and diverse student body present a series of challenges and opportunities for career technical education. Faculty strive to keep courses and programs current with appropriate levels of academic rigor, yet lengthy local- and state-level approval processes can delay curriculum development and revision. The Strong Workforce Task Force supports clarifying and streamlining curriculum development and approval processes, achieving better alignment of curricula with the needs of business and industry, and improving articulation across institutions to support portability and completion in our increasingly mobile society.

7. Evaluate, strengthen, and revise the curriculum development process to ensure alignment from education to employment.
8. Evaluate, revise and resource the local, regional, and statewide CTE curriculum approval process to ensure timely, responsive, and streamlined curriculum approval.
9. Improve program review, evaluation, and revision processes to ensure program relevance to students, business, and industry as reflected in labor market data.
10. Facilitate curricular portability across institutions.
11. Develop, identify and disseminate effective CTE practices.
12. Clarify practices and address issues of course repetition for CTE courses when course content evolves to meet changes in skill requirements.

CTE FACULTY

Education and work experience requirements for hiring CTE faculty and salary differentials in highly paid fields may limit a college's ability to recruit a qualified pool of faculty for CTE courses and programs. The Strong Workforce Task Force recommends a range of activities to increase the pool of CTE faculty including developing pipelines for industry professionals to teach in community colleges, enhancing professional development opportunities for current faculty to maintain currency in industry standards, and exploring solutions for attracting industry experts to community college teaching from high-salaried fields.

13. Increase the pool of qualified CTE instructors by addressing CTE faculty recruitment and hiring practices.
14. Consider options for meeting minimum qualifications to better integrate industry professionals who possess significant experience into CTE instructional programs.
15. Enhance professional development opportunities for CTE faculty to maintain industry and program relevance.
16. Explore solutions to attract industry professionals in high-salaried occupations to become CTE faculty in community colleges.

REGIONAL COORDINATION

State-, federal-, and foundation-funded initiatives to address regional workforce and economic development often have similar and overlapping goals that may result in a fragmentation of efforts, duplication of services, and confusion to both students and employers. Successful integration of these initiatives can result in effective practices to meet student, job seeker, and regional economic needs. The Strong Workforce Task Force recommends enhancing the regional CTE framework within the community college system to improve coordination and provide greater alignment with the colleges' overall governance and reporting structures. The task force also endorses developing robust regional partnerships among community college, industry, and other workforce and economic development entities to improve CTE program delivery and responsiveness to regional and industry labor market needs.

17. Strengthen communication, coordination, and decision-making between regional CTE efforts and the colleges to meet regional labor market needs.
18. Clarify and modify, as appropriate, state regulations to allow colleges to regionalize course articulation along career pathways utilizing regional or state curriculum models.
19. Develop regional leadership and operational partnerships among community college, industry, labor, and other workforce and economic development entities to improve the delivery of all CTE efforts.
20. Develop robust connections between community colleges, business and industry representatives, labor and other regional workforce development partners to align college programs with regional and industry needs and provide support for CTE programs.
21. Create a sustained, public outreach campaign to industry, high school students, counselors, parents, faculty, staff, and the community at large to promote career development and attainment and the value of career and technical education.

FUNDING

Career technical education courses are funded at the same level as general education, lecture-based courses; however, these programs have higher startup and operating costs, high costs for equipment and specialized facilities, increased needs for professional development, and more frequent curriculum revision and program review. To ensure that CTE courses keep pace with the increasing demand for middle skill jobs, the Strong Workforce Task Force recommends a

series of funding strategies that include establishing a supplemental funding source targeted to support high-cost courses and programs, creating a funding stream to support regional and local infrastructure and coordination, and leveraging public workforce funding streams to support training efforts for priority sectors in regions.

22. Establish a sustained, funding source to increase community colleges' capacity to create, adapt, and maintain quality CTE courses and programs that are responsive to regional labor market needs.
23. Create a predictable, targeted, and sustained funding stream that leverages multiple local, state, and federal CTE and workforce funds to support an infrastructure for collaboration at the state, regional and local levels; establish regional funding of program start-up and innovation; and develop other coordination activities.
24. Review, analyze, and modify, as needed, laws and regulations related to student fees for disposable and consumable materials and CTE facilities.
25. Create incentives and streamline processes to maximize public and private investment in support of CTE programs.

CONCLUSION

The recommendations of the Task Force on Workforce, Job Creation, and a Strong Economy are the result of months of deliberations based on input from a wide variety of sources reflecting agreement from both internal and external stakeholders of the community college system. Some recommendations may require changes in statute or regulation, while others can be accomplished within the existing structure and parameters of the system. In all cases, these recommendations enhance career technical education and workforce training to meet the demands of the economy and the labor market, thus benefitting individuals, communities, and the entire state.

To ensure the economic prosperity of the state and its diverse population, California must address the issues and recommendations identified by the task force. This requires a broad-based commitment from the entire community college system, education and workforce partners, business and industry, and state policymakers so more Californians can acquire the education, skills, and work experience to participate in a strong and vibrant economy.

APPENDIX D

Career Technical Education Programs Offered by State Center Community College District

Code	Degree/Certificate Title	Degrees/Certificates	FCC	RC	CCC
F.2010.CA	Accounting	Certificate of Achievement	X		
R.2010.CA	Accounting	Certificate of Achievement		X	
R.2010.AS	Accounting	Associate in Science Degree	X	X	
F.2405.CA	Accounting - Computerized Accounting	Certificate of Achievement	X		
F.2012.CA	Accounting - Full Charge Bookkeeper	Certificate of Achievement	X		
F.1060.CN	Adaptive Ornamental Horticulture	Certificate	X		
R.8880.AS-T	Administration of Justice	Associate in Science for Transfer Degree		X	
C.8880.AS-T	Administration of Justice for Transfer (AS)	Associate in Science for Transfer Degree	X	X	X
R.226B.CA	Administrative Assistant	Certificate of Achievement		X	
R.226B.AS	Administrative Assistant	Associate in Science Degree		X	
R.1020.CA	Agriculture - Business	Certificate of Achievement		X	
R.102D.CA	Agriculture - Business: Management	Certificate of Achievement		X	
R.1030.AS	Agriculture & Technology	Associate in Science Degree		X	
R.1051.AS-T	Agriculture Animal Science	Associate in Science for Transfer Degree		X	
R.1021.AS-T	Agriculture Business	Associate in Science for Transfer Degree		X	
R.102A.AS	Agriculture Business, Option A	Associate in Science Degree		X	
R.102B.AS	Agriculture Business, Option B	Associate in Science Degree		X	
T.1010.CA	Agriculture, General	Certificate of Achievement		X	
F.8030.AS	Air Conditioning	Associate in Science Degree	X		
F.8030.CA	Air Conditioning	Certificate of Achievement	X		
F.8031.CA	Air Conditioning - Commercial Air Conditioning, Heat & Duct Systems	Certificate of Achievement	X		
F.8034.CA	Air Conditioning - Digital Air Controls	Certificate of Achievement	X		
F.8231.CA	Air Conditioning - Industrial Refrigeration	Certificate	X		
F.8032.CA	Air Conditioning - Mechanical and Electrical Systems	Certificate of Achievement	X		
F.8033.CA	Air Conditioning - Technology Overview	Certificate of Achievement	X		
F.8941.CN	AJ Adult Correctional Officer	Certificate	X		
F.8924.CN	AJ Basic Supervisors	Certificate	X		
F.8943.CN	AJ Juvenile Correctional Officer	Certificate	X		
F.8942.CN	AJ Probation Core	Certificate	X		
F.8970.CN	AJ Public Safety Dispatcher	Certificate	X		
F.8925.CN	AJ Requalification Basic	Certificate	X		
R1050.AS	Animal Science	Associate in Science Degree			
F.6810.AS	Architecture	Associate in Science Degree	X		

Code	Degree/Certificate Title	Degrees/Certificates	FCC	RC	CCC
F.6810.CA	Architecture	Certificate of Achievement	X		
F.5210.CA	ART - Studio Art	Certificate of Achievement	X		
R.5220.CN	ART/GRAPHIC DESIGN	Certificate		X	
C.520A.AA	Art: Two-Dimensional (AA)	Associate in Arts Degree			X
R.561Q.CA	Associate Teacher	Certificate of Achievement		X	
C.561Q.CA	Associate Teacher (cert)	Certificate of Achievement			X
F.807V.CC	Automotive Collision Repair	Certificate of Completion	X		
F.8071.AS	Automotive Collision Repair Technology	Associate in Science Degree	X		
F.8071.CA	Automotive Collision Repair Technology	Certificate of Achievement	X		
F.8072.CN	Automotive Collision Repair Technology	Certificate	X		
F.811V.CC	Automotive Mechanics	Certificate of Completion	X		
R.8050.CA	AUTOMOTIVE TECHNICIAN PROGRAM	Certificate of Achievement		X	
F.8051.AS	Automotive Technology	Associate in Science Degree	X		
F.8051.CA	Automotive Technology	Certificate of Achievement	X		
R.8050.AS	Automotive Technology	Associate in Science Degree		X	
F.8053.CN	Automotive Technology - Chassis Technician	Certificate	X		
F.8056A.CN	Automotive Technology - Chassis Technician I	Certificate	X		
F.8056B.CN	Automotive Technology - Chassis Technician II	Certificate	X		
F.8054.CN	Automotive Technology - Emission Technician	Certificate	X		
F.8057A.CN	Automotive Technology - Emission Technician I	Certificate	X		
F.8057B.CN	Automotive Technology - Emission Technician II	Certificate	X		
F.805G.AS	Automotive Technology - GM ASEP	Associate in Science Degree	X		
F.8055.CN	Automotive Technology - Powertrain Technician	Certificate	X		
F.8058A.CN	Automotive Technology - Powertrain Technician I	Certificate	X		
F.8058B.CN	Automotive Technology - Powertrain Technician II	Certificate	X		
R.8011.CA	Aviation Maintenance Technology	Certificate of Achievement		X	
R.8011.AS	Aviation Maintenance Technology	Associate in Science Degree		X	
F.6811.CN	Basic Architectural Contract Documents	Certificate	X		
F.6812.CN	Basic Architectural Design	Certificate	X		
F.6813.CN	Basic Architectural Office Practice	Certificate	X		
F.6814.CN	Basic Architectural Skills 1	Certificate	X		
F.6815.CN	Basic Architectural Skills 2	Certificate	X		
F.6816.CN	Basic Digital Architecture	Certificate	X		

Code	Degree/Certificate Title	Degrees/Certificates	FCC	RC	CCC
F.883B.CA	Basic Fire Academy	Certificate of Achievement	X		
F.8921.CA	Basic Police Academy	Certificate of Achievement	X		
F.2328.CN	Business & Technology - Business Office Math Fundamentals	Certificate	X		
F.2202.CN	Business & Technology - Computer Application Software	Certificate	X		
F.2326.CN	Business & Technology - Foundations for Office Professional	Certificate	X		
F.2103.AS	Business & Technology - Legal Office Professional	Associate in Science Degree	X		
F.2103.CA	Business & Technology - Legal Office Professional	Certificate of Achievement	X		
F.2243.CA	Business & Technology - Medical Office Assistant	Certificate of Achievement	X		
F.2382.AS	Business & Technology - Medical Office Professional	Associate in Science Degree	X		
F.2382.CA	Business & Technology - Medical Office Professional	Certificate of Achievement	X		
F.2325.CN	Business & Technology - Microsoft Office Foundations	Certificate	X		
F.2323.CN	Business & Technology - Microsoft Word	Certificate	X		
F.247V.CC	Business & Technology - Office Assistant Applications	Certificate of Completion	X		
F.2062.AS	Business & Technology - Office Professional I	Associate in Science Degree	X		
F.2062.CA	Business & Technology - Office Professional I	Certificate of Achievement	X		
F.2214.AS	Business & Technology - Office Professional II	Associate in Science Degree	X		
F.2214.CA	Business & Technology - Office Professional II	Certificate of Achievement	X		
F.2050.AA	Business Administration	Associate in Arts Degree	X		
R.2050.AS-T	Business Administration	Associate in Science for Transfer Degree		X	
F.2041.CN	Business Administration - Entrepreneurial Ventures	Certificate	X		
F.2052.CN	Business Administration - Human Resource Management Assist	Certificate	X		
F.2049.AS-T	Business Administration for Transfer	Associate in Science for Transfer Degree	X		
C.205A.AS	Business Administration, Accounting (AS)	Associate in Science Degree			X
R.205B.AS	Business Administration, Entrepreneur	Associate in Science Degree		X	
C.205B.AS	Business Administration, Entrepreneur (AS)	Associate in Science Degree			X
C.205C.AS	Business Administration, General Business (AS)	Associate in Science Degree			X
C.205D.AS	Business Administration, Information Systems Mgmt (AS)	Associate in Science Degree			X
C.205F.AS	Business Administration, Management (AS)	Associate in Science Degree			X
C.205G.AS	Business Administration, Marketing (AS)	Associate in Science Degree			X
R.205A.AS	Business Administration: Accounting	Associate in Science Degree		X	
R.205C.AS	Business Administration: General Business	Associate in Science Degree		X	
R.205D.AS	Business Administration: Information Systems Management	Associate in Science Degree		X	
R.205F.AS	Business Administration: Management	Associate in Science Degree		X	

Code	Degree/Certificate Title	Degrees/Certificates	FCC	RC	CCC
R.205G.AS	Business Administration: Marketing	Associate in Science Degree		X	
R.204E.CA	Business Intern	Certificate of Achievement		X	
C.2042.CN	Business Intern (cert)	Certificate			X
C.204E.CA	Business Intern (cert)	Certificate of Achievement			X
F.2181.AS	Business Management	Associate in Science Degree	X		
F.2181.CA	Business Management	Certificate of Achievement	X		
F.2031.CN	Business Management - Business Finance & Accounting	Certificate	X		
F.2271.CN	Business Management - Business Finance & Investments	Certificate	X		
F.2510.CN	Business Management - Human Relations & Communications	Certificate	X		
F.2520.CN	Business Management - Human Resources & Relations	Certificate	X		
F.2182.CN	Business Management - Management & Supervision	Certificate	X		
F.2032.CN	Business Management - Personal Finance & Investments	Certificate	X		
F.2030.CN	Business Management - Small Business Management	Certificate	X		
C.561T.CA	Child Care for School Age-Children/Teacher (cert)	Certificate of Achievement			X
R.561T.CA	Child Care for School-Age Children - Teacher	Certificate of Achievement		X	
C.561C.CN	Child Care for School-Age Children/Associate Teacher (cert)	Certificate			X
F.5615.AS	Child Development	Associate in Science Degree	X		
F.5615.CA	Child Development	Certificate of Achievement	X		
R.5610.CA	Child Development	Certificate of Achievement		X	
R.5610.AS	Child Development	Associate in Science Degree		X	
F.5614.CA	Child Development - Associate Teacher	Certificate of Achievement	X		
F.5617.AS	Child Development - Early Intervention Assistant	Associate in Science Degree	X		
F.5617.CA	Child Development - Early Intervention Assistant	Certificate of Achievement	X		
F.5571.CA	Child Development - Family Child Care	Certificate of Achievement	X		
F.5580.CA	Child Development - Foster Care	Certificate of Achievement	X		
C.5610.AS	Child Development (AS)	Associate in Science Degree			X
C.5610.CA	Child Development (cert)	Certificate of Achievement			X
F.3051.AS	Computer Aided Drafting /Design	Associate in Science Degree	X		
F.3051.CA	Computer Aided Drafting /Design	Certificate of Achievement	X		
F.3053.CN	Computer Aided Drafting and Design - 2D Technician	Certificate	X		